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# Yugoslavia

April 1973

# NATIONAL INTELLIGENCE SURVEY



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# NATIONAL INTELLIGENCE SURVEY PUBLICATIONS

The basic unit of the NIS is the General Survey, which is now published in a bound-by-chapter format so that topics of greater perishability can be updated on an individual basis. These chapters—Country Profile, The Society, Government and Politics, The Economy, Military Geography, Transportation and Telecommunications, Armed Forces, Science, and Intelligence and Security, provide the primary NIS coverage. Some chapters, particularly Science and Intelligence and Security, that are not pertinent to all countries, are produced selectively. For small countries requiring only minimal NIS treatment, the General Survey coverage may be bound into one volume.

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This chapter was prepared for the NIS by the Defense Intelligence Agency. Research was substantially completed by November 1972.



# YUGOSLAVIA

#### CONTENTS

This General Survey superseder the one dated August 1969, copies of which should be destroyed.

A. Defense establishment Yugoslav People's Army components, strengths, and capabilities.

1. Historical ..... Development of armed forces from World War II partisan forces; U.S. and U.S.S.R. military aid. 1

2

2. Defense organization ...... Formal and actual control of armed forces; responsibilities of National Defense Council; functions of Federal State Secretariat for National Defense.

3. Military manpower ..... Breakdown by 5-year age groups of males of military age; compulsory military service; reserve and mobilization systems; appraisal of Yugoslav recruit.

SECRET

	Page
4. Strength trends	
Personnel strength trends of armed forces as militarized security forces since World War	nd
5. Training Summary of training system; U.S. and Sov influences.	
8. Economic support and military budget	
a. Economic support Domestic military production; dependen on outside sources for military items.	ice
b. Military budget Preparation; defense budgets since 196	7.
7. Logistics Organization and responsibilities of re services system.	
8. Uniforms and insignia	
a. Uniforms Descriptions of officers' and enlisted me uniforms by branch of service.	
b. Insignia Officers' and enlisted men's insignia a where displayed on uniforms.	
B. Ground forces	
Offensive and defensive capabilities; weakness	
<ol> <li>Organization         Command channel down to regular grou units and territorial and civil defense un organization of divisions and smaller regu ground units.     </li> </ol>	ınd its;
<ol> <li>Strength, composition, and disposition Personnel strengths of regulars and reserv combat units and their deployment; ma items of equipment.</li> </ol>	es;
3. Training Preinduction, recruit, and reservist traini division-level exercises and joint maneuve	ng; ers;
national defense doctrine; organization military school system. 4. Logistics Organization of supply and maintenance s tems; storage facilities.	16
	FIGU
	Page
Fig. 1 Organization of regular armed	4 <sup>–</sup>
forces (chart)	
Fig. 2 Personnel strengths (table) Fig. 3 Officers' uniforms and insigni	

•		Page
С.	Naval forces	17
	Composition, mission, capabilities, and weaknesses.	
	1. Organization	17
	Control of Adriatic Fleet, River Flotilla, and Maritime Frontier Guard; naval zone com- mands.	
	2. Strength, composition, and disposition . Numbers of ships and perconnel and their de- ployment.	
	3. Training	19
	Basic and specialist training of enlisted men; officer training; naval exercises; appraisal of training system.	
	4. Logistics	19
	Procurement and supply procedures; depend- ence on foreign sources; supply depots; do- mestic shipbuilding.	
D.	Air and air defense forces	22
	Mission and capabilities; summary of major com- bat units and their equipment.	
	1. Organization	. 22
	Command channel; air defense zones and operational control of aircraft, missile, anti- aircraft artillery, and radar units.	
	2. Strength, composition, and disposition Personnel strength; composition and deploy- ment of combat aircraft units and surface-to- air missile forces; descriptions of antiaircraft artillery element and air control and warning system.	ť
	3. Training	. 23
	Descriptions of basic and advanced pilot training; aircraft maintenance, communica- tions, surface-to-air missile training.	i •
	4. Logistics	. 25
2	Administration of supply and maintenance systems; aircraft maintenance facilities; de- p indence on outside sources of supply.	
E	Militarized security forces	. 26
	Mission, organization, personnel strength, and training of the Frontier Guard.	1

b

JRES

.

Page

Organization of regular armed	-	Fig. 8	T-55 Soviet medium tank (ph:to)	15
forces (chart)	2	Fig. 9	Destroyer Split (photo)	20
Personnel strengths (table)	6	Fig. 10		
Officers' uniforms and insignia			(photo)	20
(sketches)	9	Fig. 11	Osa class large guided missile boat	
	v		(photo)	21
Enlisted men's uniforms and in-		Fig. 12	Heroj class submarine (photo)	21
signia (sketches)		Fig. 13	FISHBED J-export aircraft (photo)	24
Territorial defense unit (photo)	13	Fig. 14	Jastreb jet fighter (photo)	24
Infantrymen training with 82-mm			Galeb jet aircraft (photo)	
recoilless gun (photo)	14		Surface-to-air missile site (photo)	
SACCER antitank missile (photo)			Military districts (map) follows	

Fig. 4

Fig. 5

Fig. 6

Fig. 7

ii

# **Armed Forces**

# A. Defense establishment

The armed forces, known as the Yugoslav People's Army (Jugoslavenska Narodna Armija-JNA), consist of a 190,000-man ground component organized into nine divisions, 30 brigades, and three independent infantry regiments;<sup>1</sup> a 19,300-man naval component which, together with the Frontier Guard, has 549 ships and craft; and an air component comprised of 11,000 men and 399 aircraft in operational units. Personnel necessary to man the surface-to-air missile (SAM), radar, and antiaircraft artillery (AAA) elements of the air defense system are drawn from the ground component. The Frontier Guard, a 14,000-man paramilitary force, controls all frontiers and coastal waters to prevent the escape of defectors and the infiltration of foreign agents. In time of war it probably would be used by ground forces field commanders for specialized rear area security duties. To further augment the regular armed forces during wartime, Yugoslavia has created quasi-military elements called territorial defense units. These units. composed of civilians who are trained and equipped to resist an invading force, would be activated in the event of attack. At present, the number of citizens in the territorial defense units probably exceeds 1 million. (S)

The organization of the regular armed forces is realistic and uncomplicated, and training is adequate for the types of action contemplated in the event of war. Logistically, however, the armed forces are dependent on foreign sources for heavy and sophisticated weapons and equipment and for spare parts for the heterogeneous collection already in the country. There are over 2 million trained reserves, and the mobilization plan appears to be efficient. Morale is excellent at all levels, and the Yugoslavs, in addition to their well-deserved reputation for being courageous and stubborn fighters, make good, disciplined soldiers. (C)

Yugoslavia shuns military commitments to either Western or Communist alliance systems. 'It is a member of the dormant Balkan Pact with Greece and Turkey. The bulk of the military leadership is composed of Communists loyal to and amenable to the present "independent" socialist course, although some lean more toward the U.S.S.R. and others toward the West. (U/OU)

The military forces would defend well against attack and could conduct effective guerrilla operations. The country has no significant offensive capabilities, except possibly against Albania. In the event of a general war Yugoslavia probably would try to remain neutral. (U/OU)

# 1. Historical (U/OU)

The Yugoslav People's Army was developed from the partisan forces that were organized and led by Tito during the World War II Axis occupation. With Allied support, which was increased when the decision was made in early 1944 to stop assisting other resistance groups in the country, Tito's Army of National Liberation lived up to its name. Techniques for hitand-run operations were refined and perfected, and the Germans, suffering reverses in other theaters, had to withdraw. The first postwar ground and naval units were put together from experienced partisan fighters, including some sailors, and from parts of the prewar navy which had escaped to Malta. The nucleus for the air force came from the Yugoslavs who had manned a Royal Air Force Spitfire squadron which supported the partisans and from a second such squadron that was in training when the war ended.

Materiel and other aid such as training missions, military schooling, and organizational blueprints were supplied to the embryonic forces by the U.S.S.R. until the 1948 break with the Cominform. For the next 3 years the armed forces, inadequately trained and organized and equipped with a mixture of Soviet, British, American, and captured German materiel, were in a precarious position. For the ground forces, the process of reequipment with Soviet weapons was only about half completed. In the air force, however, most of the 800 aircraft on hand were Soviet types. None of the equipment was of recent manufacture, and most of it could not be kept operational because

<sup>&</sup>lt;sup>1</sup>In addition, there are 16 antiaircraft artillery regiments assigned to the air defense forces.

of a lack of spare parts and maintenance skills. This situation, coupled with serious economic problems and the necessity for political reorientation, halted any further development of the armed forces. Strength was steadily increased, but there were few training facilities available, and the bulk of the officer corps still knew only guerrilla tactics.

In desperation, Yugoslavia turned to the Westwhich had furnished economic aid after a devastating drought in 1950-for military assistance. Until mid-1958 most military aid to Yugoslavia came from the United States under the Mutual Defense Assistance Program (MDAP) agreed to in 1951. This aid included substantial quantities of equipment, training missions, and the admission of Yugoslav officers and noncommissioned officers to U.S. military schools. U.S. military training methods were being adopted and U.S. organizational concepts adapted to the realities of the Yugoslav situation when Tito announced in December 1957 that no further U.S. grant military assistance would be accepted. In the succeeding 2 years, the armed forces, particularly the air component, lost much of the combat readiness that had been achieved.

Subsequent to the termination of U.S. military assistance, procurement from the United States of

military items, including spare parts for materiel on hand, became increasingly difficult. Reliance on Western sources for needed weapons, equipment, replacements, and spare parts had become so tenuous by 1961 that Yugoslavia accepted U.S.S.R. offers of materiel.

# 2. Defense organization (S)

The military establishment is a highly integrated, relatively simple organization with a unified high command structure (Figure 1). Constitutionally, the President of the Republic is the Supreme Commander of the Yugoslav People's Army. Under the terms of the 1963 constitution, the Federal Assembly is empowered to proclaim general mobilization and a state of war in the event of armed attack or the need for immediate fulfillment of the country's international obligations; it also is charged with the appointment of the members of the National Defense Council as well as the appointment and dismissal of the Federal State Secretaries for National Defense and Foreign Affairs. The National Defense Council has responsibility for the organization and mobilization of the total resources for national defense. It is comprised of 30 members, including the President of the Republic as Chairman, the Federal State Secretary for National



FIGURE 1. Organization of the regular armed forces (S)

2

Defense, the Chief of the General Staff, and the Assistant State Secretaries of Defense for Military-Civilian Affairs and Rear Services

A law adopted 19 April 1967 spells out in some detail the functions of the National Defense Council. Under this law the council is responsible for general policy relating to mobilization and organization of resources and general coordination in the field of national defense. The council advises the Supreme Commander regarding armament, equipment, organization and personnel policy, and other subjects submitted to it by the Supreme Commander. It is empowered to give its opinions and make proposals to the Federal Assembly, at the latter's request or on its own initiative, on questions of interest to the national defense.

Administrative and operational direction of the armed forces is vested in the Federal State Secretariat for National Defense. The secretary is appointed for a 4-year term but may be reappointed for an additional consecutive term for special reasons. He is assisted in the execution of his functions by the Inspector General, the Chief of the General Staff, eight assistant secretaries, and the heads of other administrative departments. Yugoslavia is divided into six army districts, a military area (Titograd Podrucje), and a naval district (Figure 17). Operational control passes from the Federal State Secretary for National Defense to the commanders of the districts and the military area, and to the commanders of the air and air defense forces, the Frontier Guard, the Tito Guards Division, and the territorial defense units.

The Chief of the General Staff is assisted by a general and a special staff. The general staff, which functions for all elements of the armed forces, has four mair. sections-Operations, Intelligence, Organization and Mobilization, and Training. The special staff is comprised of the chiefs of infantry, armor, artillery, ABC (atomic, biological, and chemical), engineer, signal, air, and naval forces. The general staff prepares plans for general defense and for the mobilization and reinforcement of the armed forces. It is also responsible for the training of the armed forces, including preinduction and reserve training, and recommends plans, policies, and procedures for armed forces organization, equipment, logistics, leadership, and operations. Elements of the general staff monitor the development and maintenance of combat readiness through a system of field inspections. The special staff chiefs exercise administrative and technical control over their respective specialties.

The Assistant State Secretary of Defense for Political and Administrative Affairs is responsible for supervising the political indoctrination and general education of all armed forces personnel. This department also administers the military legal service.

The Assistant State Secretary of Defense for Rear Services organizes the logistic support for the armed forces. He is responsible for procurement, storage, issue, repair, and evacuation of supplies and equipment common to all components of the armed forces. The procurement, storage, issue, and maintenance of special technical equipment unique to the air and naval forces, however, are the responsibility of the component concerned. Preparation of plans for deployment of reserve supply complexes to support both national strategy and the war plans developed by the general staff is a rear services function. Subordinate technical services include Technical (ordnance), Transportation, Intendance (quartermaster), Medical, and Veterinary.

The Assistant State Secretary of Defense for Military Economy directs the country's munitions industry and plans the use of the total economic potential to support national strategy. Conversely, he also makes recommendations on converting from military to consumer production and on methods for general industrial expansion. He is also responsible for supervision of armed forces construction projects and of military research activities.

The Assistant State Secretary of Defense for Personnel Administration directs the procurement of personnel for the armed forces and serves as a management officer for matters relating to the career assignments and promotions of officers. He is generally responsible for all personnel policies and procedures.

Planning for cooperation between military and civilian organs during an emergency and/or war is the primary mission of the Assistant State Secretary of Defense for Military-Civilian Affairs.

No information is available on the duties of the Assistant State Secretary of Defense for Air and Air Defense Forces, other than the fact that he is commander of the air and air defense forces. The commander is frequently referred to in the military press as "Air Force and Anti-air Defense Commander," although this title does not appear to correspond with the language of the basic law regarding the armed forces.

There is no information on the duties of the Assistant State Secretary of Defense for Liaison with the Federal Executive Council, a position established in 1970. The incumbent's stature in the military hierarchy and his title suggest, however, that he represents the military establishment in its relations with the legislative branch of the government. The Chief of Financial Administration is the comptroller of the armed forces. He directs the budget and accounting office, which is responsible for determining the financial requirements of each element of the armed forces. He controls all fiscal operations, allocating funds and conducting audits to make sure that the money has been used for the purpose for which it was intended. While the Chief of Financial Administration is responsible directly to the Under Secretary for National Defense, he has not been mentioned as an assistant secretary.

The senior naval officer in Yugoslavia is the Assistant State Secretary of Defense for Naval Affairs. This official represents naval interests at the highest level of military planning in Belgrade and provides administrative coordination for naval personnel matters, research and development, repair and maintenance, training, and logistics. Formal responsibility for the Adriatic Fleet rests with the naval district commander at Split. River naval forces are subordinate to the I Army District, and the naval Frontier Guard elements are subordinate to the commander of the Frontier Guard.

# 3. Military manpower (S)

The projected military manpower potential of males between the ages of 15 and 49 as of 1 January 1973 is estimated to total 5,605,000, 81% being physically fit for military service. The following shows the number of males in the population and the number fit for military service by 5-year age groups:

Ace		TOTAL NUMBER	NUMBER FIT FOR MILITARY SERVICE
GROUP		OF MALES	
15-19		1,009,000	910,000
20-24		960,000	845,000
25-29		722,000	625,000
30-34		752,000	620,000
35-39		794,000	615,000
40-44		776,000	545,000
45-49		592,000	365,000
Tota	al, 15-49	5,605,000	4,525,000

All male citizens between the ages of 18 and 55 are subject to military service in the regular armed forces. Conscripts are registered in the year of their 17th birthday and inducted in the year of their 19th. Conscripts are inducted and released biannually in spring (February-March) and in autumn (September-October). Specialists and individuals previously deferred may be inducted throughout the year. The prescribed term of service for ground and air force conscripts is 18 months; for the naval component the term of service is 2 years. Only 1 year, however, is required for individuals who: 1) complete the first stage of instruction and have taken examinations for the first 2 years in a university, an advanced school, or arts academy; 2) are graduates of a reserve officer school, higher or advanced school, an arts academy, or university; and 3) are the sole support of their families.

Commissions are granted in the branches and services to cadets who successfully complete the courses in officer preparatory schools and reserve officer schools, as well as qualified active noncommissioned officers; reserve officers; active military employees; and draftees and reserve noncommissioned officers and military employees who have superior professional training. Special requirements are specified for each category of applicant (except cadets graduating from officer preparatory schools) for commissions in the active service.

Noncommissioned officer (NCO) ranks are filled by graduates of NCO schools, active corporals, and reserve NCO's. Upon completion of obligatory military service, corporals may be promoted to sergeant provided they have favorable efficiency ratings and pass the required examination. Reserve noncommissioned officers may be accepted for active service if they pass the examination for active noncommissioned officers.

Deferments are granted for medical and family support reasons or to permit the completion of education. During the period 1973-77 the average number of fit males reaching conscript age annually is expected to be about 201,000, and it is estimated that each year 100,000 will be inducted into the ground forces and 2,000 into the naval forces; an estimate of the number of air force inductees is unavailable.

There are no organized reserve units to supplement the ground and air forces. Rather, the reserve element takes the form of a trained manpower pool from which units may draw during peace or war. All persons subject to military service are automatically transferred to the reserve upon completion of their tour of active duty and remain in the reserve until age 55, or, in the case of officers, until age 60. Trained ground force reserves are estimated at about 2,040,000 men, of whom about 525,000 were released from active duty during the period 1967-71. The latter could be utilized immediately and effectively in the event of any emergency. The naval reserve consists of about 36,000 men (3.600 officers, 32,400 enlisted). In time of war most of these reservists would be used in support capacities ashore and as replacements for shipboard casualties. No information is available on air force reservists.

The mobilization system provides for the rapid mobilization of individual reservists to bring existing units to full strength and to man newly activated units built around cadres from standing units. The general mobilization plan, prepared by the general staff and issued through normal command channels, forms the basis for all unit mobilization plans maintained down to and including regimental and independent battalion levels. Unit plans, based on the local situation, are revised periodically. To test their effectiveness, mobilization exercises, generally without reserve participation, are conducted frequently at small-unit through regimental level during summer field training. Unit plans include orders and various mobilization rosters and maps. The orders state whether or not the unit is to furnish a cadre for another unit, and they contain instructions for unit movement and the drawing of necessary equipment from depot storage, as well as any additional transport from local civilian sources. The orders also specify the quantity of field rations to be taken to the assembly point and procedures for replenishing ration stocks.

The "all-people's defense" doctrine established in the national defense law on February 1969 provides for the mobilization of virtually the entire country in time of crisis. Under this law, the six republics and 501 communes are responsible for the organization, training, and activation within their own territories of territorial defense and civil defense units. In the event of attack, almost all citizens between the ages of 16 and 65 would be assigned specific responsibilities in resisting the invasion, including assignments to the armed units. Coordination with the regular armed forces would take place at the republic level.

Morale is good at all levels throughout the armed forces. Improvement in housing and food, increased pay, and generally better living conditions for families have had a positive effect on morale. Another favorable influence is the higher quality of leadership which reflects significant advances in the educational and training level of field- and company-grade officers over those in command positions in the early post-World War II period. In addition, much pregress has been made in subduing the former pronounced ethnic animosities with the result that an invader would be met by a unified, stubborn, dedicated force.

The average male is physically tough, with tremendous endurance and the capacity for remaining effective without, by Western standards, adequate food and equipment. He adapts readily to military discipline, is adept at improvisation, and understands and cherishes his weapons. Above all, he is proud, courageous, and undaunted, regarcless of the size or prowess of his adversary.

# 4. Strength trends (S)

Immediately after cessation of World War II hostilities in Europe, the number of armed forces personnel underwent a drastic reduction and continued to decline for the next 2 years (Figure 2). By the end of 1947, the number had been reduced to 261,000. After Yugoslavia's expulsion from the Cominform in mid-1948, the personnel strength began to increase yearly until by the end of 1954 a peak of about 367,000 was reached. Then followed a rather steady decline to the 1971 strength of 220,300. By the time U.S. military aid was terminated, fear of aggression by Soviet bloc forces had largely subsided; normalization of relations with Italy and Greece had progressed to the extent that neither country was considered to be posing any aggressive threat. Beginning in the early 1960's, relations with the U.S.S.R. and the Eastern European Communist countries (Albania excepted) improved significantly. This development probably was a major consideration in the 1964 decision to initiate a sizable reduction in armed forces strength. Although there was no appreciable change in the strength of the regular armed forces following the August 1968 invasion of Czechoslovakia by Soviet-led Warsaw Pact military forces, the invasion led Yugoslavia in February 1969 to adopt its defense strategy of total mobilization ("allpeople's defense").

Personnel strength of the Frontier Guard appears to have stabilized at about 14,000. Late in 1952, the Corps of National Defense of Yugoslavia, an organ of the Federal Secretary for Internal Affairs, was inactivated and its border control functions delegated to the Frontier Guard under the jurisdiction of the Federal Sta<sup>+</sup> Secretary for National Defense. This reorganization undoubtedly accounts for the drastic reduction in personnel strength during 1952-53. During the late 1950's, strength stcadily declined, probably in direct proportion to improvement in relations with the Soviet bloc and neighboring Western countries, as well as to improvement in internal political and economic conditions.

# 5. Training (C)

The armed forces maintain an extensive and thorough program of general and specialized training for all the services and branches. At the high command level, the general staff has responsibility for the formulation of overall training plans and directives. In addition, it operates the Higher and Lower Military Academies, as well as the branch schools of the ground forces. The Higher Military Academy is comprised of two schools—the Tactical

S.

FIGURE 2. Armed forces personnel strengths (S) (As of 1 January of each year)

				TOTAL MILITARY	MILITARIZED SECURITY
DATE	GROUND FORCES	NAVAL FORCES	AIR FORCE	FORCES	FORCES
World War II peak	*500,000	5,000	7,000	512,000	
	300,000	3,000	6,500	309, 500	80,000
1947	275,000	13,000	<b>~ , 900</b>	293,900	80,000
1948	240,000	15,000	6,000	261,000	60,000
1949	240,000	21,600	9,700	271,300	60,000
950	250,000	20,300	10,100	280,400	60,000
951	275,000	20,300	10,100	305,400	58,000
952	325,000	21,200	10,000	356,200	58,000
953	325,000	21,500	13,200	359,700	35,000
954	325,000	27,000	15,100	367,100	33,000
955	300,000	27,000	28,000	355,000	35,000
956	300,000	27,000	.28,000	355,000	35,000
957	295,000	27,000	28,000	350,000	25,000
958	285,000	29,600	28,000	342,600	20,000
959	275,000	29,600	28,000	332,600	15,000
960	275,000	29,600	28,000	332,600	15,000
961	250,000	29,000	28,000	307,000	15,000
962	250,000	29,000	24,000	303,000	15,000
963		29,000	24,000	303,000	15,000
964	250,000	29,000	11,000	290,000	15,000
965	234,000	22,000	11,000	267.000	15,000
966	234,000	22,000	11,000	267,000	15,000
967	224,000	22,000	11,000	255,000	15,000
968	190,000	18,000	11,000	219,000	15,000
969	190,000	18,000	11,000	219,000	15,000
970	190,000	18,000	11,000	219,000	15,000
971	190,000	**19,360	11,000	220,300	14,000
1972		**19,300	11,000	220,300	14,000

... Not pertinent.

\*Includes all types of ground forces.

\*\*Includes 1,000 in maritime element of the Frontier Guard and 300 militia.

School, providing a 2-year course for captains, majors, and lieutenant colonels, and the War Academy, offering a 1-year course primarily for colonels. The Tactical School and the War Academy of the Higher Military Academy are the equivalents of the U.S. Command and General Staff College and the Army War College, respectively. Officers of all branches of the armed forces are admitted to Higher Military Academy courses. The Lower Military Academy, offering a 4-year course for officer cadets, is the counterpart of the U.S. Military Academy.

Joint field exercises were conducted in the fall of 1971. These exercises followed a general buildup of training activities throughout the year. The scope of the principal exercise called for army district control of major combat and territorial defense units in twosided maneuvers involving three army districts. This was the first time in 18 years that such large-scale maneuvers were carried out and fully tested the Yugoslav "all-people's defense" doctrine. Infantry, armor, artillery, airborne, air support, air defense, territorial cefense, and civil defense units were involved.

From the end of World War II until early in 1948 Soviet advisers supervised ground forces unit training; Soviet instructors taught in the military schools; and the training manuals in use were translated copies of Soviet manuals. In addition, large numbers of Yugoslav officers, predominantly of field- or generalofficer grade, attended military schools in the U.S.S.R. Until 1951 the basic Soviet system was retained, but political instruction was reorientated to reflect the anti-Soviet-domination policy of the government.

After deliveries of equipment under the U.S. Mutual Defense Assistance Program began in 1951, and the American Mutual Assistance Staff arrived, training was gradually directed toward U.S. methods, and U.S. tactical doctrine was taught. Small numbers of Yugoslav officers and enlisted technicians attended schools in the United States and at U.S. installations in

6

West Germany, and an adequate military school system was established in Yugoslavia. Although U.S. personnel left in the spring of 1958, their impact on training was considerable.

Since procurement of Soviet military materiel was resumed in late 1961 or early 1962, some Yugoslav military personnel probably have received training in establishments in the U.S.S.R. In addition, orientation in the operation and maintenance of some of the Soviet materiel very likely was accomplished by Soviet technicians in Yugoslavia. Thus far, information is inconclusive as to whether or not any Yugoslav officers have resumed attendance at higher staff schools in the U.S.S.R.

# 6. Economic support and military budget (S)

## a. Economic support

Yugoslavia's economy has developed rapidly since the early 1950's, but levels of productivity and per capita income are still among the lowest in Europe. The country is nearly self-sufficient in food production. Although the agricultural sector's importance to the economy has been gradually declining, it still employs about one half of the labor force. Industry has been expanding rapidly, but Yugoslavia is dependent upon foreign sources for most of its industrial raw materials and capital goods.

Production of ground forces equipment includes small arms, mortars, explosives, antitank missiles, light and medium field artillery, antiaircraft guns, rocket launchers, armored personnel carriers, and motor vehicles. Except for ammunition, however, production could not meet wartime requirements over an extended period. Tanks, antitank missiles, artillery, radar, and trucks have been obtained from the Soviet Union. Trucks have also been purchased from Hungary, Italy, and West Germany, and antiaircraft guns have been supplied by Czechoslovakia.

Although the shipbuilding industry is capable of building all types of naval ships up to destroyer size, construction has been limited to small units for coastal defense and antisubmarine warfare (ASW). The navy is dependent upon outside sources for much of its electronic equipment and sophisticated weapon systems, and major combatants such as the large Osa class guided missile patrol boats are usually imported from the Soviet Union.

The aircraft industry produces military jet trainers and light attack aircraft, but the industry is small and Yugoslavia has had to purchase aircraft from foreign sources, including Czechoslovakia, Poland, the Soviet Union, the United Kingdom, and the United States. Surface-to-air missiles are imported from the Soviet Union.

# b. Military budget

On the basis of requirements submitted by the various services, the first consolidated draft of the military budget is prepared in the office of the Federal State Secretary for National Defense. The budget proposed by the secretary is reviewed by the Federal Executive Council and is then presented to the Federal Assembly for approval as part of the total budget. Defense budgets for fiscal years 1967 through 1971 are shown below in millions of U.S. dollars:

	1967	1968	1969	1970	1971	1972	
Defense budget <sup>*</sup> . Defense budget as	466.5	482.4	548.8	606.9	589.2	704.5	
a percent of total budget Defense budget as	55.0	56.6	61.1	55.4	58.3	. 48.4	
a percent of es- timated GNP	4.9	4.7	4.5	4.3	4.3	5.4	

\*Dollar value for 1967 through 1970 budgets converted at official rate of 12.5 new dinars equal US\$1.00; dollar value for 1971 budget converted at official rate of 15 dinars equal US\$1.00; dollar value for 1972 converted at official rate of 16.7 dinars equal US\$1.00.

# 7. Logistics (C)

The Assistant State Secretary of Defense for Rear Services performs logistic planning for all components of the armed forces. Procurement procedures and policies are the responsibility of this headquarters, which maintains close liaison with the Assistant State Secretary of Defense for Military Economy; the rear services are represented at all subordinate command echelons. The system is directly responsible for the procurement, storage, and distribution of all commonuse items, such as rations, fuel and lubricants, personal equipment, small arms, and many types of ammunition. The rear services system also coordinates the handling of specialized equipment unique to the naval or air forces or to individual ground forces branches.

# 8. Uniforms and insignia (U/OU)

# a. Uniforas

Four categories of uniforms are worn by personnel of the ground forces: service, field, dress, and special. All uniforms are olive-gray in color, except the officers' dress, which is dark blue, and the officers' summer service coats, which are dove-gray. With the exception of the dress blue uniform, warrant officers and noncomnaissioned officers wear uniforms which are similar to the officers. Winter uniforms of officers, warrant officers, and noncommissioned officers are made of the best quality worsted material and are worn with poplin or nylon shirts and silk or rayon ties. The winter uniforms of enlisted personnel in the lower ranks are made of synthetic fiber and are worn with linen shirts and ties. The dress uniforms of noncommissioned officers are similar to the service uniforms of officers. The summer uniforms of officers, warrant officers, and noncommissioned officers are made of gabardine or similar materials. Other personnel also wear summer uniforms made of lightweight materials.

The uniforms of naval officers, warrant officers, and petty officers include service and dress categories. Winter service uniforms are navy blue and styled in the usual naval fashion. Summer service uniforms are light tan in color and include single-breasted coats with shoulderboards. The service uniforms of nonrated personnel consist of jumpers and trousers—blue for winter and white for summer wear. The dress uniforms of officers are essentially the same as the service uniforms but with the addition of shoulderboards on the coat and gold piping on the outer seam of the trousers. A gold dress belt is worn with the uniform.

The uniforms of air force officers and enlisted personnel are similar in style and materials, except for color, to the uniforms of the ground forces. The dark blue dress uniform is worn by officers only. Winter uniforms may vary in color, from light to dark blue. Summer uniforms may also vary in color, from light to dark olive-gray.

# b. Insignia

Insignia of rank in the ground and air forces are displayed on shoulderboards. Officers are identified by varying numbers of gold stars; enlisted personnel by chevrons, which are gold for warrant and noncommissioned officers and red for corporals and privates first class. The ranks of naval officers are indicated by stripes of gold lace worn on the lower sleeves of the winter service uniforms and on the shoulderboards of the summer service uniforms. On the officers' dress uniform, rank is displayed both on shoulderboards and on the lower sleeves of the coat. Officers of flag rank wear gold shoulderboards with silver stars on the summer service uniform coat. Naval warrant officers, petty officers, and other enlisted personnel display gold or red chevrons on the lower sleeves of the uniform coat or jumper, depending on the individual's

rank. Gold ornamentation stripes are worn on the outer shoulders of the winter service uniforms of naval officers.

Branch of service insignia of the ground and air forces are worn by officers only and consist of metallic or embroidered devices displayed on collar tabs. General officers have embroidered oak leaf branches made of silver yarn affixed to collar tabs of the same material and color as the uniform. When wearing the dress uniform, ground and air force officers (other than generals) display branch insignia on collar tabs which have an embroidered crossed oak leaf background. When wearing the service uniform, branch insignia are placed on collar tabs of the same material and color as the uniform.

Specialty marks for naval officers are made of gold thread or gilt metal and positioned just above the upper sleeve stripe or above the innermost stripe on shoulderboards. Specialty marks for warrant and petty officers are made of yellow silk thread; for nonrated personnel, of red thread. These are worn on the left sleeve above the insignia of rank.

Winter uniforms, which are worn from September to May, and insignia for officers and enlisted personnel are illustrated in Figures 3 and 4.

# **B.** Ground forces (S)

The 190,000-man ground forces, the major element of the armed forces, are organized, trained, and equipped primarily for defensive combat. They are capable of waging a determined defense against any invader and could conduct effective guerrilla-type actions, but their offensive capabilities are minimal, being restricted to limited incursions into neighboring countries or to organizing and supporting guerrillatype operations within those countries. The principal weaknesses of the ground forces are dependence upon foreign suppliers for heavy, complex weapons and equipment and general logistic support for sustained battlefield operations; nonstandardization of arms; inability to procure large quantities of modern materiel and spare parts for some materiel on hand; deficiencies in modern technical equipment; and insufficient large-scale, combined-arms training. Domestic production of ammunition, small arms, mortars, and light and medium artillery is more than adequate for peacetime needs, but wartime requirements (except for ammunition) could not be met over an extended period of time. Morale at all levels is good, and lovalty to the government is steadfast. An estimated 93% of the officers, 76% of the NCO's, and 10% of the conscripts are members of the









FIGURE 5. Territorial defense unit (U/OU)

Communist party. Combat capabilities, which declined after termination of U.S. military assistance at the end of 1957 and during the initial phases of the armed forces reorganization which began in 1959, have been restored to their former level.

In the event of a major attack, the regular ground forces would be augmented by the activation of territorial defense units (Figure 5) consisting of more than 1 million civilians trained in military tactics, the use of weapons, and the strategy of collective defense. These units are armed with light infantry weapons and vary in size from platoon up to brigade.

# **1. Organization**

Administrative and operational control of the armed forces is vested in the Federal State Secretary for National Defense. The command channel passes from the defense secretary to the commanders of the six army districts, one naval district, one military area (podrucje), and the territorial defense headquarters in each of the republics. From these headquarters command is channeled to tactical ground units and territorial and civil defense units, except for the Tito Guards Division (infantry), which is held under the direct command of GHQ in Belgrade. The army districts function as both administrative and tactical commands, with responsibility for all troops within their geographic areas. They have a general supervisory responsibility for training and other types of military activity, including logistic matters, peacetime conscription, and wartime mobilization. A significant function of all territorial defense headquarters in wartime would be the direction of sabotage and resistance activity in areas overrun by enemy forces.

Tactical unit organization is not based on the concept of any single foreign power. Rather, it is a product of Yugoslav World War II partisan experience and Soviet and U.S. doctrines. Units are organized for either conventional combat or guerrilla-type operations. Maneuverability, tactical flexibility, and small-unit self-sufficiency are stressed. The largest line unit is the division, each of which is infantry. Smaller combat units include independent infantry and armored brigades and nondivisional infantry regiments and battalions. The current infantry division table of organization and equipment (TOE) is believed to authorize three infantry regiments, one artillery regiment, and smaller support and service units. Existing divisions, however, deviate in varying degrees from authorized TOE's. Current divisional organization closely resembles that prevailing in the late 1950's before the Yugoslavs began experimenting with quadrangular/pentagonal organizational concepts.

The basic infantry tactical formation is the regiment. Its organization, like the division, is very similar to the organization developed during the period when the United States was providing military assistance. The present organization of the infantry regiment (divisional and nondivisional) calls for three infantry battalions; automatic weapons, heavy weapons, engineer, technical-service, and signal companies; reconnaissance, medical, and chemical, biological, and radiological platoons; a light antiaircraft artillery battery; and a military police squad. The independent infantry brigade has an additional infantry battalion and a company of medium tanks. Otherwise its composition is similar to that of the regiment. The mountain infantry brigade, one of the independent infantry brigades, follows the standard pattern except that it does not have an organic tank element. The independent armored brigade has three battalions of three tank companies each plus service- and fire-support elements that are similar to those of the infantry regiment except that heavier equipment probably has been added to the engineer and technical service companies.

# 2. Strength, composition, and disposition<sup>2</sup>

The strength of the regular ground forces is estimated at 190,000 officers and enlisted men.<sup>3</sup> Of

<sup>&</sup>lt;sup>2</sup>For current detailed information see Order of Battle Summary, Foreign Ground Forces and Military Intelligence Summary, both published by the Defense Intelligence Agency.

<sup>&</sup>lt;sup>3</sup>Includes 12,400 assigned to air defense system (surface-to-air missile element, 1,700; antiaircraft artillery element, 9,000; air control and warning radar element, 1,700).

these, about 45,000 make up the permanent cadre. The remainder are conscripts, the bulk of whom serve on active duty for 18 months and then are transferred to the reserves. Trained ground forces reserves are estimated at 2.040,000 men, of whom about 525,000 have been released from active duty since 1967.

Combat units number:

- 9 infantry divisions
   30 brigades (14 infantry, 1 mountain infantry, 14 armored, 1 parachute)
- 19 regiments (3 infantry, 16 antiaircraft artillery)

Additional service and support units range in size from battalion to regiment.

Ground forces units generally are disposed near the borders with East European Communist countries and in the northwest, with special attention to covering traditional approach and invasion routes. The disposition of ground forces probably is intended to provide effective units in all parts of the country, but the availability of facilities also may be a factor influencing the location of some units.

Major items of equipment include three types of Yugoslav-produced recoilless antitank weapons (Figure 6); Soviet, German, and U.S. antitank guns ranging in caliber from 57 to 75 mm; SNAPPER and SAGGER antitank missiles (Figure 7); a variety of field



FIGURE 6. Infantrymen training with Yugoslav-produced 82-mm recoilless gun which has replaced the older U.S.-produced 75-mm recoilless gun (U/OU)

artillery ranging in caliber from 76 to 203 mm; 76- to 155-mm howitzers; multiround rocket launchers; U.S. 76- and 90-mm self-propelled guns; and Soviet SU-100 assault guns and T-34, T-54, and T-55 tanks (Figure 8).

# 3. Training

Substantial progress in training appears to have Leen made in recent years. Training is effective up through at least regiment and brigade level. Divisional exercises and joint maneuvers have been held. During the 1963-64 period, joint manauvers were held in four army districts, with participation of at least one division, parachute and helicopter-landed forces, and air support elements. In 1965 several division-level exercises mere held, but exercise activity during 1966 apparently did not attain division level. Training in 1967 showed some advance; exercises were not held more frequently but were wider in scope, and at least one appeared to have been controlled by army headquarters. The theme stressed in exercises is defense in a tactical nuclear environment. Mobility, dispersion, flexibility, mining, and anticipation of the enemy's nuclear targets have been emphasized. The normal autumn exercise activity in 1968 was disrupted by a partial mobilization which followed the August invasion of Czechoslovakia by Soviet-led Warsaw Pact military forces.

All ground forces training is predicated on the national defense doctrine ("all-people's defense") which, briefly, embodies the following concepts: resistance to any aggression and the expectation that an aggressor will employ nuclear weapons; use by indigenous forces of conventional weapons within the context of nuclear and conventional warfare; preparedness for extended warfare not only by the regular military forces but the entire nation; adoption of strategy, tactics, and organization consistent with the nation's resources; and firm belief in ultimate success because of the vital role of the human element regardless of weapons used or encountered.

The first major test of the "all-people's defense" was the "Freedom '71" maneuvers held in early October 1971. During this national defense exercise, the largest, most comprehensive military exercise ever conducted in Yugoslavia, an "aggressor" force with overwhelming air superiority and with armor, artillery, and infantry "invaded" the northwest and moved south where it was met and halted by regular ground forces, territorial defense units, and partisan elements. About 1,000 airborne troops then reinforced the "aggressor force" in two paradrops. In the final phase



FIGURE 7. SAGGER antitank missile (U/OU)



FIGURE 8. T-55 Soviet medium tank of the Yugoslav ground forces (U/CU)

the "aggressor" was destroyed after a continuous bombardment employing antitank rockets, mortars, artillery, and air support.

To further test the "afl-people's defense," a number of regiona. exercises involving regular army units, territorial defense units, civil defense units, and workers have been conducted.

Preinduction training is obligatory for all physically fit Yugoslavs between the ages of 17 and 20, but the law probably is not strictly enforced for females. The training program is divided into two parts—a monthly dull period devoted to basic infantry drill, weapons training, driving instruction, first aid, and political indoctrination; and two annual camps of 15 to 20 days' duration. About 75% of the monthly drill period is spent on political indoctrination. Training for individuals who continue their education beyond the elementary level generally is integrated into the last 2 years of the secondary curriculum, and an advanced course is provided during 2 years of university schooling. Somewhat modified training is provided for females. It covers the usual basic military subjects with emphasis on instruction in nursing, antiaireraft defease, and antichemical defense. Preinduction training, in addition to providing an introduction to regular military service, provides a countrywide reserve of partially trained manpower capable of using arms in an emergency.

The reduction in 1964 of the basic term of conscript service by 6 months (from 24 to 18) necessitated some revision in the recruit training program, but the patterning and timing of the two annual induction periods remain unchanged. Theoretically, the shorter conscript service will not have an adverse effect on training effectiveness because greater effort will be expended to increase the efficiency of recruit training through better trained instructors, improved planning, and elimination of nonproductive time previously spent on administrative and extraneous duties. Basic training of conscripts, except for some specialists, is conducted in the unit to which the conscripts are assigned upon induction. Initial training for specialists, such as drivers, is provided in specialist schools before conscripts are permanently assigned. From 5 to 6 months are allotted to basic individual training, which is conducted in or near unit garrison areas

The overall training program has a dual objective to prepare and train soldiers for defensive guerrillatype combat and to develop equal proficiency for conventional defensive warfare. Training for both objectives is intensive and thorough. It includes rigorous physical conditioning, long marches, handto-hand combat, surprise attacks, rapid redeployment of small units, study of terrain and communications, and night actions.

Greater efforts, probably as a result of the shorter conscript service, are being made to increase the effectiveness of reserve training. A new policy of primarily voluntary reservist training was initiated in 1964. Responsibility for planning and execution of the reservists military training program was delegated to the Federal Association of Reserve Officers and Noncommissioned Officers (an element of the Federation of Veterans of the National Liberation War of Yugoslavia), which has management committees at the various governmental levels. Policy direction still originates in the Federal State Secretariat for National Defense. The defense secretariats of the individual republics have some role in implementing reservist training, and local governments are obligated to furnish some financial support. The ground forces, however, provide training facilities, equipment, and instructors, and still are empowered to call up reservists for training when deemed necessary or desirable. Reserve training stresses practical work of a refresher nature, including weapons training, tactics up to company level, map reading, marches, camping, specialist, and civil defense training. In addition, all major garrisons put on demonstrations of equipment, weapons, and modern combat techniques for reservists and youth organizations.

Sociopolitical education is compulsory for all military personnel for the duration of military service. Instruction is integrated in the regular training program at all levels. In general, subjects covered are the national liberation war and national revolution, the formatic a and development of the armed forces, the basic characteristics of the nation's industrial development and social organization, and current events. An estimated 10% to 15% of training time is spent on sociopolitical indoctrination.

The military school system is divided into two components—one under the general staff and the other under the army district headquarters. The schools under the direction of the general staff are the Higher and Lower Military Academics and the branch schools. The army districts control the lower level officer and NCO schools located within their geographical boundaries. The school system provides advanced command, staff, and technical training; regular officer and NCO cadet training; refresher training for regular and reserve officers and NCO's; and reserve officer cadet and specialist training for enlisted men. By any standards, the military school system is adequate, and by Balkan standards it is excellent.

Each republic and commune is responsible for the training of the territorial defense and civil defense units in its territory. In keeping with the "all-people's defense" doctrine, almost all civilians between the ages of 16 and 65 are required to undergo military training, including training in the use of weapons, and are liable for service in armed units.

# 4. Logistics

At defense ministry level, logistical planning, coordination, supervision, and direction involve three offices—those of the Chief of the General Staff, the Assistant State Secretary of Defense for Military Economy, and the Assistant State Secretary of Defense for Rear Services. General staff logistical functions consist primarily of planning and general directions for implementation of plans. The military economy office is concerned with logistic matters related to materiel procurement (either from domestic or foreign industry); managing the military research and development program; and administering military construction as well as general public property utilized by the armed forces. Supply management is accomplished by agencies under the direction of the

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Assistant State Secretary of Defense for Rear Services. The rear services are organized into branches typifying the service provided. These branches are: Technical (ordnance), Transportation, Intendance (quartermaster). Medical, and Veterinary. Rear service officers are assigned to all levels of command down through regiment.

General planning for the storage and issuance of supplies for the ground forces is a function of the general staff. Such planning includes determination of the locations of depots, of the types and amounts of materiel to be stored, and of control procedures for the general stock records for each particular type of materiel.

Procurements in the domestic market of materiel and contracts for construction and services are by open bid except for small purchases and those involving classified items. Foreign procurement, except for classified items, is accomplished through facilities of the regular civilian import-export agencies.

Operational control of storage depots is a function of the rear services system. Depots are maintained in each of the army districts for the distribution of major items of supply to units within the districts, as well as for the storage of mobilization reserves. Materiel is also stored for emergency use in small-unit dumps, which normally are under the control of the local military headquarters. Almost every military garrison or unit has a storage area or supply point which stocks, in addition to supplies in daily use, mobilization equipment. These supply points may contain uniforms, nonperishable food items, light weapons, ammunition, and mansport fuels. Supply movement in wartime would ollow the chain of command, whereas, in peacetime, units obtain supplies directly from depots.

Maintenance is performed at various organizational levels and is at least satisfactory for peacetime operations. The inability to obtain spare parts for much of the U.S. materiel on hand seriously detracts from the maintenance capability. The maintenance system generally follows that formerly practiced by the U.S. Army. First-echelon maintenance is performed by the operator of the equipment; second-echelon by trained personnel; third-echelon by trained units; fourth-echelon in permanent or semipermanent workshops, and fifth-echelon in fixed shops or in factories. Maintenance at the lowest level consistent with available facilities is stressed.

# C. Naval forces (S)

Yugoslavia's naval forces include the Adriatic Fleet, River Flotilla, and Maritime Frontier Guard. The Adriatic Fleet, the main naval force, is not designed to operate outside the Adriatic Sea. Rather, it is a light coastal force with a defensive mission that includes defense of the Adriatic coast, protection of the coastal lines of communication, and seaward support to the ground forces. River and lake forces have similar functions, but on a smaller scale.

With its emphasis on smaller ship types, the Adriatic Fleet is well suited for operations along the highly irregular coastline and among the countless off-lying islands. The main strength of the fleet lies in its intimate knowledge of these waters and its sizable force of motor torpedo boats, fast patrol and guided missile boats, and motor gunboats. However, the antisubmarine warfare (ASW) and mine warfare units are inadequate for protecting the entire coastline; construction of about 20 replacement units for the force of Kraljevica class large submarine chasers (PC's) is contemplated to correct the ASW shortcoming. The fleet is not large enough to conduct sustained combat operations along the entire coastline for a protracted period. Other weaknesses are dependence on foreign sources for weapons, ammunition, and electronic equipment; deficiencies in modern ASW and minesweeping equipment; and a reliance on political dependability rather than merit for command selection and promotion.

## 1. Organization

In naval matters, the naval district has jurisdiction over the entire coastal area of Yugoslavia, including the of shore islands. Within the naval district, naval forces are operationally subordinate to the Commander of the Adriatic Fleet, who heads the naval district as well. Operational elements of the fleet are as follows:

> 4th Destroyer Division 88th Submarine Division 11th Cutter Flotilla 16th Minesweeper Division 38th Patrol Ship Division

At times units of these elements may be subordinated operationally to one of three naval zone commands— Northern, Central, and Southern Naval Zones.

The zones are contiguous territorial commands within the naval district, with headquarters at Pula, Sibenik,<sup>4</sup> and in the Boka Kotorska area, respectively. Zone commanders are naval flag officers with the exception of the commander of the Southern Naval Zone in the Boka Kotorska area, who is a navy captain.

\*For diacritics on place names see the list of names and map at the end of the chapter. Administratively subordinate to the zone commanders are most landing craft, minclayers, auxiliaries, and service craft. These units are organized into ship groups according to type, and the numbers of ships are about equally divided among the three zone commands. When operating with the fleet, zone-type groups are directly subordinate to the Commander of the Adriatic Fleet.

All navel base commands and shore installations, which provide logistic support to ships operating within their respective ereas, are subordinate to one of the naval zone headquarters.

The River Flotilla, which operates on the Danube, Drava, and Sava rivers, is subordinate to the I Army District at Belgrade. Headquarters of the flotilla are at Novi Sad, and most units are based there.

The Maritime Frontier Guard (MFG), with headquarters at Split, operates on the Adriatic Sea and is subordinate to the commander of the Frontier Guard. It cooperates closely with the regular navy and would be integrated with the naval forces in wartime. Operating in close cooperation with the MFG is the militia, whose primary mission is port security. There are 97 river/roadstead vessels and 30 coastal patrol vessels assigned to the MFG and militia.

## 2. Strength, composition, and disposition<sup>5</sup>

The ships of the River Flotilla are geographically separated from the bulk of the naval forces. Available for river operations are:

> 1 river gunboat (PR) 14 minesweeping boats (MSB) 5 utility landing craft (LCU) 1 mechanized landing craft (LCM) 1 auxiliary (APB)

11 service craft

Most of these units are based at Novi Sad on the Danube, but a few units operate out of Sabac on the Sava and Zemun on the Danube.

The more important ships of the Adriatic Fleet are directly subordinate to the fleet command at Split, but many elements are based elsewhere. The following surface ships and submarines operate out of Split:

- 1 destroyer (DD) (Figure 9)
- 12 motor torpedo boats (PT)
- 13 fast patrol boats (PTF) (Figure 10)
- 10 large guided missile boats (PTFC) (Figure 11)
- 7 large submarine chasers (PC)
- 6 motor gunboats (PGM)
- 3 submarines (SS) (Figure 12)

Stationed at Pula are:

12 large submarine chasers 18 motor torpedo boats

13 motor gunboats

2 submarines

The 16th Minesweeper Division assigned to Ploce has:

4 coastal minesweepers (MSC) 8 inshore minesweepers (MSI) 4 medium minesweepers (MSM)

Other units of the Adriatic Fleet are under the jurisdiction of the local zone commands. The Northern Naval Zone headquarters at Pula controls:

12 utility landing craft (LCU) 1 support landing craft (LCS) 1 mechanized landing craft (LCM) 2 personnel landing craft (ramped) (LCPR) 1 large personnel landing craft (LCPL)

At Sibenik, headquarters of the Central Naval Zone, are:

7 utility landing craft 1 support landing craft

Assigned to the Southern Naval Zone headquarters in the Boka Kotorska area are:

utility landing craft
 support landing craft
 mechanized landing craft

Scattered among the various bases of the fleet are 45 auxiliaries and 189 service craft.

Some Pula-based units operate out of the Brijunski Otoci (islands) and Luka Mali Losinj (inlet). For example, the motor gunboats of the 11th Cutter Flotilla are used primarily to patrol around the Brijunski Otoci during visits by Tito to his villa there. Ships from Sibenik often operate out of Zadar. Units from the bases at Ploce and in the Boka Kotorska area are seen frequently in the Gruz-Dubrovnik area.

There are approximately 19,300 personnel in the naval forces. This figure includes some 1,500 with the River Flotilia, stationed primarily at Novi Sad, of whom about half serve afloat. Also included are 1,000 in the Frontier Guard, of whom about half serve afloat and 100 are trainees, and 300 in the militia, a conglomerate grouping of various afloat police elements that operate in close collaboration with the navy. Another 1,500 are attached as students at the various naval schools, and approximately 1,000 are assigned to staff billets, mainly at Belgrade and at the schools. The remaining 14,000 officers and enlisted men are attached to the Adriatic Fleet, with some 7,500 serving afloat and about 6,500 filling support billets ashore. The afloat personnel of the zone-type

<sup>&</sup>lt;sup>5</sup>For current detailed information see Automated Natal Order of Battle (Ships) published by the Defense Intelligence Agency.

groups are appreximately as follows: Pula—900; Sibenik—1,500; and Boka Kotorska—1,300. Ashore support personnel would about equal these numbers at each location. Afloat personnel directly under the Adriatic Fleet are distributed as follows: Split—1,500; Pula—1,400; Ploce—400; and Boka Kotorska—500. The approximately 2,500 ashore support and staff personnel are concentrated primarily at Split.

Naval reservists are estimated to number about 36,000. Approximately one-fourth could be mobilized by M+15 days, and all reserves could be mobilized by M+60 days. However, full mobilization of the reserves would require the acquisition of additional ships.

# 3. Training

Although not specifically naval oriented, a 2-year preinduction period of training provides an introduction to regular military service and eases the transition from civilian to military life. Most naval recruits are obligated to serve 2 years of active duty, and all undergo a period of basic training at the Recruit Training School, a subdivision of the Pula School Center. Specialist training is then provided at one of the other element: of the center, including the engineering school (Naval Technical Academy), underwater weapons school, and naval gunnery school. At the completion of his initial service obligation, the conscript may request retention as a career petty officer. If accepted, he undergoes a 1- or 2-year course at the Petty Officer School, an element of the Divulje School Center. Also admitted to the school are civilian boys in their mid-teens, who undergo a 4-year course of study. The naval engineering school at Pula conducts a similar training program for technical petty officer candidates. After a tour of sea duty as a petty officer, a graduate is eligible for selection for more advanced training at one of the Pula specialty schools. Progressively more advanced courses are available as petty officers rise through the ranks.

Line officer candidates attend a 4-year course at the Naval Academy at Divulje, which includes both classroom and shipboard training. A similar course for engineering officer candidates is available at the naval engineering school, Fula. After 5 or 6 years of duty, graduates return for a year of advanced specialist training. The Pula School Center administers a program under which selected officers are sent to civilian universities for technical training for periods of 2 or 3 years. Advanced instruction for senior officers is provided by the Higher Naval School, at Divulje. Courses for naval flag officers are offered by the Higher Military Academy, at Belgrade.

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One-year courses for reserve officer candidates are available at both the Pula and Divulje School Centers. Applicants must have the equivalent of a bachelor's degree. Upon graduation newly commissioned officers are released to inactive duty, subject to callup when needed.

The naval training establishment can satisfactorily accomplish its mission in light of the present strength level of the naval forces. The Pula School Center is constantly increasing its capability to train naval personnel. The Divulje School Center turns out qualified naval officers, but the theoretical instruction given at the center does not equal the caliber of the practical instruction. In general, the schools are adequate, and several, such as the underwater weapons, engineering, and naval gunnery schools at Pula, are very good. Of particular merit are the training aids and mockups that are used at Pula and Divulje. Nevertheless, despite past assistance from the United States, the level of training is low by Western standards. Yugoslav officers and petty officers were trained in the United States under the Military Defense Assistance Program, but this training was restricted to certain fields connected with material aid. Upon return, these officers were utilized in billets connected with the aid program, rather than in the training establishment.

A considerable number of exercises have been observed. Formations of snips have engaged in specialized training, such as torpedo attacks by motor torpedo boats, large guided missile and motor torpedo boat strike group operations, antisubmarine warfare (ASW) exercises by the destroyer and groups of submarine chasers, and landing exercises conducted with troops of the amphibious assault infantry. Largescale exercises involving various types of ships, as well as aircraft, have also been observed. These exercises have included convoy escort and attack problems, as well as amphibious assault problems. Cruises to Burma, India, Iraq, Syria, the U.S.S.R., and Egypt have given the navy more confidence.

#### 4. Logistics

The Chief of Technical Services of the Adriatic Fleet coordinates the requirements of individual naval activities within the naval district for food, clothing, fuel, and transport. The final list is then submitted to the director of the Technical Division in Belgrade, who coordinates navy-wide requisitions. The combined requirements are then forwarded through the Assistant State Secretary for Naval Affairs to the General Staff for inclusion in the navy budget. Upon approval of the budget by the government, allowance

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FIGURE 9. Destroyer Split (U/OU)



FIGURE 10. Shershen class fast patrol boat (PTF) (U/OU)

lists are drawn up by the appropriate section of the Technical Division or the departments under the Chief of Technical Services. Each naval zone is responsible for the logistic support of forces assigned permanently, or temporarily, in its area.

No overall centralized supply system exists in the naval forces, for on no least is there a central supply officer. Each department has its own supply officer operating independently of the others and submitting his requirements to his counterpart on the next command level.

The issue of materiel is based upon usage factors and expendability. The system of maintaining records and accounts is primitive compared with U.S. standards. Three levels of bookkeeping are employed—the individual ship, the base depot, and the Technical Division—each of which uses books in which two signatures are required for issue and accounting purposes. Procurement is based upon a yearly schedule, and items on the allowance lists are divided into three classes—expendable items (such as ammunition), items with a fixed-time duration (this category is similar to the old U.S. Navy Title B equipment with the exception of the time limit established), and inventory equipment which is permanent (similar to U.S. Navy Class A equipment).

The naval forces are largely dependent on foreign sources of supply for electronics, optics, sonar equipment, and auxiliary machinery. This equipment has been procured from the United Kingdom, France, Denmark, West Germany, Italy, the United States, and the Soviet Union. In addition, licenses to build marine engines in Yugoslavia have been granted by firms registered in the above countries. Oil reserves in



FIGURE 11. Osa class large guided missile boat (PTFG) (U/OU)



FIGURE 12. Yugoslav-built Heroj class submarine (SS) (U/OU)

Yugoslavia are extensive, and refining capacity is approximately adequate to meet national requirements for POL.

In view of their probable wartime tasks, the naval forces have widely dispersed their supply activities along the coast and on the offshore islands. Mine, net, and fuel depots have been scattered in an effort to place them in suitable locations close to the area of possible use. Many of these facilities have been located underground, and some have networks of tunnels that afford berths for motor torpedo and large guided missile boats.

The major supply activities are located in the base complexes of Pula, Sibenik, Split, Ploce, and the Boka Kotorska area. In these complexes the activities are widely separated, each supply function being performed in a separate area of the harbor. The primary supply base for the River Flotilla is at Novi Sad.

Yugoslav ship design has produced few original classes of naval ships. Reliance has been placed on the adaptation of proven foreign designs to Yugoslav needs or on the purchase of foreign ships suitable for operation in Adriatic waters. The ships currently in the naval forces have been selected for their adequacy in the expected area of operations. Proven British, Italian, and West German designs often have been used. Soviet-1 alt large guided missile boats and a few fast patrol boats have been purchased with additional fast patrol boats constructed by Yugoslavia to replace some older units, such as destroyer escorts and motor torpedo boats which have been scrapped. Reportedly the Yugoslavs are dissatisfied with the three Heroj class submarines and are seeking smaller, more maneuverable submarines. There is some evidence that construction of a new class of submarine has begun.

Most of the guns, ammunition, and fire-control equipment in the naval forces are of U.S., British, and Italian design; much of the materiel is obsolete. The most modern equipment is that carried by the Osa class large guided missile boats. These boats are equipped with four single surface-to-surface missile launchers for the SS-N-2 (STyx) missile. Electronics gear includes SQUARE TIE surface-search radar and DRUM THAT fire-control radar. Two 25-mm twin guns are remotely controlled from the bridge. The heaviest guns in the naval forces (U.S. Navy 5"/38 dualpurpose in single mounts) are carried by the destroyer Split. In surface firepower the Split is shout the equivalent of a U.S. destroyer at the end of World War II. The remaining Yugoslav ships carry main battery guns of lesser caliber. Most of these have only optical fire-control directors.

# D. Air and air defense forces (S)

The missions of the air force (*Ratno Vazduhop-lovstvo*) are to give close support to the ground and naval forces and to participate in the air defense of the homeland. The primary responsibility is to provide tactical air support for the ground forces.

The air force is considered to have an effective air defense capability and an adequate capability for tactical ground-support operations under good weather conditions. Aircraft include Soviet and older U.S. models. In addition, Yugoslav-produced piston and jet aircraft (Kraguj, Galeb, Jastreb) have been introduced into the inventory and this is improving the aircraft serviceability and overall efficiency of the ground-support force. The acquisition from the Soviet Union of MiG 21's (FISHBED C, D, E, F, and J-export models) and several years of Soviet assistance in pilot training have improved the efficiency of the air defense units. With the influx of Soviet aircraft and Yugoslav-built aircraft, the percentage of older U.S. aircraft has been declining. As of October 1972, it was estimated that about 20% of the force consisted of U.S. Thunderjet, Sabrejet, and Shooting Star aircraft, whereas in January 1970 80% of the combat aircraft were obsolete U.S. models.

The air defense system, in addition to aircraft, consists of surface-to-air missiles (SAM), air control and warning (ACW) radar, and antiaircraft artillery (AAA). These units are manned by ground forces personnel.

# 1. Organization

The air force is a component of the Yugoslav People's Army. Organizationally, it is on the same command level as the six army districts, the naval district, the military area (*podrucje*), the Frontier Guard, and the Tito Guards, and it is responsible operationally to the Federal Secretary for National Defense. The command channel passes directly from the defense secretary to the air force headquarters, which is located at Zemun, near Belgrade. The headquarters has four departments—operations and training, political and security, technical services, and logistics.

The major elements of the air force are the Western Air Defense Headquarters and a tactical air corps at Zagreb, and the Eastern Air Defense Headquarters and a tactical air corps near Belgrade. A tactical air corps exercises operational control over three to four combat units, each anit equipped with 12 to 24 aircraft. The air defense headquarters direct the operations of the fighter regiments, each of which are equipped with 30 to 40 aircraft.

Air defense is administered by the Air Defense Command, which is organized along Soviet lines and is subordinate to the air force. The principal command and control elements of air defense include the Air Defense Command Headquarters, arbitrarily called air defense district (ADD) headquarters; the two air corps headquarters, arbitrarily called air defense zone (ADZ) headquarters; and four radar filter centers, arbitrarily called air defense sector headquarters.

The ADD headquarters, which is collocated with air force headquarters at Zemun Airfield, receives radar data and weapon readiness data from the two ADZ headquarters and maintains the air situation picture of the national territory, but is believed to function mainly in a supervisory capacity.

The ADD is believed to be divided into two air defense zones for closer battle control. The Western ADZ Headquarters, located in the Zagreb area, and the Eastern ADZ Headquarters, located in the Belgrade area, are probably the most important battle control centers in the air defense system. They direct the operations of all fighter, SAM, AAA, and radar units in their respective zones, and thus carry the main responsibility for centralized control of air defense.

Four air defense sectors, two in each ADZ, provide air surveillance data to the ADZ command centers. The sector headquarters, functioning as radar filter centers, receive radar data from subordinate radar outstations and forward refined track data to the ADZ command posts. The latter use such data to control and support weapon units.

22

Little information is available concerning air defense communications. It is probable that the primary method of communication at all air defense echelons is Morse transmission backed up by voice and landline telephone. There is some evictence of a data transmission system in use for the rapid transmission of track and related data between radar stations and higher control echelons.

Yugoslavia's air defense system is believed to be independent, with no coordination or communications with any other country.

# 2. Strength, composition, and disposition<sup>6</sup>

Combat strength of the air force consists of four fighter air defense regiments equipped with a total of 106 Soviet MiG 21's (FISHBED), including the FISHBED I-export model (Figure 13), and 27 U.S. Sabrejet (F-86E) aircraft: seven fighter-bomber ground support units equipped with a total of 41 Thunderjets, 96 Jastreb (Figure 14) and Galeb (Figure 15) aircraft, and 16 Kraguj aircraft; and a reconnaissance unit equipped with a total of 20 U.S. Shooting Stars (T-33). In addition to the 306 combat aircraft, the inventory as of 1 October 1972 included 41 transports and 52 helicopters. The combat regiments, each equipped with 30 to 40 aircraft, and the reconnaissance and ground support units are located at Batajnica, Bihac, Cerklie, Mostar, Obrya, Skopie, Titograd International, Tuzla, and Zadar Airfields. Training units are located at Batajnica, Pula, and Zadar Airfields, and transport and helicopter units are located at Batajnica, Cerklie, Nis, and Zagreb Airfields. Personnel strength of the air force is about 11,000.

Hangarette construction began in Yugoslavia in early 1969 and as of iate 1972 there were enough of these shelters to protect about half of the Yugoslav combat aircraft. In addition, underground storage (Figure 13) is available or under construction at three airfields.

A total of 12,400 ground forces troops are assigned to the SAM, AAA, and ACW units of the air defense system. The SAM units are manned by 1,700 troops deployed to eight SA-2 missile sites—four around Belgrade (Figure 16) and four around Zagreb. These sites provide part of the area defense for each city. Prior to 1966, the SAM defenses consisted of five sites—four around Belgrade and one near Zagreb. The antiaircraft artillery element of the air defense forces is capable of limited defense against low-level attack. It is manned by an estimated 9,000 ground forces troops and is organized into regiments. Until 1964 or 1965, antiaircraft artillery regiments assigned a static air defense role were held under the subordination of the army district headquarters. Although the army district headquarters mostill have partial, if not complete, responsibility for training, logistic, and administrative support of these units, operational control is vested in the commander of the air and air defense forces.

The air control and warning system provides 18- to 24-hour-a-day coverage over most of the country. It is manned by 1,700 ground forces troops, and includes 13 early warning and seven ground-controlled interception radar sites.

# 3. Training

The Preparatory School for the Yugoslav Military Air Academy is located at Mostar. It is programed to receive 250 students a year, but usually does not have more than 150. The school has a 2-year curriculum which includes academic subjects and some preflight training. It admits students between the ages of 14 and 16 years. Upon completion of this school, students then go to the Theoretical Academy at Belgrade for a two-semester course, the first semester comprising subjects of general military education, and the second, air subjects. A student who successfully completes this course then proceeds to the Basic Flying Training School at Zadar Airfield for a 2-year course that includes approximately 150 to 160 hours of flying time in conventional trainers. Presumably, this is the first time the student has been in an aircraft, and he is programed to receive 30 hours of dual instruction before soloing.

Graduates of the Basic Flying Training School receive advanced flight training at the Combat Crew Training Center at Pula. This course is of 12 months' duration and consists of approximately 30% ground instruction and 70% flying. Each student logs 150 flying hours. The school trains between 100 and 120 pilots a year. There is also a ground training squadron and a Link trainer squadron at this school. At the end of the advanced training course, graduates are commissioned as second lieutenants and are assigned to operational units.

Selected air force officers receive advanced military training at the Higher Military Academy in Belgrade. Technical training is believed to be given at four ground training schools: the Air Technical School at Sarajevo, which is the main school for officers and NCO's in technical subjects; the Technical Training

<sup>&</sup>lt;sup>6</sup>For current detailed information see *European Communist Aircraft Order of Battle*, published by the Defense Intelligence Agency. For information on airfields see the Transportation and Telecommunications chapter of this General Survey, as well as Volume 15A. *Airfields and Seaplane Stations of the World*, published by the Aeronautical Chart and Information Center for the Defense Intelligence Agency.



FIGURE 13. FISHBED J-export aircraft of the Yugoslav air force exit underground installation (U/OU)



FIGURE 14. Yugoslav-built Jastreb jet fighters (U/OU)

School at Sombor, where students are trained to be air mechanics, armorers, electricians, and radio mechanics; the Signals School Center at Kraljevo, which trains officers and other ranks in all aspects of ground signals, eipher, communications, and aircraft radio equipment; and the Motor Transport Driving School at Novi Sad.

Courses in communications and electronics for both officers and enlisted men are conducted at the Higher

Air Force Academy near Belgrade and at the electronics school at Kraljevo.

In addition, at each of the main air force operational bases training is given on aircraft maintenance, and there are various technical refresher courses. Because of the requirement to provide close support for the ground forces, the air force has emphasized operational training in gunnery, rocketry, bombing, and taetical defense.



FIGURE 15. Yugoslav-built Galeb combat "trainer" with assorted armaments (U/OU)

The air force operational training system appears to be administered as effectively as facilities and equipment permit. In general, the air force has abandoned training methods learned from the U.S.S.R. in 1944-49, and has patterned its training system on that of the U.S. Air Force.

Some basic SAM instruction is probably conducted in Yugoslavia, but there is no known training school. Selected personnel are believed to attend Soviet technical schools, and the SAM units maintain



FIGURE 16. Typical surface-to-oir missile (SAM) SA-2 site in the Belgrade area (C)

proficiency through onsite training in Yugoslavia and participation in joint oir defense exercises.

# 4. Logistics

The supply system used by the air force to provide materiel support for the air organizations is patterned after the system developed and used by the Soviet Air Forces. The Deputy Commander for Reai Services is responsible for top-level planning and control of supply. Logistical elements of the air force receive, store, and deliver aviation supplies and provide other rear services functions in support of the air organizations.

Aviation technical battalions stationed on operational airfields provide supply support for the air regiments occupying these airfields and perform the base housekeeping functions required. Each operational airfield has sufficient fuel, annexition, and spare parts in storage to satisfy the innaedate operational support requirements for the air regiment stationed thereon. Common-use supplies, such as rations and motor vehicle fuel, are obtained through ground forces supply channels. Aviation supplies and technical materiel are distributed through the rear services of the air force. Stocks of aircraft spares are maintained at aircraft repair bases on the operational airfields and in air depots at Botajnica, Kraljevo, Mostar, and Ripae.

# Secret

The air force's maintenance system is also patterned after the Soviet Air Forces system. Aircraft maintenance is under the supervision of the Chief Engineer of the Aviation Engineering Service and is divided into two main categories: field maintenance and depot maintenance. Field maintenance is performed at the squadron and regimental levels. At the squadron level field maintenance consists of making preflight, postflight, and 25-hour periodic inspections, and correcting any minor deficiencies observed in visual inspections. At the regimental level lengthy 50-hour and 100-hour periodic inspections of the aircraft and its equipment are accomplished; these inspections require disassembling, bench-testing, and making informediate repairs. Depot-level maintenance consists of making complete overhauls and major repairs of aircraft, engines, and accessary equipment. Depot-level maintenance is performed at large, well-equipped installations employing large numbers of civilian engineers, technicians, and specialists. The installations are as follows:

Zagreb Aircraft Repair Base (overhauls FISHBED aircraft)

Sarajevo/Rajlovac Aircraft Repair Base (overhauls Thunderjet and Sabrejet engines, and the Rolls Royce Bristol Viper engines used in Yugoslavproduced Kragujs, Galebs, and Jastrebs) Mostar Aircraft Repair Base (overhauls Thunder-

jets and Yugoslav-produced aircraft)

Zemun Aircraft Repair Base (overhauls Sabrejets and Shooting Stars)

In addition, an underground air facility with a complete maintenance capability, including that of rebuilding jet engines, is located at Bihac Airfield.

The varied types and origins of aircraft in the inventory of the air force create a parts procurement problem of serious proportions, particularly with regard to the out-of-production U.S. aircraft and associated equipment. Because of the difficulty in acquiring and controlling parts under such circumstances, the logistic system is considered to be only marginally effective in providing support for the air force.

All major components of the SA-2 missile system have been provided by the Soviet Union. Generalpurpose equipment such as trucks and some spare parts for the system are produced domestically, but Yugoslavia is dependent c.: the Soviet Union for replacement missiles and most spare parts. Two support facilities, one near Belgrade and the other near Zagreb, provide adequate maintenance for the SAM forces.

# E. Militarized security forces<sup>7</sup> (S)

The only significant paramilitary force is the Frontier Guard, which is subordinate to the Federal State Secretariat for National Defense. The Frontier Guard has an estimated strength of 14,000 and is organized into nine brigades and one battalion. Each brigade controls from five to nine companies, depending on the extent of the brigade's border responsibility. The independent battalion controls four companies. Each company consists of three platoons of four squads each and generally is responsible for up to 12 border posts.

Frontier Guard units are basically infantry type and are armed with light weapons. In addition to basic infantry training, personnel undergo specialized training in scouting and patrolling, detection and apprehension of border crossers, mountain climbing, and skiing. The peacetime mission of the Frontier Guard is the control of all frontier areas, principally to prevent escape of defectors and infiltration of foreign agents. In wartime, Frontier Guard units probably would be used by field army commanders for specialized rear area security duties.

<sup>7</sup>Maritime Frontier Guard discussion is incorporated in the uaval forces section.

Military	Districts	Figure	17



Places and features referred to in this chapter (U/OU)

COORDINATES

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