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USSR Report

TRANSPORTATION

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21 December 1984

USSR REPORT

TRANSPORTATION

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CIVIL AVIATION

L-410 REPAIR WORK AT KHARKOV PLANT NO 420

Moscow VOZDUSHNYY TRANSPORT in Russian 28 Aug 84 pp 1-4

[Report by Ye. Glazacheva and A. Vladimirskiy: "A Time of Good Changes"]

[Text] /Civil Aviation Plant No 420 has mastered repair of the L-410 aircraft./
[in boldface]

"Wait a minute, when did you visit us? Ten months ago? Well, you know, you have to familiarize yourself with the plant all over again now..."

This is what A. Il'in, secretary of the party bureau of Aircraft Maintenance Plant No 420, said as he leafed through the folder of measures outlined by the enterprise's communists at the last election meeting.

The statement was intriguing, and for that reason we headed into the shops right here. True, it turned out that Anatoliy Mefod'yevich first took me to the project which the plant management considers the most vulnerable place in the industrial chain of production--the paint shop. But he could not act any other way: the symbol of the plant's regeneration and revitalization is right here--an L-410 aircraft, just repaired, with the side number 67165. The aircraft shone with fresh paint, and several women were walking around it with brushes and stencils, making the final cosmetic touches.

"How do you like our first-born! Born all over again, we can say. The power-plants are the same as before the repair. Now it's off for a check flight, then we will transfer it to the customer--the Saratov Aviation Enterprise. The formal document of the state commission on its acceptance will be the evidence that the plant collective has written a new page in its biography. It will mean that we have successfully mastered repair of the L-410 aircraft."

In A. Il'in's voice there was the first sense of satisfaction, fully justified for a person who has performed long and difficult work and has finally achieved the desired result. Indeed, if the party election meeting held in October is taken as the reference point, the improvements at Plant No 420 are real and tangible. The plan for the number of items repaired in the first 6 months has been fulfilled! True, they were not lucky with the plan for realization: because of insufficient delivery of starter generators by associated suppliers, items valued at more than 20,000 rubles remained in the enterprise's shops. Not a large sum, but it attests to one more unresolved problem.

Nevertheless, let us first note that what has been done has strengthened the physical basis of production noticeably and decisively. To begin with, the section in which the L-410 was repaired is in a new structure. Just the production area here occupies 1,700 square meters. A second wing of the building like this is rapidly being built. Administrative and living quarters had occupied 1,700 meters. Disassembly of an L-410 which came in for repair, the airframe repair, and then complete assembly of the aircraft were carried out in this section.

Section chief A. Gusev enumerates the difficulties which the collective had to overcome while they were taking shelter in an ordinary hangar. There were not enough special tools and special accessories, living conveniences were practically nonexistent, and social organizations had not yet been formed in the collective. Now it appears that all that is behind: the section is being replenished basically with young future specialists, whose enthusiasm goes well with the experience of regular workers such as fitters V. Fedorets, V. Gritsenko, M. Kostenko and others. Two brigades have been made up in the section--fitters and assemblers, and AiREO [avionics and radio equipment] installers. In principle, individual piecework will not be developed, says A. Gusev. The course is toward a brigade.

But the changes evident are not only in new buildings. The engine repair shop is located in old quarters, but how it has changed! The first thing that strikes the eye is the floor. Its tile sparkles with cleanliness, as if it were not an industrial facility but an operating room; it appears as if a wet rag had been passed over it just a minute ago... The dinner break. Protective cloth covers were put over the engine assemblies, and the long benches where persons were just working were covered with polyethylene. Not a speck of dust should be on the surface of the components!

"Do not be surprised that our little airplane's engine requires such precision in the work," says the shop chief, M. Sirota. "The L-410 is an aircraft which meets all ICAO [International Civil Aviation Organization] requirements, and in order to restore it, we have had to rise to a new level of quality in our work."

The engine repair shop shifted to the new output as long ago as March last year. Now it is operating constantly and smoothly.

It should be noted that a great deal of work also has been done in the plant's other collectives through modernization of the physical base and personnel retraining. But to say that all difficulties are in the past is to pretend that what is desired is what is real. Let us return to the same paint shop. It has been housed in an ordinary duralumin hangar, because there simply is no other building on the enterprise's premises to accommodate it. There is no ventilation in the hangar; in the summer it's hot and stuffy and in the winter it's the opposite: intense cold can be expected. But after all, the paints which are applied to the repaired aircraft can be used within a temperature range of 2 to 3 degrees. The hangar now is being heated on a priority basis. In the words of the plant manager, V. Chebotarev, the VGPO "Aviaremont" [All-Union

Aviation Equipment Repair State Industrial Association] has not even approached a solution to the problem of building a special paint shop yet. The problem of building a centralized boiler room, without which it will be difficult for the plant this winter, is being resolved very slowly.

But let us emphasize that the main difficulties are behind, all the same. A plan is under way which, let us say, will increase by four times as much for the L-410 aircraft next year. So that the collective of the Kharkov Aircraft Maintenance Plant No 420 has to scale not just one height. But these heights will be conquered. The initial experience found by the collective in repairing the latest equipment is a guarantee of that.

Aircraft Maintenance Plant No 420 has a base for relaxation in the picturesque locality outside Kharkov, near the village of Korobov Khutor.

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CIVIL AVIATION

IMPORTANCE OF ATC SIMULATOR TRAINING STRESSED

Moscow VOZDUSHNYY TRANSPORT in Russian 18 Sep 84 p 2

[Article by A. Kolesnikov, chief, Air Traffic Central Administration]: The Simulator--the Controller's School Desk"]

[Text] The civil aviation fleet has been replenished in recent years with new types of aircraft. Their cargo capacity and seating capacity have been increased. Airspace has become even more saturated. All this places special, higher demands on the specialists who ensure the safe movement of aircraft. The UVD [air traffic control--ATC] services of the largest air transport hubs have been equipped with advanced technology, automated systems and other radio engineering facilities which make it possible to resolve the most complex tasks which are being dictated by constantly changing conditions in the air.

But even with the extent to which ATC is currently equipped, the principal role is assigned to the controller specialists' level of professional preparation. Time and again they have rendered active, skilled assistance to crews who have encountered difficult situations.

Each instance of this kind witnesses the growing professional skill and the great technical discipline of our co-workers.

In the business of ensuring flight safety in air traffic control, a great deal depends on the level of professional training, organization of the shifts' work, and discipline in performance and the use of technology.

Experience in training specialists in educational institutions indicates that where the educational process is closely linked with practical training, as a rule, the graduates have a sufficiently high level of professional knowledge and firmly established skills. With the aim of further improving the training, study plans and curricula in educational institutions have been reviewed and the time in simulator training and in the use of technical equipment has been increased. As a result, young controllers begin their work more prepared and more rarely permit gross errors to be committed.

The habits and skills acquired during training are being reinforced and developed under production conditions in their daily work.

One of the important directions for improving professional skill is the simulator training for controller personnel. The more complex the work section, the higher the psychophysiological burdens for the specialist and the better

lessons on the simulator must be. The conditions simulated must be as close as possible to the real conditions under which the controller works. In the process, simulator training is conducted in stages: from the simple to the complex, from the best workload to the maximum workload, and in the concluding stage--to extreme conditions and special circumstances.

Simulator training in working out the controller's correct actions, in monitoring established air routes when aircraft are separated on airways and local air routes, and in ensuring safe spacing during takeoffs and landings, depending on the type of aircraft and takeoff and weather conditions, is especially important. These requirements are important in providing specialists who work at airfields in mountainous areas.

As a result of simulator training, there have been several times fewer ATC violations under special flight conditions and errors in the use of technical equipment over the past 2 years.

In organizing and conducting simulator training it is difficult to overestimate the role of instructor personnel. It is necessary to carry out this work purposefully, based on an analysis of flight safety conditions under ATC. In order to successfully resolve these problems, instructors for controller simulators should have methods skills and master the art of teaching. A single approach in the methods of conducting simulator training will help in this effort.

It is now necessary to develop variations in the exercises for specialists in all simulator and training subunits, taking into account local conditions and peculiarities, work experience, and the tasks which they perform.

Analysis shows that preparation for the simulator training of shifts should be begun with instructions, since specialists should focus on work under specific conditions, taking peculiarities into account. Such preparation has a decisive effect on the quality and end results of the work.

It depends basically on the instructors and the shift supervisor to make simulator training more intensive and to work out tasks which the controller has to perform in practice, for errors and weak spots in the specialist's overall training are revealed, and this information will help to significantly improve work to raise the professional skill of ATC specialists.

Naturally, benefit may be expected only if evaluations of the knowledge and skills of those being trained are objective. In some training and simulator subunits, they seek to overstate evaluations in simulator training; in the Ukrainian Administration, for example, only excellent and good marks are given to the trainees. Aside from harm, this practice gives nothing to either the examiners or those being examined.

In fact, it often turns out that controllers are sent out to a training and simulation subunit for 2 to 3 days, the specialists lose touch with their work, the shifts are weakened, and material resources are spent. But simulator training, if it is formal and conducted under conditions which are remote

from the real ones, essentially yields nothing. Unobjective and overstated evaluations do not make it possible to reveal the true professional preparation of the controller and to eliminate in time the gaps in his skills.

The problems of modernizing simulators and quickly substituting templates and diagrams on displays still have not been resolved everywhere, which hinders simulator training of controllers from different airports under conditions similar to those which are normal for them. After all, not all subunits have their own controller simulators yet, and we have been forced for the present to assign one training and simulation subunit where the necessary equipment is available to several civil aviation administrations. However, as checks have shown, simulators are not being utilized sufficiently. For example, while the operating time accrued over the past year amounted to 1,500-1,700 hours (which also is clearly inadequate) in the Ukrainian, Urals, and West Siberian administrations, only 866 hours were accrued in the Georgian Administration, and about 1,000 hours in the East Siberian, Kazakh and Tajik administrations. With such organization it is impossible to provide the necessary simulator training even for controllers in their own administrations, not to mention those attached to them. The operating time of simulators should be double or triple what it now is; only then can we speak about efficiency in the use of simulator equipment.

It is impossible to train a specialist without educating him, since discipline is linked in the closest possible way with flight safety. It is equally important to provide the controller with firm knowledge and to instill in him a sense of high responsibility for his actions. But the controller's responsibility is first and foremost his discipline and strict compliance with documents which regulate air safety. The conditions under which a person is trained and works also have an effect on discipline. Nothing has such a detrimental effect on discipline as lack of organization and disorder in the work place and with the simulator.

The principal task for collectives of training and simulator subunits and simulator centers and aviation enterprise management personnel now is to utilize all possible reserves to increase controllers' professional skill and responsibility and to reinforce discipline with the aim of ensuring reliability in air traffic control and flight safety. This task is a complex one, of course. Excellent training means a great deal. But no less important is concern for the persons whose work entails constant mental and physical stress.

More and more aviation enterprises are devoting priority attention to the needs of ATC specialists together with flight personnel where provision of housing, vacations, and health improvement institutions are concerned. Controller personnel are granted catering free of charge when they are on duty and are furnished with free uniforms.

The response to this concern is the same--selfless labor for the sake of aircraft safety.

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CIVIL AVIATION

CHIEF ON WORK OF MOLDAVIAN CIVIL AVIATION ADMINISTRATION

Moscow VOZDUSHNYY TRANSPORT in Russian 20 Sep 84 p 1

[Interview with M. Tereshchenko, chief of the Moldavian Civil Aviation Administration, by VOZDUSHNYY TRANSPORT editorial staff: "Three Questions from the Editorial Staff"]

[Excerpts] [Question] "Forty years have passed since the order establishing the separate Moldavian subunit of the GVF [Civil Air Fleet] was signed. In your view, Mikhail Mikhaylovich, what is characteristic of the path followed by the administration?"

[Answer] "There is no service, section or collective which would not have been affected over these years by the process of renovation. While passenger turnover in 1975 amounted to 1,399,400,000 passenger-kilometers, last year it reached 1.889 billion passenger-kilometers. The aviators of Moldavia are now treating more than 1.1 million hectares of agricultural land from the air. Their participation in putting the Food Program into effect is highly appreciated by rural workers and the republic's leadership.

"Specialists also have increased their skills appreciably. All the commanders and cockpit personnel of Tu-134 aircraft and more than three-fourths of the aircraft commanders have risen in rank. All An-26 crews are making flights under the lowest possible weather minimums."

[Question] "In implementing the requirements of the party and the government to meet the needs of the national economy for air transportation and PANKh [use of aircraft in the national economy], the administration's employees have come to this date with high production achievements. According to the work results, targets for the 8 months have been fulfilled in all indicators."

[Answer] "Unfortunately, a late and unpredictable spring shifted traditional periods for beginning air chemical treatment operations. For this reason, vegetables and fruits began to ripen 3 weeks later than usual, so full-weight cargo shipments also were begun late. Tremendous efforts were required to make up what was missed, but by the end of August the collective got back on the track all the same.

"However, it is not proper to blame the weather for everything. For the present, we still have not rid ourselves of certain shortcomings. Unfortunately, the quality of operations performed by individual specialists is low, we encounter discipline violations from time to time, and there are failures of an organizational nature. For this reason, solution of the immediate tasks involves reinforcement of ideological and political education work, developing a sharply critical attitude by aviators toward omissions, and a search for ways to prevent them. A powerful reserve for production is seen in this."

[Question] "New projects being erected at aviation enterprises point to the prospect of further intensified development. What direction is it taking?"

[Answer] "True, we are now building three runways right away. In Kishinev, Bel'tsy and Kagul. At the last two places they are in the completion stage. When they are put into operation, the capital's airport will accommodate Tu-154 and Il-76 aircraft, and Bel'tsy and Kagul will be on An-24 and An-26 routes. In that way, we expect to advance to the next limits right away in resolving two principal problems. Firstly, to extend the scope and range of passenger flights, and secondly--and this is very important, to succeed in increasing air shipments of vegetables and fruits to the country's eastern and northern industrial regions severalfold."

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CIVIL AVIATION

IMPROVEMENTS IN AIRCRAFT BEARINGS LAUDED

Moscow IZVESTIYA in Russian 21 Sep 84 p 3

[Article by O. Favorskiy, corresponding member of the USSR Academy of Sciences:
"High Reliability"]

[Text] The duration of unfailing service by modern equipment depends to a large extent on the quality of bearings. This relates in full measure to aviation: there are more than a thousand of these parts, operating over a broad range of loading and temperature, in the engines, control systems and machinery of aircraft. During the years of gas-turbine engines, aviators encountered quite a few problems. Bearings in these engines were wearing out in 200 to 400 hours, and the time between overhaul of the GTD [gas-turbine engines] of that time depended precisely on their operation.

Today bearings in aviation last many times longer, and when airplanes and helicopters are repaired they are often left to continue operating for a second period. This has become possible owing to the many years of painstaking labor by a creative collective combining specialists in the civil aviation, automotive industry, and aviation industry ministries. The manufacturers of the bearings, jointly with developers of aviation technology, conducted a technical inspection of practically all the bearing units being used in the designs of airplanes and helicopters--and there were over 2,000, developed more than 500 new types of bearings of increased reliability, and perfected the designs of over 1,000 existing ones.

Specialists of the Ministry of the Automotive Industry established a new procedure for manufacturing them. Plants in the sector turning out these items were fundamentally redesigned. Essentially, new production facilities, equipped with the latest word in science and technology, were organized there. Radical improvements were introduced throughout the entire chain of the industrial process, beginning with increased precision in the manufacture of the forgings and ending with development of the most complex instruments for quality control of the finished products. Several dozen new machine tools were developed and introduced, basically automatic and semiautomatic devices. Specialists of the Ministry of the Aviation Industry perfected the bearing units being used in aviation equipment, and developed new ways and means for their diagnosis in the

process of operation. Civil aviation employees suggested fundamentally new methods of technical maintenance and repair of bearing units; because of this, the guaranteed service life of aviation equipment and its reliability have been substantially increased and the demand for bearings during engine repair has been reduced by 80 to 90 percent.

More than 100 scientific works in all have been published by the authors collective and more than 20 authorship certificates were obtained. The economic impact of the combined operations carried out over the past 15 years has exceeded 1 billion rubles.

We believe that the authors collective which produced the "Kompleks rabot po uvelicheniyu resursa i nadezhnosti aviatsionnykh podshipnikov kacheniya" [Combined Operations to Increase the Operating Life and Reliability of Aviation Roller Bearings] has been quite deservedly presented for competition to receive the 1984 State Prize of the USSR.

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CIVIL AVIATION

ULYANOVSK FLIGHT SIMULATOR CENTER NEARLY COMPLETE

Moscow VOZDUSHNYY TRANSPORT in Russian 9 Oct 84 p 3

[Interview with Honored Pilot of the USSR I. Tarashchan, chief of the simulator complex of the Tsentr GA SEV [CEMA Civil Aviation Center], by correspondent O. Kulikov: "Simulators Are Helping"]

[Text] The simulator complex, the final project in the first phase of the center, soon will go into operation. Next to a 13-story hotel and training and laboratory structure, a building made up of eight sections has sprung up. This fall builders will turn over four of them for equipment installation.

Our nonstaff correspondent, O. Kulikov, talks with the chief of the simulator complex of the CEMA Civil Aviation Center, Honored Pilot of the USSR I. Tarashchan.

[Question] "The simulator complex at the Ulyanovsk Center is a unique structure. Such a 'large classroom' designed for training in eight types of aircraft has never before existed in our country or even abroad."

[Answer] "That is true. And this involves not only the number of simulators here; there were somewhat fewer of them in the old building. The complex is unique primarily because of its quality indicators. The building housing the simulator complex, which is made up of eight huge sections, was built in accordance with a single plan. Air conditioning and gas fire extinguishing systems have been stipulated. Inasmuch as digital computers which require special conditions are widely used in modern simulators, there are sealed areas on the premises. There will be excess pressure in them which will prevent dust penetration.

"Good conditions have been provided for maintenance personnel and the instructor staff. There are comfortable halls, living rooms and showers here.

"Each simulator has a methods room, and studies in preflight preparation will be held in two specially-equipped classrooms. There also is a 120-seat classroom for conferences and meetings. There are sufficient auxiliary facilities as well."

[Question] "And the simulators themselves? Are they different from the ones which existed previously?"

[Answer] "Not all of them. Let us say that we dismantle a Tu-154B2 simulator and transfer it from the old building. But here its similarity to the three-stage Tu-154B3 is of definite interest. For the first time, an optical collimator has been installed in it. With the aid of it, effective training of students in the elements of a landing will become possible. We also have received the new Tu-134A simulator.

"It is planned to set up these simulators this year. Later on we will receive the new generation of simulators with six stages of freedom for the Il-86, Il-76, and Il-62M aircraft. The new controller simulator 'Stazher-A' [Trainee-A] also will be set up."

[Question] "The new equipment also requires new handling both in maintenance and in operation. How is the problem being resolved with personnel and are there many new specialists arriving in Ulyanovsk?"

[Answer] "The simulator complex always has been noted for its instructors. And now the backbone is made up of experienced specialists, former pilots, flight engineers and navigators. Young specialists also are coming to us. As far as 'new handling' is concerned, I will cite one example. Jointly with the Riga Institute of Civil Aviation Engineers, a system of devices for objective monitoring is being installed in the simulators. This will make it possible to monitor the quality of training and to evaluate crew operation in real-time monitoring. That is, if it went below the evaluation of 'four' the machine would immediately decipher it, revealing the errors committed in the flight."

[Question] "There is no need to speak further about the advantage of simulators in increasing efficiency in training flight personnel. Today the question is different: how to achieve efficient and productive organization in simulator training and to establish the psychological circumstances in lessons that will come as close as possible to reality in intensiveness and stress. What do you think about this?"

[Answer] "A great deal of experience has been accumulated in training students in our collective. The main thing, what we are striving for and what we have achieved, is a systematic procedure in studies and unity of training methods in the simulator and the training aircraft. We try to structure the work so that the student's transition from the simulator to the aircraft becomes a logically justified and technically well-grounded continuation of the training. All the instructors observe the most important methods rule--not to permit the formation of incorrect flying habits, to disclose the reasons for errors in piloting promptly, to analyze them in detail, and most importantly, to provide the student with recommendations to eliminate them.

"In the new building, the classrooms will be equipped so that the student not only can hear the instructor, but see the arrangement of switches, commutators, panels and instruments as well. Diagrams, posters, film slides, mockups, film-strip projectors, etc. will be necessary for the work here.

"In conclusion, I want to say that the experience of our best instructors is being popularized in every way possible and is being put into practice. And when our new complex is put into operation, all the opportunities to even more fully and effectively utilize the simulators will become apparent."

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CIVIL AVIATION

TECHNICAL PROBLEMS FORCE IL-86 EMERGENCY LANDING

Moscow KOMSOMOL'SKAYA PRAVDA in Russian 17 Oct 84 p 4

[Report by KOMSOMOL'SKAYA PRAVDA special correspondent P. Gutiontov: "Il-86, Cleared to Land!"]

[Text] TASS has transmitted an Ukase of the Presidium of the USSR Supreme Soviet:

"For high flying skill and courage demonstrated in the performance of official duties, the Order of the Red Banner of Labor is awarded to Ivan Petrovich Pankov, aircraft commander, and Vladimir Semenovitch Shleyenkov, senior flight engineer, and the Badge of Honor is awarded to copilot Leonid Vladimirovich Bugayev, navigator Sergey Grigor'yevich Kokora, and flight engineer Vladimir Stepanovich Tarasov..."

Our special correspondent reports on this flight.

The huge aircraft slowed down and finally stopped--quiet, like a guilty preschooler in a corner. From the airport building and the running boards of the firetrucks, persons were looking at it--pilots, passengers, airport service personnel: the Il-86 at the Aktyubinsk airport looked unusual.

The senior flight engineer ran down the forward ramp and looked at the landing gear: seven of the wheels had been lowered and did not hold out in the emergency braking. The senior flight engineer looked at the wheels and--just like a driver--suddenly kicked one of the wheels--the one that was intact--with his boot.

The commander came out. The tension of these last 38 minutes had not slackened. He smiled at the passengers who had thanked him, but he himself was well aware of what had happened and what could have happened, only an hour after the landing, in the hotel...

"And when was everything over, Ivan Petrovich?" I asked the commander. We were talking at his home base of Vnukovo; on the table were charts with which the navigator, Sergey Kokora, later showed how they approached for the landing.

"At 7:50...," the commander answered. And he made it more precise: "No, at 7:53." And I noted the numbers on a pad.

It is good to deal with precise people! Thanks, Ivan Petrovich!

...Everything was proceeding normally then. "Our aircraft is on a flight from Tashkent to Moscow... The flight will be made at an altitude... Fasten your seatbelts... You will be offered a hot breakfast... Time enroute..."

"And when did everything begin?" I asked the commander.

"At 7:15," the commander replied.

The "Il" [Ilyushin] by 7:15 had long since climbed to altitude and broken loose from the overcast, when suddenly the aircraft began buffeting with a severe, unpleasant shuddering.

A heavy buffeting.

"The copilot and I couldn't hold the controls in our hands," the commander said.

"It was buffeting so much that it became impossible to see the instruments--the needles were racing around," the senior flight engineer said.

"Imagine that you're in freezing weather in your clothes--and then drop into an ice-hole. And then you're on a washboard," added the navigator.

The buffeting was like nothing they had ever experienced. "Well, in the Il-62, if airspeed is excessive, a light buffeting will develop, but first of all, not like this, and in the second place, our airspeed was not like that; and besides, on the 62 we..."

"Volodya," the commander ordered the senior flight engineer, who was not occupied at this moment, "run back in the fuselage and see what's there..."

Shleyenkov went. And he had just stepped into the cabin as the aircraft twitched and the buffeting ceased (75 seconds after it had begun, the navigator said). The entire fuselage was vibrating, but not like before, far from what it was... Shleyenkov looked at the engines and they were working normally. What was going on?...

And here a passenger in the back row said: "Look what you have here..." and pointed out the window.

Speaking officially, part of the aircraft's high-lift device proved to be damaged. A situation had developed which not one Aeroflot crew had experienced before. And a decision had to be made instantaneously.

The commander made the only correct decision, as specialists acknowledged later: the Il-86 began descending. There was one more critical moment in the flight: how would the remaining sections of the flaps work?

"Prepare yourselves, the buffeting will begin again and we'll be landing on a field," the commander said. "Volodya, run back in the fuselage..."

Shleyenkov again went back in the fuselage. A stewardess was serving breakfast. All the passengers were calm; only the one at the rear window joked: "Your airplane is falling apart and you're serving breakfast?..." "The airplane is not falling apart," Shleyenkov replied, "and that's why we're serving breakfast..."

There was no further buffeting. Shleyenkov returned to the cockpit. "We'll be landing at Aktyubinsk," the commander decided, and the stewardess took the microphone: "Citizen passengers! For technical reasons our airplane will make a landing at the airport in the city of..."

Strictly speaking, Aktyubinsk was not intended for landings by airbus aircraft. It doesn't have the runway or the concrete. But there was no choice--about 170 kilometers remained to Aktyubinsk...

The ground helped with what it could: it "cleared" a corridor, maintained contact... Advice, recommendations? They do not handle this aircraft in Aktyubinsk. Get in contact with Moscow to explain what happened (when something is impossible to comprehend), and it will take so much time...

In general, they had to rely on their own efforts for the most part.

And first of all on the youngest member in the crew, navigator Sergey Kokora. He was the one who had to reorganize the entire landing procedure for Aktyubinsk.

"You know," the commander told me, "in such unscheduled situations, a readjustment must be made to some optimizing factor, let us say. Roughly speaking, one must come to one's senses. And here Serezha has not even had any time to lose his temper..."

Kokora made all the calculations correctly and as quickly as required. The aircraft came in for a landing.

The first time they didn't "contact." Then the second time the landing gear touched down on the runway on nearly the first slab of concrete. The commander also took a chance here, but the risk was the lesser of two evils: usually with fully extended high-lift devices, the Il-86 lands at 260 kilometers per hour, and here the airspeed was 85 kilometers higher...

The airbus landed almost like a fighter (incidentally, Pankov himself also had been a fighter pilot--he completed the Yeysk school). But will there be enough runway at that speed?...

The commander applied emergency braking. The huge aircraft slowed down and finally stopped--quiet, like a guilty preschooler in a corner.

By 1600 hours an "Il" in reserve picked up the passengers. Not one of the 279 tried to turn in his ticket. The absolute majority of them did not mention anything right up to the landing itself and their exit onto the field.

And an hour and a half after the events, Chief Designer Kovozhilov flew in from Moscow. He looked over the aircraft and shook hands with the commander: "Thanks for the landing!"

Later a special commission also will confirm that it was executed flawlessly.

8936
CSO: 1829/21

CIVIL AVIATION

BRIEFS

NEW AEROFLOT CARGO TERMINAL -- a special cargo terminal will soon appear in the Aeroflot system, specifically at Sheremetyevo. Estimated to handle 150,000 tons of cargo a year, it will be one of the largest in the world and many countries will avail themselves of its services. When the new complex becomes operational, it will be as if a second life has begun for Sheremetyevo Airport which received its first passengers and first cargo 25 years ago. During those years, aircraft flew from there to 23 countries, and now they go to dozens of states. Each week, 32 trips from Africa end here, the same number from Southeast Asia, 65 from the capitalist countries of Europe, and 15 from South and North America. All of this was talked about yesterday during a press conference for Soviet and foreign journalists which was held at the Moscow international airport. An enormous aerial harbor has grown up during the quarter of a century 26 kilometers from the capital. The Sheremetyevo-1 and Sheremetyevo-2 complexes are equipped with automated air traffic control systems. [By V. Chertkov] [Text] [Moscow PRAVDA in Russian 10 Aug 84 p 3] 8802

NEW AN-28 AIRCRAFT TESTING-- Tajik SSR -- service tests of the new AN-28 airplane have begun in the skies of Tajikistan. The test pilots -- Aleksandr Galunenko, aircraft commander; Sergey Tarasyuk, second pilot; and Valeriy Mareyev, flight engineer -- took their seats in the cockpit and we were soon in the air. An original press conference was held on board the AN-28 during the flight. A description of the new aircraft takes shape from the replies of the specialists and the personal impressions of the journalists who were participating in the flight. It differs from its predecessors in its increased reliability, greater speed and comfort. The AN-28 will carry 17 passengers, fly at a speed of 350 kilometers an hour, can complete trips under difficult weather conditions, and land and take off from dirt runways. Its flying range without landing is 1,400 kilometers. The cabin of the aircraft can be easily reconfigured from passenger to freight, medical and postal shipments. V. Razanov, chief of the Tajik civil aviation administration, said: "This is the very plane which is needed for the roof of the world". The AN-28 follows a course to Khorog, the capital of Soviet Pamir; and then, its route lies toward the high alpine airport of Murgab which is located a height of 4,000 meters above sea level. [By IZVESTIYA correspondent V. Surkov] [Text] [Moscow IZVESTIYA in Russian 6 Sep 84 p 2] 8802

NEW LANDING SYSTEM COMMISSIONED -- Ust-Ilimsk-- a modern aircraft landing system has been put into operation at the Ust-Ilimsk airport. It consists of an air traffic control radar and other equipment for insuring the high quality of flights by aircraft. The airport's weather minimums were decreased with the commissioning of the new system, and this means that aviation will be dependent to a lesser degree on the whims of this northern rayon's changeable weather. At the same time, flight safety and regularity and passenger service standards are being raised. Communications personnel from the Bratsk Aviation enterprise took an active part in assembling the equipment and organizing all of the work. Along with Czech specialists, they carried out complicated technical tasks in compressed periods and with high quality. In this, special credit belongs to V. Petukhov, chief of the nav aids and commo operations base; S. Shaydurov, chief engineer; V. Yevdokimov, chief of the radar center; and others. [By VOZDUSHNYY TRANSPORT correspondent Yu. Kolesnikov] [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 11 Sep 84 p 1] 8802

NEW MINSK AIRPORT -- The construction of a new airport based on an individual plan, which was developed by the employees of the Leningrad Lenaeroprojekt Institute working together with Minskproyeckt, is being completed in the capital of Belorussia. The new airport satisfies the most modern requirements. It will be able to receive all types of domestic and foreign airliners. The latest equipment -- flexible transporters and telescoping gangways -- will insure the maximum level of mechanization of all technological processes and will create comfortable conditions for passengers. The airport is divided into international and intraunion sectors that are interlocked with an air traffic control and command point equipped with modern radar equipment. Thanks to a clear-cut division of the passenger streams, the carrying capacity of the new airport will be very high -- up to 1,800 individuals an hour. [By O. Surenko] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 16 Sep 84 p 1] 8802

AN-32 FLIGHT TO BOLIVIA -- La Paz, 12 Sep (TASS) -- Thousands of Bolivians-- representatives of the public, members of the National Congress and the government, journalists and military people -- gathered together in the capital's Alto Airport in order to witness the arrival of a Soviet AN-32 transport aircraft in the country. The plane was making demonstration flights to a number of countries in Latin America. Besides the Bolivians, specialists in Argentina, Brazil, Columbia, Peru, and Venezuela will become acquainted with the Aeroflot airplane. Bolivian airline companies think that the AN-32 can make a considerable contribution to solving the severe transportation problems that face Latin America. [Text] [Moscow KRASNAYA ZVEZDA in Russian 13 Sep 84 p 3] 8802

SAS, AEROFLOT OFFICIALS MEET-- (TASS) -- Satisfaction with the status of cooperation between Aeroflot and the SAS airline company was expressed during a discussion between B. P. Bugayev, minister of civil aviation, and (Ya. Karlzon), the SAS president who was on a visit to the USSR. The discussions

were held on 20 September. Prospects for further expansion of cooperation, including questions concerning the expansion of flights from the Scandinavian countries to Japan over the Trans-Siberian route, were discussed. [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 22 Sep 84 p 1] 8802

KAZAKH IL-86 PILOTS TRAINED -- The first group of Kazakh administration flight specialists have been trained in the Moscow civil aviation transport administration to work on IL-86 aircraft. Navigators V. Sergiyenko, A. Niyazov and V. Shikov and flight engineers V. Shiyarov and K. Kovalyev received permission to work independently. We thank from the bottom of our heart the command and flight staff of the subunit where Engineer Pilot 1st Class G. Smorzhok is the commander. They raised us to a new level and transferred to us, young specialists, their own great experience in operating the wide-body IL-86 aircraft. I would like to especially single out the constant concern of D. Barilov, deputy aviation collective commander; A. Korbman, airship commander and instructor; I. Nazarov, chief navigator; A. Yashin, airship commander; and A. Sorokin, flight engineer and instructor. The day is not far when Kazakh aviators will fly the IL-86 aircraft on the Alma-Ata-Moscow route. They will always remember their friends and mentors -- the Moscow aviators who taught them to find a "common language" with the winged giants. [By R. Mingazov, IL-86 commander] [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 2 Oct 84 p 2] 8802

SHAPKIN OBITUARY-- Nikolay Mikhaylovich Shapkin, Hero of Socialist Labor and honored pilot of the USSR, died on 5 October 1984 at the age of 62. An outstanding pilot who was infinitely devoted to the socialist motherland and to the Communist Party, in whose ranks he had been since 1959, has departed from life. All of N. M. Shapkin's life was connected with aviation. Thirty years of irreproachable work-- this is the best testimonial to the civil aviation pilot. A constant craving to improve, to know the new and to strive to be the first distinguished him. He was among the first in Aeroflot to master the TU-104, TU-114 and IL-62 and was the first one to raise the IL-62M into the heavens. N. M. Shapkin was the trailblazer for many international routes, including the Moscow-Singapore, Moscow-Lima, Moscow-Havana.... Communist Shapkin devoted a great deal of effort to training pilots; he trained and commissioned dozens of aircraft commanders. The motherland has given a high rating to the services N. M. Shapkin, having conferred upon him the title of Hero of Socialist Labor and having awarded him two Orders of Lenin, the Order of Labor Red Banner and medals. [By the Collegium of the Ministry of Civil Aviation] [Excerpt] [Moscow VOZDUSHNYY TRANSPORT in Russian 9 Oct 84 p 4] 8802

CSO: 1829/11

MOTOR VEHICLES AND HIGHWAYS

PLANS FOR MOSCOW-KASHIRA SUPERHIGHWAY

Moscow LENINSKOYE ZNAMYA in Russian 21 Sep 84 p 1

[Article by I. Vol'skiy, engineer: "A Superhighway to Kashira"]

[Text] Fact

The construction of another highspeed modern superhighway from the capital to the country's southeast is being expanded.

The right-of-way of the leading section of this 103-kilometer superhighway begins near the Moscow Ring Road and goes in the direction of the existing Kashira highway bypassing the cities of Vidnoye and Domodedovo and other population centers. Transport crossings at different levels will be constructed at intersections with other roads and the approaches to settlements and cities.

Commentary

Calculations show that in 20 years, that is, approximately by the year 2005, the volume of freight traffic on this highway will grow threefold in comparison with the present, and that of passenger traffic -- 2.6-fold. The highway width of the new highway is being planned for four, six and eight lanes in different sections in connection with this heavy traffic. A divider 13.5 meters wide will be built.

F. Gorokhov, the chief engineer of the installation construction board of the Ministry of Transport Construction's Glavdorstroy, says: "In order to carry out this complex construction project, it is necessary to build large production bases in Domodedovo and near the station of Zhilevo with two cement and soil mixing plants at each base and with repair shops and unloading platforms".

It is necessary to build housing with a total area of 60,000 square meters for the highway builders and also for the resettlement of inhabitants from houses that lie on the right-of-way. The road builders will also construct public amenities in Vidnoye, Domodedovo and Stupino. A great deal of work will be performed to reconstruct surface and underground communications lines and a

number of irrigation and drainage systems. It is necessary to move more than 17 million cubic meters of dirt. A total of 42 bridges and viaducts will be built at intersections with other roads and with reservoirs. Six cattle runs will appear near livestock farms and in places where cattle pasture. The road builders will be concerned about pedestrians and their safety. Side-walks will stretch for six kilometers near population centers, and five pedestrian underpasses will go under the right-of-way. The patrol service of the State Motor Vehicle Inspectorate will receive six stations with helicopter landing areas.

The entire superhighway will be planted with trees and shrubs based on the necessity of decreasing the noise level in the settlements, rest homes and Pioneer camps near the right-of-way. A total of 12 rest areas for motor vehicle drivers and three gas station complexes will be located along the road.

The construction will be carried out in stages--individual underway complexes. One of the first stages is the construction of a motor vehicle bypass for Domodedovo with six lanes of traffic. Its construction has already begun.

The Soyuzdorproyekt Institute, subunits of the Ministry of Transport Construction, the order-decorated Tsentrodorstroy and Mostotrest trusts, and a whole series of subcontracting organizations are planning and constructing the highway.

8802

CSO: 1829/12

MOTOR VEHICLES AND HIGHWAYS

CONSTRUCTION PROGRESSES AT CHARENTSAVAN FORKLIFT PLANT

Yerevan KOMMUNIST in Russian 23 Aug 84 p 1

[Article by E. Simonyan: "Charentsavan Forklift Trucks"]

[Text] The commissioning of the first start-up complex of the most important construction project of the 11th Five-Year Plan, the Charentsavan Forklift Truck Plant, the main enterprise of the recently founded Armavto Production Association, is planned at the end of this year.

Among the projects of the priority complex the foundry building is the main one. Of the 9.6 million rubles of construction and installation work, which were envisaged by the plan for this year, the foundry alone accounts for 9.3 million rubles.

We pass through the shops of the building which stretches a quarter of a kilometer (the total area is about 50,000 m²). We are dazzled by the large number of sturdy metal components. Thousands of tons of metal and concrete were woven together into a stable frame which resembles a fantastic palace made of iron and stone. It is no joke that 16 trains of metal components were used in erecting the "foundry" as a whole.

But the enterprise is unique not only in its scale. A system of purification of the exhaust air discharged into the atmosphere will be used here for the first time, the amount of harmful waste will be reduced as much as possible. Up to 80 percent of the spent molding material will undergo recovery and will be returned again to the works. Four continuous automatic lines of foreign and domestic make will be used.

I happened to attend a meeting of the operational construction staff, which is held here every week. Without listing the names of the administrations, trusts and main administrations, I will say just one thing--it is difficult to name in the republic a special installation organization which has not been enlisted in the construction of the plant. Adjusters of the Gizak firm, who came from the GDR, are also working in the shops of the plant. It is necessary to provide everyone with a work front and to make it possible to use every working minute as much as possible. The season of autumn rains, which

begins here in the middle of September, is approaching. And by this time it is necessary to find time to complete a large amount of roofing work, to lay access roads to the projects under construction and to build intraplant roads. It is very important to find time to lay service lines, which also involves excavation and earth moving.

It is possible to imagine, therefore, the degree of responsibility which has been given to the recently founded Charentsavanstroy Trust. The degree of responsibility and trust. For if commissioning of the project should be disrupted, dozens of industrial enterprises of the country, to which delivery of 6,500 new forklift trucks is planned next year, will suffer. This was discussed at the meeting of the operational staff.

In spite of the fact that the trust as a whole coped with the assignment for industrial construction, the management of the staff considers this insufficient grounds for confidence in the success of the matter. It is necessary to speed up all construction and installation operations in order to ensure the exceeding of the plan by 500,000 rubles and to be ready for any unforeseen delays of the work during the fall and winter.

The operations at other important projects of the complex--the large boiler house and the Charentsavan-3 and Liteynaya transformer substations, whose partial commissioning will support the vital activity of the first section--are being carried out rapidly.

Here they are, the first forklift trucks, which are sparkling with fresh yellow paint and have been formed into a row. In spite of the fact that the start-up of the first section still lies ahead, for the second year the plant is producing machines in one of the press forging shops which has been converted into an assembly shop. Last year 100 of these agile machines left to serve at plants and factories of the country. The plant workers have bound themselves to produce by the end of this year more than 500 loaders.

They are small and "unpowerful" only in appearance. Equipped with a 40-hp. engine, each of them can lift on its "paws" a load of up to 1 ton. Under the crowded conditions of many works and warehouses they are irreplaceable.

For the present the basic capacities have not been commissioned; the majority of components and parts are delivered to the plant from 20 enterprises of the country. With the commissioning of the "foundry" the number of suppliers will decrease significantly.

"What changes will occur in the city in the immediate future in connection with the appearance in Charentsavan of the new large machine building enterprise?" I asked Vladimir Garnikovich Avetisyan, chairman of the city soviet.

"Large is not the word to describe the scale of the forklift truck plant. I will cite a few figures. With the achievement during the 12th Five-Year Plan of its rated capacity the plant will produce 30,000 forklift trucks a year or products worth 150 million rubles. Thereby the gross volume of the commodity production of the city will increase by approximately twofold.

"Connected to the unified power system, the Charentsavan-3 transformer substation will also supply all the other enterprises of the city with electric power. The boiler house of the plant will supply all of Charentsavan with hot water. Apartment houses and a water main from the Solak with a capacity of 170 liters a second have already been built at the expense of the 'forklift trucks,' in the next few years schools, hospitals and a vocational and technical school will also be built.

"The city authorities are taking an active part in the construction of the machine building giant. We are helping the plant with transport and a regular labor force and are promptly settling questions of the organization of the daily life and service of the workers; are providing temporary housing. For the present there are difficulties with the allocation of apartments. A detailed plan of the development of a new residential microrayon for 40,000 residents, in which the future workers of the forklift truck plant will also live, has been drafted by the Armgosproyekt [?Armenian State Planning Commission].

"However, our possibilities are far from meeting the needs of the plant. Being the sole client of housing construction of the city, we are using the assets which have been allocated for this purpose by enterprises or their departments. The Ministry of the Automotive Industry of the country for the present is allocating a restricted limit for housing for the plant. Therefore, this problem is urgent."

The start-up of capacities, whose assimilation will require 450 workers and employees, is planned in less than 5 months. Moreover, the overwhelming majority of them will need apartments, while the plant will be able to supply only 30 families. With the achievement by the enterprise in the next few years of the rated capacity the number of personnel of the plant will increase to 5,000. But the resources of manpower of the city have already been exhausted. This means that it is necessary to attract people from other cities and regions of the republic.

In this connection the construction of housing and sociocultural and personal service facilities is an important condition for the normal operation of the plant.

7807

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MOTOR VEHICLES AND HIGHWAYS

MOSKVICH TEST DRIVERS FIND SPARE PARTS SCARCE

Moscow SOVETSKAYA TORGOVLYA in Russian 1 Sep 84 p 3

[Article by SOVETSKAYA TORGOVLYA special correspondents Ye. Mospanov and A. Datskevich: "The Route Also Tests Us"]

[Text] For several days now we have been testing the motor vehicle. In accordance with the terms of the motor rally our Moskviches travel over asphalt, concrete and dirt roads and even over open terrain. Many difficult kilometers of the route are already behind. And today it is possible to tally several results.

Having passed the excellent Moscow-Kuybyshev route, we turned toward Uralsk. Gradually the road resembled more and more a washboard. And although the dial of the speedometer stood fixed at the mark of 100 km per hour, we practically did not feel jolting. The Moskvich ran easily. Automatically noting with our eyes the ripple of the asphalt surface, we were convinced of how good the suspension of the Moskvich-2140, which even on such a sharp road makes a trip comfortable, is.

But even the best suspension has its limit. When potholes and holes framed with fragments of asphalt began to come uninterruptedly on the road which passes through Orenburg Oblast in the direction of Kazakhstan, the speed had to be reduced sharply. Let us say at once: the Moskvich withstood splendidly the exacting test for durability.

But the road meanwhile continued to give "surprises." On the Uralsk-Guryev-Astrakhan leg it was repeatedly necessary to push through dust and sand drifts, we guessed the direction of traffic only from the telegraph poles. Potholes and holes were concealed under the yellow "drifts." The Moskviches disappeared in them up to the very roof and again appeared on the route, shaking from themselves clouds of sand and dust. Right here we were also convinced of how soft the upholstery of the roof, which we systematically "butted" with our heads, is and how airtight the interior is: sand waves steamed over the tightly closed windows and windshield, the sun beat down to the utmost, but we did not feel stuffiness--the ventilation system operated smoothly.

And here nevertheless was our first loss. On the road out of Astrakhan we discovered that the right rear mudguard--a rubber "apron" which protects the motor vehicles behind from the throwing of stones and lumps of mud from under the wheels--was missing. Apparently, we had torn it off when driving from one of the numerous ferry crossings. "The loss is minor," we decided. "We will make it up on the way."

But nothing of the sort. On the more than 700-km route from Astrakhan to Pyatigorsk there is only one store of motor vehicle spare parts, although this route is by no means secondary. But it was necessary to leave this only store in the city of Elista, the capital of the Kalmyk ASSR, without a purchase: there turned out to be neither mudguards nor even bulbs for lights there. On the way we turned both to filling stations and to industrial goods stores--without result.

What kind of goods for motorists is it possible to find at these trade centers? There is no trace of spare parts at the stores along the road. They are found at filling stations, but...

At the gasoline pump 30 km from Astrakhan they offered us an oil filter from a model of a Moskvich, which was discontinued ages ago, and brake fluid which was not suitable for any of the passenger cars which today are coming off the conveyors of the motor vehicle plants of the country.

Spare parts all the same are sold at gasoline filling stations here and there, but their assortment is surprisingly haphazard. At the filling station in the rayon center of Makhambet of Guryev Oblast in the Kazakh SSR a Zhiguli speedometer and rubber door seals for a motor vehicle, the make of which it was not possible to determine even with the aid of the woman attendant, had gathered dust behind the glass of the shop window.

Why did precisely these parts end up here? And to what owner of a Zhiguli would it occur to look for a speedometer at a gasoline pump? It would be more logical to find here parts which are simple, but necessary on the road--the same bulbs for lights and parking lights, windshield wiper blades, car care products, a selection of bolts and nuts, other small things and, incidentally, the same ill-fated mudguard.

Alas, the needs of car travelers for the simplest motor vehicle items are practically not taken into account by roadside trade. But touring by car has become a mass phenomenon in our country, the number of car owners is in the millions. And all of them are potential customers, who are seeking "their own" item and can make a significant addition to the commodity turnover of trade organizations on the main highways.

There are places in the country with experience in such service to travelers. In Astrakhan on the bank of the Volga we saw an entire town which consisted of colorful booths. The assortment of goods offered here was clearly oriented toward those who travel along the river--from needles and thread and swimming apparel to souvenirs, perfumery and cosmetics. And one had to see with what satisfaction the people, who came from the motor boats, made purchases there.

But let us return to the problem of the mudguard. Having grown tired from the fruitless search, we went into a household goods store, bought an ordinary rubber mat and with ordinary scissors cut out a mudguard. And still it was not our fate to put our item on the car. While we were driving around to stores, our comrades in the motor rally, plant workers at one of the service stations, solved this problem.

Why did we not turn immediately to a motor vehicle service station? For two reasons. The first: these stations are located, as a rule, in large cities which are many hundreds of kilometers from each other. The second: we wanted to check whether trade would help in this, generally trifling case.

We have already told about the result of the check.

7807

CSO: 1829/48

MOTOR VEHICLES AND HIGHWAYS

GENERAL DIRECTOR ON MOSKVICH-2141 MODEL DEVELOPMENT

Moscow TRUD in Russian 14 Sep 84 p 4

[Interview with Valentin Petrovich Kolomnikov, general director of the Moskvich Production Association, by TRUD correspondent S. Snegirev: "The 'Moskvich': Yesterday, Today, Tomorrow"; date and place not specified]

[Text] The manufacture of technological equipment, which is intended for the production of the new front-wheel drive model of the Moskvich-2141 car, has begun at the Moscow Motor Vehicle Works imeni Lenin Komsomol (AZLK). V. Kolomnikov, general director of the Moskvich Production Association, tells TRUD correspondent S. Snegirev about how the preparation for the production of this vehicle is proceeding.

[Question] Valentin Petrovich, 2 years ago TRUD told in detail about the front-wheel drive model of the Moskvich. Then we reported on how the preparation for its production had been started at the AZLK. Since then letters, in which readers of the newspaper have been displaying considerable interest in the new motor vehicle, have continued to arrive at the editorial office. Moreover, many are asking: Will foreign firms be enlisted in the development of the new Moskvich?

[Answer] This motor vehicle was developed and designed entirely by our specialists, but when the development tests began, we concluded a contract with the French Renault firm. Such experience of international cooperation is now widespread, there are even special firms for the operational development of motor vehicles. And such joint tests provide an appreciable advantage: the opportunity to evaluate a motor vehicle with a fresh view and to compare experience. Incidentally, the specialists of the Renault firm speak very well of our new vehicle and believe that if all the jointly formulated recommendations are taken into account in its production, this will be a quite competitive motor vehicle.

[Question] Valentin Petrovich, does this business cooperation cover only the period of tests, or will it be continued in the future, when the production of the new Moskvich begins?

[Answer] After we acquire the equipment necessary for the production of the front-wheel drive model, we hope French firms, especially Renault, will take part in supplying the equipment, the stiff competition notwithstanding. Thereafter specialists of the Renault firm are to make for us a detail design of the assembly shop and develop its layout. So our business contact will not end at the testing period.

[Question] You said "acquire the equipment." Are its import or domestic deliveries meant?

[Answer] Both. Our enterprises--of the Ministry of the Machine Tool and Tool Building Industry, the Ministry of the Electrical Equipment Industry, the Ministry of Heavy and Transport Machine Building, the Ministry of Chemical and Petroleum Machine Building and other ministries--are producing a significant portion of the equipment. Enterprises of CEMA member countries: Czechoslovakia, the GDR, Bulgaria and Poland, should make a significant amount of deliveries. It is necessary to note that the entire process of producing the new motor vehicle will be highly automated, with the extensive use of industrial robots and automatic lines. And even today we are training plant personnel for work with the most modern equipment.

[Question] You have already mentioned the new assembly shop, where the basic assemblies of the Moskvich will be produced. At what stage is its construction?

[Answer] The erection of the reinforced concrete and metal frame of the shop is now under way. Collectives of the Main Administration of Industrial Construction of the Moscow City Soviet and the USSR Ministry of Installation and Special Construction Work are working successfully at the project, workers of the plant are helping them. The Komsomol members of the AZLK came forth with the initiative that every worker of the motor vehicle plant should work 5 days without pay at the construction site of the shop. Their initiative received the most extensive support here.

The construction workers promised to turn over ahead of time the shell of the shop and by 25 December to start heating it. This will make it possible during the winter to carry out the installation of equipment inside the building and to perform other operations.

[Question] As is known, the workers of the motor vehicle plant have undertaken to begin the mass production of the Moskvich-2141 in early 1986. Does this mean that the production of all the former models of the motor vehicle, which the AZLK is presently producing, will be immediately halted?

[Answer] At first we will develop a temporary, transitional manufacturing method so as, without shutting down the plant, to begin the production of the new motor vehicle and to continue the production of old models. Our first capacities are designed for 80,000 front-wheel drive Moskviches a year. The conveyor now in operation will be overhauled in the process of production, and we will be able to increase the production of the new model in order

subsequently to change over entirely to its production. Our rated capacity is 160,000 motor vehicles a year.

[Question] Two years ago when I saw your new model for the first time, it did not yet have its own name. The workers of the motor vehicle plant themselves called the motor vehicle the AZLK-2141. And now we are again saying Moskvich. Thus, is the make remaining the same?

[Answer] Yes. But does "Moskvich" really sound bad?! I remember that there have been many reproaches directed at us lately. And therefore, when preparing for the production of the new model, we first of all decided to increase the quality of the motor vehicle now being produced. For this purpose at the plant a large number of effective measures were implemented, the competition "For a Great Reputation of Our Own Moskvich" was launched and brigades of guaranteed quality were set up. And it must be said that the situation has now improved. It was also possible to make noticeable gains in the solution of the problem of spare parts. We set ourselves the task to supply next year the entire fleet of Moskviches with spare parts. We hope that our make and the new model, which will represent it, will win a great reputation among motorists.

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CSO: 1829/47

MOTOR VEHICLES AND HIGHWAYS

PACE OF CONVERSION TO COMPRESSED GAS FUEL LAGGING

Moscow IZVESTIYA in Russian 29 Sep 84 p 2

[Article by IZVESTIYA correspondents M. Bayzhanov, V. Vukovich, G. Dimov, A. Yershov, N. Lisovenko and M. Shimanskiy (Alma-Ata--Lvov--Tashkent--Gorkiy--Donetsk--Minsk): "Gas Instead of Gasoline"]

[Text] Methane gas may become a motor fuel for motor vehicles. This was discussed in the report "The Truck Does Not Need Gasoline," which was published in IZVESTIYA (No 288, 1980). It was discussed as a significant reserve for saving petroleum. Later our newspaper returned more than once to this important national economic problem. Now, after the passing of nearly 4 years, the doubts that methane is capable of replacing gasoline have been dispelled. The production of gas-cylinder motor vehicles is being carried out, although slowly. The first filling stations have been built. But all the same the conversion of motor transport to the inexpensive fuel still has not gathered the necessary speed.

Who Missed the Advantage?

About 2 years ago one of us had occasion to meet with representatives of the Moscow Motor Vehicle Works imeni Likhachev (ZIL) and the Gorkiy Motor Vehicle Works (GAZ), as well as workers of the USSR Ministry of the Gas Industry. They were all asked the question:

"How soon will trucks, which use smokeless fuel, appear in the cities?"

"What's the hurry?," the automobile workers assured, "if there are no gas filling stations in any city, except Lvov? We can produce vehicles, but the cylinders under their cabs will be useless."

"Of course," the gas industry workers did not object, "we are behind with the construction of compressor stations. But the motor transport workers are obtaining numbered trucks which operate on compressed gas."

The interdepartmental finger pointing gave reason for the next report "In a Vicious Circle" (No 11/12, 1983). It ended with the words: "...A paradox is brewing. The mass production of motor vehicles will begin, but there will be nowhere to fill them with inexpensive fuel. Or, on the contrary, compressor filling stations will appear, but there will be no one to drive up to them." This prediction, unfortunately, is coming true.

The USSR Ministry of the Gas Industry upset the fulfillment of the government assignment. Of the 25 stations planned for the preceding 2 years only 10 were put into operation. Let us calculate the losses. Each station is capable of distributing daily 500 batches of compressed gas. Thus, the 15 enterprises which were not commissioned amount to 7,500 fill-ups which did not occur. All, we underscore, in one day!

Well fine, they will say to us, 10 filling stations all the same are operating, and their capacities, probably, are not idle. We also thought that way and even made a calculation. If 1 batch of methane, for example, is enough for a ZIL for 250 km, all the operating filling stations (their construction cost nearly 20 million rubles) can release in 24 hours inexpensive fuel for 1.25 million km of operation. And thereby an immediate savings of about 370,000 liters of gasoline. Consider: so much in just 1 day. But what did it turn out to be in reality?

In Kazakhstan, where they put into service two stations, the Chimkent and Dzhambul, there are only several dozens of gas-powered trucks. In Donetsk for the present 146 ZIL and GAZ motor vehicles are using the compressor filling station. The Gorkiy Association of Truck Transport has in its fleet 46 vehicles which are capable of filling up with methane. On some of them the gas equipment has been dismantled. A new station with a larger capacity has been added to the old station in Lvov, but very few drivers come to the new one, since in the city there are scarcely more than 200 trucks, and that includes those left from past years.

Do Not Write It Off at Someone Else's Expense.

The USSR Ministry of Ferrous Metallurgy is to blame for the delay of the production by the motor vehicle plants of Moscow and Gorkiy of gas-powered motor vehicles and equipment for the conversion of trucks which operate on gasoline. Its enterprises are not providing the needed number of cylinders. So far a shop for the production of tanks for compressed gas has not been built. And still the automobile makers must not ascribe their transgressions to someone else.

Let us take the Gorkiy Motor Vehicle Plant. In 1981 it made as an experiment several trucks with cylinders. Then the serious preparation of production for series output should have been started. But this did not happen. Nevertheless the headquarters of the sector in 1982 sent out to the Gorkiy workers a plan for several thousand vehicles. It was disrupted. Today the situation is somewhat better. They are trying to keep up with the assignments on gas-powered vehicles, but too few of them are still being produced.

However, you only have to ask the opinion of motor transport workers about the Gorkiy product, and you will hear the same thing that N. Milyak, chief of the Lvov Oblast Administration of Truck Transport, said:

"We received 58 new GAZ's. It was possible to regulate the fuel equipment on only 14. With the others, in spite of the arrival of representatives of the plant, it was not possible to do anything."

Anything else, strictly speaking, should not have been expected. For only recently did the Gorkiy workers acquire their own testing station. Before this the assembled vehicles were sent to recipients without detailed checking.

As before, the quality of the gas pressure regulators is causing particular anxiety. They "behave capriciously" on ZIL's and GAZ's, and here the automobile makers must complain about their own ministry. The Ryazan Avtoapparatnaya Plant, whose items quite often prove to be ordinary defective products, is under its authority.

Due to the fact that the production of pressure regulators has not been set up and the needed number of cylinders are not available, the conversion of gasoline-powered vehicles at motor transport managements is also being held up. Here is just one example: the enterprises of the Belorussian Ministry of Motor Transport just cannot wait until 847 sets of equipment are delivered to them. As a result the Minsk Compressor Station is forced to serve only 40 trucks. That is, it is practically idle.

There is another means of increasing the number of vehicles which use compressed methane, without waiting until the production of new trucks increases. At an all-union seminar in Lvov (1981) it was noted that the use of gas instead of gasoline will improve the air basin of cities, if, of course, the numerous vehicles for the sprinkling and cleaning of streets and for the transportation of bread, nonalcoholic beverages, foodstuffs and industrial goods and refrigerator vehicles are converted to smokeless fuel. However, for more than 3 years no one has been able to suggest a system of the installation of cylinders and pressure regulators on motor vehicles of this kind.

Questions Awaiting Answers

Gas industry workers are just beginning to cope with their new role as operators of compressor stations, but for them conflicts with motor transport workers are already arising.

There is such an organization as the State Committee for Supervision of Safe Working Practices in Industry and for Mine Supervision. In its regulations it is stated: "Gas filling stations carry out the examination of cylinders." Moreover, it is necessary to do this once every 2 years. Otherwise the vehicle is removed from operation. However, they did not envisage such a service in the plans and in the staffs of the new filling stations, and verbal battles are developing among the partners.

"You, and no one else, should test the tanks for compressed methane," the drivers say to the gas industry workers.

"The vehicles are yours, you think about how to fulfill the requirements of the State Committee for Supervision of Safe Working Practices in Industry and for Mine Supervision," the other side replies.

The dispute is continuing, although it is well known that at the stations, which previously existed, there was a center for the testing of cylinders. There was also a repair service at them, which eliminated the leaking of gas in the systems of motor vehicles. But now the gas industry workers do not have repairmen.

Finally, there is another problem, whose solution cannot be put off. It has already been stated that 1 fill-up is enough for a current ZIL for 250 km of operation. But what is a driver to do, if he comes to a city in which there is no permanent compressor station? So, he'll have to open the valve of the gasoline tank? It would be possible not to open it, if there were mobile filling stations. This idea is not new. Such stations previously existed and justified themselves. Precisely for this reason the Soyuzgazprom All-Union Industrial Association developed several years ago a prototype of a domestic mobile gas refueling truck. However, the motor transport workers never saw this prototype.

It has already been written that by the end of the 1980's the fleet of motor vehicles, which use compressed methane, should increase to 1 million. It has also been written that every 1,000 m³ of compressed natural gas, which is burned in the motors of vehicles, is capable of saving the state 57 rubles. In short, a serious competitor for expensive gasoline is appearing. But this important national economic matter must be carried out on the necessary scale.

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MOTOR VEHICLES AND HIGHWAYS

IMPROVEMENTS, PROBLEMS AT KRASNOYARSK TRUCK TRAILER PLANT

Moscow EKONOMICHESKAYA GAZETA in Russian No 37, Sep 84 p 7

[Article by A. Nemshilov, deputy director of the Krasnoyarsk Plant of Truck and Tractor Trailers: "How to Increase the Discipline of Deliveries"; passages rendered in all capital letters printed in boldface in source]

[Text] The use of trailer equipment in the national economy increases substantially the efficiency of the operation of motor transport and makes it possible to decrease the cost of transportation and to increase labor productivity. In this sense the products of the Krasnoyarsk Plant of Truck and Tractor Trailers are well known--it is possible to encounter them in all corners of our country.

But not that long ago the enterprise had the "sad" reputation as a supplier which systematically reneged on contractual obligations. The overall state of affairs with the fulfillment of obligations on deliveries looked as follows: in 1980 the arrears on deliveries came to 15.7 percent of the total sales volume, in 1981--17.7 percent, in 1982--11.8 percent. But in 1983 their proportion decreased drastically to 0.6 percent and remained at the same level in 1984.

The cited data attest to the increase of the discipline of deliveries at the enterprise. I will add that in 1983 and during the past period of 1984 the complete fulfillment of the contractual obligations on the shipment of specialized products--trailer equipment--was ensured.

However, what has been done is still not enough. The arrears on deliveries continue to amount of 600,000 rubles and more. The obligations on deliveries of metallurgical blanks, parts and assemblies in accordance with cooperation and for the making up of sets are not being completely fulfilled, and this means that our consumers are experiencing difficulties with the fulfillment of their own production plans. We are well aware of this and are taking steps to improve the regularity of production. We are placing the main emphasis on the improvement of the organization of production and labor.

At the enterprise a system of process planning and the monitoring of production progress has been introduced, the introduction of the first section of the automated production control system, which envisages the accomplishment of the tasks on the dynamic control of the production and shipment of products, is under way. We have also set up a special bureau of contracts and production planning. Its basic functions are the conclusion of contracts for the delivery of products, the formulation of the delivery plan and, on its basis, the plan for the production and output of products according to a full detailed products list, the recording and monitoring of the fulfillment of these plans. Setting up such a bureau is making it possible to increase the level of intraplant planning.

At the same time a number of, as they say, internal difficulties in the solution of the broached problem exist, and it is simply impossible not to dwell on them.

The insufficiently precise planning of shipments of products under subcontracting arrangements for enterprises of the sector by the higher organization, the All-Union Specialized Vehicles and Trailers Industrial Association, is one of the causes of the disruptions in the production and shipment of metallurgical blanks. In what is it manifested? The all-union industrial association is late in securing consumers and in determining and specifying the range of blanks being supplied and their quantity. It issues the job authorizations late, which delays the formulation of the return plan and the production plan and does not enable the plant to carry out the technical preparation of production or the consumer to transfer funds in good time for materials.

The shortcomings of planning are also a cause of the failure to fulfill the delivery plan for parts and assemblies for making up complete sets of products, which are produced by enterprises of other sectors. The point is that these products are planned by the Ministry of the Motor Vehicle Industry, while they are distributed in sets by the USSR State Committee for Material and Technical Supply. The content of the sets, which is different for each consumer, is revealed only in case of the conclusion of contracts. As a rule, the deadlines of orders for materials are missed, which complicates the timely production of products and gives rise to arrears on deliveries.

Our suppliers frequently cause considerable difficulties. Thus, the plant by way of cooperation receives from the Chelyabinsk Wheel Pressing Plant of the Ministry of the Motor Vehicle Industry diskless wheels and rims for them. The supplier, in spite of our repeated requests, continues to ship these items in bulk, and not in packages, as it does for the majority of other consumers. As a result the possibility of accurate accounting is lost, up to 10 percent of the products, and at times more, become unusable. Unfortunately, the Ministry of the Motor Vehicle Industry has not reacted so far to the entreaties of the plant.

Among the unresolved problems preventing the plant from fulfilling with a high quality the delivery obligations, one should also name the drawn out dispute with the Ministry of Railways on the procedure of transporting easily removed parts of semitrailers. In accordance with the technical specifications, which

have been coordinated with the owner of the rolling stock, such parts should be packed in a stationary metal box, which is attached to the railroad flatcar, is sealed and is placed under the responsibility of the freight carrier. However, the sending station refuses to observe such a procedure. As a result parts are lost during transportation and unloading, the freight carrier does not bear any responsibility.

Now, as is known, the fulfillment of the delivery plan is defined as the ratio of the difference between the planned volume of product sales and the value of the undelivered products to the planned sales volume. All the components of the calculation are taken in a cumulative total from the beginning of the year. Such a method of evaluation in itself to a certain degree rehabilitates the supplier, since when determining the amount of the delivery shortage by a cumulative total from the beginning of the year the same amount of the delivery shortage in percent will come to a value, which is larger at the beginning of the year, and will decrease toward the end of the year.

IT WOULD BE MORE CORRECT, IT SEEMS, TO CALCULATE THE ARREARS ON DELIVERIES FROM THE BEGINNING OF THE YEAR, BUT TO ATTRIBUTE IT TO THE PLANNED SALES VOLUME OF THE PERIOD UNDER REVIEW (THE MONTH, THE QUARTER). THIS WOULD INCREASE THE RESPONSIBILITY OF SUPPLIERS AND WOULD PROMOTE THE OBSERVANCE OF THE INTERESTS OF CONSUMERS.

Let us take another question. The nonfulfillment of such indicators as the sales volume, the total production volume and the basic range of the most important types of products now deprives one of the right to the payment of bonuses in full. The nonfulfillment of the plan of deliveries is fraught with only the partial reduction of the amount of the bonus. Why? For such a situation creates the objective prerequisite for the fulfillment of the production plan by means of products which are not required for the backing of the plan of deliveries during the current period under review, although, perhaps, they are needed during subsequent periods.

Apparently, the resolution of this contradiction lies in the quickest possible changeover to the set of indicators envisaged as conditions of the economic experiment. We are also awaiting the changeover to the new conditions of work. We are waiting and preparing.

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MOTOR VEHICLES AND HIGHWAYS

DEPUTY MINISTER ON GAZ-53 SPARE PARTS SHORTAGES

Moscow EKONOMICHESKAYA GAZETA in Russian No 37, Sep 84 p 17

[Article by Deputy Minister of the Motor Vehicle Industry N. Fedorov in response to a letter to the editor by Yu. Mozgovoy, chief engineer of the Abinsk Garage of the Kuban'kooptrans Trust: "Due to the Lack of Spare Parts"]

[Text] I read the article "How Are Vehicles Used?" which was published in No 5 of the weekly. In it the question of the unsatisfactory supply of spare parts for motor vehicles and tractors is quite correctly raised. For this reason many vehicles are idle. Take, for example, our garage. During the first quarter of this year alone due to the lack of spare parts motor vehicles of the GAZ-53 make were idle for 262 vehicle-days. As a result hundreds of tons of freight were not transported.

And with each year there are fewer and fewer spare parts for these motor vehicles. Although, it would seem, it should be the opposite. For the older the fleet of motor vehicles is, the more spare parts are needed.

Incidentally, the Moscow Motor Vehicle Works imeni Likhachev, which produces ZIL-130 motor vehicles, takes this objective law into account. Spare parts for these vehicles are available in sufficient quantity for the entire range, and irregularities happen only due to their improper distribution.

But the situation with spare parts for GAZ-53 motor vehicles is completely different. When will the supply of them be improved? It seems that this question worries many managers and workers of motor vehicle enterprises. And, in our opinion, planning organs should take better into account the need for spare parts, and in the entire range, while industrial enterprises must punctually fulfill their delivery plans.

Yu. Mozgovoy, chief engineer of the
Abinsk Garage of the Kuban'kooptrans
Trust

Deputy Minister of the Motor Vehicle Industry N. Fedorov comments on the letter.

The growth rate in the production of parts has increased significantly and for several years now has led the increase in output of motor vehicles. But due to the shortage of production capacities and the shortage of material resources for a number of spare parts for motor vehicles like the GAZ-53 the production plan for 1984 was set for enterprises of the sector at less than the standard need.

At present the GAZ and Avtodvigatel'[Motor Vehicle Engine] production associations are taking steps to reduce sharply the number of scarcities in spare parts for GAZ-53 motor vehicles. In 1985 their number will be reduced by one-half as against 1984. By 1986 the production capacities of the plants will be increased until the meeting of the need for spare parts conforms to the rates of consumption.

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MOTOR VEHICLES AND HIGHWAYS

BRIEFS

AVALANCHE PROTECTION EMPLACED -- Ordzhonikidze-- the Transcaucasus crossing motor road, which is under construction, is being dependably protected against mud flow streams and snow avalanches. The builders have put into operation the last system of anti-avalanche structures near the village of Nar. Powerful reinforced concrete barriers, galleries and tunnels now insure the continuous movement of transport. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 30 Aug 84 p 1] 8802

NEW ZAPOROZHETS CAR DESIGNED-- Zaporozhye-- a new design for the Zaporozhets car, which has been given the index number ZAZ-1102, has been developed. The new machine will differ substantially from its predecessors. Its beautiful streamline form places it -- in outward appearance -- in the same rank as the most modern automobiles. The main innovation, however, is that this model has front wheel drive: the front wheels will be the driving ones on it. This creates a number of advantages and insures a great deal of safety. The engine and transmission are located in the front of the new Zaporozhets. Changes will be made in the engine: It will be liquid and not air-cooled. It has a 50-horsepower engine; this will permit a maximum speed of 135 kilometers an hour to be achieved. The time, required to accelerate from a dead stop to a speed of 100 kilometers an hour, takes only 18 seconds. The displacement of the engine is 1,093 cubic centimeters. The weight of the new Zaporozhets is 660 kilograms, more than a quintal less than the present ZAZ-968M. Fuel consumption will be decreased somewhat: 5.2 liters per 100 kilometers at a speed of 90 kilometers an hour. The ZAZ-1102 has already been tested, and it is planned to begin serial production of it in 1985. [By V. Krivenko] [Text] [Moscow NEDEL'YA in Russian No 36, 3-9 Sep 84 p 4] 9902

OVERSIZE CARGO CARRIER DESIGNED -- Chelyabinsk -- the designers of the Chelyabinsk Tractor Trailer Machinebuilding Plant have begun to develop the plans and specifications for a "land barge" designed for operating under the conditions of the Tyumen North. This enterprise is known in the country as the supplier of overweight transport assemblies for shipping unusual and oversized cargoes. With their help, for example, a scientific research vessel was delivered at one time to Lake Issyk-Kul and gigantic transformers, chemical reactors and frames for rolling mills have been transported. A 600-ton

assembly is now undergoing tests. Next will be the building of a super-powerful heavy transporter capable of accepting cargo with a weight of 1,300 tons and transporting it under severe climatic conditions over rugged terrain. This will truly be a "land barge". Its length is 60 meters, and it has its own electronic automatic steering. It will be able to "sail" over dry land thanks to the synchronized interaction of 144 suspension systems, 576 wheels and 288 braking mechanisms. The building of the machine was caused by the need to insure the very rapid commissioning of the Yamburg condensate deposit in Tyumen Oblast. Considering the long polar nights and low temperatures, its construction will be carried out using large units fully prepared at the factory. It is understandable that an especially powerful piece of equipment will be required to transport them. [By PRAVDA correspondent V. Cherepanov]
[Text] [Moscow PRAVDA in Russian 23 Sep 84 p 1] 8802

CSO: 1829/12

RAIL SYSTEMS

MORE ON NEW NUMERICAL ID SYSTEM FOR SOVIET ROLLING STOCK

Moscow GUDOK in Russian 27 Jul 84 p 2

[Article by I. Kharlanovich, Deputy Chief of the Main Technical Administration of the Ministry of Railways: "The Calling Card of a Car"]

[Text] The further development of rail transport and the improving of the entire shipping process are inconceivable without the broad use of computers and the introducing of automatic control systems. For this, in turn, it is essential to have reliable primary documents which can be easily machine processed and which are simple, convenient and dependable in use.

In this context, ever-greater importance is being given to a numeration system which is precise and contains the necessary initial information for the rolling stock in service on the railroads. As is known, the car number, for example, is the most economic and universal means of accounting in many types of operating activities. It is a permanent attribute and a sort of basis for all shipping documents.

In 1963, a numeration system was adopted for freight cars and this made it possible from the number to determine the type, the number of axles and the basic technical characteristics. However, due to the significant replacement of the freight car fleet and the appearance of new types of cars, the current numeration system no longer meets today's needs. Moreover, the lack of a coded numeration system for the passenger cars, locomotives, track equipment and other rolling stock has created difficulties in organizing operations with the broad use of computers and has held up a further rise in the carrying capacity of the railroads.

Above all, this system is unable to reflect the changes occurring in the fleet structure considering even the immediate future. In it there is not sufficient detailing for the various types of rolling stock in terms of such major operating parameters as length along the automatic coupling axes, the volume and particular features of the body. In actuality this has led to a situation where in forming up the trains cars of different types have been put in one group. Thus, the length of the consists is artificially overstated and the capacity of the receiving and dispatching tracks is not fully utilized.

Furthermore, in the current numeration system, the designations for the types of rolling stock have not been standardized in terms of length, shapes and

symbols. Finally, in the existing numbers no provision has been made for their code protection against distortions.

At the same time, the automated system for the operational management of the shipping process (ASUDO-D) which is being introduced at present is based upon the information data of the train schedules. The models of the train situation created by the designated system are based upon a single identifier, the car number, for which all the remaining data about the car are formed. At the same time a whole series of operating problems is being solved including the transfer of cars across boundary points, the tracking of various types of rolling stock, an analysis of the cargo work carried out (the loading and dispatch plan), individual-number accounting of car stoppages on the spurs of the enterprises and centralized accounting of the stock fleet of freight cars. In accord with the long-range plan during the 12th Five-Year Plan with the aid of computers up to 85 percent of the train schedules will be drawn up by computer.

Under these conditions, the question of the correct entry of the car number on all the primary shipping documents plays a crucial role. Consequently, there is an urgent need for better methods of recording the basic types of rail rolling stock. Such work has been done. In mid-May an order was published by the minister of the railways on introducing a single unified system for numbering the rolling stock of the MPS [Ministry of Railways].

What is this new system? First of all, it is essential to emphasize that, in being based on the current 7-digit numbering structure, it differs in the fundamentally higher quality characteristics. The range of its use encompasses over 440 types of freight and passenger cars, locomotives, rail-car sections and various track equipment. For comparison we would point out that the more or less orderly numeration system covered only 70 types and basically freight cars.

The new numeration system envisages further detailing of the freight cars by their purpose and basic technical and operating parameters. This simplifies the drawing up of the shipping documents and ultimately leads to better work of the operational and car workers. Of the 170 types of freight cars which have been given the new numbering system, 6 types of universal boxcars, 22 types of flatcars, 40 types of tank cars, 65 different types of transporters as well as other varieties of the freight fleet have been coded with their technical characteristics. This made it possible gradually to convert to the more effective placement of the freight thereby increasing the static load and creating better conditions for mechanizing the freight handling work. Experiments on the Belorussian Railroad have shown the possibility of increasing the static load for boxcars by 0.2-0.5 ton due to this.

Because the difference in the length between the automatic coupling axes in cars with a brake platform and without it is from 490 to 620 mm, there are plans to assign the digit "9" as the last digit of the number for designating the first of the indicated car categories. Persons making up the trains must give particular attention to this circumstance as they have an opportunity to consider not the maximum possible conditional car length but rather the actual. In practice this will mean that in approximately one out of every two trains made up with a length restriction it will be possible to incorporate an additional car without violating the demands related to train safety. Thus, the

introduction of the new numeration system will make it possible to provide greater weight and length of the trains and, respectively, a greater real carrying capacity by 0.2-0.4 percent. This is the equivalent of increasing the average train weight by 20-25 tons and with the same number of trains to dispatch daily 3,000-4,000 additional cars.

The number for all categories of passenger cars has been further improved and now they will begin with a "0". The second and third digit of the number are the code of the railroad to which the car has been assigned, the fourth-seventh correspond to the number of the technical specifications of the passenger car and from which it is possible to obtain a complete description of it as stored in the computer memory.

In terms of traction and special rolling stock, up to now a strict (constant) law for forming the number has not been applied. Various types of locomotives and track machines carry numbers which differ substantially in terms of the code length (from 5 to 11 digits) and supplemented with letter information. This does not correspond to the requirements of standardization and makes it impossible to effectively transmit the corresponding data for computer processing.

The new numeration system eliminates the designated shortcomings. In terms of the locomotives and track machines, it is based on a 7-digit number with an analytical principle designating the technical and operating features. The number gives in a coded form: the type of traction or special rolling stock, its main design features, purpose, type of traction transmission and type of current. For multisection locomotives and motorcar rolling stock, considering the possibility of their reforming in the operating process, provision has been made to designate each section or car separately. From the number of any unit of traction rolling stock, it is possible to determine its length, weight and conditions for placement in the train in traveling in a nonoperating state.

The new system also provides for distinguishing numeration for the rolling stock belonging to other ministries and departments having the right to use the MPS tracks. Common to all types and sorts of railroad rolling stock is the presence in the standardized 7-digit number of the eighth or control digit which securely protects the designation entered from the schedule into the corresponding document against distortion. The effectiveness of this measure can be seen from the following: if at present one error occurs in approximately every 100 numbers entered on the shipping and production documents, with the new system the tolerable error will not exceed 1/10,000 of a percent.

Also important is the solving of the question of choosing the clearest and most rational design and size of the digits for designating the numbers, thereby ensuring their correct visual reading.

Thus, the new numeration system encompasses all the rolling stock of the MPS. By an order all preparatory work should be completed before the end of the current year and the renumbering itself is to be carried out from 1 January 1985 through 1 July 1986.

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RAIL SYSTEMS

AUTOMATED NETWORK LOAD MODELING SYSTEM IN DEVELOPMENT

Moscow GUDOK in Russian 31 Jul 84 p 2

[Article by A. Semenyako, Director of GiprotansTEI [State Institute for Technical and Economic Research and the Designing of Rail Transport] and Yu. Timokhin, Deputy Director of the Institute in Moscow: "The Effect of Automation; A Computer Models Transport Ties"]

[Text] How can transport and economic ties be rapidly calculated? For the railroad workers who serve 133 administrative oblasts (18,500 rate and commercial points), the question is of great practical importance. Certainly how quickly the calculations are ready and their accuracy and reliability ultimately determine the degree to which the capacity of the roads can be used and the ways for rationalizing the shipments. For this, specialists from GiprotansTEI [State Institute for Technical and Economic Research and the Designing of Rail Transport] have developed an automated system for calculating the network load factor (ASRZS). Computers are helping in significantly accelerating the matter.

A notion of the amount of information which must be processed with the traditional "hand" method of modeling the load factor for the railroad network can be seen from the figures of 342 million and 56 million. This number of ties must be entered into the "checkerboard" [matrix] which calculates the passengers and freight. If, for example, one takes just the 56 million cells of the "checkerboard" and reduces them to a notebook form of 100 sheets each, then the notebooks would be stacked in 10 piles some 11 m tall. This is the mound of data which would have to be processed! According to the humblest figures (under the condition of simplifying the calculations), this would take 1.5-2 years.

It has not been at all easy to convert the calculation work to computers. The repetition of "manual" techniques in a machine variation is not satisfactory due to the large number of errors and inaccuracies. And a purely machine technology makes the obtained results extremely cumbersome to use. The solution had to be sought in developing a system for processing the transport and economic information which would also be convenient for man and the computer. And such an automated system was created.

On what is the development based? It is based on a technological (universal) transport network which, as if from molecules, is made up of 2,000 elements. These elements are the technological centers and sections and have been obtained by grouping the rate-commercial points which perform similar shipping operations, which gravitate uniformly to the same territory and so forth.

It was very important to select such a method of aggregating the network in order not to distort the functional content of the problem. And this we succeeded in. The information was systematized and its volume was reduced by almost 14-fold. Here there was also a great increase in the detailing of the process. The man-machine mode made it possible to carry out all the enormous amount of computational work on a computer while man was given the analysis and evaluation of the information.

This in general terms is the ASRZS system. Its introduction is envisaged for figuring the shipping volumes and for their technical support. Ultimately, by using the system, it will be possible to calculate recommendations for entire complexes of network development encompassing all the rail sectors.

In 1983, programs were laid out for the first stage of the ASRZS and their introduction in the mass calculations was completed. The "manual" and "machine" results for the shipping volumes of the year 2000 coincided rather well, by 99 percent. But the degree of detailing for the freight flows (the traffic density) in the machine versions is generally far beyond comparison with manual calculations.

The ASRZS has made it possible to establish an integrated bank of calculations for the year 2000. This includes all the balancing of the freight and freight flows. And the special "program library" which has been an opportunity to solve variant problems for the loading and development of the network for the shortest and set routes for the movement of the freight flows.

The materials collected in the calculation bank are unique. In terms of accuracy and detailing they have no analogue. The time spent on working them out is just several weeks. Due to this, it is possible to critically assess the degree of soundness for the recommendations concerning the development of the network and to choose the optimum variation quickly from among numerous possibilities.

The turning over of the "routine" calculations operations to the computer has largely freed the engineers and economists at the institute. Previously such activities comprised 50 percent of their working time outlays. Now this time has been freed for a more profound study of the prospects for transport and economic ties in the national economic sectors. The cost of design work has been reduced. In truth, for the automating we had to find not completely traditional ways to collect the information, to work out the "process algorithm" and so forth. On the other hand, there is a clear benefit as the compiling of the economic information for the railroad development system was completed 3-4 years earlier than usual.

The capabilities of the ASRZS are not exhausted by just design studies. The information obtained and the programs can be used in solving a number of problems related to improving the work process of rail transport. For example, it would be possible to create a system for effectively monitoring the rationality

of carrying out the shipping work. Such a system would make it possible within 15-20 days after the end of each month to have information for the main administrations and railroads for "reflection" and taking measures.

The system of "inter-section" block trains could be made more effective and this would make it possible (this has been shown by specific calculations on the line) to increase the number of block trains by 2-4-fold. Finally, there is the enticing idea of constructing models which would "play out" various situations for the operation of the network under the condition of observing certain standards and conditions. This could provide rich food for analyzing transport losses. But for this additional forces would have to be called in.

During the current year, the institute is to work out the software and introduce the mass calculations for the problems of the second stage of the ASRZS, that is, the "amounts of shipments." As a result, an estimate will be obtained for the shortage of throughput and processing capacity in the network. Expenditures on introduction will be paid back in 2-3 years by reducing the cost of design work. Automating the calculations for the development of the network play a major role in increasing the efficient operation of rail transport.

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CSO: 1829/386

RAIL SYSTEMS

RAILWAYS 1ST DEPUTY MINISTER ON USE OF LONGER, HEAVIER TRAINS

Moscow GUDOK in Russian 18 Jul 84 pp 1-2

[Article by V. N. Gin'ko, 1st Deputy Minister of Railways and Chairman of the Central Commission of the Ministry of Railways for the Planning and Operating of Heavy Trains: "Heavy-Weight Traffic"]

[Text] It can be said with assurance that increasing the weight and length of the trains is the main reserve for handling the increasing shipments and a major lever for intensifying and increasing the efficient operation of the railroads. A decisive switch of the national economy, including transport, to a path of intensive development is the core of the party's economic strategy at the present stage.

Calculations have shown that over the present and future year the volume of freight shipments should increase by 170 million tons and at the end of the 11th Five-Year Plan reach 4 billion tons. Here the increment in the freight turnover will be 150 billion ton-kilometers and this itself in 1985 will reach 3.75 trillion ton-kilometers. How can such a significant increase in shipments be handled?

During the 1960's and 1970's, approximately two-thirds of the increase was met by increasing the amount of traffic. This led to a significant rise in the train flows. On the major electrified lines (and they are responsible for around 60 percent of the freight turnover) traffic density was so great that it was simply unrealistic to plan on a major increase in the amount of traffic. Each additional train would lead to a very tangible drop in the technical and section speed of all the others and, consequently, would retard the progress of the car flow. Here there was virtually only one way out, to increase the weight of the train. On lines operating with diesel traction it was possible and necessary to increase the amount of traffic. But here as well a significant effect could be gained from increasing the weight of the consists. Favorable possibilities for this had been established by the achievements of scientific and technical progress in traction and brake equipment.

In June of last year, at an enlarged session of the Board of the MPS [Ministry of Rail], the task was set of increasing the train weight by 100 tons in both 1984 and 1985. Some persons wondered if this was not a fantasy. During the previous years, a maximum increase of 26 tons had been achieved. And now they wanted 100 all at once! But the wager was made not on the customary, so to

speak, evolutionary development of heavy-weight traffic but rather on a transition to a qualitatively new stage in it.

The progressive methods developed by the collective of the Moscow Railroad served as a reliable guide. Here the initiative of the leading engineers and dispatchers was reinforced by scientific and engineer studies. The operating of the heavy-weight and long-consist trains was made into a process and into a schedule. Efforts were concentrated on the unconditional fulfillment of this schedule by the workers of all the basic services including traffic workers, locomotive workers, car workers, power workers, track workers and communications workers. The people were given a moral and material incentive for a high end result. And such a purposeful, integrated and truly engineering approach to the difficult problem brought outstanding results. Over the period from 1979 through 1983, here they succeeded in increasing the weight by 189 tons and in the first half of the present year by another 95 tons.

As is known, the initiative of the Moscow Railroad workers was highly praised by the CPSU Central Committee and was recommended for extensive dissemination. Recently, one of the initiators of introducing the new system, the electric locomotive engineer from the famous Moscow Marshaling depot, Viktor Fadeyevich Sokolov, was awarded the Order of Lenin and a second Gold Hammer and Sickle Medal. In presenting the high award to him, the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade K. U. Chernenko, commented: "Along with your collective, with all the engineers, technicians and white collar personnel of the Moscow Mainline, you have been the initiator of accelerated freight shipments due to increasing the weight and length of the trains. This initiative now has been widely picked up in the nation."

Many valuable innovations have also arisen on the other railroads in the process of developing heavy-weight traffic. All of this has created an assurance that the task of increasing the average weight of a train by 100 tons a year is a fully realistic and practically feasible one. Of course, it has been necessary to carry out extensive organizational work on the roads, divisions, line enterprises, to involve the scientific research and design organizations in solving a number of problems, to further activate innovative search and widely develop the socialist competition.

Now, with the 6 months behind us, certain results can be summed up. Over the last 6 months, the average train weight has increased by 85 tons and reached 2,954 tons. This is the first time that such an increase rate has been achieved for this important qualitative indicator in our work. The results have been even greater on a number of roads. On the Tselin Railroad the increase was 142 tons, on the Alma-Ata 138, the Baykal-Amur and Moldavian 134, the West Siberian 115, the Belorussian 110, the Kemerovo 107, the Dnepr and South Urals 105, the October 103, the Lvov 102 and the West Kazakhstan 101 tons. Another nine mainlines were close to the 100-ton goal. All the railroads, with the exception of the Azerbaijan, met the plan quota. At the same time, as a whole in the network the static load increased by 320 kg.

What did the increase in the average train weight of 85 tons mean?

In practical terms, this handled the entire increase in freight dispatches of 47.8 million tons and the freight turnover of 37.5 billion ton-kilometers. Analysis shows that by increasing the weight and length of the consists, it took 421 trains less each day to handle the amount of work performed. The total volume of shipments rose while the amounts of traffic declined by 1.3 percent. Hence, it was easier to assign "windows" for repairs. This also helped to increase the section speed by 1 km an hour and the technical speed by 0.6 km an hour.

Around 90 percent of the increase in locomotive productivity was achieved by increasing train weight. The increase in the static load made it possible to raise car productivity by 3.6 percent and free tens of thousands of cars a day for additional loading. The lengthening of the consists provided virtually all the increase of 4,400 cars in the transferring of the cars over the interroad links.

The heavy-weight traffic also provided a solid savings in energy resources with 20,000 tons of diesel fuel and 60 million kilowatt hours being saved in train traction. It also told favorably on the major economic indicators for transport operations. The entire increase in labor productivity, over 40 percent of the reduction in shipping costs in comparison with the plan and around one-third of the profit were obtained as a result of increasing the average train weight.

Nor can one disregard another aspect: the purposeful, collective search for reserves united the railroad workers, it strengthened their confidence in their own forces and capabilities, it helped develop creativity and the socialist competition became more concrete and, hence, more effective. Now the task is to reinforce and add to the success, and to make the experience of the innovators and leading collectives available to all railroad workers and then the standard. The party teaches us to carry out major tasks in this manner and the interests of the nation and the people demand that we act thus.

What specific results must be achieved? In the present and future years, we must constantly increase the average train weight by 100 tons. Each railroad should have a specific plan of measures for doing this. The main administrations of the ministry must give thought to organizing the running of heavy-weight consists on entire runs. There are many other reserves and possibilities.

First of all, it is essential to erect a strong barrier against trains which are below weight and without a full consist. Their share as yet is, respectively, 1.8 and 2.3 percent. With our scale of traffic, this means hundreds of trains a day.

We must do more to have the additional loading of cars traveling empty to areas of the mass dispatch of national economic products. A simple calculation shows that a 1-percent reduction in the empty travel of the cars would make it possible to increase the average weight of a train by 25 tons. As yet in the current year, the empty run has remained on last year's level. We must not shut our eyes to this.

The opportunities for increasing the static load are far from exhausted. Some 12 railroads have not met the quota for this indicator which directly influences average train weight. Along with the freight dispatchers we must more tenaciously seek out opportunities for better using car capacity.

Much, very much can and should be done to increase train weight on the basis of the fuller utilization and increasing of capacity for traction units. Where this is advisable and where it is economically justified, they must employ pusher engines, double traction and replace the locomotives with more powerful ones. In this manner weight can be increased on entire runs.

We have lines where a significant portion of the trains carries heavy freight. The length of the station track makes it possible to increase their weight. But parallel increased weight standards must be introduced. And this must be done more boldly. For example, with station tracks 850 m long, it is possible to make up trains with mixed freight weighing 3,300-3,600 tons, and block trains with coal, oil products and ore weighing 4,500-4,700 tons. There is an analogous picture on lines with station tracks of 1,050 m. Here they can handle block trains with heavy freight of 6,500-6,700 tons when the usual trains weigh 4,200-4,500 tons.

Life demands the wider use of the possibility of controlling the locomotives in a system of multiple units. As of now, only around 30 percent of the fleet of 6-axle VL60 electric locomotives is operated in this manner. On the East Siberian, North Caucasus, Southwestern and Krasnoyarsk Railroads, they have not realized the possibility of controlling a raft of VL80s electric locomotives from a single cab. Three-section electric and diesel locomotives are not operated at full strength on the Sverdlovsk, Alma-Ata and Central Asian Railroads.

We must accelerate the equipping of the locomotives with an electronic control device using a multiple-unit system of the SMET type developed by the VNIIZhT [All-Union Scientific Research Institute for Rail Transport] and have these in dependable operation.

Up to now we have been discussing the fuller use of the length of the station tracks. A significant effect could be gained if we more widely ran long-consist block trains. Research conducted by scientists from the VNIIZhT, together with specialists from the Moscow, North Caucasus, Tselin and a number of other railroads, has convincingly confirmed that there are no grounds to fear the development of longitudinal forces which would be dangerous for breaking the consist and crushing the cars in operating block trains weighing up to 16,000 tons. These are made up as follows: one locomotive at the head, the other at the tail or several locomotives scattered along the length of the consist. There is a single brake line. Control of braking and traction is by command from the engineer of the head locomotive over radio.

The future lies with such methods. Of course, we will also lengthen the station tracks. But this is an expensive matter and not a rapid one. And time does not wait.

Now a word about the superheavy trains. A number of experimental trips, as is known, has already been made. Not all of them, in truth, were successful. But

it can still be said with confidence that on certain runs with a predominant flow of heavy freight, such a transport method is highly effective, it must be worked out and developed and each trip prepared for with particular care. Here there are also questions which require further scientific study.

In speaking at the February Plenum of the CPSU Central Committee, Comrade K. U. Chernenko emphasized: "The new five-year plan should become primarily a beginning to profound qualitative changes in production and a five-year plan for a decisive change in the question of intensifying all the sectors of our national economy."

A further increase in the weight and length of the trains should become a major component in this policy of intensification in rail transport. At present, we have begun to work out a comprehensive program for developing heavy-weight traffic during the 12th Five-Year Plan and for the long run up to the year 2000. Here there is a major range of problems and questions. Everything must be coordinated into a single whole: the development and equipping of the railroads with high-powered locomotives, 8-axle condolas and tank cars, the delivery of heavy-type rails and frogs, strengthening the power supply equipment, replacing old span structures of bridges, lengthening the station tracks, preparing the network to handle outsized rolling stock and so forth. The work is extensive and complex and it must be actively carried out.

As was recently emphasized at a network selector conference devoted to heavy-weight traffic, life demands that no opportunity be overlooked for increasing the weight and length of the trains. Each railroad worker should make his own personal contribution to the common struggle to activate this major reserve of ours. Here there is the broadest scope for showing initiative and innovativeness and on this must be focused the efforts of the scientists and specialists, the competing collectives of enterprises and transport subdivisions. A fusing of science and practice is the guarantee for success.

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RAIL SYSTEMS

LENGTHENED TRAINS TO IMPROVE PASSENGER SERVICE

Moscow GUDOK in Russian 19 Jul 84 p 1

[Article by GUDOK Correspondent Ye. Pinkus from Yaroslavl: "The Experience of the First Trips "]

[Text] The lengthened passenger train No 601/602 has made its fourth trip between Yaroslavl and Moscow and there was a thorough discussion of these trips at the administration of the Northern Railroad. The deputy chief of the railroad V. Krylov stated that on Sunday there were many vacant seats. It turned out that in the past on this day the number of passengers declined. There are fewer persons on business trips and the tourists spend their day off in Yaroslavl. The future will show whether it is advisable to keep a large number of cars in the consist on Sundays.

As was already announced in GUDOK, due to the long-consist train, there was no need in Yaroslavl to reserve four cars in train No 641 between Kostroma and Moscow. In the course of the analysis, the railroad chief V. Predybaylov checked how preparations were going to lengthen train No 645/646 between Kostroma and Moscow. From the example of Yaroslavl, a decision was taken to build here loading pedestals with steps. Only their size would be increased. The calculation showed that the lengthening of this consist would make it possible to eliminate the additional train No 641/642.

During the first trips of the long-consist train between Moscow and Yaroslavl, on the line there were several warnings to reduce speed to 40 and on the inbound switches at Rostov-Yaroslavl Station even to 15 km an hour. The Chief of the Track Service V. Platonov described the measures taken due to which these and other warnings will no longer be necessary by the time of the next long-consist train.

The entire range of services was examined. For example, many had complained of stuffiness in the cars. As the chief of the road disclosed, measures have been taken for the continuous operation of the forced-air ventilating.

Now on the supply of drinking water and cold beverages for the passengers enroute. The capacity of the train buffet makes it possible to carry only 50 boxes with mineral water and fruit beverages. Of course, this is not enough for the trip. The initiative of the conductors was useful. They took it upon themselves to sell water. On the following day after the analysis, the train, in addition to the 50 crates in the buffet, had another 48, two in each car.

Considering that in the lengthened train there are 1,700 passengers and anything can happen with people, the chief of the medical service of the railroad V. Platonov assigned medical workers who will accompany the train daily.

Finally, how the arriving passengers are to reach their homes. I recall the trip on 13 July. The train arrived in Yaroslavl after a heavy downpour. Hundreds of people with baggage piled up at the municipal transport stops. Now this problem also has been solved. For the arrival of the long-consist train, they have begun to bring up twice the number of buses and the number of streetcars, trolley buses and taxis has been significantly increased.

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RAIL SYSTEMS

MOSCOW RR BEGINS RUNNING LENGTHENED PASSENGER TRAINS

Moscow SOVETSKAYA ROSSIYA in Russian 14 Jul 84 p 2

[Article by I. Vol'skiy: "For the Benefit of Passengers"]

[Text] Yesterday an unusual train left the Yaroslavl Terminal in Moscow. Instead of 16 cars, the electric locomotive was pulling 24. This event was commented on by the chief of the Moscow-Yaroslavl Division of the Moscow Railroad, I. B. Uglitskiy:

"Each year, the passenger traffic increases by 5-7 percent. However, all the reserves for increasing the capacity of the railroad have been exhausted as the trains now travel literally right on each other's tail. What could be done? Specialists decided to lengthen the already existing consists by 1.5-fold. Hence, the 8 additional cars will carry another 400 passengers. Here the track is freed, energy is saved and most importantly labor productivity of the engineers doubles. Previously two locomotives were driven by two brigades but now one is sufficient with the aid of synchronized control.

"It was not easy to prepare for the experiment. One of the station platforms had to be lengthened from 450 to 700 m, an additional yard for the holding and equipping of the consists had to be established and substantial changes made in the electrification and track system."

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RAIL SYSTEMS

BRIEFS

SERVICE FACILITIES--Ust-Kut (Irkutsk Oblast)--Dozens of electric locomotives will be serviced hourly at the locomotive depot being built at the Lena Station, the beginning of the Baykal-Amur Mainline. The line is now being electrified. The depot will go into operation at the end of next year.

[Text] [Moscow SEL'SKAYA ZHIZN' in Russian 30 Aug 84 p 1] 11574

THYRISTOR PRODUCTION--Tallinn--Increased locomotive power and economy are assured by thyristor devices which a new production complex, the Tallinn Electrical Engineering Plant imeni M.I. Kalinin, has started producing the new converters' high operational reliability has been proven by tests which were conducted over a three year period on railroad lines in Estonia. Transport workers highly value the simplicity of control and servicing the locomotives with the new converters. Hundreds of thousands of kilowatt hours of electrical energy were saved during testing. The new production complex was started up three months ahead of schedule. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 23 Sep 84 p 1] 11574

NEW SUBWAY LINE--Speeding up the work pace on the construction of the start-up section of the "Obukhovo-Rybatskoye" Nevsko-Vasileostrovskaya Line, Leningrad Metro builders are simultaneously expanding the work front on the new Pravoberezhnaya Line. It starts off from the Nevsko-Vasileostrovskaya Route at the Ploshchad' Aleksandra Nevskogo Station, which will be the city's fourth transfer station. The underground line crossing is a very complicated installation. Its construction is especially difficult because many of the rooms and sections of tunnels here are being built right near operating lines. The driving of side tunnels is continuing, preparations have begun for the installation of escalators in the deep excavation and the first and very important step has been made in digging the transfer tunnels. In the ready section of the right track tunnel, builders have begun pouring a heavy ferroconcrete foundation for steel columns which will hold up a 1,000-ton arch roof. The set-up of a tunnel boring machine is being completed in the opposite end of the section under construction, in the left tunnel at the Prospekt Bol'shevikov Station. This is a long dead end line which will later become a route for the subsequent section of the Pravoberezhnaya Line. [By A. Basov] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 21 Sep 84 p 2] 11574

NEW RAILROAD CHIEF--By order of the Ministry of Railways, Nikolay Andreyevich Belogurov has been released from his duties as first deputy chief of the MPS [Ministry of Railways] Economic Planning Main Administration and appointed chief of the Asian Railroad. N.A. Belogurov was born in 1927. He is a member of the CPSU and a railway engineer for line operations. Working on the railroad since 1947, he has been an operator, station guard, stationmaster, department deputy chief and chief, chief engineer and division chief, service deputy chief, and chief engineer and deputy chief of the Northern Railroad. Since 1981 he has been working in the MPS apparatus as first deputy chief of the Economic Planning Main Administration. He has received the orders of the October Revolution, the Red Labor Banner, and medals. Aziz Mavlyanovich Kadyrov has been released from duties as chief of the Asian Railroad and has gone on pension. He was thanked for his long years of work in railroad operations. [Text] [Moscow GUDOK in Russian 17 Oct 84 p 4] 11574

CSO: 1829/6

MARITIME AND RIVER FLEETS

'ASTRAKHAN' MULTIPURPOSE CARGO SHIP PROFILED

Moscow SUDOSTROYENIYE in Russian No 6, Jun 84 pp 3-5

[Article by E.M. Dmitriyev: "The Motor Ship 'Astrakhan' With Combined Cargo Working"]

[Text] A series of universal dry-cargo vessels with combined cargo working is being built for our nation at the Warnowwerft People's Enterprise in Warnemunda (GDR). The head vessel of the series "Astrakhan" was commissioned in the maritime fleet in December 1983. It is designed for transporting general, bulk, heavy and large-sized cargo, 6.1- and 12.2-m containers of conventional and increased height (including up to 30 refrigerated containers), wheeled equipment with fuel in tanks and trailers as well as crated dangerous cargo.

The motor ship "Astrakhan" is a twin-decked, single-screw vessel with a long forecastle and poop, surplus freeboard, a bow bulb and transom stern, and with stern placement of the superstructure and loading ramp. The vessel was built for class KM * L2A2 of the USSR Register. Although the symbol for the vessel's class includes the sign for automation A2, the amount of automation basically corresponds to a symbol A1.

Basic elements and characteristics:

Length, m	
Over-all	172.3
Between perpendiculars	161.0
Beam, m	23.1
Height of side, m	13.70
Draft, m	
To load line	10.0
To design waterline	9.0
Coefficients (for DWL draft)	
Block coefficient	0.687
Waterline	0.822
Midship	0.976
Dead weight, tons	18,020
Displacement, tons	26,770
Capacity	
Grain, m ³	18,725
Bale, m ³	25,030
For containers, units (total--on upper deck)	529/180

Rated power of main engine, kilowatts	7,600
Specification speed, knots	17.4
Range, miles	14,000
Number of places in cabins	39

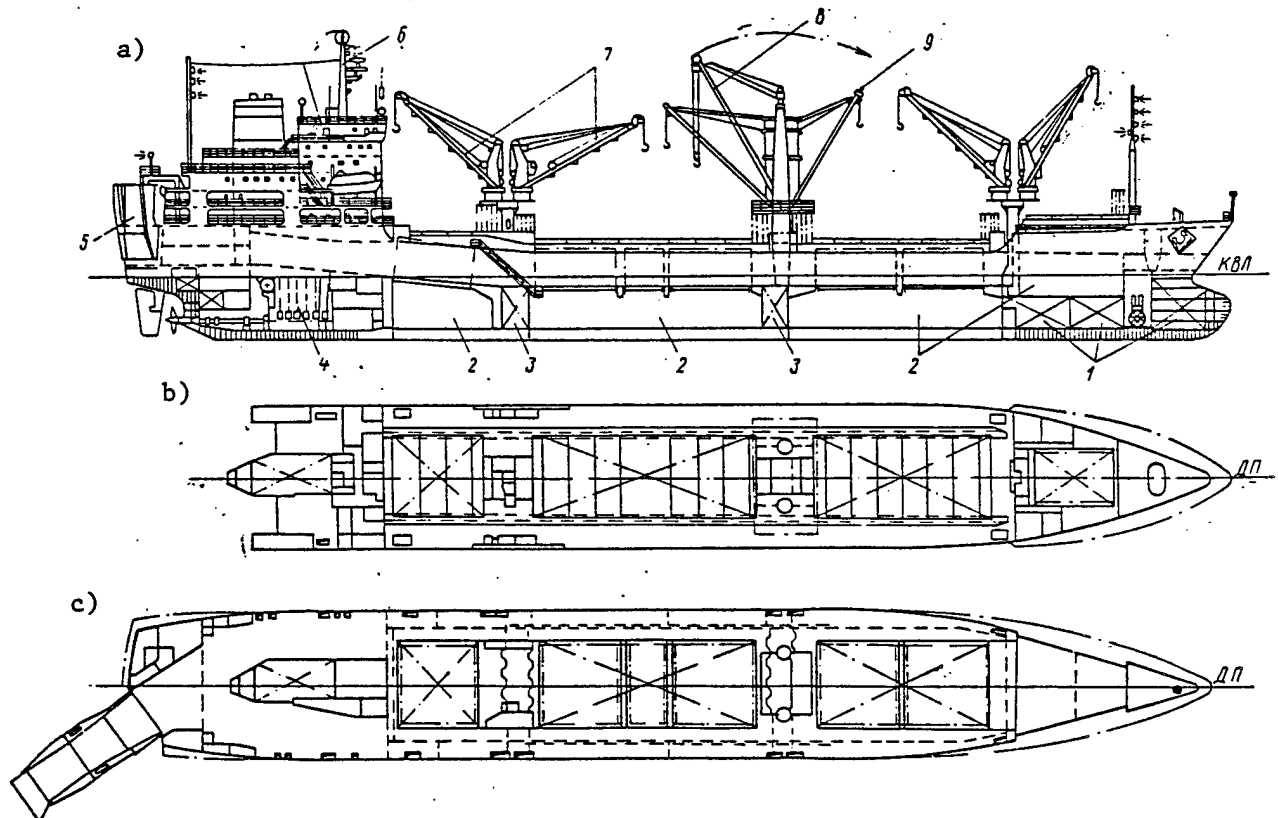


Diagram of Over-all Layout:

a--Side view; b--Plan of upper deck; c--Plan of lower deck

- 1--Ballast tank; 2--Cargo holds; 3--Fuel tanks; 4--Main engine; 5--Ramp;
 6--Dropping topmast; 7--Coupled cranes;
 8--Heavy-load boom with load capacity of 125 tons;
 9--Boom with load capacity of 25 tons.

Resistance to flooding and stability in damaged condition are provided at all drafts in the event of flooding the forepeak or hold No 1 as well as in the flooding of the engine room with the specification or ballast draft. For equalizing list in carrying out cargo work there is a system consisting of two side tanks with a volume of 229 m³ each located forward of the engine room and two pumps located in the engine room.

The welded hull of the vessel has been made from high-test steel with a yield limit of 304, 294 and 355 megapascals with thicknesses, respectively, of up to 20, 21-30 and over 30 mm. The upper and lower decks in the stern as well as the

deck of the forecastle have a rectilinear sheer. The upper deck and the superstructure deck, beginning with the poop, have a trapezoidal camber. Within the limits of cargo holds Nos 2-4 there is a double side the facing of which in holds No 2-3 has been made with vertical corrugating. The transverse bulkheads between holds Nos 2-4 also have vertical corrugating. The hull has been framed according to a mixed system: the double bottom and side areas of the decks in the mid-section with a longitudinal system of framing while the side, the remaining areas of the decks and the extremities of the double bottom have used a transverse system.

Six watertight bulkheads, two of which reach the forecastle deck divide the hull into eight compartments. The tweendeck remains free for horizontal cargo working (the hatch covers of the lower deck have been made flush) along the entire length from the ramp to the bow bulkhead. The second bottom in holds Nos 2-4 and the flooring of hold No 1 have reinforcing for carrying out cargo work using a grab bucket (Table 1). The lower deck is designed for the passage of wheeled equipment with a total weight of 45 tons and an axial load of 180 kilonewtons.

Table 1

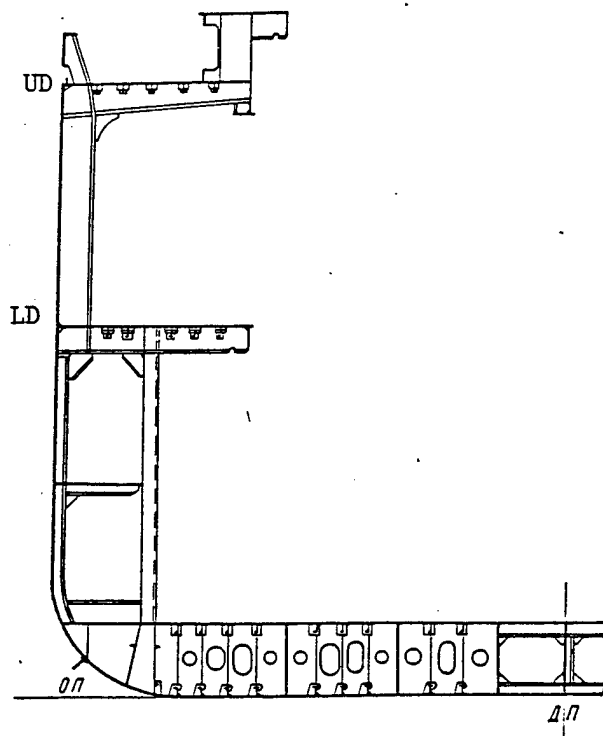
Tolerable Loads on Deck Elements, Kilopascals

Area	Forecastle Deck	Upper Deck	Lower Deck	Double Bottom
Along length of hold No 1	17.2	--	106.9	--
Hatch cover of hold No 1	17.2	37.3	--	--
Along length of holds Nos 2-4	--	16.0	47.1	110.8*
Hatch cover of holds Nos 2-4	--	17.2	47.1	--
Over engine room	--	--	25.0	--

* In hold No 4, 120.7 kilopascals.

With the closed covers of the lower deck the containers are transported in two tiers in the holds and in the tweendecks, that is, as a total of four tiers, and with open covers, in five tiers in the holds and tweendecks Nos 2-4 and in four tiers in the hold and tweendeck No 1. On the hatch covers of the upper deck, containers are located in three tiers in height over holds No 2-4 and in one tier above hold No 1. The maximum weight of the containers in the holds is 20 tons and on the hatch covers 2-17.5 tons, depending upon the number of tiers.

For working cargo by the horizontal method (up to 232 motor vehicles of the Zhiguli type), the vessel is equipped with a stern 3-section loading ramp made by the Navire Cargo Gear firm with a cable drive for raising and lowering and



Middle Frame

a hydraulic drive for deploying, attaching and adjusting the setting relative to the pier. In a running position, the lower portion of the first section of the ramp serves as a watertight cover for the stern opening. The total length of the ramp is 25 m, the width of the roadway is 5.8 and the height of the passageway is 4.5 m with a tolerable load of 450 kilonewtons. The ramp can be operated with a listing of the vessel of not more than 5° and a trim of not more than 1°. Here the distance of the vessel from the pier can change from 0.8 to 1.5 m and the height of the pier from 1.6 to 4.0 m. The ramp is placed automatically in a correct position relative to the pier using hydraulically operated pivoting joints and support hydraulic cylinders which are controlled by the ramp position sensors.

The motorship "Astrakhan" is equipped with two electric coupled cargo cranes with a load capacity of 2x12.5 tons with a reach up to 22 m, two mechanized cargo jibs of 25 tons each with a

reach up to 5.5 m with a double span and one heavy-load reversible derrick for 125 tons with a reach of up to 7 m and this can be used with a list to 5° and a trim to 2°. The cargo cranes are capable of being operated with two clamshell grabs with a capacity of 6.3 m³. Two cargo columns between holds No 2 and No 3 are the supports in laying the rigging.

Table 2

Hatch Dimensions, mm

Deck	Hold No 1	Hold No 2	Hold No 3	Hold No 4
Forecastle	13,100x7,600	--	--	--
Upper	12,500x7,600	26,400x12,500	33,600x12,500	12,800x12,500
Lower	--	26,100x12,500*	33,300x12,500	12,500x12,500

* Hatch width at the removable beams is 11,900 mm.

On the upper deck there are watertight roll-back hatch covers of the Foldtight type with a hydraulic drive (Table 2). On tweendeck No 3, the cover in the

middle has a pontoon cover which is operated by a crane or derrick and the covers of tween decks. No 2 and 3 are designed in such a manner that they allow the opening of the bow or stern flap. The rollback covers of the lower deck hatches are watertight and are opened onboard with the aid of the cable drive of a crane or derrick. An exception is the cover of hold No 1 which has a hydraulic drive since the transporting of dangerous cargo is planned precisely in this hold. In the two central holds the covers are divided by removable beams (one in hold No 2 and two in hold No 3) into sections. In an open position the hatch covers are used as supports for the container stacks and in transporting loose cargo as shifting boards. All these devices can be operated with a listing of the ship up to 5°.

As a main engine on the ship they have used a slow-speed reversible diesel built by the Rostock Diesel Building Plant and manufactured under license of the MAN firm, of the type K5SZ70/125B with a rated power of 7,600 kilowatts at 145 rpm with direct transmission of the power to a four-bladed all-cast propeller 5 m in diameter. Specific fuel consumption at nominal power and lower calorific value of the fuel of 42,707 kilojoules per kg is 204 gms/(kilowatt hour).

The electric plant of the vessel includes four diesel generators of the 6 VD26/20AL-2 type with a power of 675 kilovolt amps each and one emergency diesel generator of the 6VD 18/15A-1 type with a power of 210 kilovolt amps. In traveling in the open sea, the demand for electric power is met by two diesel generators and in the event of operating the bow thruster and if refrigerator containers are being carried onboard, all four units are operated. The supply of users with steam is carried out from an auxiliary water-tube boiler of the ESH4.0 type with a steam productivity of 4 tons per hour at a pressure of 0.49-0.68 megapascals and a feedwater temperature of 60° C and a waste-heat boiler of the AK SR 2.0-16/16+16 type with a steam productivity of 2 tons per hour at a steam pressure of 0.68-0.78 megapascals and the same feedwater temperature.

With cargo working on the vessel using the horizontal method, the ventilating system in the cargo spaces provides a double air exchange with exhaust ventilating and 8-fold with forced air. During the voyage of the trip, these values are, respectively, 13 and 9 exchanges per hour.

The amount of automation provides for remote control of the main engine from the wheelhouse in all maneuvers of the vessel, the possibility of controlling and monitoring the work of the propulsion unit from the central control room with one watch engineer without a watch in the engine room for 24 hours with the ship underway and nonwatch servicing of the equipment, devices and systems with the absence of a watch in the central control room and engine room for 24 hours when not underway; cargo working can be carried out simultaneously (but not by the horizontal method) as well as taking on ballast and drying out the cargo holds.

For preventing environmental pollution, there are provisions for catchment tanks for oil products, equipment for pumping these onto shore or into a receiver vessel as well as for burning waste mixed with heavy fuel in the main engine or auxiliary boiler. The wastes from the fuel and oil separators and the solid combustible wastes are destroyed in the incinerator. Solid waste is collected in portable containers.

The ship's anchor system consists of three Gruson anchors (one spare) weighing 6,450 kg each and two anchor chains of 70 mm gauge and 605 m long manufactured from high-test steel. There are two automatic anchor winches as anchor mechanisms. From the wheelhouse the anchors can be dropped by remote control controlling the length of anchor chain payed out. The steering mechanism with a semibalanced semisuspended rudder with an area of around 22.6 m² with a single support includes an electrohydraulic two-cylinder steering engine with a rated torque of 320 kilonewtons per m. A flange coupling of the stock with the rudder blade provides the removing of the blade without disassembling the stock.

The vessel has a bow thruster with a drive having a power of 740 kilowatts and this creates a maximum thrust of 120 kilonewtons. The turning time for the vessel not underway by 90° using the thruster in the absence of wind and current is not more than 10 minutes. Lifesaving equipment is located on the superstructure decks and includes two covered motor-driven lifeboats 8 m long made from plastic with a capacity of 44 persons each and six inflatable life rafts (three on each side) with a capacity of 16 persons each. Another inflatable life raft with a capacity of 6 persons is in the bow of the vessel.

For delivering provisions from the storerooms to the galley located two levels above, there is a provisions elevator with a carrying capacity of 150 kg. This can also be used for delivering provisions to the storerooms in loading them on the vessel. Provisions are loaded onboard the vessel by one-ton crane beams located on either side on the superstructure deck. There is also a passenger elevator with a capacity of three persons and this links the flooring deck with the above-lying decks, with the exception of the upper deck.

The vessel's crew (38 persons) is housed in single cabins with sanitary facilities and for probationers there are three two-man cabins; there is also a cabin for a pilot. The captain's cabin consists of a salon, office, bedroom and bathroom while the four cabins of the senior personnel have an office, bedroom and head. For the recreation of the crew there is a swimming pool, a sports gymnasium, a sports area on the open deck of the superstructure, a room for exercises, a movie auditorium, a library, a sauna and photographic lab. All of the cabins and public spaces are equipped with a double-duct system of year-round air conditioning.

The vessel is equipped with all necessary radio, radar and navigation gear providing safe navigation under all meteorological conditions. The motor vessel meets the current requirements for safety equipment, the rules for transporting dangerous cargo, the health rules as well as the international conventions and resolutions of the IMO, including the SOLAS-74 and MARPOL-73/78 Conventions. This makes it possible to operate the vessel in all regions of the world's ocean in accord with its purpose.

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MARITIME AND RIVER FLEETS

NEW GENERATION PASSENGER HYDROFOILS IN DEVELOPMENT

Moscow VODNYY TRANSPORT in Russian 19 Jun 84 p 3

[Interview with Yuriy Vladimirovich Gorbunov, chief, technical department, Volga United Shipping Company (VORP), by VODNYY TRANSPORT correspondent V. Chinguzov, date not specified, in Gorkiy]

[Text] It is difficult to picture the Volga today without its hydrofoils. A quarter of a century ago the river got its first taste of speed - and loved it. The winged craft became a unique emblem of the renovated waterway. "Raketas", "Meteors" and others of their kind earned themselves an outstanding reputation. One of every five Volga passengers now uses the high-speed fleet.

But what about tomorrow? What new winged vessels will replace those in service today? These questions are answered by Yuriy Vladimirovich Gorbunov, chief of the technological department, VORP.

Yu.Gorbunov: Our Volga has become a river of rapid transit. About 200 high-speed craft link the cities and settlements of the Volga basin. For many years now the hard-working "Raketas" and "Meteors" have been conscientiously plying the Volga waters. Working with them are several "Voskhod" type ships. Operators have grown accustomed to the "Raketa" and "Meteor" classes, passengers have taken a fancy to them. Nevertheless, designers think that the time has come to replace them with more modern and more efficient craft and are now developing new models.

Correspondent: So the "Raketa" and "Meteor" classes will make way for other high-speed craft?

Yu.Gorbunov: That's inevitable. The "Raketa" deserves nothing but honor and praise. A good ship, undemanding and reliable. What else do you need? But time will have its way. The man-made seas you see all over the Volga nowadays created an insurmountable barrier for the "Raketa". It is barred from entering any of these reservoirs, which means it can service suburban zones only. True, a while back they developed the "Voskhod" class to replace the "Raketa", but it soon became apparent that the "relative" was not particularly seaworthy itself. And its speed was no different - 50-60 kilometers an hour.

What was needed, then, was a vessel endowed with comfort, seaworthiness and, as an absolute must, speed. This is exactly the kind of ship Gor'kiy designers have developed. They lovingly named it "Lastochka" ("Little Swallow"). This motor vessel is distinguished by a particularly high degree of comfort both for the crew and the passengers. In the salons of this singular aquabus are 74 comfortable seats. The big, wide windows offer an excellent view. The "Lastochka" is thoroughly seaworthy, it can venture into any reservoir. Two powerful diesel engines of 1350 hp each allow the vessel to attain speeds of up to 100 km an hour. Speed is perhaps the new ship's biggest trump card. For example, it can leave Gor'kiy in the early morning for Kazan' and be back in the evening.

Correspondent: When will we see the "Lastochka" in action on the waterways?

Yu.Gorbunov: The project designers delivered the manufacturing plan on time, and construction of the lead ship has already begun. Plans call for the first "Lastochka" to appear on the river at year's end. There is a folk saying, however, that one swallow does not a summer make.

The rapid growth of cities and settlements, the organization of more and more high-speed lines on the rivers impose strict demands on the design of large capacity winged ships. Well, then, the "Meteor" will in the not too distant future be replaced by the "Zenit" class. Its imaginative wing system will ensure the vessel a high degree of seaworthiness. In the building of the "Zenit" its designers intend to utilize the latest achievements of science, technology and Soviet industry. As for the "Meteor" itself, it too will be modernized. Particular attention is being focussed on the elimination of noise and fumes in the salons.

The winged speedster will be perfected in stages. The first model will be powered by two diesels of 1350 hp each and will do 60-70 km per hour, on the next version the diesels will be of 2000 hp each, lending it a speed of 90 km an hour.

Twilight is no obstacle for the new vessel. It is equipped with radar, a searchlight, infrared optical equipment and other advanced navigational instruments. The project designers of Gor'kiy have already drawn up the "Zenit's" engineering plan.

Correspondent: Yuriy Vladimirovich, the ships you told us about are evidently slated for the Volga, Yenisey, Lena and other major waterways. What is being developed for the smaller rivers?

Yu.Gorbunov: Our small rivers, tributaries of the great ones, have also been provided for. For instance, project designers have developed a sturdy skeg-type motor ship specially for side rivers that abound in shoals and sandbars. It can, however, safely venture into

wide open waters. The lead ship has already been built at the imeni Uritskiy yard and successfully completed all tests and trial runs. The "Luch" has a number of advantages over its predecessors. Its design is of a higher order than that of the "Zarnitsa". The speed is quite respectable - 44 km per hour. Passenger capacity is 50 persons. The salon is equipped with soft seats. Neither has the crew been overlooked: they can now rest in their own cabins. The "Luch" can pull in at any unequipped spot - it needs no special wharfs.

Correspondent: It is well known that the fishlife protection people impose strict limitations on the operation of ships like these. What is being done to prevent the "Luch" from disturbing the ecological balance of small rivers?

Yu.Gorbunov: That's what's so good about the "Luch" - while maintaining speed, it does not destroy the shoreline. Its "slow" waves leave the banks practically unscathed, which is another of the motor ship's advantages. We hope it will be to everyone's liking, especially to residents of remote villages on river shores.

The family of winged craft will continue to grow because life on the rivers is simply impossible without the precipitate speeds of these handsome and reliable ships.

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MARITIME AND RIVER FLEETS

PLANS FOR NEW 'ZHIGULI' CLASS RIVER CARGO SHIP

Moscow TRUD in Russian 17 Jul 84 p.1

[Article by V.Redin: "A Ship for the Volga"]

[Text] Gorkiy--Looking at a model of this elegant craft you can't believe it is a cargo ship. The snow-white superstructure on the stern seems to soar above the hull. The graceful sidelines. The speed would do credit to a passenger liner. Still and all, this will be a general-cargo motor vessel of the 'Zhiguli' class whose actual construction the shipbuilders of Sormovo will soon begin. The craft was developed by the project designers of the Krasnoye Sormovo plant in creative collaboration with river fleet workers and scientists from the Central Scientific Research Institute (TsNII) imeni A.N. Krylov.

"The demand for the new vessel was prompted by several reasons," said the plant's chief designer, USSR State Prize laureate A.Zhivotovsky of this latest Sormovo novelty. "Our current 'Sormovo' class ships have proved their mettle on river and at sea. Its ability to take to sea allows river fleet workers to conduct year-round operations, not just during the navigation season. However, opportunities for the 'Sormovo's' modernization, and modernize it must, have been well-nigh exhausted. To add to the problem, new sanitation rules for ship operation have been introduced which call for a number of innovations in the matter of reducing noise and vibration in the quarters and improving conditions for the crew. New international conventions have come into force mandating a higher level of seaworthiness for sea-going freighters than before. And finally, the rules on protecting the marine environment are now much stricter - even a small amount of dirt may not be dumped overboard. That is why the veteran 'Sormovskiy' class is to be gradually replaced by its more powerful and more advanced younger brother, the 'Zhiguli' cargo vessel.

The coincidence of the name 'Zhiguli' in the car and the new Gorkiy ship is, of course, purely accidental, but in low-cost operation, comfort and universality, the colossal difference in size notwithstanding, the Sormovo vessel and the Togliatti car share a resemblance.

Let's take the low cost factor first. The new ship will have a crew of 12 (the 'Sormovskiy' had 18-20). Yet its output will exceed by far anything achieved by its predecessors. For example, the 'Zhiguli' can carry 4000 tons of cargo on river and 5500 tons on sea runs. Loading and unloading operations will greatly accelerate. Four cargo holds capped by a single lid will open up in a matter of minutes with the aid of a special hydraulic drive. Two powerful diesel engines will ensure a speed of 11 knots at full load. Bigger facilities for water and fuel storage will significantly increase the ship's range. A reinforced hull for better protection against ice, cheaper engine fuel, high maneuverability - these too characterize the novice now coming into being in Sormovo.

In the process of creating their brainchild the project designers of Sormovo provided for better working conditions not only for the crew, but for those who set out on long river and sea voyages as well. Dockers will have an easier job of it too: unlike the 'Sormovskiy', the sides of the cargo holds on the 'Zhiguli' will be vertical, which will allow onshore cranes to handle its cargo much more efficiently. Numerous pipes and cables previously located on the main deck are now "concealed" in special compartments under it.

For the time being the new cargo ship slices the water with its stem only on a photograph of a model. But the day is not far off when the 'Zhiguli' will touch water for the first time in the shipyard's creek and set sail for every corner of the globe to demonstrate to the world the superb craftsmanship of the shipbuilders of Sormovo.

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MARITIME AND RIVER FLEETS

DESIGN FOR 'UNDERWATER' ICEBREAKER PROPOSED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 30 Jun 84 p 2

[Article by G. Kushner: "Underwater...Icebreaker. An Order for the Future."]

[Text] Etched against the white background of an endless expanse of ice is a line of black spots. This is a caravan of ships, but the usual contours of an icebreaker up front are nowhere to be seen. If you look closer, though, you will see towering over the ice where the icebreaker should have been a vertical pylon with a wheelhouse, leaving in its wake a channel of clear water for the caravan. Only when the ships enter an area relatively free of ice there emerge from the water the contours of an unusual icebreaker which resembles a big submarine.

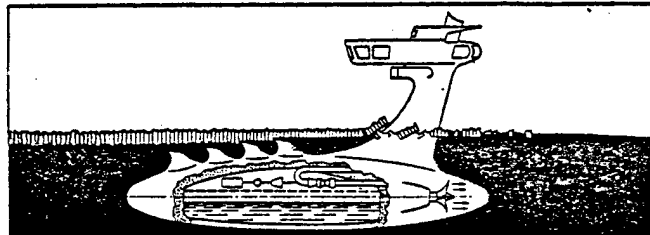
There are as yet no such icebreakers, but a project for one does exist. It has been classified as an invention, one which promises to resolve a number of current problems in Arctic navigation. How? A partial answer to this question lies in the vessel's very outline.

Picture to yourself a huge submarine from whose hull in the vicinity of the stern rises a flat tower with a keen front edge, looking much like a curved aircraft wing. At the top of the tower is a wheelhouse and other service rooms. On the upper side of the hull, stretching from the stem almost to the pylon, is a crest of powerful sharp-edged cogs, one positioned slightly higher than the other.

"The ship can function in three modes," explains the project's author V. Pikul'. "In surface position it can crush ice less than two meters thick with its solid forepart. With thicker ice, water is pumped into the ballast tanks and the icebreaker submerges to the extent that the upper rims of the cogs come into physical contact with the undersurface of the ice which has been softened up by the sea water and is therefore easier to cut. Already incised from below, the ice is finished off by the pylon producing a channel of clear water behind it. Finally, in the third mode when the ice is over five meters thick, the craft's maneuvers will resemble those of a dolphin or an orca: maintaining speed, it will continuously submerge and rise, delivering heavy blows to the ice from below with its powerful cogs."

As the author sees it, this rapid alternations of submersions and surfacings is to be effected by a special system incorporating a gas turbine with an exhauster to pump air out of the ballast tanks.

It will do the "inhale-ex-hale sequence about once a minute. Compare this with the traditional icebreaking method where the cycle "retreat - accelerate - strike" takes 15-20 minutes. The new craft has yet another advantage: its screws, situated as they are on both sides of the hull, remain deep under water at all three operational modes. This lessens the risk of their being damaged by the ice.



The idea for this kind of craft had been voiced before, but it never reached the actual project stage because designers could not come up with a solution to two problems: how to hold the ship to a given depth in a semi-submerged state, and how to offset the pressure of the breaking ice on the pylon to prevent the ship from capsizing. V.Pikul' found a way out of the predicament by inserting a special air chamber into the hull to play much the same role as the bladder of a fish. As for the load, he distributed it evenly along the row of cogs and the pylon. When the latter hits the ice the vessel is prevented from capsizing by the cogs' sinking into the undersurface of the ice.

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MARITIME AND RIVER FLEETS

SELECTION OF SHIPBOARD NAVIGATING EQUIPMENT DEBATED

Moscow MORSKOY FLOT in Russian No 7, Jul 84 pp 34-35

[Article by G. Bogomolov, Chief of the Communications and Radio Navigation Service of the Black Sea Shipping Company, and I. Konovets, Deputy Chief of the Service: "The Integrated Use of Receiver Displays"]

[Text] It is impossible to disagree with certain conclusions drawn by the authors of the article "Hybrid Receiver Displays: Do They Have a Future?" (MORSKOY FLOT, No 10, 1983), for example, on the futility of using the hybrid receiver displays [RD] of the Omega radio navigation system (RNS) and the Transit satellite navigation system (SNS).

They feel it possible to increase the reliability of determining a ship's position by installing hydroacoustical logs on the vessel and introducing into the RD of the SNS an absolute speed vector for the purpose of increasing the accuracy of the satellite observations and automatic reckoning during periods between these.

In 1978-1979, certain vessels of the Black Sea Navigation Company equipped with the MX-1112 RD began carrying hydroacoustic logs of the Sal Akkor type made by the Jungner Instrument Firm of Sweden. The experience of utilizing these logs disclosed very substantial discrepancies between the advertised and actual possibilities in the area of accurately determining the vessel's speed. Here a low reliability of the logs in operation was noted. We feel that on the vessels of the MMF [Ministry of Maritime Fleet] the experience of operating the hydroacoustic logs made by different firms has not been sufficiently generalized. The experience of operating them in the Black Sea Navigation Company does not make it possible to assert that it is advisable to outfit the ships with the hydroacoustic logs for the designated purposes.

In examining the prospects for employing the hybrid RD, we feel it essential to have a broader discussion of this problem. Satisfying the expected normative requirements for the accuracy in determining the ship's location should be the main but not the sole criterion determining the prospective use of one or another hybrid version of the RD.

The real technical capabilities of industry to produce hydroacoustic logs, the amount of expenditures and the repayment time, that is, the economic effectiveness of utilizing such logs, make the advisability of equipping the entire fleet

with them problematic. For example, at present on the world market the cost of a hydroacoustic log which is an auxiliary instrument for the RD of the SNS is 2-4-fold higher than the cost of the basic instrument. The installing of such logs is a very labor-intensive and costly process requiring the use of a large number of very scarce cable products. The installation of the log is possible only by taking the vessel out of operation and placing it in drydock. For this reason, the equipping of all the vessels with hydroacoustic logs could last many years with a future operation of the Transit SNS only up to 1993.

Thus, significant time is needed for repaying the expenses of equipping all the vessels with the designated logs with dubious satisfaction of the expected benefits. To this it must be added that in the event of a positive resolution to the question of permitting commercial vessels to use the new generation highly accurate SNS (Navstar), the log generally will be given a role of a secondary navigation instrument.

Is there a future for using the hybrid RD of the SNS and Loran-S RNS? Proceeding from the experience gained in the Black Sea Navigation Company this question can be answered affirmatively. Some 70 vessels of the company are successfully operating the designated hybrid systems, including the FSN-70 RD of the Transit SNS and the LS-70 RD of the Loran-S RNS produced by the Furuno firm. In contrast to other navigation companies, all the Black Sea vessels operate in the Mediterranean Sea which is covered by a chain of the Loran-S RNS, while vessels traveling to ports in North America and Japan are also in the zones covered by this RNS. Experience shows the indisputable advantage from operating such a hybrid complex and a tendency for it to be permanently used by the navigators. This is explained by the following circumstances.

In the first place, the discreteness of receiving sufficiently accurate observations from the Loran-S RNS is one second. A check on the accuracy characteristics of the navigation information obtained with the LS-70 was run by us during the installation and initial operation of the designated hybrid equipment on the diesel vessel "Sokol" in the operating zone of the chains of the Northwest Pacific and Suez Canal. In the area of Japan, the vessel location coordinates obtained using the LS-70 and the FSN-70 underway did not differ by more than 0.2 mile even at a distance of 1,550 miles from the most remote station of the chain, that is, when the vessel was virtually at the limit of the RNS signal propagation zone.

A more careful check was run in passing through the Suez Canal. The coordinates for the points of the canal's axial line taken off the map No 45000 and which correspond to the kilometer markings designated on shore were compared with the coordinates of these points induced on the display of the LS-70 at the moments of their occurrence. The discrepancies did not exceed 165 m for longitude and 130 m for latitude. Here we did not consider the error factor in taking the coordinates from the map and the difference between the coordinates of the mentioned points and the LS-70 antenna at the moments of passing the kilometer markings. We also did not consider the vessel's deviations from the canal's axial line.

Secondly, there is the very substantial factor of the form for presenting information on the current observed vessel coordinates. As is known, the RD of

the Loran-S RNS which were used until recently provided a measurement of the basic navigation parameter in microseconds. The subsequent determining of the geographic coordinates for the vessel was a labor-intensive manual process requiring the use of small-scale maps or tables. This made it impossible to accurately and effectively consider the obtained observations on the route map. Practice showed that the watch mate resorted to such RD only in extreme instances when the use of other equipment was excluded. In the LS-70 the information is displayed directly in the values of geographic coordinates with a discreteness of one second and this makes it possible to effectively analyze the navigation situation directly on the route map and forecast the development of the navigation situation. The LS-70 provides the possibility of working out information on the course angle for the ship's movement and its speed and information for navigating by a Mercator track with the coupling to coordinates of previously selected route points or series of route points. This makes it possible to use the instrument as a back-up device in the event of the failure of the gyrocompass and log in the operating zone of the RNS.

The coupling of the RD of the LS-70 and the RD of the FSN-70 makes it possible to broaden the volume of produced navigation information. From the data of the LS-70, on the screen of the FSN-70 it is possible to graphically plot the course with the illuminating of a grid chart for the area of navigation. On this it is possible to plot markers for designating dangerous points, turning points, the channel axis and so forth. This makes it easier to analyze the navigation situation and thereby increases navigating safety.

Thirdly, the possibility of comparing the readings of the two different RD increases the degree of reliability for the obtained information. This also was reflected in the changed attitude of the navigators to the RD of the Loran-S RNS which has been turned from a secondary instrument into one of the basic ones. In actuality, simultaneously with highly accurate readings for the ship's location, the RD of the LS-70 in areas covered by the operating zones of the Loran-S RNS makes it possible to constantly monitor the SNS observations and increases their reliability. To this we must add that the operating zones of the Loran-S RNS cover around three-quarters of the water surface of the Northern Hemisphere and recently there has been a tendency for their further spread.

Equally essential is the economic advisability of the integrated use of the RD of the SNS-Loran-S RNS. In 1979, the cost of the RD of the SNS on the world market was \$20,000-\$25,000 U.S. while the cost of the RD of the Loran-S RNS was within \$5,000-\$6,000 U.S., in 1983 the price for the RD of the SNS had dropped by 3-4-fold and for the RD of the Loran-S RNS by 2-2.5-fold. Thus, up to now a situation has arisen where outlays on purchasing this navigation equipment creating prerequisites for accelerating the trip turnaround, for saving fuel and lubricants and reducing the risk of navigational accidents can be repaid in several months of the ship's operation. The equipment can be installed in one or two days and does not require taking the ship out of operation.

Moreover, the presence onboard the vessel of the RD of the LS-70 and FSN-70 provides an opportunity to meet the requirements of the U.S. law on the compulsory equipping of vessels entering American ports with automatic radio navigation equipment of the Loran-S RNS or SNS even in the event of the failure of one of these.

In the actual use of the RD of the LS-70 on the vessels of the Black Sea Shipping Company a shortcoming has been noted which somewhat increases the error of the observations and this is caused by the following circumstances.

In the LS-70, the basis for the calculations is the base adopted in the World Geodetic System WGS-72 and which does not correspond with the base of the Soviet geodetic cartography system. For this reason accuracy is reduced in plotting on a Soviet route map the coordinates of a vessel obtained using the LS-70. The presence on Soviet maps of information concerning the designated discrepancy would increase the accuracy of determining the ship's location since the LS-70 allows the incorporating of corrections for adjusting the generated value of the coordinates to the map employed.

In conclusion it must be pointed out that the hybrid RD of the Loran-S RNS--SNS satisfy the expected international demands for the accurate determining of a vessel's location in a broad zone of navigation. Here the low cost of the RD of the Loran-S RNS, the low labor intensiveness of installing it and rapid repayment determine the advisability of equipping the vessels with the hybrid RD at present and in the immediate future.

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MARITIME AND RIVER FLEETS

NEW DRY CARGO SHIP 'VITALIY D'YAKONOV' PROFILED

Moscow MORSKOY FLOT in Russian No 7, Jul 84 pp 42-45

[Article by O. Nikonov, Head Designer at the Leningrad Central Design Bureau and Yu. Pronin, Senior Engineer of the MorteKhsudoremprom Foreign-Trade Association: "The Universal Diesel Vessel 'Vitaliy D'yakonov'"]

[Text] The fleet of the Sakhalin Shipping Company has received a new head universal dry cargo diesel vessel with limited draft, the "Vitaliy D'yakonov." Its design was worked out on the basis of vessels of the "Vasiliy Shukshin" class considering the possibility of operating them during the summer navigation season in the seas of the East Arctic.

The vessel "Vitaliy D'yakonov" has been built according to the Rules of the USSR Register for the class KM[⊗] L1 1 1A2 considering the requirements of the current international conventions and national rules. The bow has ice reinforcing of the hull for category UL. The design class of the vessel is a four-hold, twin-screw diesel vessel with limited draft, a geared diesel propulsion unit, with a forecastle, poop, double sides, stern placement of the engine room and living superstructure, a raked stem and transom stern.

Basic Characteristics

Length:	
Overall	124.2 m
Between perpendiculars	113.9 m
Beam:	
At upper deck level	16.4 m
Design waterline	15.8 m
Height of side	7.5 m
Draft:	
At design waterline	4.5 m
At loadline	5.5 m
Dead weight:	
With draft of 4.5 m	3,370 tons
With draft of 5.5 m	5,030 tons
Power of propulsion unit	2x1,100 kw
Speed	12.4 knots
Range for supplies of fresh water and provisions	30 days

The stability of the ship in all operating instances of loading satisfies the requirements of the Rules of the USSR Register for vessels of the first limited navigational area; seaworthiness is provided with the flooding of any one compartment. For evaluating stability in the process of cargo handling operations, there is a list-ballasting system. The pitching period depending upon the load is 9-11 seconds. For reducing roll there are shoulder keels 300 mm high and passive stabilizers.

The vessel is designed for transporting containers of the international standard, baled cargo, loose and baled lumber, various general, loose and bulk freight, including grain, coal and dry highly inflammable cargo.

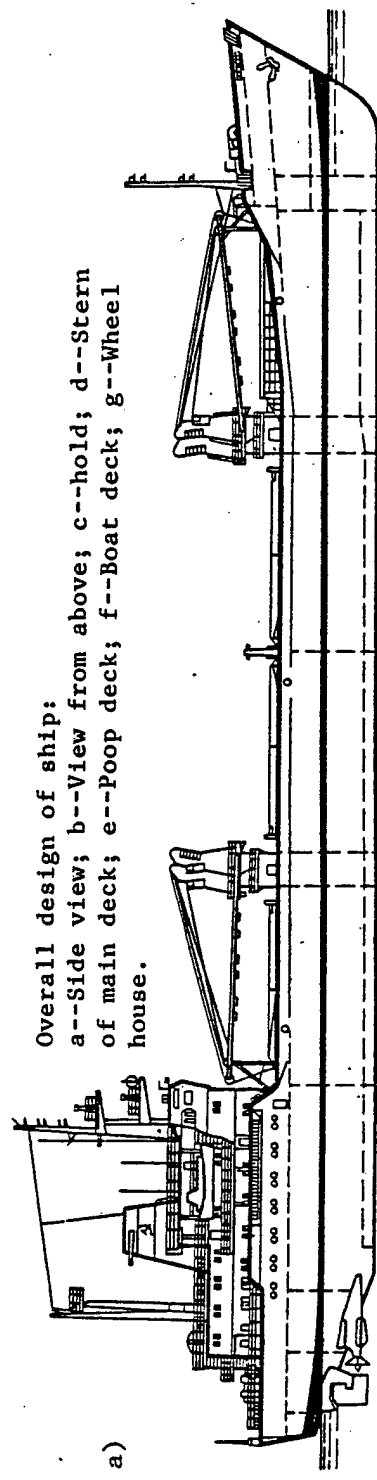
The net cargo carrying capacity with a draft of 4.5 m and a range of 4,000 miles is 2,940 tons, and with a range of 6,000 miles, 2,860 tons. With a draft of 5.5 m and a range of 4,000 miles, the net cargo carrying capacity is 4,600 tons and with a range of 6,000 miles, 4,520 tons. The total bale capacity of the holds is 6,680 m³ and for loose 6,800 m³. For excluding cross "pockets" and accelerating the cargo working operations there are double sides in the holds. The vessel is capable of carrying 165 containers (20-foot ones), including 111 containers weighing 20 tons each in the cargo holds and 54 weighing 16 tons each on the cargo hatch covers. Lumber with a specific loading volume of 2.32 m³ per ton can be transported up to 3,770 tons, including 2,875 tons in the hold and 895 tons on the upper deck. The containers (20- and 40-foot) in the holds and on the hatch covers are made fast to welded fittings. The deck lumber is fastened down by struts attached in sockets along the bulwark in the area of holds Nos 2, 3 and 4 and along the side combings on the cargo hatch of hold No 1. The deck lumber is released by steel lashings with turnbuckles. There are lugs on the upper deck for holding the deck cargo.

Cargo operations are carried out with four electric hydraulic cranes of the KEG3018 type with a lifting capacity of 8/3.2 tons mounted in pairs between holds Nos 1 and 2, 3 and 4. The reach of the boom over the nearest side is 13 m and over the opposite side 6 m. The cranes can be operated with a nominal load with a heeling of the vessel up to 5° and a trim to 2°.

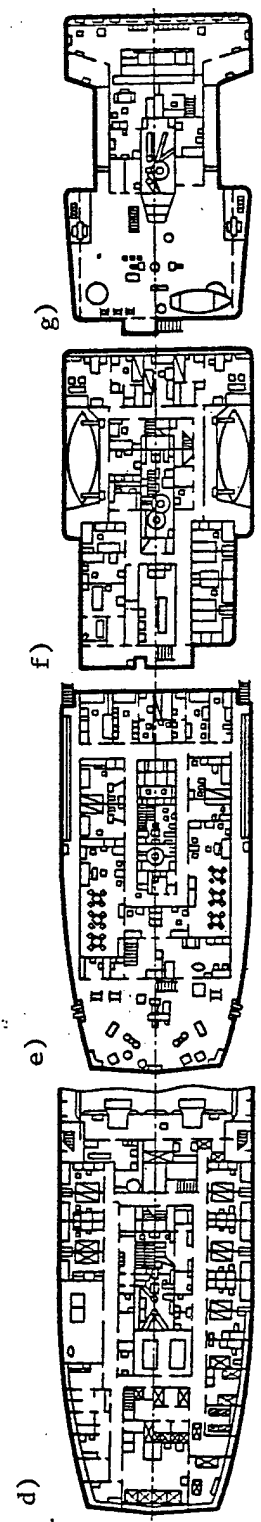
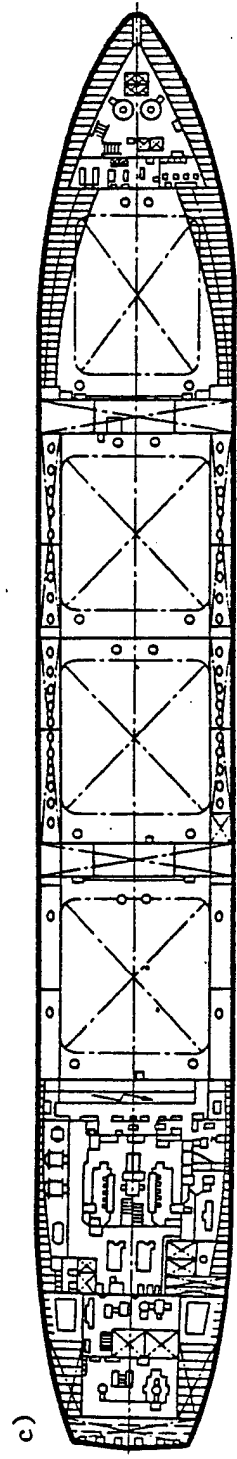
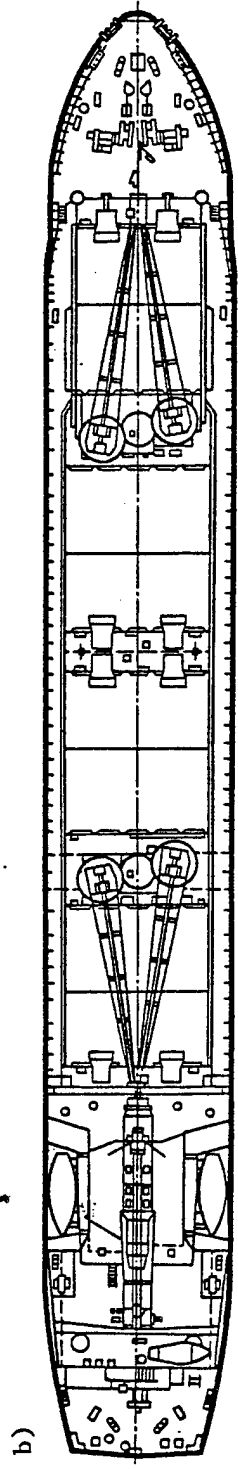
Each watertight double-door hatch cover of the folding type is opened and closed by a hydraulic drive consisting of four hydraulic cylinders. The covers are held in an open (vertical) position by inserted pins. The strength of the hatch covers is designed for an evenly distributed load of 1.75 tons per m² and the placing of 20- and 40-foot containers in a single tier on the hatch covers of holds Nos 1 and 4 and in two tiers on the hatch covers of holds Nos 2 and 3.

In the midships the bottom, the double bottom and the upper deck have been framed according to a longitudinal system, while the longitudinal bulkheads, the sides, the platforms, the bow and stern have used a transverse system. The tolerable distributed load on the flooring of the double bottom is 7.4 tons/m² and on the side passageways of the upper deck, 4.0 tons/m².

As main engines on the vessel they have installed two four-stroke, six-cylinder, in-line, reversible, trunk geared diesel units with gas turbocharge of the make 6ChRPN 36/45 (DRA G74) with a total capacity of 2,200 kw and a turning speed of 4.16 seconds⁻¹. One unit is the lefthanded model and the other the righthanded.



Overall design of ship:
 a--Side view; b--View from above; c--hold; d--Stern
 of main deck; e--Poop deck; f--Boat deck; g--Wheel
 house.



The power from each geared diesel unit through the intermediate and propulsion shafts is transmitted to a fixed-pitch propeller 2.5 m in diameter. The propellers are four-bladed and have been designed for the ice category UL of the USSR Register and have been manufactured from the corrosion-resistant steel of the type 1Kh14NDL. The vessel carries one replacement propeller for each turning direction. The propeller and intermediate shafts are connected between themselves as well as with the shaft of the reduction gear of the main geared diesel unit by flange couplings. The stern has a recess for the propeller shafts. Diesel fuel of the grades L-0.2 and L-0.5 and motor fuel of the DT grade are employed as fuel for the main engines.

For supplying the service and production needs for steam there are two auxiliary boilers of the KVA 1.0/5-M type with a steam productivity of 1 ton/hour at an operating pressure of 0.5 megapascals operating on diesel fuel and two vertical, water-tube, forced-circulation waste heat boilers of the KUP 80S type with a steam productivity of .75 ton/hour each and operating off the heat of the exhaust gases from the main engines.

The ship's requirements for electric power are met by three diesel generators of the DRG 200/750 type with a power of 200 kw each at a turning speed of 12.5 seconds⁻¹. A DGA 50M-9R diesel generator with a power of 50 kw at a turning speed of 25 seconds⁻¹ is the emergency source of electric power.

Control and monitoring the work of the main engines and other equipment in the engine room are carried out from a soundproof central control room. The movement of the ship is controlled from the wheel room from which, using a remote control system it is possible to start up the previously readied main engines, change their operating conditions, reverse and shut down the engines. The level of automation and control meets the requirements of the Register Rules for sign A2, making it possible to have nonwatch servicing of the engine room.

The vessel is controlled by two streamlined semibalanced rudders with an area of 7 m² each and operated by R16 electrohydraulic steering engines and which can move both rudders from 35° of one side to 30° of the other in 28 seconds at full speed ahead. Electric control over the steering engines is provided from the wheel room while manual control can be achieved from a local station in the steering room. In the wheelhouse is the equipment of the automatic steerer. The indicators for the rudder positions have been installed in the steering room, the central control room and the wheelhouse.

The anchor and mooring equipment are provided with two hall anchors weighing 2.5 tons each and anchor chain with a caliber of 46 mm and 250 m long each; two automatic bow mooring winches produced in Poland with anchor attachments providing the lifting of the anchors from a depth of 100 m at a rate of .17 m/second; one Polish-produced automatic mooring winch with one warping drum. Each mooring winch in automatic operation provides a tractive force of 78.5 kilonewtons on the mooring drum. The speed of paying out the mooring line with a nominal tractive force is 0.31-0.35 m/second.

The lifesaving equipment includes two motorized plastic lifeboats, 3SShMP37 with a capacity of 37 persons each and operated by gravity leaning davits Shb2Sh6, 3V with the aid of LShZD electric boat winches with a tractive force of 39.2 kilonewtons, two 10-man self-inflating liferafts PSN-10M, ten ring life buoys and

36 life jackets. On the vessel there is a RShPM 5.5 operating plastic motor launch.

The loading of provisions, the lowering and raising of the working launch are carried out by a double-span cargo boom with a load capacity of 1.6 tons and mounted on a vertical column located in the aft portion of the running bridge deck. The reach of the boom over the side is 2.5 m.

The vessel has two modular cabins with bathtubs, two modular cabins with showers, eight one-person, five two-person cabins and a pilot's cabin. For ensuring normal living and recreational conditions for the crew, the vessel has a wardroom and crew mess, recreational rooms for the command and crew, a library, a photo lab, a cabin for sports exercises, a sauna and a sufficient number of showers and a laundry. The crew mess can also be adapted for showing movies. The movie equipment is located in a separate room. The crew quarters and public areas are equipped with an air conditioning system with individual temperature control in the rooms and served by two central automated air conditioners.

For supplying the vessel with water there are systems for everyday fresh and outside water. The supply of fresh water is stored in two enclosed supply tanks the inner surface of which is made from stainless steel as well as in three tanks built in the hull and lacquered over a primer coat. The supplies of fresh water can be replenished from a D4U distilling plant with a productivity of 10 tons/day. There is a MV-5 mineralizer to mineralize the fresh water. The outside water for service needs is taken in by a sanitary unit from the flood valve connector.

Oil-containing hold water is cleaned out with a USA-1.6 separation unit with a degree of purification of 15 parts of oil per 1 million parts of mixture. With the breaking down of the separation unit or while in ports the oil containing waters are kept in special tanks with a total capacity of 80 m³. Waste and domestic-service waters are purified and decontaminated in an EOS-15 electrochemical processing unit, after which they are released overboard. Sludge is collected in a waste tank with a capacity of 5.5 m³ and this tank also receives untreated water if the unit fails. In the stern of the poop deck there are three containers with a total capacity of 1.5 m³ for collecting garbage.

The vessel is equipped with modern Soviet-produced radio and electronic navigation equipment.

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MARITIME AND RIVER FLEETS

'ASTRAKHAN' MULTIPURPOSE CARGO SHIP PROFILED

Moscow MORSKOY FLOT in Russian No 8, Aug 84 pp 38-41

[Article by Yu. Pronin, senior engineer of the All-Union Mortehtsudoremprom Association [expansion unknown]: "The Multipurpose Motorship 'Astrakhan'"]

[Text] In the latter part of 1983, shipbuilders of the GDR delivered to the Soviet Union the leading multipurpose dry cargo vessel "Astrakhan". This vessel is adapted for loading and unloading by vertical as well as by horizontal methods and is equipped with a stern ramp and a high-powered cargo device.

As regards the design type--it is a single-screw, double-deck motorship with an excess above-water side, an extended forecastle and aftercastle and bow and stern bulbs. The engine room and the superstructure above it are located in the stern.

The motorship "Astrakhan" is designed for transporting a broad range of general and bulk cargo, 20 and 40-foot containers (including on the open deck up to 30 20-foot refrigerator containers with self-contained refrigerating units) and heavy, lengthy and bulky cargo as well as trailers, wheeled machinery and trucks and passenger cars with fuel in tanks. The vessel can also be used for hauling coal, with the exception of hold No 1 which is equipped for transporting dangerous cargo in containers, explosives and highly inflammable cargo.

The vessel was built to USSR Registry class KM * L2 A2 and meets the requirements of international rules and conventions as well as national rules. The vessel's area of navigation is unlimited.

The hull is completely of welded construction assembled from panel and double-sided sections and has five cargo holds. Hold No 1, which is located in the bow section of the vessel, is separated from other holds by a transverse bulkhead. Cargo holds Nos 2-4 have a common tweendeck and are separated by transverse bulkheads, which reach as far as the lower tweendeck space. Hold No 5 is a sort of an extension of the tweendeck. It is located in the stern part of the vessel above the engine room, between the side port and the bow bulkhead of the engine room trunk.

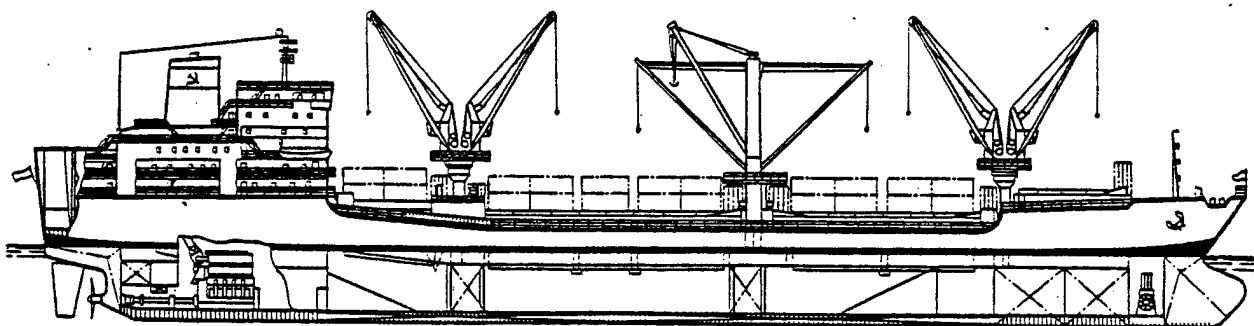


Figure 1. Main Characteristics of the Vessel

Length:	
greatest	172.3 m
between perpendiculars	161.0 m
Width	23.05 m
Height of side to upper deck	13.7 m
Draft:	
specific	8.52 m
to load line	10.02 m
Deadweight:	
during 8.52 m draft	13,500 t
during 10.02 m draft	18,260 t
Capacity of cargo holds (for general cargo	25,030 m ³
Cargo area for horizontal loading	2,370 m ²
Maximum permissible capacity (20-foot)...	531 pieces
Speed	17.4 knots
Cruising range:	
normal	14,000 miles
increased	20,000 miles

The upper and lower (tweendeck) decks have cargo hatches for carrying out cargo handling operations by vertical method. Hatch covers of cargo holds on the upper open deck consist of folding lids with a hydraulic drive, which are folded to the bow and stern. The bow and stern sections of the lids can be opened or closed by choice on hatches of holds Nos 2 and 3. The cargo hatch of hold No 3 has an additional pontoon lid in the midsection, which can be handled by coupled cranes or a cargo boom. All hatch covers on the open deck are gastight and waterproof and are sealed with wedge fasteners and wing nuts.

The tweendeck hatch covers consist of hinged watertight lids, which open to the sides. The hatch lids of holds Nos 2 and 3 are divided lengthwise of the holds into sections with support on hatch beams. Lids in hold No 1 have a hydraulic drive and cable linkage with the use of coupled cranes or a cargo boom in hold Nos 2-4. In vertical position, the hatch lids are designed for

horizontal loading from container cargo, which are installed in a hold, and can also serve as partitions of the loading shaft when loading bulk cargo. The hatch lids are reliably secured in open and closed positions.

Cargo handling operations are carried out by a device, which includes a heavy boom with a hoisting capacity of 125 t, which is installed between holds Nos 2 and 3; two booms with a hoisting capacity of 25 t each, which are located in the area of the heavy boom, with one working for hold No 2 and the other one for hold No 3; and four cranes with a hoisting capacity of 12.5 t each, which are located between holds Nos 1 and 2 and Nos 3 and 4.

The heavy boom can work for holds No 2 and 3. It has a special unit on the derrick head which makes it possible to reverse the boom from one hold to another across the surface of columns. The cargo hoists of the boom have two running parts, a dual topping lift. Two running parts of the cargo and topping lift whips are led to heavy drums with 200 kilonewton tractive force of 200/70 kilonewton combined triple-drum heavy winches of the SKW type, which were made in the GDR and which are installed on the deckhouse roof between holds Nos 2 and 3. One drum of every winch has a rated tractive force of 200 kilonewtons and two drums of 70 kilonewtons. The boom's minimum lifting angle to horizon plane is 25° and the maximum is 65° . The radius of the boom's operation overboard during minimum lifting angle and maximum turn from the center line (60°) is 7 m. The lifting and turning of the heavy boom is carried out in succession and its operation is possible during a list of up to 5° and a trim of 2° .

The running parts of cargo and topping lift whips of the boom with a hoisting capacity of 25 t are led to light drums with a tractive force of 70 kilonewton of the heavy combined winches. The minimum lifting angle of the boom is 15° and the maximum is 70° . The radius of the boom's operation overboard during minimum lifting angle and maximum turning angle from the center line (60°) is 5.5 m.

Two electrical cranes of the DSW U 12.5X2-3.5-22 type, which were made in the GDR and which are installed on a combined turning platform, can operate in a coupled version. Coupled cranes are equipped with a hook beam (gakovaya traverza) for transshipment of general cargo. In this case their overall hoisting capacity is 25 t. The cranes are equipped with a grab beam (greyfernaya traverza) and a motor shell grab bucket for transshipment of bulk cargo.

The vessel is supplied with two grab buckets of 6.3 m^3 capacity, which are stored on the open deck in places accessible to cranes. The cranes, which are installed between holds Nos 1 and 2, structurally meet the requirements for loading and unloading dangerous cargo.

The minimum sweep of the crane boom is 3.5 m and the maximum is 22.0 m, the cargo lifting speed during a rated load is 18 m/min, the crane turning speed in the absence of listing is 1.2 rev/min and the time required for changing the boom sweep from maximum to minimum is 46 seconds.

For loading and unloading roll-on cargo, which is stowed in the tweendeck space, the vessel is equipped with a three-sectional angular stern ramp, which is raised and lowered by cable linkage; stacking, clamping and ensuring a definite distance from a berth is conducted with the aid of hydraulic controls. In the

raised position the lower part of the first section serves as a watertight cover of the stern opening. The overall length of the ramp is 25.0 m, the width of the travel path is 5.8 m and the maximum height of wheeled transport is 4.5 m. During loading and unloading of the vessel, the ramp automatically adjusts to the correct position relative to a berth with the aid of hydraulically driven hinges and hydraulic stop cylinders. They are operated by ramp position sensors. The tractive force of automatic ramp winches is provided in such a manner so that during a full load of the ramp, the pressure on a berth would not exceed 20 kilopascal [kPa] (2 t/m^2). Control of the ramp device is carried out from the central post, which is located on the boat deck (superstructure deck "A").

To ensure correct loading of the vessel and safety of navigation, the possibility for controlling stability of the vessel is provided. There is a system with a tank, which can be used for careening. In so doing it is possible to immediately determine the metacentric height from the readout of the angle of heel and corresponding data on the attached table. For limiting the angles of heel that occur during cargo handling operations, there is a pair of side ballast tanks which are located in front of the engine room and are the heel levelling tanks. This system also includes two GDR-made ballast pumps of the SMV 125/290 type, with the aid of which ballast water is pumped from one side to the other. This anti-heeling system makes it possible to roll on trailers with a maximum mass of 45 t at a speed of 5 km per hour and an interval of no more than 5 minutes.

When hauling individual dangerous cargo it is required that its temperature be measured repeatedly during a voyage. For this purpose the vessel has a system which makes it possible to measure by remote control the temperature of cargo in holds, including in the lower part of cargo holds Nos 2-4.

Ventilation of cargo facilities can operate in nine modes. Hold No 1 is equipped with mechanical exhaust ventilation without the possibility of reversing fans and natural forced ventilation, which ensures an 11-fold air exchange per hour. Taking into account the possibility of hauling dangerous cargo in the hold, flame control nets are installed in forced and exhaust ventilation ducts.

The cargo space in holds Nos 2-4, which is located under the lower tweendeck space, is equipped with mechanical ventilation that ensures a six-fold air exchange per hour either by exhausting or forcing it, depending on the type of cargo being hauled. Air exhaust fans (30 percent) and forced air fans (70 percent) are of the reversible type. Removable flame control nets, which are set in special mounts that are located between a fan and a cargo hold, are installed for ventilation ducts of cargo facilities under the lower tweendeck space.

Cargo facilities in the tweendeck space in the area of holds Nos 2-4 have a 20-fold air exchange per hour by means of exhaust ventilation and an 8-fold exchange by means of forced ventilation, which ensures loading and unloading of roll-on cargo, and a 13-fold air exchange per hour by means of exhaust ventilation and a 9-fold exchange by means of forced ventilation when hauling roll-on cargo.

In the loading version of the vessel with vertical position of the tweendeck hatch covers, a 19-fold air exchange per hour by means of exhaust ventilation and a seven-fold exchange by means of forced ventilation is ensured in cargo facilities in the tweendeck space in the area of holds Nos 2-4. In this case the fans for cargo facilities under the tweendeck space also operate. The difference in the exchange of forced and exhaust air is equalized by the entry of fresh air through the opened stern opening when the ramp is lowered on the berth. This mode of ventilation can be used during loading and unloading roll-on cargo into the side cargo spaces of the tweendeck with opened hatch lids of the tweendeck space.

The cargo being transported in holds and on the open deck requires reliable fastening. Everything necessary for this is provided in supplies for the vessel, including components for fastening containers. Seats of the "elephant's foot" [slonovaya noga] type are welded in on the deck and on hatch lids for fastening roll-on cargo, and there are places for storing guys between the frames of the side framing; there are eyes on the open deck and in holds for hauling general cargo; and eyebolts instead of eyes are welded to the framing in hold No 1.

Automatic anchor and mooring winches of the AV W125/70 type at a rated tractive force of 125 kilonewtons and automatic mooring winches of the AV W 80 type at a rated tractive force of 80 kilonewtons, which were made in the GDR, are used in anchoring and mooring operations. There is a device on every winch for programming the tractive force. After mooring the vessel, the winches change to automatic mode for keeping the vessel at a berth.

The steering gear ensures good maneuvering characteristics. The rudder is of streamlined semi-suspended welded construction. The rudder blade can be disassembled without preliminary removal of the head. For the rudder drive there is a GDR-made electrohydraulic two-cylinder machine of the Ra 32/48 type with a maximum moment on the head of 480 kilonewtons per minute [kN.m.]. The machine has two independently operating pump units, one of which is a reserve unit. During maneuvers, both units can operate simultaneously. In this case the time of putting the rudder from hard over to hard over is reduced by approximately two-fold. For improving controllability of the vessel during low speeds and maneuvers, the steering gear unit also includes a GDR made bow steering up mechanism of the BU 4/4 type with a capacity of 740 kilowatts.

The rescue facilities existing on the vessel include boat-handling gear with boats, rafts and necessary supplies. One boat-handling unit each with a fiberglass motor lifeboat, which can hold 44 persons and was made in the GDR, are located on the left and right sides of the boat deck superstructure.

There are three 16-person inflatable life rafts each on the right and left sides of the deck superstructure B. One six-person raft is installed in the vessel's bow section.

In addition to the rescue facilities, a working raft with removable sections and a handrail enclosure and a two-person fiberglass working boat with an outboard motor on its stern are located on the deck superstructure B. The raft and the boat are served by a cathead with a 1 t hoisting capacity.

The engine room is located in the narrowed stern section of the vessel, in the area of the 12th-48th frames. Equipment and pipelines are completed in such a manner so that a normal access is provided to mechanisms, machine units, devices, fixtures and devices for control, technical servicing and repairs.

Reliable operation of the power plant must be ensured under difficult conditions: under a trim not exceeding 5° and listing to 15° , under the maximum temperature of sea water of $+32^{\circ}\text{C}$ and of air in the engine room up to $+45^{\circ}\text{C}$ and under a relative air humidity of 75 percent.

Installed as a main engine on the vessel is a five-cylinder two-stroke single-acting engine of the K5SZ 70/125 B type of crosshead design with loop scavenging and drift, which are carried out with the aid of a gas turboblower and two blowers, reversing, starboard version and with direct transmission of thrust to the screw. It can operate on heavy fuel of Redwood 1 3,500° viscosity at 100°F . Its rated capacity amounts to 7.6 megawatts (10,300 horsepower) during rotational speed of 145 revolutions per minute and maximum of 8.4 megawatts (11,370 horsepower) at 149 revolutions per minute.

The four-blade screw is made of multicomponent bronze. Its characteristics are intended for operation during 85 percent rated capacity and rated revolutions of the main engine. Mounting of the screw onto the shaft is conical without a key and the terminal nut is locked. The seating and removal of the screw is carried out by the hydraulic press method with the aid of a hydraulic jack, which is included in the vessel's supply. An electric power station is equipped aboard the vessel to generate electric energy and it has four diesel generators. Diesel of the 6VD 26/20 AL-11 type. It is a six-cylinder four-cycle trunk-piston supercharged diesel engine with supercharged air being cooled by sea water, nonreversing with cylinders being cooled by fresh water. The capacity of one diesel is 596 kilowatts (810 horsepower) during rotational speed of 1,000 revolutions per minute. The capacity of the generator, which was made by the ELMO Association [not further identified] (GDR), is 675 kilovoltampere [kV.A].

A diesel engine of the 6VD 18/15 A-1 type with a capacity of 215 kilowatt during rotation speed of 1,500 revolutions per minute with a generator of the SRED 409-4a type is installed as an emergency diesel-generator.

GDR-made auxiliary and waste-heat boilers are installed in the engine room trunk. The auxiliary boiler of the ESH-4.0 type is of single-drum water-tube design having a firebox for burning fuel with the aid of a rotating atomizer of the ÖR 2 type that has a steam capacity of 4 t per hour and steam pressure of 500-700 kilopascals ($5-7\text{ kg(f)}/\text{cm}^2$).

The waste-heat boiler is of the AKSR 2.0-16/16 type with gridded tubing and water supply and removal collector tanks, in which the ends of tubing are welded in, and with a system of forced circulation of the La Mont type and a steam capacity of 2 t per hour at 85 percent of the main engine's rated capacity.

The auxiliary boiler covers the vessel's requirements in steam during outdoor temperature of 25°C and simultaneously ensures warming ballast water tanks,

which are located above the ballast waterline, and warming and maintaining heavy fuel temperature in main feed tanks.

During layover and maneuvers, the vessel's requirements in steam are ensured by the auxiliary boiler. In the underway condition, the waste-heat boiler provides the vessel with steam when navigating in ballast and without warming ballast water tanks. Parallel operation of the waste-heat boiler and the auxiliary boiler is utilized in other cases. In the process the auxiliary boiler switches on automatically when the pressure in the waste-heat boiler drops below a certain limit.

Operation of the main power plant is ensured by special systems with separate pipelines, equipment and mechanisms. Air for the working air system is turned out by two main air compressors of the 2 S 2-125 type, with each feeding 150 m^3 per hour at a pressure of nearly 3.1 megapascals. An independent air compressor of the AHV 1-90/125 type feeding 160 m^3 per hour at an air pressure of 0.6 megapascals is installed for household needs.

Installed for preparing fuel and oil for the main and auxiliary engines are four self-cleaning separators of the S OZB type with suspended booster and exhaust pumps (two for heavy fuel, one for heavy and diesel fuel and one for diesel fuel) and two self-cleaning separators of the S OZB type with separately installed booster and suspended exhaust pumps (one for lubricating oil of the main engine and one for lubricating oil of the diesel-generator, oil leakage of piston rod glands and the diaphragm of the main engine and as a reserve lubricating oil separator of the main engine). The separators have been produced by enterprises of the GDR.

For ballast operations there are two pumps of the SMV-200/350 type which feed 300 m^3 per hour at a pressure of 0.24 megapascals. Two fire pumps of the KRZ 17-80/250 type which feed 90 m^3 per hour at a pressure of 0.85 megapascals feed sea water to the fire fighting system.

Lathes, drills and milling, tool-grinding, grinding and coiling machines are installed in the workshops of the engine room.

For reliable work of all mechanisms and equipment in the engine room, workshops and other facilities and for creating necessary climatic conditions, there is forced and exhaust ventilation with consideration of fuel and gas emissions.

The vessel has a system for heating some tanks, including fuel, oil and ballast tanks, which are located above the ballast waterline, and fresh drinking water tanks. The fresh water system consists of separate washing and drinking water systems, which have independent pumps of the 2 KSEV-40 type and their own hydrophores and decontaminating ultraviolet devices of the A2-50 and B2-50 type, which were produced in the GDR. Washing water, which is supplied to washbasins, showers and other consumers, can be replenished from a water distilling installation of the SEA 25P type that has a productivity of 20 t per day.

The motorship "Astrakhan" has a complex of systems and equipment, which ensure protection of the environment from pollution. There are ordinary garbage

containers, whose contents are usually burned in an incinerator, as well as waste oil of fuel and lubricating separators and galley waste which are transported to the incinerator facility by direct garbage shaft.

Sewage is treated in a special installation of the KA-MR1, 5S50 type. The vessel has a bilge water separator of the TE5-1 type that has a cleaning filter with a productivity of 5 m³ per hour for the processing of bilge water polluted by oil products.

The vessel has comfortable single cabins with individual toilet facilities for 29 crew members as well as four single cabins with toilet facilities shared by two cabins. In addition, there are 3 two-berth cabins with individual toilet facilities for trainees and a cabin for the pilot. Normal conditions of habitation are provided in the living quarters superstructure by two central two-channel group air conditioners of the KSG63-3 type with a supply of 5,700 m³ per hour. Completely air conditioned spaces are combined in 16 groups, for which conditioned air of various temperatures depending on the location of spaces is supplied. Installed in the central air conditioning station for every group of spaces are a two-channel system and an automatically regulated mixing valve, from which the mixed air is fed via one air channel to each group of spaces.

Wall-mounted ejected air distributors with one channel connection to electric heaters are located in the spaces. The possibility of reducing air outlet is approximately twofold. When the air conditioning system is switched off, the cabin heaters of air distributors can be used as ordinary electric heaters. The air conditioning installation operates by using fresh air alone as well as by recirculating 20 percent of air from corridors of clean spaces with reduction of the overall amount of air being used up to 90 percent. All incoming air lines of the air conditioning system and all cabin heaters in the radio room, the isolation ward and the dispensary are equipped with silencers. There are steam and electrical systems for heating the spaces (depending on the type of equipment in these spaces). There is a 3-passenger elevator on the vessel, which provides transportation for people from the tweendeck level to the navigating bridge with stops on the poop deck and all decks of the superstructure. For placing a necessary amount of provisions on the vessel, compartments for refrigerating provisions are equipped on the poop deck, which are connected with the galley by a provisions elevator with a carrying capacity of 150 kg.

Internal vessel communication is provided by an automatic 30-number telephone exchange and a radio broadcasting facility for transmitting orders to all cabins, public facilities, workshops and open decks as well as for broadcasting radio programs.

Electrical and radio navigation equipment is basically of Soviet production.

The design of the vessel, the facilities and the system, complete sets of mechanisms and equipment and the level of automation of the main mechanical installation as well as of processes in controlling movement of the vessel,

cargo handling operations and mooring and the composition of service; public and living facilities meet the requirements of good maritime practice and create conditions aboard the vessel for highly productive labor and pleasant rest of the crew.

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MARITIME AND RIVER FLEETS

ACTIVITIES OF AZOV SHIPPING COMPANY

Moscow MORSKOY FLOT in Russian No 8, Aug 84 pp 12-14

[Article by L. Shunin, chief of the Azov Shipping Company: "Azov Workers on Peace and Labor Watch"]

[Text] As a result of the concern of the Communist Party and the Soviet government for the development of the country's maritime transportation during the past 20 years, the former Azov Coal and Ore Transport Fleet Administration, which made coastal voyages on low-powered vessels, has been transformed into a large shipping company that is capable of solving complex economic and transportation tasks in transporting national economic cargo as well as foreign trade cargo.

The Azov Shipping Company today is an important shipping subdivision of the Ministry of the Maritime Fleet. The shipping company's fleet consists of more than 120 vessels, including modern and technically well equipped specialized vessels--packaged cargo carriers, containerships and ro-ro vessels. Forming a part of the shipping company is the nonclassified base port of Zhdanov as well as the ports of Kerch, Berdyansk and Taganrog, which are equipped with highly productive transshipping equipment that makes it possible to handle practically all kinds of bulk and general cargo and to increase the volumes of their transshipment year after year.

The Azov Shipping Company's ports have served as base enterprises during the establishment of transportation centers in the country's south, which linked the economic regions of Donbass, the Crimea, Transcaucasia and Central Asia. Routes extend from here to the ports of the Black, Mediterranean and Red seas and the Atlantic and Indian oceans.

The entire complex of technical servicing of the fleet and construction of new ships are being fulfilled by the Zhdanov, Kerch, Taganrog and the Rostov Krasnyy Moryak ship repair plants as well as by the Berdyansk Experimental Materials Handling Equipment Plant. The Kerch ferry crossing, which links the railways of the Crimea and Northern Caucasia, also forms a part of the shipping company.

The shipping company now annually transports tens of millions of tons of cargo, delivering it to more than 200 ports in 50 countries of the world. For the

first time in the world, our shipping company has mastered hauling on special vessel of hot sinter (more than 700°C) from Kamysh-Burun for the Zhdanov Azovstal' Metallurgical Combine.

The broad appearance of the fleet on international routes required a fundamental change in the style and methods of work of the management staff, the party committee and the command staff of crews, raising the level of their knowledge and bringing in new personnel. It was not a simple problem and it required time. But management workers of the shipping company together with ship party organizations were able to solve it within the briefest period of time.

New opportunities opened with the replenishment of the shipping company's fleet with modern containerships, ro-ro vessels and other specialized vessels. Permanent shipping routes to Italy, Libya, Algeria and the Arab Republic of Egypt have been established and the volume of cargo being transported is increasing. The struggle for raising efficiency and quality of work has become a paramount task of all shipping company workers. A search for ways to increase the fleet's carrying capacity, to reduce voyages in ballast and unproductive layovers of vessels in ports and to improve the work of ship repair plants was conducted in all directions.

Specialization--this, probably, is the main thing which characterizes the activity of the shipping company during the past few years. Moreover, specialization not only of vessels in transporting certain kinds of cargo, but of ports as well. Formation of cargo traffic is underway. For example, as a result of skilled utilization of comprehensive mechanization, Kerch port workers have achieved good results in processing wheeled machinery and other equipment, Berdyansk workers in processing grain and other bulk cargo, Taganrog workers in processing cement and Zhdanov workers in processing bulk and general cargo.

By way of Zhdanov equipment is dispatched to the motor vehicle giant on Kama, for the Volgodonsk Atomic Power Machine Building Plant [Atomash], new construction projects of Siberia and the Far East and pipes for gas pipelines.

The volume of cargo transported in containers is increasing. The Shchekin method has gained wide dissemination in the fleet.

The ship operation period between repairs has increased to 8-10 years, and on such vessels, for example, as the "Zaporozh'ye," where M. Suleymanov is captain, to 12 years.

Virtually all vessels have changed to utilization of heavier grades of fuel during operation of main and auxiliary engines.

Pilotage-free guiding of ships through channels, refusal to use additional tugboats during mooring operations and the study and skillful utilization of charter market conditions--all of these are our reserves, which are being efficiently put to work by Azov workers. An example in this is being set by

crews of the motorships "Rybinsk," "Romny," "Gleb Krzhizhanovskiy," "Debal'tsevo," "Matvey Muranov," "Mikhail Svetlov," "Znamya Oktyabrya," "Zaporozh'ye," "Shestidesyatiletie SSSR" and others.

The feelings of friendship, fraternity and mutual assistance and a striving to live in peace have always been characteristic of the Soviet people. Soviet seamen are called as envoys of peace. Vessels of the Azov Shipping Company can be seen in many countries of the world today. Everywhere--in the ports of England, France, the United States, the FRG, India, Africa, Japan and the countries of Near East and the Carribbean basin--our seamen, by using effective forms and methods of international work, bring the truth about the land of the soviets to people of the entire planet. They expose the vile fabrications by those who are anti-Soviet and reveal the advantages of the Soviet way of life and the peace-loving policy of the Communist Party and the Soviet state in a lucid and convincing manner. The majority of crews of our vessels are collective members of societies of friendship with foreign countries. There are already 110 such societies in the shipping company. Relations of Azov workers with residents of Savon, which became related with the city of Zhdanov, are especially fruitful.

Many seamen have been honored with high government awards for successes in international work. Friendship of Peoples Orders were awarded to captain's first mates A. Kuz'muk, V. Rozhkov and V. Yunichenko. A large group of Azov workers have been awarded honorary certificates of the Union of Societies for Friendship and Cultural Relations with Foreign Countries.

Great tasks are facing the collective of the shipping company in the period immediately ahead. As a result of technical reequipment, modernization and construction of new specialized transshipment complexes, it is necessary to considerably increase the traffic capacity of ports. Installation of new docks and construction of shops and berths at ship repair plants is planned.

The fleet will be, of course, replenished. Highty automated bulk carriers, packaged cargo carriers, containerships, new sinter carriers, large ferries and other vessels will ply the routes.

Much must also be done to improve labor, everyday life and rest of seamen. Further construction of residential houses, schools and preschool institutions, hospitals and polyclinics and cultural and sports facilities is planned.

The multithousand collective of the Azov Shipping Company will continue strengthening our motherland's economic might through its selfless labor and promoting the cause of peace and social progress.

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MARITIME AND RIVER FLEETS

BRIEFS

DREDGE CLEARS SHOALS--Syktyvkar--For many years the Charkabozhskiy Shoals were the most difficult place for shipping. Their twisting route brought many unpleasanties to captains of high speed "Rocket" boats. They had to reduce speed to avoid shallow water. Boatmen could use only two tugs to move heavy rafts through Charkabozh. Since the end of July ship convoys have been able to pass through here without having to be so cautious. In a short time, dredging workers at the Pechora Basin Administration dredged out a new channel. Previously it would have taken several years to do this work, now it only requires a few months. They used the most powerful dredge on the Pechora. Having a capacity of 1,000 cubic meters per hour, it arrived at the shipping line last year. It was helped by another giant capable of moving 700 cubic meters per hour. The crews worked excellently under the leadership of communists A. Poplavukh and M. Udalov. Since the beginning of the navigation season they have dredged up more than 1,100,000 cubic meters of spoils from the river bottom. The new channel is 2/3rds as long as the old one. Most importantly, it is safe. [By V. Ovchinnikov] [Text] [Moscow VODNYI TRANSPORT in Russian 30 Aug 84 p 2] 11574

NEW TANKER--The tanker "Meshadi Azizbekov", a new addition to the oil tanker fleet of the Caspian Shipping Company, made its maiden voyage to its port of call--Baku. The ship, built by shipbuilders in Romania, brought almost 5,000 tons of West Siberian oil to Azerbaijan. As Aleksey Gerasimenko, captain of the "Mezhadi Azizbekov" explained, the maiden voyage proved its excellent seaworthiness. The new navigation system makes it possible to select the optimal course and speed. The new tanker, like all of them which have recently arrived on the Caspian, is completely safe to the environment. [By Azerinform] [Text] [Baku VYSHKA in Russian 6 Sep 84 p 2] 11574

YUGOSLAV TANKER FOR LATVIA--A crew of sailors from the Latvian Shipping Company traveled to the city of Rijeka in Yugoslavia to receive a new ocean going tanker. The ship is named the "Lyudvik Svodoba" in honor of this national hero of Czechoslovakia, winner of the International Lenin Prize "For Strengthening Peace Between Peoples", a Hero of the Soviet Union and army general. Yugoslavian shipbuilders built the general purpose tanker for hauling petroleum products and chemicals. Its capacity exceeds 15,000 tons. "Riga and Ventspils, the two largest ports in Soviet Latvia, now have more than 100 ocean going ships: tankers, dry-cargo, gas carriers, refrigerator and fruit ships, container ships, ro-ro's and other ships." V. I. Dyrchenko, chief of the

Latvian Shipping Company, explained to our correspondent. "These are primarily modern, high speed diesel ships equipped with the newest navigational instruments and systems and modern equipment in general. Ships built right after the war are 'going on pension.' In accordance with the future program development of our country's maritime fleet, our shipping company is receiving new ships. Prior to the end of the current 5 year plan--in this and future years--we will receive 13 new ships, built at yards in the USSR and other fraternal socialist countries. [By Latinform] [Text] [Riga SOVETSKAYA LATVIYA in Russian 7 Sep 84 p 1] 11574

SHIPS FROM GDR--Shipbuilders at the Varnov Werft (GDR) have delivered Soviet customers another "Lo-ro" type ship with a horizontal and vertical loading and unloading system. In accordance with contracts between the All-Union Foreign Trade Association Sudoimport and Schiffskommerz, a GDR foreign trade enterprise, Soviet customers' orders are also being filled by shipyards in Boizenburg, Wismar and Stralsund. The GDR has delivered the USSR a total of more than 3,000 ships of various types, including freezer trawlers, seiners, container ships, floating bases and diesel powered passenger ships. Many types of ships have been developed by specialists from the two countries and are fitted out with Soviet equipment. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 36, Sep 84 p 21] 11574

NEW PUSH BOAT--Tyumen--Tyumen shipbuilders are honorably conducting a labor watch to commemorate the 40th Anniversary of the Victory. Two weeks ahead of schedule they completed the last push boat for this navigation season. After test runs, the powerful ship will go out on its first long voyage on rivers in West Siberia, the Tobol, Irtysh and Ob. The R-T-702 series push boats, which have been coming off the Tyumen yard slips for several years now, have earned the praises of river men. They meet the highest demands for ship operation. To a great extent this is the result of the conscientious work by the brigades led by A. Chernetsov, Yu. Beresnev, V. Zobnin and others. The Tyumen shipbuilders have now begun ships for the 1985 navigation season. [By PRAVDA correspondent V. Lisin] [Text] [Moscow PRAVDA in Russian 14 Sep 84 p 1] 11574

BARGE REPAIR YARD--The Dopravproyekt [not further identified] Institute in Bratislava has begun the final stages in the development of the engineering plan for a large repair complex for barge and container ships. The collective has obligated itself to deliver the clients, Soviet construction organizations, all the engineering and technical documentation for building this enterprise and the residential area for service personnel by the end of the current year. The new repair complex will be built near the Soviet city of Vil'kovo on the Danube River. It will be used by the Soviet Danube Shipping Company and by joint enterprises of Danubian socialist countries, "Interlikhter" [Interlighter], engaged in river and ocean transport of containers on a cooperative basis. The plan, developed by Bratislava specialists, is distinguished by a comprehensive solution to all production problems, its economy, and high levels of automation and mechanization. The facility's introduction will make it possible to annually repair 3,500 containers and up to 300 lighters and other freight ships. [By TASS] [Text] [Moscow VODNIY TRANSPORT in Russian 25 Sep 84 p 1] 11574

NEW RO-RO SHIP--Vladivostok--A new ro-ro has been added to the Far Eastern Shipping Company. The "Nikolay Przheval'skiy", a diesel ship, was built at the Plant imeni Zhdanov in Leningrad and delivered to the customer almost one month ahead of schedule. The ship can haul any kind of wheeled equipment, in particular, 622 automobiles. It can also be used as a container ship, hauling 300 twenty foot containers. [By G. Yermilova] [Text] [Moscow VODNYI TRANSPORT in Russian 27 Sep 84 p 1] 11574

BULGARIAN-BUILT TANKER--Baku--The national flag was hoisted on the "Mirzo Tursun-zade", a tanker built in Bulgaria for the Caspian Shipping Company. Its capacity is 4,600 tons. As reported from Burgas, the tanker will be sent to its home port of Baku in September. This is the tenth oil hauler obtained by the Caspian company since the beginning of the 11th Five-Year Plan. [Text] [Moscow VODNYI TRANSPORT in Russian 27 Sep 84 p.1] 11574

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PORTS AND TRANSSHIPMENT CENTERS

IMPROVEMENTS IN SHIP TURN AROUND TIME AT LENINGRAD PORT

Moscow VODNYI TRANSPORT in Russian 18 Sep 84 p 2

[Article by VODNYI TRANSPORT correspondent V. Orlov in the column "Coast and Vessel: Service Problems": "When a Ro-Ro Vessel is at a Berth"]

[Text]--Leningrad--A network schedule of servicing and processing specialized vessels, which will make it possible to reduce layovers by one third, has been introduced at the Leningrad commercial seaport.

For seamen the count out of arrival time in Leningrad begins with the entrance buoy. But vessels of the specialized fleet here come under the authority of SPG [not further identified]--a precise, practically to-the-minute scheduled order of a motorship's layover in port.

"Probably, it is unnecessary to describe in detail the particular features in operations of the specialized fleet," explained I. D'yakonov, acting deputy chief of the Fleet Operations Administration of the Baltic Maritime Shipping Company. "Naturally, the creation of these vessels in itself presupposes their rapid processing in port. In using the language of specialists, I will say that the gross intensiveness on specialized vessels in the fleet as a whole is 2.8-fold higher than on multipurpose ones. We have 32 of them in our shipping company. With the relative share of this entire tonnage of 16 percent for carrying capacity, it transports nearly 24 percent of cargo and yields more than 32 percent of profit. It is clear that much attention is being devoted by the shipping company to improving operations of the specialized fleet."

From the very beginning of its operation, a task was set before port workers to learn to process specialized vessels rapidly, and they had to achieve an unprecedented pace for those times. Much work was done in this connection. Berths were equipped, necessary machinery was selected, specialization of dockers-machine operators, whose brigades were assigned to process certain class of vessels, was conducted and so forth.

Today, for example, vessels of the RO-30 type with a cargo of wool are processed at berth No 34, which is permanently assigned to them. Berth No 85 specializes in RO-12 and only containers are transhipped at berth No 86.

But experience proved that despite the successes achieved by dockers in processing the specialized fleet, its layovers in port were still considerable. They were connected with servicing of a vessel--with bunkers which were not delivered on time, with delays in validating documents and delivery of food products and many other things which seemed to be trifle. But it is precisely these operations, which, it would seem, should in no way affect the departure time of a motorship, amounted to considerable figures even according to most modest calculations. Moreover, in some cases the time spent on these auxiliary operations turned out to be comparable to the time spent on cargo handling work.

Here, of course, the lack of preparation by the fleet maintenance services for the new pace of processing had an affect. After all, if the layovers of multipurpose motorships are totalled in days, then in the specialized fleet the calculation is conducted in hours.

B. Plastovskiy, engineer-dispatcher of KhEGS-6 [self-financing operational group of ships] of the shipping company, together with specialists of the cost accounting operations group of specialized vessels has conducted a thorough study of reasons for the layovers of motorships. It turned out that it is possible to organize prompt service of the fleet if efficient work of all services is achieved.

They chose a precise schedule that is carefully thought out in advance and which would be compiled for every specific motorship. After all, vessels of the shipping company operate on the basis of a continuous fleet operations schedule (NGRF), which is coordinated with the port operations schedule (NPGRP) and in the final analysis with the continuous work plan-schedule of a transportation center (NPGRTU). In other words, it is known accurately in advance on the coast about a vessel's arrival time at a berth, about the kind of cargo it will deliver, about the time when cargo-handling operations are to begin and so forth. There is more than enough information for drawing up a precise vessel service schedule with indication of specific responsible operations of one type or another and their beginning calculated accurately practically to the minute. Moreover, such a document will make it possible not only for port and shipping company services but for a crew of a motorship as well to make advance preparations for such work. All of this in the final analysis will reduce its layover time in port.

An unusual device is located next to the desk in the office of KhEGS-4 chief L. Morozov.

"This is a telecopier [telekopir]," Leonid Aleksandrovich explained. "With its aid I can transmit SPG to any service within only a few minutes. The most important is that this 'ingenious' device makes an exact copy of a document, which is immediately received by all those who are engaged in servicing and processing the fleet in port. Namely a document which was endorsed in the transport fleet maintenance service (SOTF), the marine facilities service (SSKh), in the port and in KhEGS and confirmed by the deputy chief of the shipping company."

There are nearly 40 points in a SPG schedule, in which it is pointed out: the type of operations being conducted, the planned and actual time of their beginning and completion, the executor and the responsible person and his telephone number, which may be used to obtain additional information on fulfillment of one or another type of work.

Here, for example, are excerpts from the SPG compiled for the motorship "Sestroretsk." Approach to the entrance buoy--1600, mooring--1800, arrival commission...altogether 37 points. Opposite each one of them is a specific executor. For example, bunker--1200-1700, washing laundry--at a certain time, exchange of library, repair of household appliances. In a word, the schedule does not omit even one minor operation. As a rule, statistics indicate that the time of planned and actual operation already exactly coincides today. This is readily understood: after all, there is a specific executor assigned to each of them--there is someone accountable, who will bear the responsibility for delay. At the end of a specialized vessel's layover, the results of network schedule fulfillment are examined at a dispatcher meeting.

All of this has already made it possible after 1 year to considerably reduce the layovers of specialized vessels in port. Thus, the intensity of processing RO-60 type vessels, which operate on the Cuban route, has increased in 1983 by 34 percent compared with 1982. Despite winter conditions, the gross intensity in the first quarter of 1984 compared with that of 1983 has increased as follows: for RO-60 type vessels by 7.5 percent, for RO-30 vessels by 5.5 percent, for RO-12 vessels by 23 percent and for containerhips by 41 percent. The growth of net intensity has amounted to: for RO-60 vessels to 1 percent, for RO-30 vessels to 9.7 percent, for RO-12 vessels to 28 percent and for containerhips to 13.5 percent.

Taking into account the shipping company's work experience in reducing the layover of specialized fleet, new, more strict periods for its processing were established here as of 1 July 1984. In a word, as the experience of Leningrad workers has proven, it is possible to organize vessel services at a berth efficiently, in a carefully thought out manner and without unproductive losses of time.

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PORTS AND TRANSSHIPMENT CENTERS

S&T WORK SUPPORTING RIGA MARITIME PORT OPERATIONS

Moscow VODNYI TRANSPORT in Russian 20 Sep 84 p 3

[Report on interview with V. Kozachenko, chief engineer of the Riga seaport, by VODNYI TRANSPORT correspondent V. Lushchevskiy, in the column "Increase Productivity, Reduce Production Cost": "Feedback"]

[Text] The interview with V. Kozachenko, chief engineer of the Riga seaport, began with the most fundamental question:

[Question] What place does science occupy in your work and concerns today? How does it influence the activity of the port's engineering manpower?

[Answer] "The most significant event of these days," V. Kozachenko said, "is, undoubtedly, the completion of work on the automated control [ASU]-'container' system. For the port as a whole and especially for our new, third region it is of paramount significance. An efficient container tracking method, which relies on electronic resources, is being introduced. This is a result of long cooperation of our specialists with scientific institutions of the sector. Participating in the development of the system was the Soyuzmorniiproekt [State Planning, Design and Scientific Research Institute of Maritime Transportation of the USSR Ministry of the Maritime Fleet] and its representatives in the Baltic in the persons of workers of the Lenmorniiproekt [Leningrad Affiliate of the State Planning, Design and Scientific Research Institute of Maritime Transportation]. Without their assistance, of course, the port would not have been able to cope in solving such a complex and a fundamentally new task for our engineering manpower.

"I would like to note in passing that it is precisely the servicing of motorships at berths of the container terminal which was the Achilles' heel of our port over a period of several months. Containers arrive in great numbers, several thousands of them accumulate on the grounds of the third region. A situation quite often developed here when a search for the large capacity boxes that were to be shipped on a ro-ro vessel or a containership became a real torment for workers of the cargo region. Considerably more time was spent on this than provided for by the norms. Ro-ro vessels operate on routes, their movement is regulated by schedule.

"Reserves of science--the only way out which we were able to count on. The new automated system is the best confirmation of this. Mechanical memory,

automatic method of tracking every container and the visual display system directly on berths and in the dispatcher's office--here is the living embodiment of scientific and technical progress being used for practical needs.

"Our main combined work with scientific collectives is, certainly, the construction of a container terminal on the Kundzinsala Island, the first stage of which is already in operation. The future of the port is being born here. The terminal is being supplied with most modern technology and latest equipment and its operation is being oriented toward utilization of the latest achievements in automation and electronics.

"Locally we are being assisted directly in introducing new developments by the Riga Comprehensive Design Department of the Lennorniproyekt. Its workers never deny us consultation and businesslike cooperation in solving most varied questions, which are in the category of scientific and long range ones. The proximity to this institution quite often makes it possible to manage without correspondence and to resort to personal contacts.

"Cooperation of the port's engineers with the Soyuzdornii [State All-Union Scientific Research Institute of Roads and Highways] was strengthened in the process of construction of the container terminal. It is planned to construct extensive warehouse facilities at the new cargo region; the selection of the correct type of roofing for them became a very complex 'nut to crack.' And it is precisely in this direction that specialists of the Soyudornii are working successfully."

[Question] Probably there are also other "hot" spots in your extensive economy where it is impossible to manage without science?

[Answer] "Yes, of course, there are many such links where all of our hopes are pinned on science. We have a guarantee in our work for the long term only there where we coordinate our calculations with science. Here is a specific example. The problem of restoration and repair of old berths is very important for the Riga port. When we undertake the solution of this most difficult task, we are faced with the problem of using new materials. One of them, for example, is fibrous concrete, but its utilization, of course, must be substantiated scientifically and supported by engineering calculations. In the agreement reached with the Riga affiliate of the TsNIIMF [Central Scientific Research Institute of the Maritime Fleet], the port has clearly indicated its requirements. We will carry out hydraulic engineering work on the old berths by using more effective (and, naturally, less scarce) new materials.

"The Riga affiliate of the TsNIIMF has also undertaken to assist us in solving an important problem in the field of environmental protection: to develop a method and a device for utilization of petroleum residue, which is accepted by the port from vessels."

[Question] Which problem that is now being jointly solved by representatives of science and the port's engineering manpower you would regard as the most significant, most important under today's conditions of your collective?

[Answer] "I will attempt to name such a painful point, even if it is not the only one we have. The condition of our entrance moles, for example, has caused much concern during the past few years. Under the changed conditions of operation, they are being intensively washed away and are exposed to destruction. The moles, after all, are reliable guards of the port at its closest approaches to berths.

"The entire complex of problems, which is connected with the preservation and renovation of moles, is being solved with us by the creative collective of the Vniivodpolimer [All-Union Scientific Research Institute for Utilization of Polymer Materials in Melioration and Water Management], with which the port has concluded a cooperation agreement.

"At their base in the city of Yelgava, institute workers have designed and built a functioning model of the mouth of the Daugava River in the area of the port's entrance moles. The processes, which brought our moles to a critical condition, are being studied on it.

"At our request the same problem is being studied by workers of the Lenmorniprojekt. The collective of the port hopes very much that through combined efforts a scientifically substantiated way for saving the entrance moles of the Riga port will be found and that exhaustive recommendations will be given on this subject."

[Question] What can you say about comprehensive mechanization of port operations? What are your contacts with science here?

[Answer] "During the past year, based on statistical data, 96.5 percent of all cargo processed at Riga berths was handled with means of comprehensive mechanization. This indicator amounted to 94.1 percent for general cargo. Of course, it would have been impossible to achieve such a level of comprehensive mechanization without the aid from science. Our constant partner in creative cooperation is the Lenmorniprojekt. Representatives of the Baltic and Black Sea TsPKBs [central planning and design bureaus] also visit the port regularly. They bring their own developments and assist in bringing to an innovation condition the proposals made by our innovators and inventors. Nine technical innovations, which were developed and introduced by Riga port workers, have been recognized as inventions. Three of them were proposed and developed jointly with designers of the Baltic TsPKB.

"It would be wrong to believe that we are satisfied with the condition of interrelationships and cooperation with scientific organizations in the matter of comprehensive mechanization of port operations. There is still much isolation here, localistic tendencies and much ambiguity in moral and economic stimulation of those who distinguished themselves. Let us be frank: the most talented engineers today do not have a genuine interest in being occupied with complex questions of developing new machines, devices and equipment. There is none because the payment for such labor is depersonalized.

"A similar situation as a whole is also being observed in the distribution of moral and economic benefits among ports. Regardless of what was done in the

field of technical progress, they are actually in an equal situation when questions of stimulation are decided. On the other hand, the one who has done more also gets a much higher plan for next year... This approach by no means engenders a desire to work by the sweat of one's brow on the development of innovations and on moving scientific and technical progress ahead in one's own collective.

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PORTS AND TRANSSHIPMENT CENTERS

MECHANIZED PORT FACILITY PROGRESS ON SIBERIAN RIVERS

Moscow VODNYI TRANSPORT in Russian 16 Oct 84 p 2

[Report on interview with D. V. Chimburov, chief of the Main Capital Construction Administration of the Ministry of the River Fleet, by correspondent A. Strunin: "On the Siberian Berths"]

[Text] Traffic on Siberian rivers is becoming more intensive with each passing year. This is directly connected with the development of mining of raw material resources in the severe region. Therefore, mechanized berths are the most important projects being constructed here in the current five-year plan. D. V. Chimburov, chief of the Main Capital Construction Administration of the Ministry of the River Fleet, described to correspondent A. Strunin the progress of construction and the state of affairs and plans for the future.

[Question] To begin with, Dmitriy Vasil'yevich, would you please describe the overall picture of the state of affairs in capital construction and on the country's main river routes?

[Answer] In order to describe the dynamics of growth of the sector's material and technical base in the current five-year plan, suffice it to say that in the past 3 years the input of fixed capital has exceeded a similar indicator of the entire past five-year plan.

At the same time, for example, the United Ob-Irtysh and Volga, as well as Kama, Bel'skoye, Pechora, Yenisey, East Siberian and Amur shipping companies were unable to cope with established plans for coastal construction and permitted a lag in capital investments and construction and installation work. The Volga Joint Shipping Company has failed to assimilate more than R4 million in capital investments and nearly R1.5 million worth of construction and installation work. The pace in constructing facilities has declined at some most important construction projects of shipping companies.

We are especially concerned about the progress in construction of mechanized berths and common supply bases in Western Siberia.

[Question]: Will you please describe which projects precisely are being prepared for commissioning on Siberian rivers?

[Answer] To increase shipments by river transport to the north of Tyumen Oblast in connection with accelerated development in this region of gas industry, mechanized berths are being built in five places--Nadym, Urengoy, Sergino, Nizhnevartovsk and Labytnangi. Their construction was begun 5 years ago. It is being carried out by the Mintransstroy [Ministry of Transport Construction]. The estimated cost of the projects exceeds R246 million. Actually only the berths have been built, while objects of engineering support--boiler rooms, water intake and purification installations and port buildings--are being built very slowly. While work is proceeding in a normal manner in Urengoy, then the situation in Nadym is very intense. Suffice it to say that in order to complete work on the underway complex in Nadym it is necessary to assimilate nearly R500,000 in a month.

Within an extremely short space of time, it is necessary to complete construction in Nadym of a berthing embankment, install 150 m of crane tracks, complete construction of a surface water sewerage and build a fire station. Owing to the late delivery of portal cranes, a very difficult task is facing the 21st detachment of the Podvodrechstroy [Administration of Underwater-Technical and Construction Work of the RSFSR Ministry of the River Fleet]--to assemble the cranes within a considerably briefer periods than provided for by the norms.

The progress of work on this underway complex last month has indicated that the Zapsibgidrostroy Trust [not further identified] of the Ministry of Transport Construction is conducting work at an insufficient pace on underway projects and that this had made the situation even more difficult.

Work at the Krasnoyarsk river port in construction of the Peschanka cargo region is being conducted considerably behind plans and schedules. A lag exists here in laying out cargo areas, crane tracks, water and sewerage networks and installations and external power supply. Commissioning of the underway berth complex at the Peschanka cargo region is planned for the fourth quarter. Unfortunately, the Yenisey Shipping Company and the Krasnoyarsktransstroy Trust [not further identified] are conducting work here poorly.

The Lena United Shipping Company and the Lenahamstroy Trust [not further identified] must commission 200 linear meters of berths at the Osetrovo port for shipping to Yakutia and northern rayons of Irkutsk Oblast some 280,000 t of national economic cargo, and while the plan is being met for projects of the underway complex, a lag has been permitted in the construction project as a whole.

The Collegium of the RSFSR Ministry of the River Fleet has examined the progress of work and preparations for commissioning the underway complexes and defined specific measures, which are necessary for ensuring their commissioning within the established periods. The Ministry of the River Fleet will render genuine assistance to shipping companies in solving some problems.

[Question] What prevents construction workers in fulfilling the pledges that they have assumed?

[Answer] A common trouble for all construction projects are the shortcomings in organization of supply of materials. For example, the Zapsibgidrostroy Trust has failed to stock the necessary supply of materials in Nadym during last year's navigation season. As a result, construction workers were unable to work at full strength in the beginning of the year. There is a chronic shortage of precast reinforced concrete, and that which arrives is often incomplete. There is a shortage of construction equipment. Despite the fact that there is a great volume of construction and installation work in Nadym, there is only one bulldozer on hand and there is also a shortage of cranes, excavators, motor transport and other mechanisms.

I cannot say that the clients are doing everything as it should be done. In August, the underway complex in Nadym was still not supplied with communications cable (there is a need for more than 1,500 m) and cast iron bolts. Peschanka needs chain fixtures for an electric power transmission line, two pumps, a diesel-generator, remote control and communication equipment, cable and so forth.

But, probably, the most important is the shortage of people. Especially of specialists. The planned contingent of those working on mechanized berths in Western Siberia (mainly floating construction detachments) specialize in hydraulic engineering work, which has been completed in the main. Construction of more labor-consuming coastal projects presupposes the joining of additional labor resources, since the output per worker on them is considerably lower and they require greater special skills. A shortage in the number of construction workers is being experienced at almost all projects.

[Question] Dmitriy Vasil'yevich, but all the same what has been done out of that which is being planned in Nadym, Urengoy, Nizhnevartovsk, Sergino and Labytnangi?

[Answer] Much has been done. Despite the aforementioned and some other difficulties, two underway complexes with berths having an overall length of 325 m and cargo processing capacity of 0.3 million t were put into operation in Nadym last year and underway complexes with berths having an overall length of 100 m each and cargo processing capacities of 110,000 t and 50,000 t respectively were commissioned in Urengoy and Sergino. The work of the berths which were put into operation was of great assistance in helping to unload cargo during the brief arctic navigation season.

[Question] There is undoubtedly a share of labor of contracting organizations of construction ministries and departments in that which has been done. What is their role in the development of the material and technical base of the Minrechflot [Ministry of the River Fleet]?

[Answer] It is difficult to overestimate the role of contracting organizations. Suffice it to say that more than 80 percent of construction and installation work must be fulfilled by them this year alone. Of special significance for us is the activity of the Ministry of Transport Construction, which has pledged to fulfill more than half of the entire annual volume of work of the Ministry of the River Fleet. However, one is forced to admit that work of contracting organizations, unfortunately, does not please us much.

The plans which were set by organizations of the Minenergo [USSR Ministry of Power and Electrification] and the Minvostokstroy [USSR Ministry of Construction in the Far East and Transbaykal Regions] fell short of fulfillment by one half.

An unpleasant surprise was given us this year by organizations of the Ministry of Transport Construction, which fell short of fulfilling the plan for sector projects by R8.5 million, which is much more than in the same period last year. Not a single main administration [glavk] of this ministry was able to fulfill the set task for our projects, and the Glavmorrechstroy [Main Administration for the Construction of Maritime and River Structures] and GUZhDS [Railroad Construction Main Administration] of the Urals and Siberia have permitted a lag valued at R3 million each.

At the most important sector projects, which we have mentioned--mechanized berths and common supply bases in Nizhnevartovsk, Sergino and Nadym--the Zapsibgidrostroy Trust of the Glavmorrechstroy has failed to fulfill work valued at more than R2 million.

Owing to interruptions in the supply of construction projects with reinforced concrete products, bricks and other materials and inadequate staffing with manpower, GUZhDS of the Urals and Siberia has permitted a serious lag in the construction of ports in Khabarovsk and Komsomolsk-na-Amure, hull welding shops in Tyumen and Tobolsk, the Malyshevskaya fleet repair and operations base and a hospital in Novosibirsk. The list is far from complete.

It is not the first year that the plan for construction of the Borskiy Ship Repair Plant (Gortransstroy Trust [not further identified] GUZhDS of the North and West) has been frustrated. The Tomsktransstroy and Altaytransstroy trusts [not further identified] have not completed work until now at the stations in Tomsk and Barnaul.

Here is a circumstance that arouses special alarm. The lagging construction projects are visited at our request by supervisors of trusts and in some cases of main administrations of the USSR Ministry of Transport Construction and together with supervisors of shipping companies and the Main Capital Construction Administration [GUKS] adopt real, businesslike decisions. But a week or two passes, the decisions are forgotten, and everything proceeds as before.

[Question] A traditional question in conclusion: What are the plans of the Main Capital Construction Administration with respect to construction projects of Siberia for the immediate future?

[Answer] First of all, construction of mechanized berths in Western Siberia will be continued, in which connection the basic stress will be placed on the establishment of objects of engineering support without which the commissioning of berths in the future will no longer be possible. Next year, it is planned to commission the Osetrovo port (the fourth stage), 100 m of berths will be commissioned in Krasnoyarsk and construction will be continued of the second stage of the Tomsk port and of a new cargo region in the Komsomolsk-na-Amure port. Moreover, it is planned to begin construction of berths in Yakutsk and Khanty-Mansiysk.

PORTS AND TRANSSHIPMENT CENTERS

GRAIN TRANSSHIPMENT HAMPERED BY UNCOOPERATIVE BUREAUCRACY

Moscow VODNYI TRANSPORT in Russian 23 Oct 84 p 2

[Article by VODNYI TRANSPORT correspondent V. Zhivotkov: "New Grain Roads"]

[Text] Rostov-on-Don--Grain flotilla trips; friendship becomes stronger; an old problem--fleet demurrage.

A traditional grain transportation system has been firmly established in the Don for many years. The ships of the local fleet deliver grain from the river-side grain-reception points of the lower Don, Severskiy Donets, and Manych to the Rostov elevator, from the Tsimlyansk reservoir and the middle Don to the port of Kalach and from the upper Don to the port of Gheorghiu-Dej. The transit fleet transports Don and Kuban grain to the Volga from the Rostov, Volgograd, and Yeysk elevators.

Such an arrangement of resources has permitted the Don river transport workers to deliver annually more than one and a half million tons of grain. However, there is no way of succeeding in reaching a further record level--1,850,000 tons--although there are equipment and experienced ship crews to do this.

The Volga-Don Shipping Company administration has started to take energetic measures to broaden the geography of grain freight consignors, hoping in this way to increase grain shipment volumes and to reach for the first time the two million ton mark. This task is not an easy one because a significant portion of the grain has to be transported on the local fleet which has a carrying capacity of 100-600 tons.

The next step for the Don river transport workers is the active intervention in transshipping grain in the seaports of the Black and Azov Seas. One can judge the potential and abilities of the Don river transport workers by this fact. In one of the recent navigation seasons, the river transport workers succeeded in exporting by rush order half a million tons of grain from the Zhdanov seaport over a three-month period.

However, look what happened this year. The Volga-Don Shipping Company Administration, knowing that the Zhdanov dockers were continuing the transshipment of grain from the sea to the railroad, decided to help them and obtained preliminary approval to ship in September 50,000 tons of grain from Zhdanov by the river route. However, grain was not provided for the river ships. Telephone calls flew from Rostov to Zhdanov: "Give us some grain, even if it is only a little bit."

And the answer came from the Azov Shipping Company administration: "We will not give you any."

In spite of the fact that there are constantly tens of thousands of tons of planned grain ready for export in three elevators--the Rostov, Volgodonsk, and Yeysk--they are moving slowly at the Shipping Company and are not providing the ships. The tempo for shipping grain by the transit fleet has decreased.

The Volga-Don Shipping Company had to seek new sources of grain. A system for organizing grain shipments from the Novorossiysk seaport to the Volga on river-sea type ships was thoroughly examined. It seemed that Volgo-Balt type diesel engine ships will be put on this line and they will deliver 50,000-70,000 tons of grain annually to customers in the industrial centers of the European part of the country.

It cannot be denied that this is important assistance to the seamen and dockers as well as to the railroad workers of the North Caucasus Railroad. And the possibility even emerged of freeing up a thousand and more boxcars, so scarce in the busy grain, vegetable, and melon harvesting season. However, the USSR Ministry of Procurement managers did not have a burning desire for this idea. They delayed solving the problem of organizing the reception and transshipment of grain from the Novorossiysk seaport through the riverside grain-reception points and Volga elevators.

"The impression is being created," chief of the Volga-Don Shipping Company freight and commercial service operations, M. Arabadzhan, shared in conversation, "that Minzag/Ministry of Procurement/ simply does not want to trouble itself with searching for equipment with which to transship and allocate additional volumes of grain. And we once again suggest that this problem must be solved. There is only a month and a half until the end of the Volga navigation season. It would be a shame if this expensive time was lost."

The authoritative intervention of the proper Ministry of the River Fleet chief administrations is required in this situation.

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PORTS AND TRANSSHIPMENT CENTERS

BRIEFS

NEW YUZHNY PORT ANCHORAGE--Odessa--A new deep-water anchorage was turned over for operation at the new Black Sea port of Yuzhny which is located on the bank of the Adzhalykskiy estuary not far from Odessa. Ocean-going ships of any displacement can moor here. The Chernomorgidrostroy/Black Sea Hydraulic Engineering Construction Trust/ collectives, in cooperation with subcontractor dredgers, have deepened the bottom to 16 meters over an extensive sector of the water area. Then they laid massive reinforced concrete slabs there and firmly attached a floating moorage crane to them. An approach channel was dug to the moorage. The total plan calls for the construction of 52 deep-water berths and more than 300,000 square meters of open platforms for processing freight in the port. [By G. Dolzhenko] [Text] [Moscow STROITEL'NAYA GAZETA in Russian 28 Sep 84 p 3] 8524

HEAVY CARGO PORT CONSTRUCTED--Astrakhan--A port, which has been under construction, to receive heavy freight destined for the Astrakhan Gas Condensate Complex came into operation on the Buzana River. Playstroyotryad/floating construction detachment/ No. 5 of Volgodongidrostroy/Volga-Don Hydraulic Engineering Construction Trust/ constructed this project. In a short period of time the builders laid 3,300 cubic meters of reinforced concrete, hammered in 1,700 tons of metallic piles, assembled 1,200 cubic meters of precast reinforced concrete structures, and packed 170,000 cubic meters of sandy ground. [By A. Golovko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 13 Oct 84 p 1] 8524

TRACTOR TRAILERS DELIVER CONTAINERS--Izmail(TASS)--A specialized motor pool with a fleet of powerful tractor trailers, set up at the Izmail cargo port, will speed the delivery of containers to customers. After having processed the diesel engine ship "Kapitan Antipov" ahead-of-schedule, the dockers sent to Togliatti the first column of tractors with freight for the motor vehicle giant. Containers were earlier transported only by railroad. However, with an increased freight flow, the railroad workers did not always succeed in providing rolling stock to the port on time and in the necessary quantity. [Text] [Moscow VODNYI TRANSPORT in Russian 18 Oct 84 p 1] 8524

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INTERSECTOR NETWORK DEVELOPMENT

RAIL, TRUCK MINISTERS BLAME EACH OTHER FOR SHIPPING DELAYS

Moscow SOVETSKAYA ROSSIYA in Russian 3 Oct 84 p 3

[Article: "Is It Necessary To Argue?"]

[Text] More than two million tons of freight remain unmoved monthly at railroad stations. Why? This situation was analyzed in detail in the reporting from the "Severed Route" Operation. Where was the essence of the problem seen to be? The railroad workers place the guilt for the poor dispatch service on the motor vehicle operators and express a readiness to assume all concerns upon themselves. Specialists in the USSR Gosplan's Institute for Complex Transportation Problems support their position. According to the data of the scientists, the railroad part of the forwarding service is almost twice as effective as the motor vehicle one. However, the motor vehicle operators nevertheless propose counter-arguments.

In the spirit of a departmental debate, the official replies are quoted for publication.

The Ministry of Railways replies:

"Experience has shown that after the transfer of transport and forwarding functions to the automotive enterprises of the Ministry of Motor Transport, no noticeable improvement in the organization of the delivery and removal of containers and cargo from the stations was achieved. As a rule, automotive personnel work in one shift. The volume of shipments is decreased fourfold on Saturdays and Sundays. Moreover, the automotive enterprises do not have responsibility for the fulfillment of the state plan for deliveries of freight in containers. It is necessary to consider that the staffs of the automotive enterprises noticeably increased after the transfer of the forwarding service to the RSFSR Ministry of Motor Transport."

There is no reason to list all the conclusions here. Their meaning is clear: The Ministry of Railways is better able to perform the delivery and removal of freight from railroad stations.

V. Medvedev, RSFSR deputy minister of motor transport, maintains a completely different opinion:

"The transfer of the transport forwarding service to the automotive personnel turned out to be a large gain for the national economy. The amount of non-moved freight and containers at railroad stations was decreased. Additional conveniences were created for clients. The use of machines considerably improved. The RSFSR Ministry of Motor Transport cannot agree with the proposal to transfer the forwarding service to the railroad workers. This problem has been repeatedly examined in the USSR Gosplan and other central bodies. The conclusions of the Ministry of Railways were recognized as unfounded."

The argument between the two ministries has continued for more than a year. Central planning and supply bodies are being involved more and more frequently in the resolution of the conflict. Local decisions are being made. One of the parties, however, is dissatisfied with them without fail-- and the discussion goes to the next circle. Of course, if it had a particularly theoretical nature, the economy would not suffer any losses except the paper used up in writing. However, there is harm in the fact that the stretched out departmental debates are costing too much. Millions of tons of quite concrete material valuables -- equipment, construction material, lumber, paper, consumer goods ... -- are stuck at the transportation junctions. It is necessary to take steps without delay, without waiting until the problem of the forwarding service's departmental affiliation has been researched to the end and resolved once and for all.

How can one now eliminate the jams at the stations and speed up the movement of freight? The operation of the Leningrad transport center suggests the necessary methods. SOVETSKAYA ROSSIYA has told in detail about the progressive experiences of the Leningraders and has criticized the Central Coordinating Commission of the transport ministries for spreading this experience to the practices of interrelated cooperating partners too indecisively. In particular, the article "Everyone Is Waiting for the Arbitrator" (13 June issue of the newspaper) was about this. Here is how V. Gin'ko, at the time the first deputy minister of railways, reacted to it:

"The article 'Everyone Is Waiting for the Arbitrator' was examined during a session of the Central Coordinating Commission. The statement of the question and the criticism addressed to the commission were recognized as being correct. A draft statute was approved in which the range of questions, which are subject to examination, and the rights of the commission were expanded in consideration of the critical comments that were expressed in SOVETSKAYA ROSSIYA. A decision was also made to intensify the activity of the commission in order to improve the effectiveness and quality of work of the different types of transportation based on mutual planning, improved coordination and reciprocal action in fulfilling the plan for transporting national economic freight".

A strange bifurcation of position is being revealed here. On the one hand, the need for coordination, reciprocal action and harmony in the work of the transport ministries is recognized as being correct. When the subject touches upon the specific situation in connection with the problem of the forwarding service, however, the talk boils down to defending the position of one's ministry.

It seems that there cannot be two opinions on the problem. No matter who moves the freight from the stations -- the railroad workers or the automotive workers -- they must deliver it to the consignees without delays. The interdepartmental transport commission is obliged to solve this task effectively, exercising its rights in it. Should there be an argument in this case?

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INTERSECTOR NETWORK DEVELOPMENT

TIMBER SHIPMENT COORDINATION PROBLEMS PLAGUE PERM

Moscow VODNYI TRANSPORT in Russian 11 Oct 84 p 1

[Article by VODNYI TRANSPORT correspondent V. Rutkovskiy in Perm: "The Berths Are Empty"]

[Text] A decision was adopted in 1978 to triple the volume of transshipments of Siberian and Ural timber from the railroad to the water through the port of Perm. At first, it seemed practically impossible to resolve this problem mainly because of the shortage of storage areas and the short periods allocated for the preparation for this important and critical measure: Only weeks remained until the beginning of the navigation period. Nevertheless, however, brigades of port workers were urgently formed from the most experienced specialists, and special courses and seminars to study progressive methods for transshipping timber were organized. Dry cargo was pushed together, freeing space for a timber berth in preparation to encounter 600,000 tons of wood.

From the first days, the port workers insured a systematic overfulfillment of the planning quotas -- they unloaded the railroad cars ahead of time and the motor vessels departed on their trips ahead of schedule. It is sufficient to mention that the fleet's mooring time near the timber berth was decreased by 38.6 percent as against the norm.

Seven navigation periods have gone by since that time. Sufficient time has passed to arrange all of the transportation conveyor's links in an exemplary manner and to eliminate any troubles in the joint actions of the timber procurement officials, railroad workers and river workers. During these years, however, the Perm port workers did not fulfill either a quarterly nor an annual quota for transloading timber. The seven navigation periods became a sad story of systematic disruptions of the planning quotas for the range of cargo in the biography of the port's collective. The fact that this type of transshipment was regarded as a fundamental one until 1983 inclusive and cost the innocent a pretty penny, as they say, also aggravated the situation.

The whole fact of the matter was that instructions arrived in the spring of 1978 from Moscow signed by the directors of the Ministry of the River Fleet, Ministry of Railways and Ministry of Timber, Pulp and Paper, and Wood Processing Industry of the USSR to insure the transshipment of half the navigation period's volume-- 300,000 tons of Siberian timber -- during the second quarter.

Naturally, the cooperating partners guaranteed all possible support in the new task. However, only 115,000 tons arrived during that quarter, and only 35,000 tons of the planned 230,000 tons-- during the next....

K. Vol'fovich, the chief of the port's cargo and commercial operations section, says with bitter irony: "We showed signs of growth. In 1981, we fulfilled the navigation plan for transshipping timber by 23 percent; in 1982-- by 27 percent; and in 1983 -- by 33 percent. This year, the shippers, who have been armed with Ministry of Railways instructions, quite refused to load lumber for the transshipment, citing the absence of ties for forming stacks. The loads now go to the addressee bypassing the blue trunklines and travelling by Perm in railroad cars. This time, the port workers telegraph the cooperating partners. For example, the telegram to Vostoksiblessnabsyt: "The July plan of your administration provided for the dispatching of 25,000 tons of timber cargo using mixed railroad and water lines of communications with transshipment in the port of Perm; however, nothing has actually arrived. Report the expected dispatching for transshipment in August". The reply was laconic and inauspicious: "The Ministry of Railways has forbidden the dispatch of timber cargo to the Kama ports in semirigid slings. The association does not have available any other fastening systems, and the planning of lumber through the port of Perm is not taking place".

There is silence on the lumber berths of the port. Vostoksiblessnabsyt had planned to dispatch to Perm for transshipping 47,000 and 75,000 tons of lumber during the second and third quarters, respectively. The river workers have not received a single ton. Krasnoyarsksiblessnabsyt should have sent on water 45,000 and 46,000 tons of saw timber, respectively, during the same periods. Perm received a total of nine cars. Sredneuralsnabsyt planned to dispatch 69,000 tons of softwood lumber from April to September using railroad-water lines of communications. Here it is zero. Only Tyumen and Perm Oblast remember from time to time that wood cargo exists in nature and not on paper.

During the second quarter of this year, 70,000 tons out of the planned 193,000 tons arrived in Perm; and 18,000 tons out of 200,000 arrived during the third quarter.

V. Kirchanov, the deputy chief of the port says: "The problem is complicated by the fact that, with the failure to fulfill the assigned dispatch volumes of lumber cargo for transshipment, the port fails to receive approximately 7,000 of the planned railroad cars which are required for dispatching a half million tons of Akhtubinsk salt in the opposite direction. Of course, we receive hundreds of thousands of rubles in fines from the railroad workers; however, this is incompatible with the idea itself of 'labor cooperation'".

All of this flared up because of a shortage of packaging systems. It appears that they are being returned to the owner not as quickly as they should be. Their price, however, is insignificant in comparison with the economic effect which can be obtained from transshipping part of the timber freight traffic from the railroad to waterways.

When timber nevertheless arrives, many other problems arise. It often happens that the timber material for sovkhoses and kolhoses in the country's southern

rayons arrives in small lots -- a freight car for one address and two cars for another.

The lumber often arrives for transshipment in different lengths: from half-meter scraps of boards to multi-meter beams. The first stacks are, as a rule, very delicate and can scatter during loading. When working with the second ones, the port workers must solve very complicated puzzles: how to stow a cargo so as not to bring air into the holds? How can this be? The answer is simple. On a direct mixed railroad-waterway line of communications, it is necessary to dispatch only sleepers in stacks and whole lumber. The partners came to this conclusion after seven years of difficult mastery of timber freight traffic.

The Perm port collective, the initiator of the basin socialist competition for the ahead-of-time fulfillment of the five-year plan's targets, is not losing hope that the problem will be finally solved with the help of the cooperating interested departments.

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INTERSECTOR NETWORK DEVELOPMENT

BRIEFS

BAM-PORT TIE-IN PROBLEMS -- Vladivostok (TASS)-- The problems of the interaction of the Baykal-Amur Mainline with the Pacific Ocean ports of our country and with other railroad and sea transportation lines were discussed during the final meeting of the assize session of the USSR Academy of Sciences scientific council on BAM problems. The Maritime ports have been given the role of "Maritime gates" for the new mainline. They must receive an ever growing stream of cargo for Sakhalin, Kamchatka and Chukotka and also for export. It is also planned to switch the transit of foreign goods to BAM. The shipment of container cargo on the Western Europe-Pacific Ocean basin countries line is especially growing. The members of the scientific council visited the main transportation centers. The ferry crossing to Sakhalin and the construction of its second stage were at the center of their attention in the port of Vanino. The prospects for a sharp increase in container shipments were examined in the port of Vostochnyy. The session participants studied the problems of increasing the carrying capacity of Far East railroads in Komsomolsk-na-Amur. The route of the scientific expedition, which was devoted to the problems of the economic development of BAM's eastern zone, stretched almost 3,000 kilometers -- from Tynda through the new cities and settlements along the main line and also the industrial centers of the Far East. [Text]
[Moscow VODNYY TRANSPORT in Russian 25 Sep 84 p 3] 8802

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