



Tractor Zadrugar Cooperative" T 08



ИНДУСТРИЈА МОТОРА А. Д.

УПЛАЋЕНИ АКЦИЈСКИ КАПИТАЛ 60,000,000 ДИНАРА



Израђује:

Аеропланске моторе

најновијих типова хлађене
ваздухом

Теретне

аутомобиле



Алат прецизан секући, кон-
тролни и монтажни за све
врсте индустрија

ИНДУСТРИЈА МОТОРА А. Д.
У РАКОВИЦИ (КОД БЕОГРАДА)

U novoosnovanoj Kraljevini Srba, Hrvata i Slovena-
ca, kasnije Kraljevini Jugoslaviji nije postojala automo-
bilska industrija. Prva fabrika avionskih motora, Indus-
trija motora a.d. u tadašnjem beogradskom predgrađu
Rakovici (IMR), otvorena je 1927. Pokretanje više ini-
cijativa za osnivanje fabrike automobila širom države,
urodilo je plodom tek 1939. kada je posle održanog
konkursa, sklopljen licencni ugovor sa Pragom, iz glav-
nog grada prijateljske Čehoslovačke, članice tzv. Male
Antante, ugovora o vojnoj saradnji Jugoslavije, Rumu-
nije i Čehoslovačke, na snazi do nemačke okupacije
Čehoslovačke marta 1939.

Do okupacije Jugoslavije aprila 1941. u novopodig-
nutoj fabrici automobila, puštenoj u rad oktobra 1940,
sklopljeno je oko 300 kamiona praga "RN".

In the newly established Kingdom of Serbs, Cro-
ats, and Slovenes, later the Kingdom of Yugoslavia,
there was no automobile industry. The first aircraft
engine manufacturing factory, Industrija motora a d
was opened in 1927 in the then Belgrade suburb of
Rakovica (IMR Rakovica Motor Industry). The launch
of several initiatives to establish a car factory across
the country bore fruit only in 1939 when a license
agreement was signed with the truck factory PRAGA,
based in the capital of friendly Czechoslovakia, mem-
ber of the so called Little Entente. The Little Entente
was an agreement on military cooperation between
Yugoslavia, Romania, and Czechoslovakia, which was
in force until the German occupation of Czechoslovakia
in March 1939. By the time Yugoslavia was invaded in
April 1941 about 300 PRAGA " trucks were assembled
in the newly built car factory, which was put into opera-
tion in October 1940.

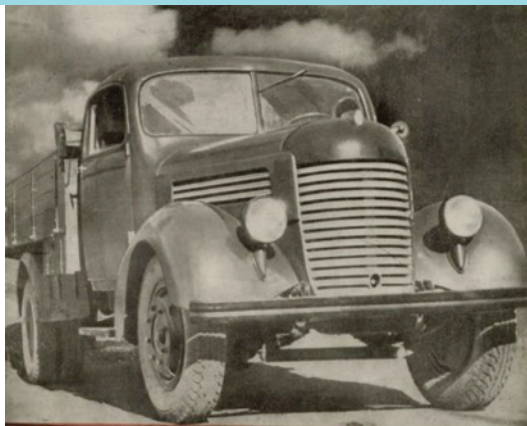


Prvi susret vrhovnog komandanta Narodnoslobodilačke vojske Jugoslavije maršala Josipa Broza Tita i Josifa Visarionoviča Staljina, generalnog sekretara Komunističke partije Sovjetskog Saveza, održan je septembra 1944. u Moskvi. Tada je uspostavljena bliska saradnja vođa dve komunističke države, koja je bila pojačana potpunim otklonom Jugoslavije od zapadnih Saveznika u povodu Tršćanske krize polovinom 1945. godine.

Promenom društvenog uređenja po završetku II svetskog rata, Industrija motora Rakovica postaje državno preduzeće od saveznog značaja, koje je u tadašnjoj planskoj privredi delovalo u okviru Generalne direkcije savezne industrije motora (GDSIM) pri Ministarstvu teške industrije FNRJ. Posleratna montaža i nastavak osvajanja proizvodnje po predratnom ugovoru, otpočeo je oktobra 1946. u uskoj saradnji sa davaoem licence u Čehoslovačkoj Republici. U prvom petogodišnjem planu razvoja narodne privrede 1947-1951, bila je uneta samo uopštena formulacija "Uvesti proizvodnju čitavog niza proizvoda koji se do sada nisu proizvodili, među njima ... traktora ...", bez razrađene dinamike i količine.

The first meeting between the Supreme Commander of the People's Liberation Army of Yugoslavia, Marshal Josip Broz Tito, and Joseph Vissarionovich Stalin, Secretary General of the Communist Party of the Soviet Union, was held in September 1944 in Moscow. It was then that close cooperation was established between the leaders of the two communist countries, which was strengthened by Yugoslavia's complete deviation from its Western Allies due to the Trieste crisis in the mid of 1945.

With the change of the social order after the end of World War II, the Rakovica Motor Industry became a state enterprise of federal importance, which in the then socialist planned economy operated within the General Directorate of the Federal Motor Industry, which, in turn, was part of the Ministry of Heavy Industry of the Federal People's Republic of Yugoslavia. Post-war assembly and the continuation of the conquest of production under the pre-war contract began in October 1946 in close cooperation with the licensor PRAGA in the Czechoslovak Republic. In the first five-year plan for the development of the national economy (1947-1951), only a general formulation was introduced, which read: "Introducing the production of a whole range of products that have not been produced so far, including... tractors ...", without any elaborated dynamics and quantity.



AUTOMOBILSKO
MOTOCIKLISTIČKI
ČASOPIS

PRIJUŠEN NABE AUTO-INDUSTRIJE

1
1947

Ayrop / Author: Aleksandar Vidojkovic, Member of the Society of automotive historians Serbia



Polovinom 40-tih godina 70% stanovništva države živelo je u ruralnim predelima. Od oko 255.000 km² ukupne površine, u društvenom vlasništvu socijalističke Jugoslavije 1945. se nalazilo 318.000 ha obradive zemlje. Hitne potrebe za mehanizacijom radova u poljoprivredi su, prvih posleratnih godina, podmirivane iz pomoći UNRRA-e, preko koje je, do kraja ovog programa 1947. dobijeno oko 6.500 traktora američke proizvodnje.

U septembru 1947. Staljin osniva Informativni biro komunističkih partija, za čije sedište je bio određen Beograd. Približno u isto vreme, dolazi prvo do tihog sukoba Staljina i Tita, po više pitanja, od kojih su glavne bile optužbe da KP Jugoslavije skreće sa socijalističkog puta razvoja zemlje. Sukob punom snagom izbija u javnost Rezolucijom Informbiroa protiv politike jugoslovenskog rukovodstva polovinom 1948, na šta je Tito odgovorio Izjavom Centralnog komiteta Komunističke partije Jugoslavije, što je ubrzo označilo razlaz odnosno gubljenje političkog i privrednog oslonca Jugoslavije u SSSR-u i državama tzv. narodne demokratije, među kojima su se nalazile i one sa tradicijom proizvodnje traktora.

In the mid-1940s, 70% of the country's population was living in rural areas. In 1945, out of ca. 255,000 km² of the total area, 318,000 ha of arable land were the social ownership of socialist Yugoslavia. In the first post-war years, the urgent needs for mechanization in agriculture were met with the help of UNRRA (United Nations Relief and Rehabilitation Administration), through which, by the end of this program in 1947, about 6,500 American-made tractors were obtained.

In September 1947, Stalin founded the Information Bureau of the Communist Parties (Cominform), initially located in Belgrade. At about the same time, the first silent conflict between Stalin and Tito occurred, related to several issues, the main of which referred to accusations that the Communist Party of Yugoslavia was deviating from the socialist path of the country's development. The conflict erupted in full force with the Resolution of the Cominform against the policy of the Yugoslav leadership in mid-1948, to which Tito responded with a statement by the Central Committee of the Communist Party of Yugoslavia, which soon marked Yugoslavia's break with and loss of the political and economic support of the USSR and countries with so-called people's democracies (other socialist countries). Among these countries, there were those with a tradition in tractor production. The procurement of tractors manufactured in socialist countries was no longer possible.

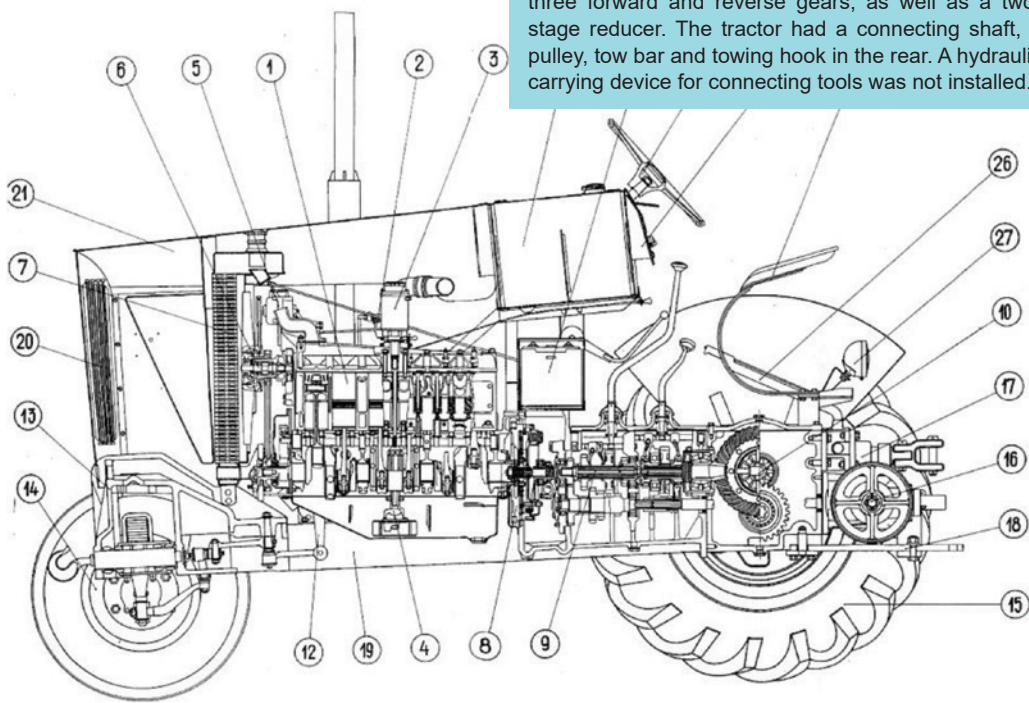


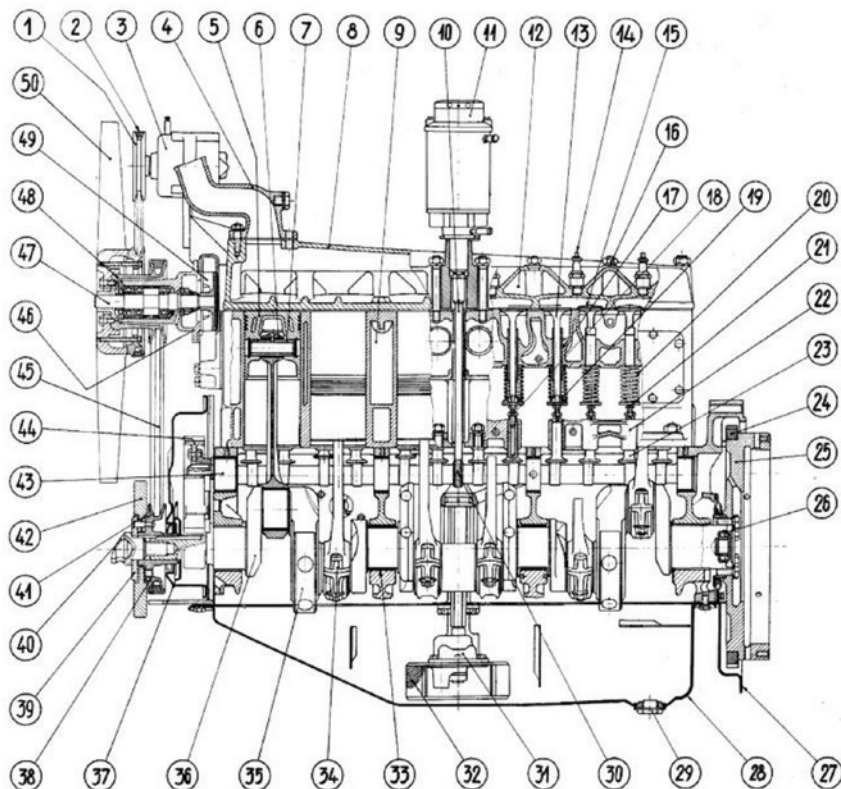
U cilju početka proizvodnje traktora u zemlji, Privredni savet Vlade FNRJ stupa u pregovore sa mađarskom industrijom traktora (HSCS), koji usled Rezolucije IB-a nisu uspeali, pa GDSIM krajem 1948. dobija nalog da pristupi projektovanju traktora u celosti domaće proizvodnje. Jedini realni proizvodni kapacitet u kome se to u kratkom roku moglo realizovati je bio IMR

Rok za izradu voznog prototipa traktora bio je Zagrebački Velesajam, kao višedecenijska centralna izložba domaće i strane industrije, koji se 1949. godine otvara 17. septembra. Projekat dobija kôdno ime "T-08" (Traktor-1948). Za konstrukciju su bili zaduženi vodeći inženjeri konstrukcionih biroa GDSIM i IMR. Odabran je koncept točkaša sa konzervativnim rešenjem šasije od "U" normalnih profila, što je imalo za posledicu relativno veliku masu od cca 2,5 t (sa tegovima). Menjačka kutija je imala tri prenosna odnosa za napred i hod unazad, kao i dvostepeni reduktor. Traktor je imao priključnu osovinu, remenicu, poteznicu i kuku za vuču u zadnjem delu. Hidraulični uređaj za nošenje priključnih oruđa nije ugrađivan.

In order to start the production of tractors in the country, the Economic Council of the Government of the Federal People's Republic of Yugoslavia entered into negotiations with the Hungarian Tractor Industry (HSCS), which failed due to a Cominform Resolution. At the end of 1948, the General Directorate of the Federal Motor Industry received an order to start designing tractors that would be entirely of domestic make. The only real production capacity where this could be realized in a short period of time was the IMR (Industrija Motora Rakovica- Rakovica Motor Industry).

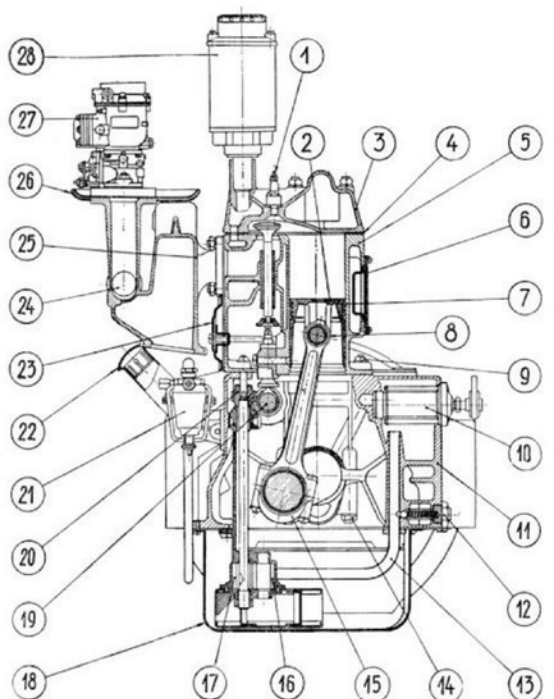
The deadline to produce a tractor prototype was the Zagreb Fair, which – at that time – had been the central exhibition of domestic and foreign industry for decades. In 1948, the Fair opened on September 17. The project was given the code name "T-08" (Tractor-1948). The leading engineers of the construction bureaus of the Federal Motor Industry General Directorate and IMR were in charge of the construction. A wheel concept with a conservative "U" chassis solution was chosen with normal profiles, which resulted in a relatively large mass of about 2.5 t (with weights). The gearbox had three forward and reverse gears, as well as a two-stage reducer. The tractor had a connecting shaft, a pulley, tow bar and towing hook in the rear. A hydraulic carrying device for connecting tools was not installed.





Kao iznuđeno rešenje, za pogonski agregat je izabran šestocilindarski SV benzinski motor iz kamiona praga "RN" - IMR "Pionir", osvojen u visokom procentu u domaćoj proizvodnji, od nominalnih 3,5 l zapremine, snage smanjene ograničenjem broja obrtaja na 45 KS, čiji rad je kontrolisan putem centrifugalnog regulatora broja obrtaja. U vreme uvođenja traktora u eksploataciju, konstrukcije sa benzinskim pogonom su u svetu bile gotovo napuštene, tako da je sa potrošnjom goriva od 9 l/cas pri maksimalnom opterećenju bio izrazito neekonomičan u odnosu na one sa naftom, teškim uljem, pa i petrolejom.

Pažljivo dizajnirani eksterijer potpisuje Stevan Mihajlović, koji će u narednom periodu izrasti u vodećeg dizajnera Industrije transportnih vozila (ITV) sa sedištem u Beogradu. U prilogu su Mihajlovićeve idejne skice mogućih eksternog izgleda budućih traktora.

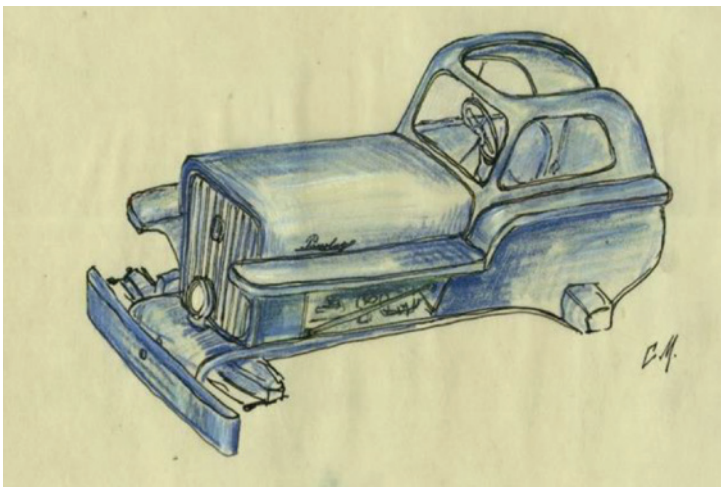
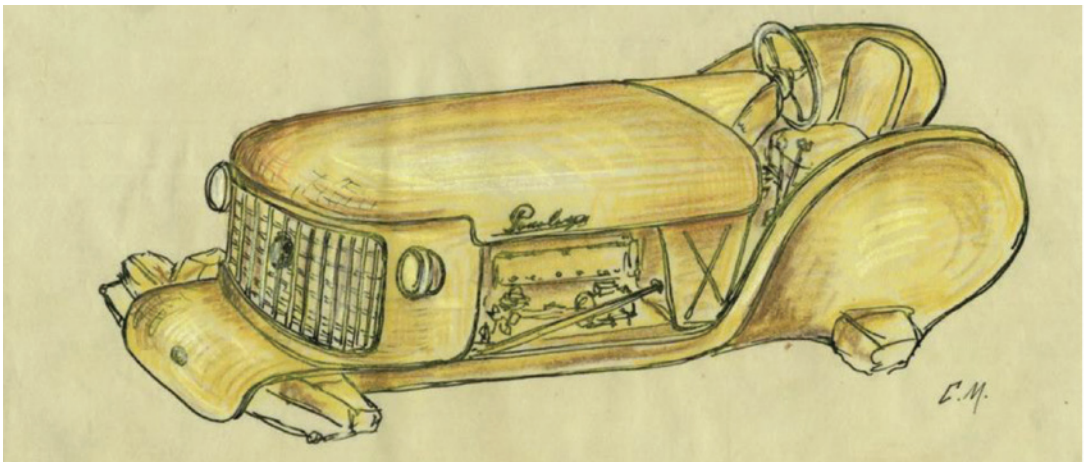
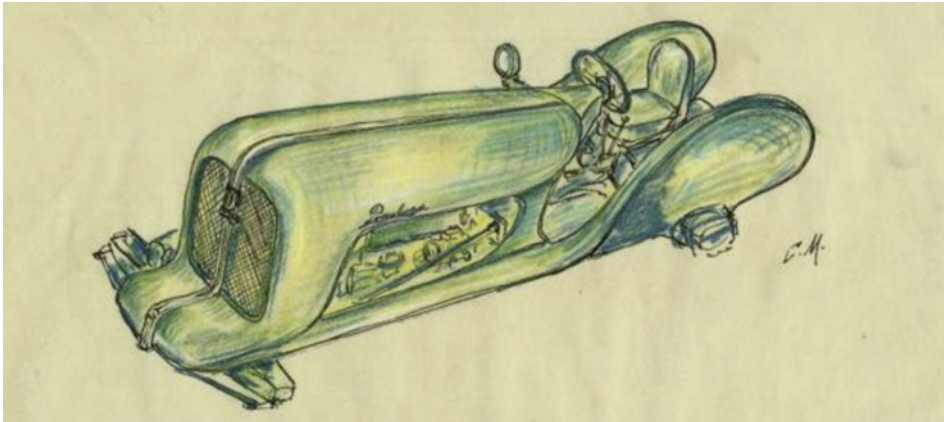


Sl. 11 — MOTOR (poprečni presak)

- | | | |
|---|---|--------------------------------------|
| 1. Izvalica | 11. Karter | 20. Zupčnik sa osovinu pumpe za ulje |
| 2. Klip | 12. Ventili klipovni pumpe za ulje | 21. Gornji od zupčnika na bregastu |
| 3. Opleva cilindra | 13. Kanal za ulje od pumpe do prednjeg | 22. Bregastika pumpe |
| 4. Zupčnik glave cilindra | 14. Matrica za priključenje poklopca glave motora | 23. Oulica |
| 5. Cilindarski blok | 15. Poklopac klipovne | 24. Uzlazni sistem |
| 6. Bregastika pumpe | 16. Osovinu pumpe za ulje | 25. Izlazni sistem |
| 7. Komprimirana karika klipa | 17. Zupčnik gonilac pumpe za ulje | 26. Oklagica |
| 8. Mala penica klipovne | 18. Karika | 27. Radiator |
| 9. Matrica za priključenje blok na karter | 19. Bregastika osovine | 28. Magnit |
| 10. Prilistak ulja | | |

As a forced solution, a six-cylinder side valve (SV) petrol engine from the Praga "RN" truck - IMR "Pionir" (made in IMR) was chosen as the propulsion unit. A large percentage of it was manufactured domestically, with nominal 3.5 l volume and power reduced by limiting the number of revolutions to 45 hp, whose operation was controlled via a centrifugal speed controller. At the time when the tractor was put into operation, petrol-powered structures were almost abandoned in the world, so that with a fuel consumption of 9 l/h at maximum load, it was extremely uneconomical compared to those powered with crude oil, heavy oil and even kerosene.

The author of the carefully designed exterior was Stevan Mihajlović, who in the coming period would become a leading designer of the Transport Vehicle Industry (ITV) based in Belgrade. The picture shows one of Miha-jlović's conceptual sketches of the possible external appearance of future tractors.



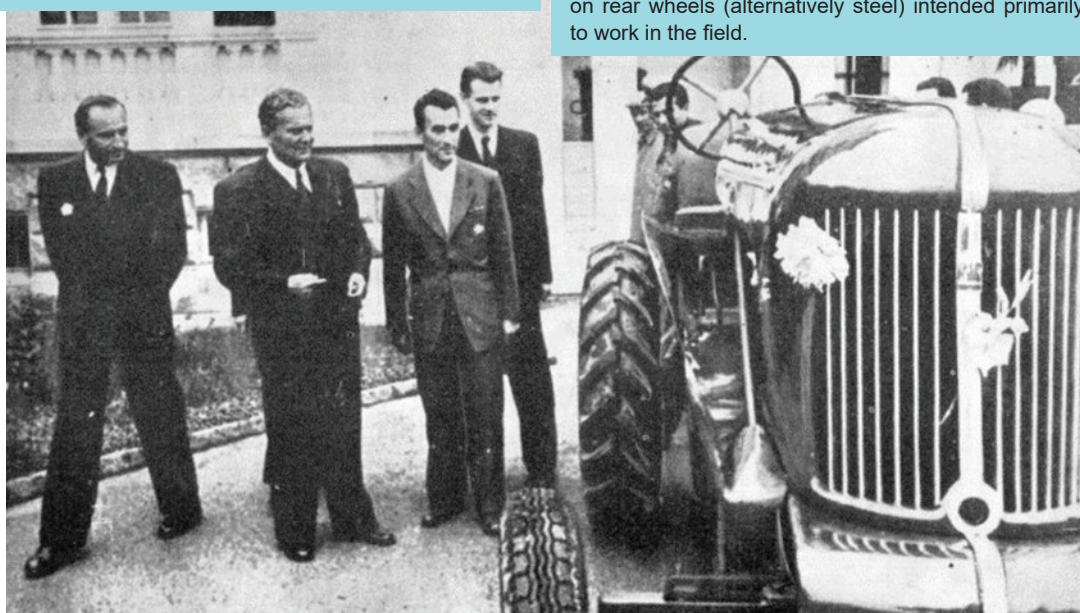


U trci sa zadatim rokovima, do kraja avgusta 1949. u IMR je završena montaža tri prototipa, sa različitim karoserijama i pretežnim namenama. Finalno, sprovedena su i putna ispitivanja, sa vučom tereta od cca 8 tona po brdovitom terenu u okolini fabrike i usponom do 20%.

11. septembra 1949. nakon održanog mitinga u krugu fabrike, izvršena je prezentacija sva tri prototipa Josipu Brozu Titu, u krugu njegove beogradske rezidencije Beli dvor, kojom prilikom je Tito primio delegaciju inženjera, tehničara i majstorskog osoblja. Dovezeni su: "Udarnik" mešovite namene, "Zadrugar" sa kabinom namenjen prevashodno vuči tereta u saobraćaju po uređenim saobraćajnicama i pogonu priključnih mašina (najveća brzina 27 km/h) i "Rakovica" sa pneumaticima na zadnjim točkovima (alternativno celičnim) namenjen prevashodno radu u polju.

Racing against the set deadlines, the assembly of three prototypes was completed by the end of August 1949 at IMR, with different bodies and different primary purposes. Finally, road tests were conducted with a load of approximately 8 tons on hilly terrain around the factory and a rising slope of up to 20%.

On 11 September 1949, after a public meeting and presentation in the factory, all three prototypes were presented to Josip Broz Tito in the circle of his Belgrade residence Beli dvor (Eng. The White Palace). President Tito received a delegation of engineers, technicians, and craftsmen. The following tractors were brought: "Udarnik" (meaning "Hero of labour") with multiple uses, "Zadrugar" (meaning "Cooperative") with a cabin intended primarily for towing cargo in traffic on regulated roads and for towing implements (maximum speed 27 km/h) and "Rakovica" with pneumatic tyres on rear wheels (alternatively steel) intended primarily to work in the field.



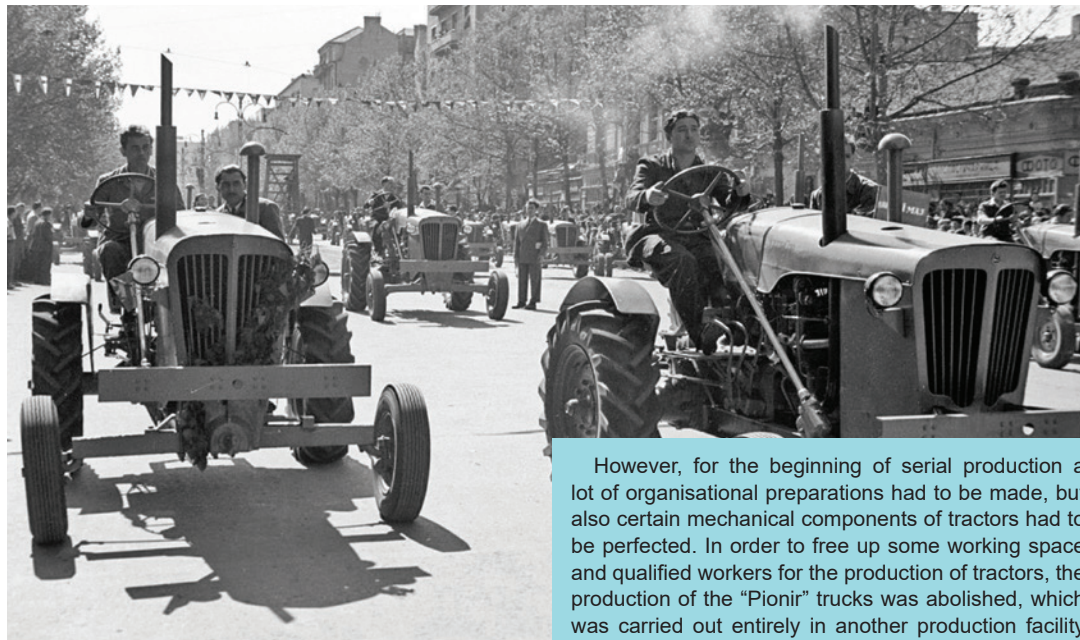


Prototipovi traktora su bili zvezde na Zagrebačkom velesajmu, gde su poslužili kao oružje u žestokom propagandnom ratu vođenim sa zemljama članicama IB-a, ali i motivisanju domaćeg javnog mnjenja.

Kao ilustraciju toga, navedimo reči gen. direktora IMR Ivana Andrijevića, na prijemu kod Tita: "Od trenutka kada su počeli napadi na našu zemlju, mi smo udvostručili svoje napore... Mi smo, poput čitavog našeg naroda, smatrali da je to najbolji odgovor onima koji istinu pretpostavljaju neistini. Mi smo, druže Tito, sa vama krvlju vezani!" Tito je, pored ostalog, uzvratio: "Naši ljudi nikad nisu živeli lako, ali oni rade ovakvim elanom baš zato što na taj način najjasnije izražavaju svoje mišljenje o svim izmišljotinama i neistinama i brane delo svojih ruku, našu socijalističku Jugoslaviju..."

The tractor prototypes were the stars at the Zagreb Fair, where they served as a weapon in the fierce propaganda war waged with the Cominform member countries, but also in forming domestic public opinion. To illustrate this, we will quote the words of the General Director of IMR, Ivan Andrijevic, at a reception with Tito: "From the moment when the attacks on our country began, we have doubled our efforts... We, and all our people, considered it to be the best answer to those who assume the truth to be untrue. We, Comrade Tito, are bound to you by blood!" Tito replied, among other things, with the following: "Our people have never lived easy lives, but they work with such enthusiasm, because it is exactly in this way that they can clearly express their opinion about all fabrications and untruths and defend the work of their hands, of our socialist Yugoslavia".





Ipak, za početak serijske proizvodnje trebalo je učiniti mnogo organizacionih priprema ali i usavršavanja pojedinih mehaničkih sklopova traktora. U svrhu oslobađanja radnog prostora i stručnog personala za proizvodnju traktora, ukinuta je proizvodnja kamiona "Pionir", koja se posle 1951. u celosti vršila u drugom proizvodnom kapacitetu GDSIM: Tvornici automobila u Mariboru (TAM), osnovanoj 1946. Od tri prototipa, u serijsku proizvodnju ušla je samo verzija univerzalne namene, bez kabine, preimenovana u "zadrugar". Prvih 50 primeraka serijskih "zadrugara", učestvovalo je na Prvomajskoj paradi u Beogradu 1951, nakon čega su predati kupcima - zemljoradničkim zadrugama širom zemlje.

Do kraja proizvodnje polovinom 1954, napravljeno je 2.520 primeraka ovog tipa traktora. Osim političko-propagandnog efekta, traktori su imali, shodno realizovanom broju, nesumnjivi uticaj na nivo mehanizacije domaće poljoprivrede.

Otvaranje socijalističke Jugoslavije prema zapadnim zemljama, što je kulminiralo potpisivanjem ugovora o Balkanskom savezu sa članicama NATO pakta Grčkom i Turskom februara 1953, nakon čega je Tito otišao u prvu posetu Velikoj Britaniji maja iste godine, imalo je kao jednu od posledica potpisivanje ugovora sa Perkinsom iz Peterborougha o otkupu licence za proizvodnju četvorocilindarskog dizel motora "P4" jula 1954. Ugovor je je predviđao otkup izvesne količine gotovih motora, od kojih je do kraja godine 400 komada ugrađeno u "zadrugara", koji je dobio izmenjeni sufiks u nazivu "P1", uz minimalno neophodne izmene koje je zahtevala ugradnja novog motora.

Danas je u Srbiji sačuvan samo jedan kompletni primerak traktora "zadrugar T-08", koji se nalazi u zbirci Muzeja poljoprivrede u Kulpinu kod Novog Sada.

However, for the beginning of serial production a lot of organisational preparations had to be made, but also certain mechanical components of tractors had to be perfected. In order to free up some working space and qualified workers for the production of tractors, the production of the "Pionir" trucks was abolished, which was carried out entirely in another production facility of the Federal Motor Industry after 1951: the Car Factory in Maribor (TAM – Tovarna Avtomobilov Maribor), today Republic of Slovenia, founded in 1946. Of the three prototypes, only the version without a cabin, with universal purpose, entered serial production and was renamed to become "Zadrugar". The first 50 tractors of the "Zadrugar" series took part in the traditional May Day parade in Belgrade in 1951, after which they were handed over to customers - agricultural cooperatives across the country.

By the end of production in mid-1954, 2,520 tractors of this type had been produced. In addition to the political and propaganda effects, and based on the realized production numbers, the tractors undoubtedly also had influence on the level of mechanization of the domestic agriculture.

The opening of socialist Yugoslavia to Western countries culminated in the signing of a treaty on a Balkan Union with the NATO members Greece and Turkey in February 1953. After that, Tito went on his first visit to Great Britain in May of that same year, which resulted in the signing of a contract with Perkins from Peterborough for the purchase of a license to manufacture a four-cylinder diesel engine, Perkins "P4", in July 1954. The contract provided for the purchase of a certain number of finished engines. By the end of the year, 400 diesel Perkins engines were installed in "Zadrugar" tractors instead of the 6-cylinder petrol engine. The name of the tractor received a modified suffix "P1" and the "Zadrugar P1" was a model with the minimum necessary changes required for the installation of the new engine.

According to available data, only one complete tractor of the "Zadrugar T-08" type has been preserved to this day. This tractor is preserved in the collection of the Museum of Agriculture in Kulpin near Novi Sad, Serbia.