

THE **RUSSIAN VIEW**



YURI PASHOLOK



WORLD OF TANKS

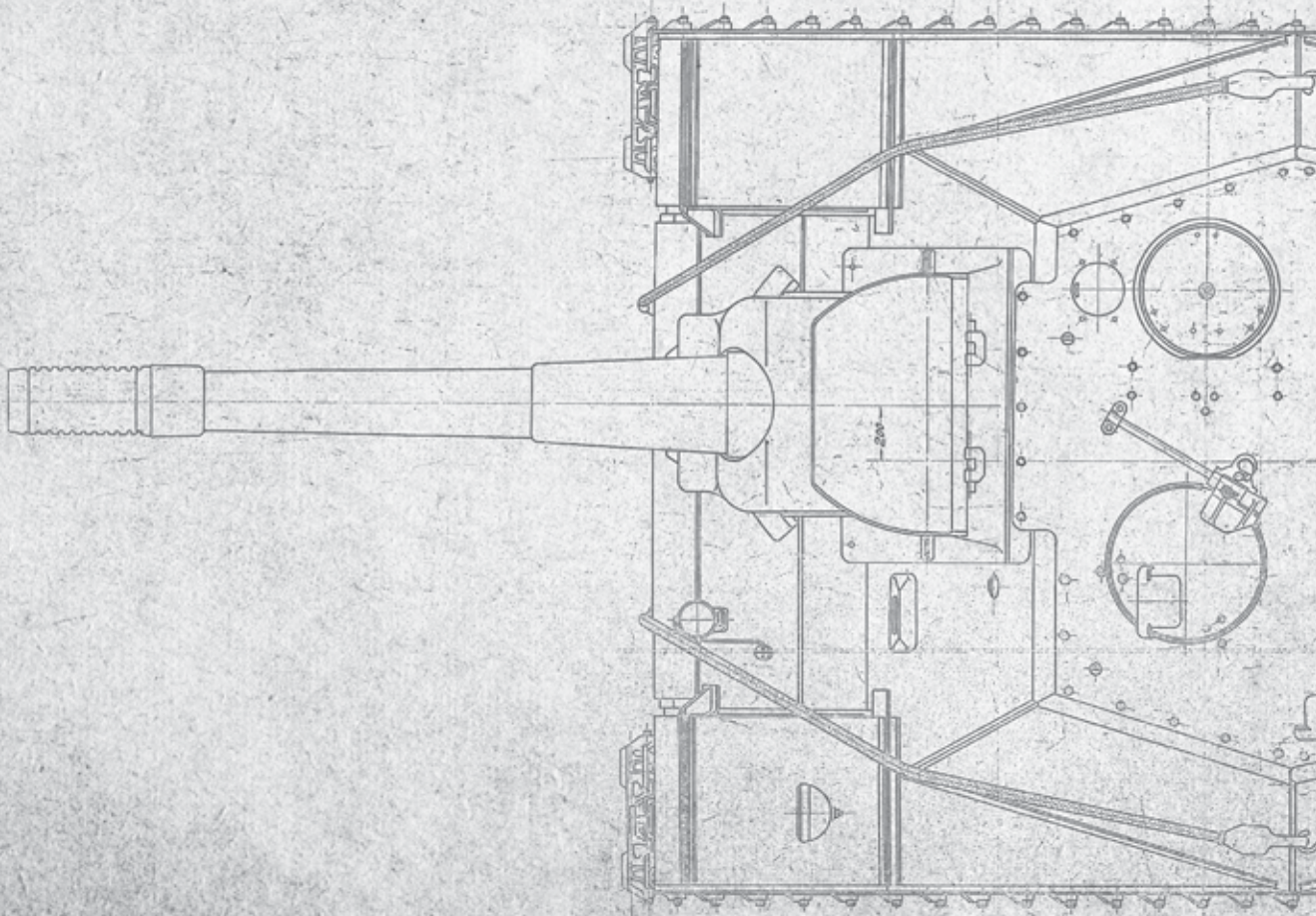
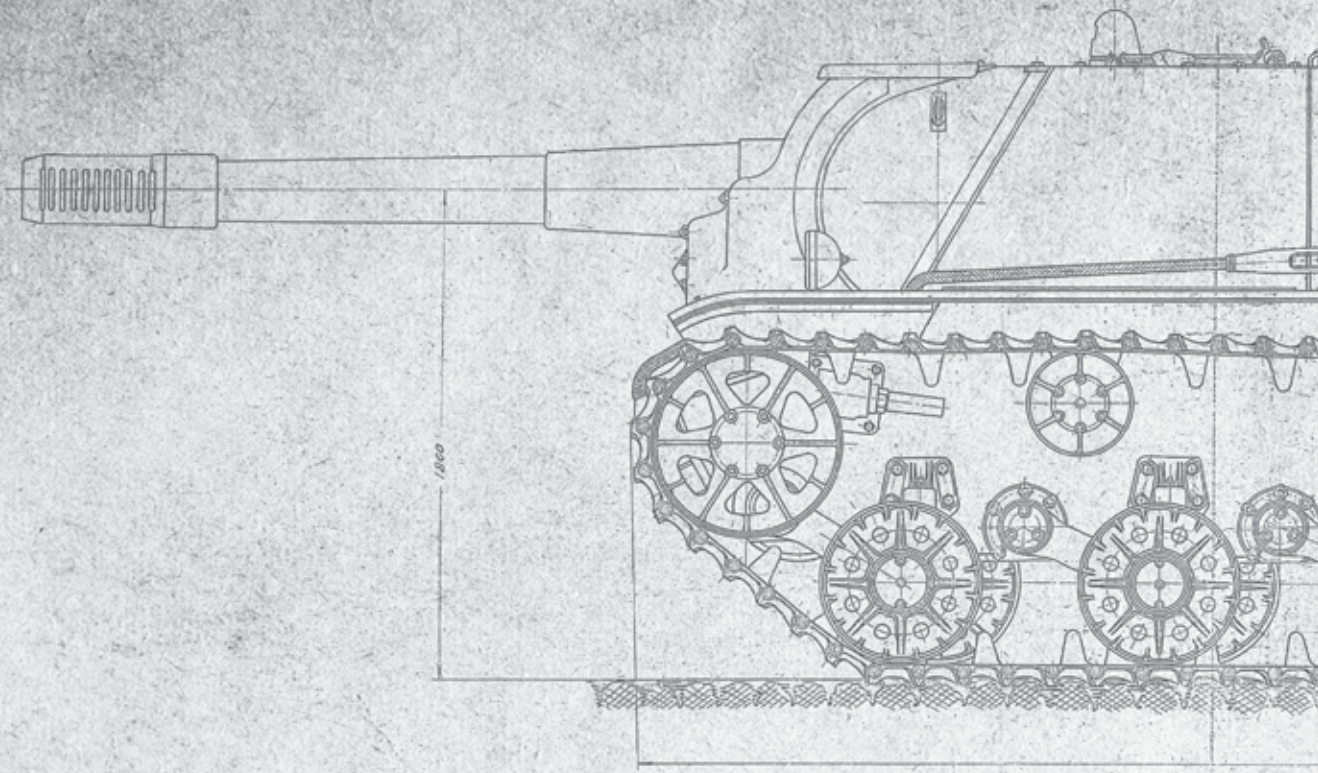
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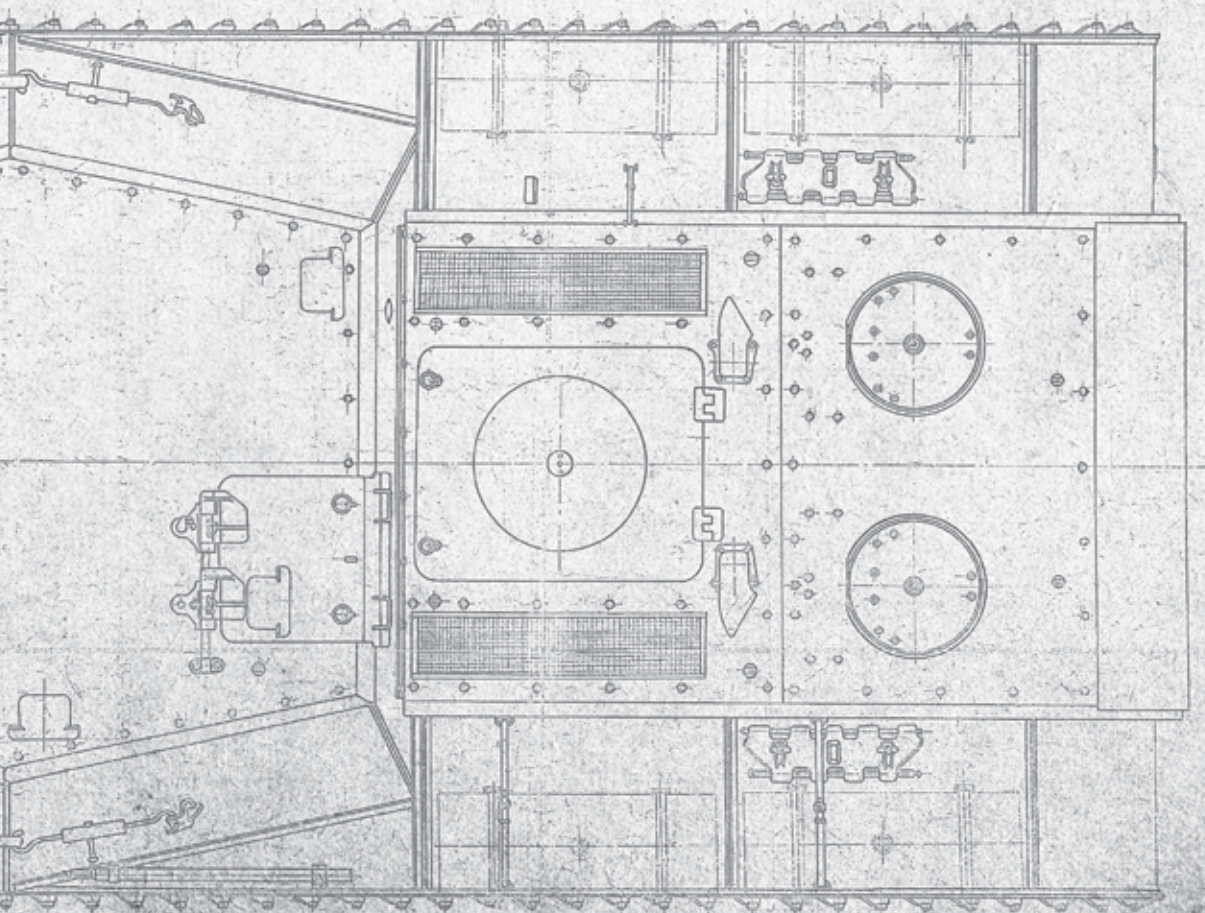
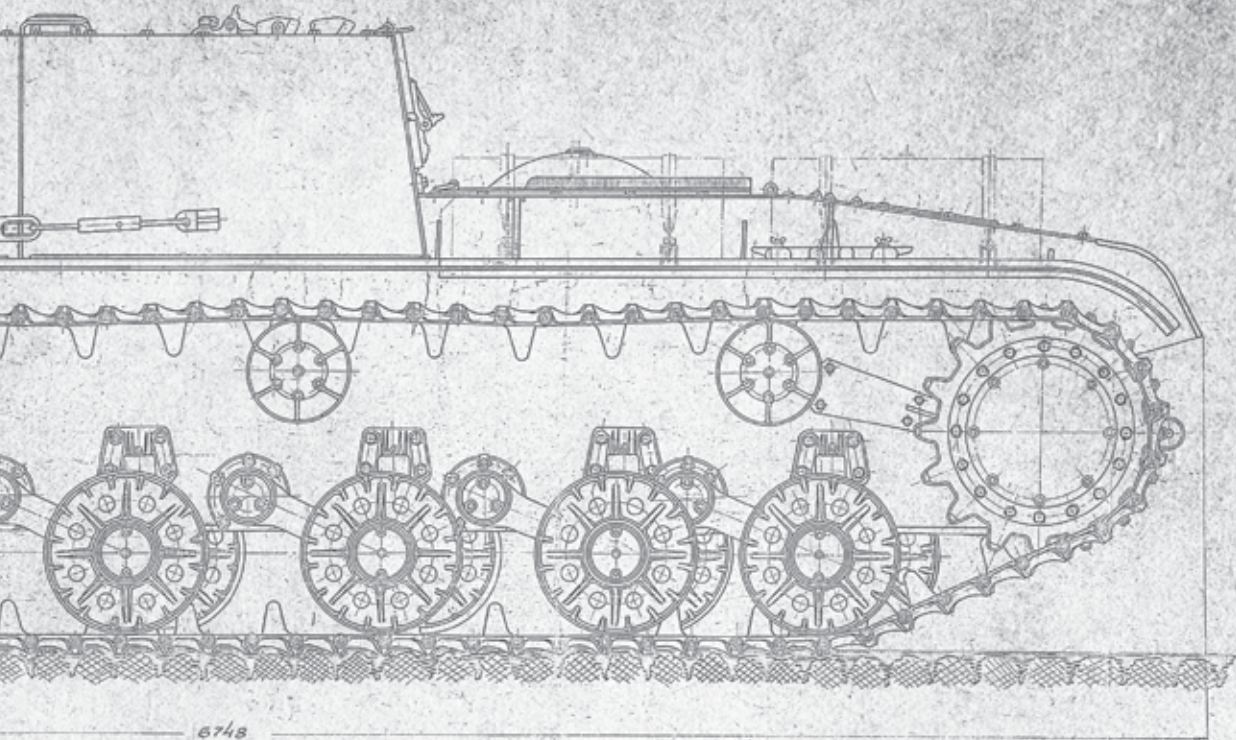
SU - 152

AND RELATED VEHICLES



**CONSTRUCTION &
DEVELOPMENT**







Yuri Igorevich Pasholok

THE
SU - 152
AND RELATED VEHICLES



Publisher's Preface

In 2010 the massive, multiplayer online game *World of Tanks (WoT)* was launched by the company Wargaming. At the time this book was published, *WoT* had more than 80 million registered players worldwide.

The creative people at Wargaming.net are not just tank enthusiasts—they are passionate about the history of armored fighting vehicles (AFVs) and getting them right in the game. In 2012, the company started publishing a series of books in Russian that utilized documents and archival materials that had never before been seen by outsiders or published in any language about the design, procurement, development, manufacturing, and combat employment of Soviet AFVs during World War Two (the Great Patriotic War to Russians).

Now these remarkable books are being published in English with the obvious descriptor The Russian View—English readers may be surprised by some of the opinions of the Russian authors in this series. The series included three categories of titles: Construction and Development (as for the SU-152); Combat Service; and Military Operations.

Yuri Igorevich Pasholok, the author of this book about the SU-152 and other self-propelled (SP) guns based on the KV tank chassis, uncovered intriguing facts and the secret story of Soviet heavy artillery SP guns through his research, including:

- *The plan for SP guns began in 1931*
- *Competition to develop a “bunker buster” SP gun started in earnest in 1938 but just missed battlefield deployment in the 1940 Russo-Finnish Winter War*
- *Soviet pre-war intelligence indicating that Germany was working on super heavy tanks increased the urgency of the SP program—although the German invasion of the Soviet Union in 1941 showed that intelligence to be wrong*
- *The impact of evacuating factories and other industry beyond the Ural mountains as German forces advanced*
- *Joseph Stalin’s personal interest in the SP program and competition between factory design teams for resources and support*
- *How the destruction of the Barricades factory in Stalingrad (modern day Volgograd) severely reduced Soviet manufacturing of 152 mm and larger guns*
- *Why SU-152 manufacture stopped after only 670 were produced and why no new heavy SP artillery was deployed to help Soviet armies batter their way through German fortifications in 1944-45*

Pasholok’s research provides readers of World War Two history in the West with a much better understanding and greater appreciation of Soviet SP weapon development, and I am extremely fortunate to be able to offer these terrific books for the first time in English.

**Dana Lombardy
Lombardy Studios
September 2015**

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BONUS!

Current World of Tanks players as well as new players who buy the printed version of this book can go to WorldofTanksBooks.com/get-game-code for a special Bonus Code they can immediately use in play.

This code provides:

- 7 days Premium
- 1,000 Gold
- 100,000 Credits
- SU-85i Soviet Tier V Tank Destroyer (2,300 Gold value)
- Total value: \$14 in virtual goods

To set up a new account, go to Wargaming.Net, or if you already have an account, login and enter the Bonus Code in your account profile. Your account may use only one code from *SU-152 and Related Vehicles*, but you may also enter a code from the printed book *T-34 Goes to War* to get two weeks of Premium, 200,000 Credits, 2,000 Gold, and two tanks.

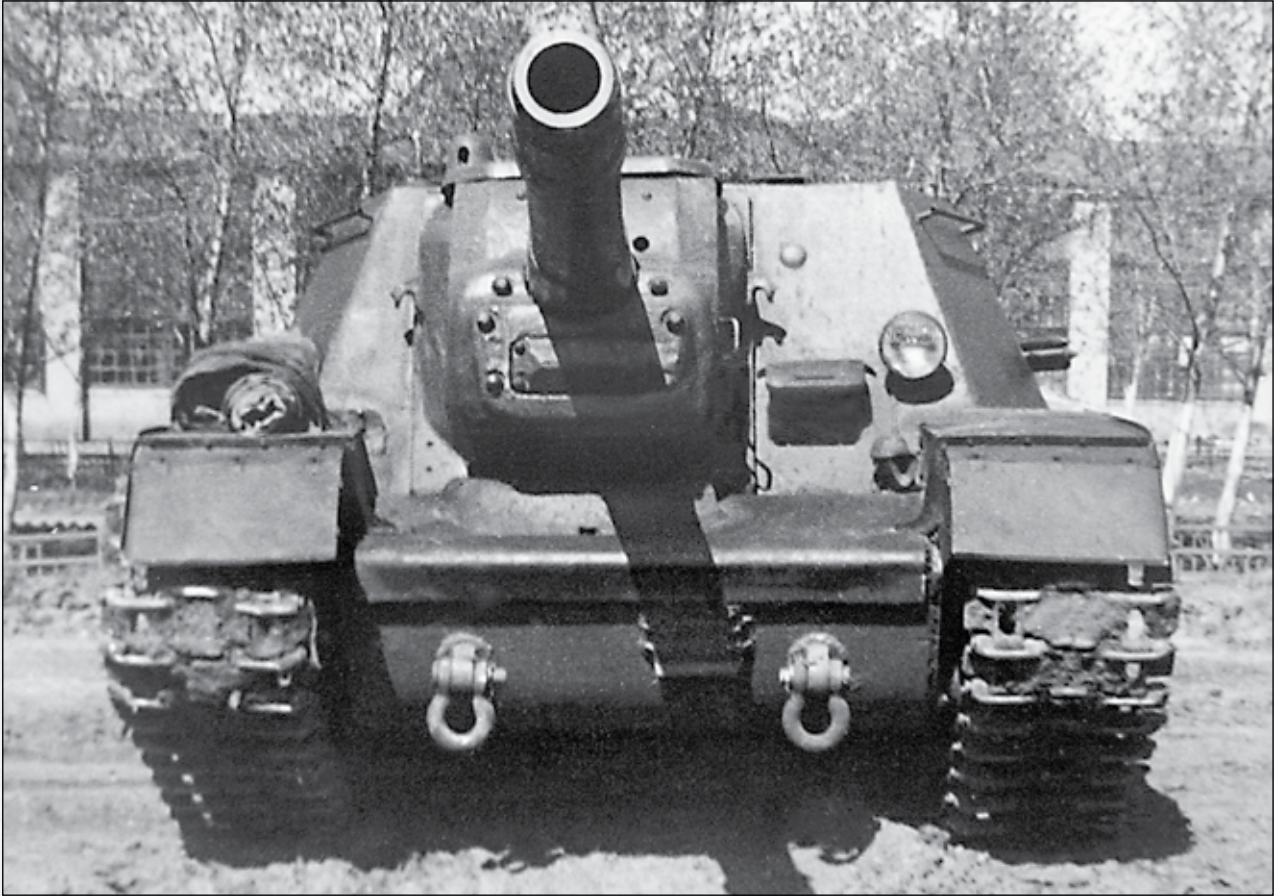


CHAPTER 7. The Monster from Chelyabinsk

The startup of SU-14 production at the Chelyabinsk Kirov Factory resulted in no unexpected problems. Unlike the SU-35 (SU-122) and the SU-12 (SU-76), the Chelyabinsk machine began production in a form virtually unchanged from that of the prototype. That was largely due to the fact that the KV-1S chassis was almost unchanged, and the same thing was true of the gun system. In addition, the designers had good ideas from the very beginning, and that kept the rework to a minimum.

A KV-14 SP gun from the first production run configured exactly like the prototype (IZh).





Front view of KV-14 SP gun from the first production run (IZh).

However, it would be incorrect to say that the SP gun had no problems. The test commission had pointed out some of the KV-14's shortcomings in its finding. The Kirov Factory sent similar reports to Eng. Col. Kovalev, chief of the 6th Department of the GABTU's Tank Directorate:

Some shortcomings of the fighting compartment:

- 1. The loading tray for the shells and cases needs to be raised slightly because it is difficult to feed cases into the barrel.*
- 2. The additional tray on the loader's side needs to be hinged so that it can be raised, because it interferes with the loader.*
- 3. When the gun is traversed to the right or left, the position of the gunner or the breechblock operator, respectively, becomes tight.*
- 4. At the extreme positions of the barrel, it becomes difficult to operate the traversing mechanism flywheel, and it interferes with the fuel tank.*
- 5. The ammunition rack is in a bad position; it is difficult to use.*
- 6. The gap between the gun tube and the mantlet is too large; bullets can enter.¹*

¹ TsAMO RF, collection 38, series 11355, file No. 1377, p. 59.



Some of these shortcomings required design changes that were too extensive, and they were not corrected before production began. Launching production of the KV-14 was a high priority task, so even the most important fixes were postponed to a later date. Moreover, even the development of technical documentation for approval by the GAU, which the factories were supposed to submit by March 20, 1943, was delayed. Repeated appeals by GAU representatives to the factory directors and People's Commissar of the Tank Industry Zaltsman were to no avail. Only a complaint to Molotov on April 12 produced results; the documentation was finally submitted five days later. The factories had put the plan B modernization program (expansion of the fighting compartment, an ML-20 with a sliding wedge breechblock, etc.) out of their minds as though it were a bad dream. Moreover, the first sketches of the ML-20 on the IS chassis (the future ISU-152) frankly show that the designers became aware of the fighting compartment expansion only in the fall of 1943.

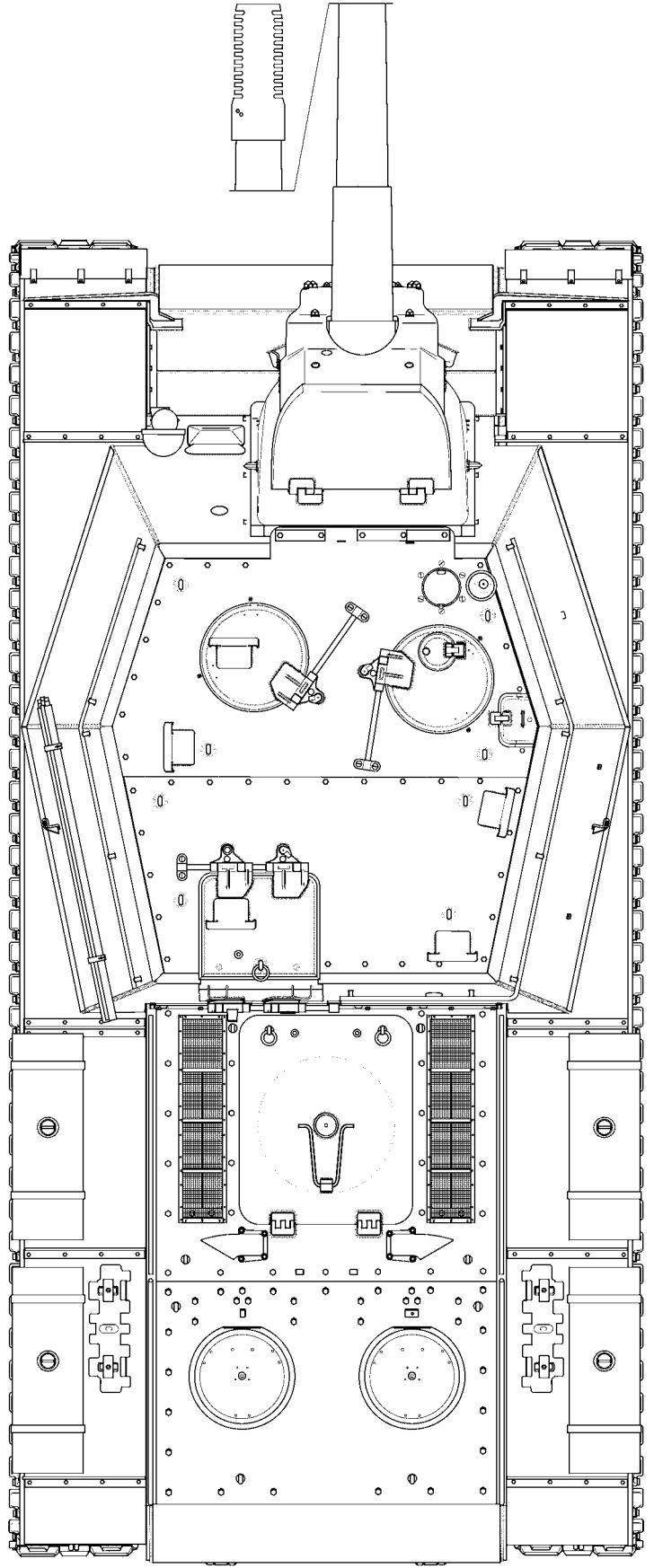
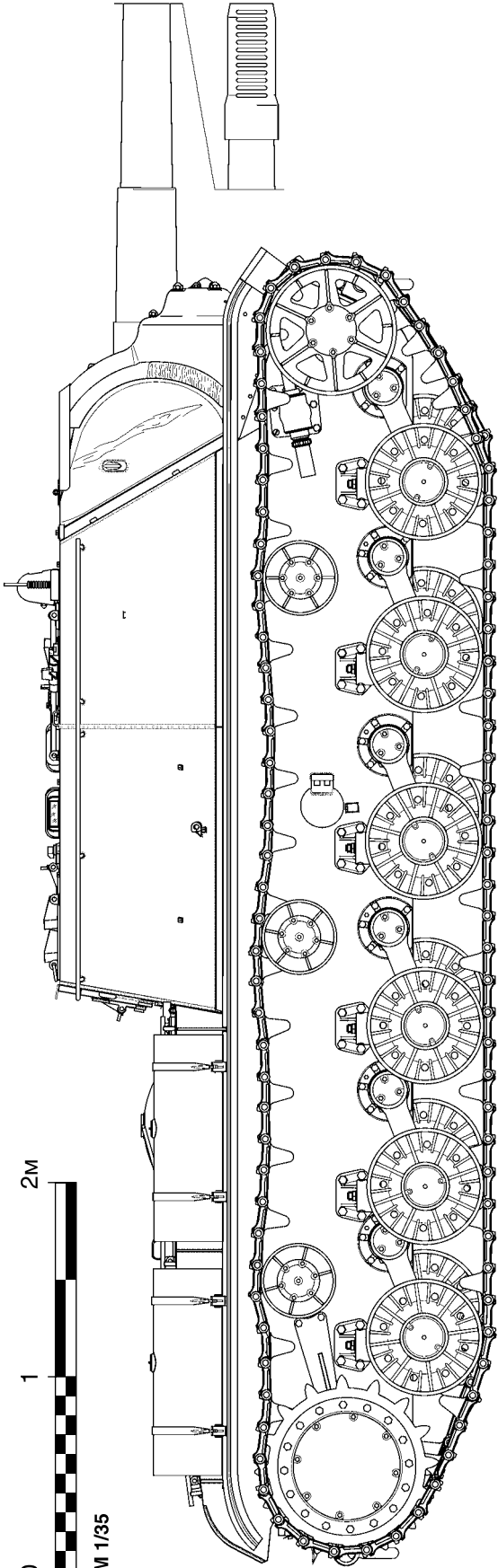
Despite the fact that mass production of the SP gun generally began relatively smoothly, there were problems with some components. The gun system frames delivered for assembly frequently had size defects, requiring them to be adapted to fit in the mantlet, and that took additional time. Also, mishaps often occurred with deliveries of the gun SPT&A kits that accompanied the ML-20S systems from Factory No. 172.

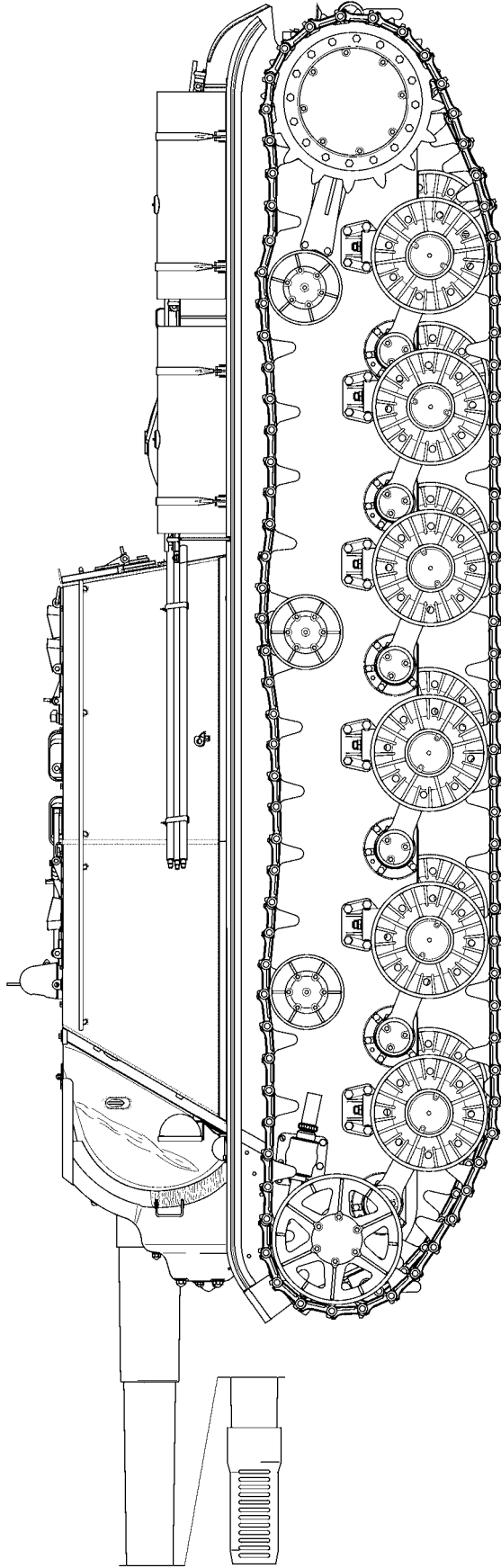
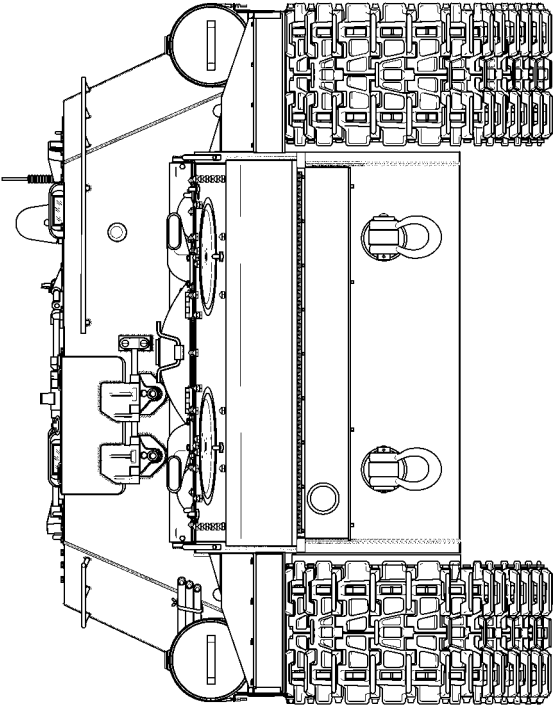
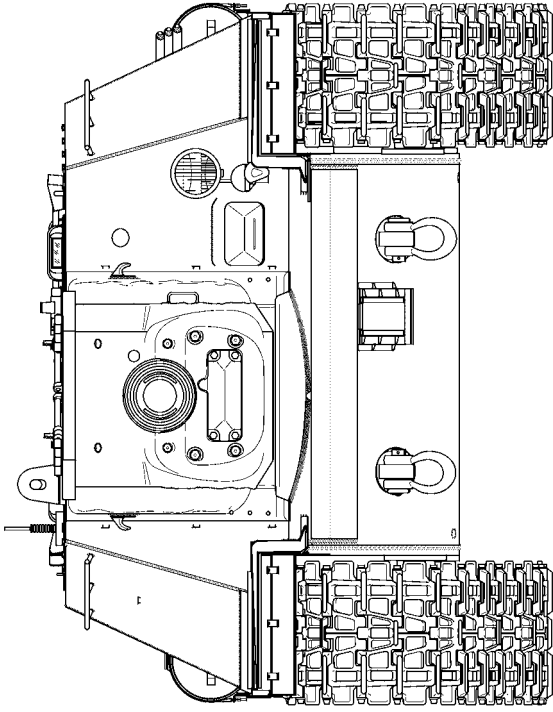
There were also some mishaps in the beginning with the optics. As mentioned earlier, the T-10 telescopic sights were not being manufactured

Right-side view of KV-14 SP gun from the first production run. The vehicle did not yet have an attachment for a pickaxe on the right side (IZh).



0 1 2M
M 1/35





KV-14 SP gun from the first production run, 1:35 scale drawing.



when the SP gun went into production, so the first TV-14's were equipped with T-9 sights from the KV-2. According to the plans, the first 20 T-9s were expected by February 20, 1943, and another 105 by March 5. The problem was that the T-9 still had the scales for the M-10T tank howitzer, whose ballistics were very different from those of the ML-20. There was also confusion about names: Factory No. 69 produced the 10T tank sight in addition to the T-10 sight, which had an elbow, and that meant there was a risk of a mixup occurring in deliveries to the factories. To avoid that, the T-10 sight was renamed the ST-10 (for "self-propelled telescopic").

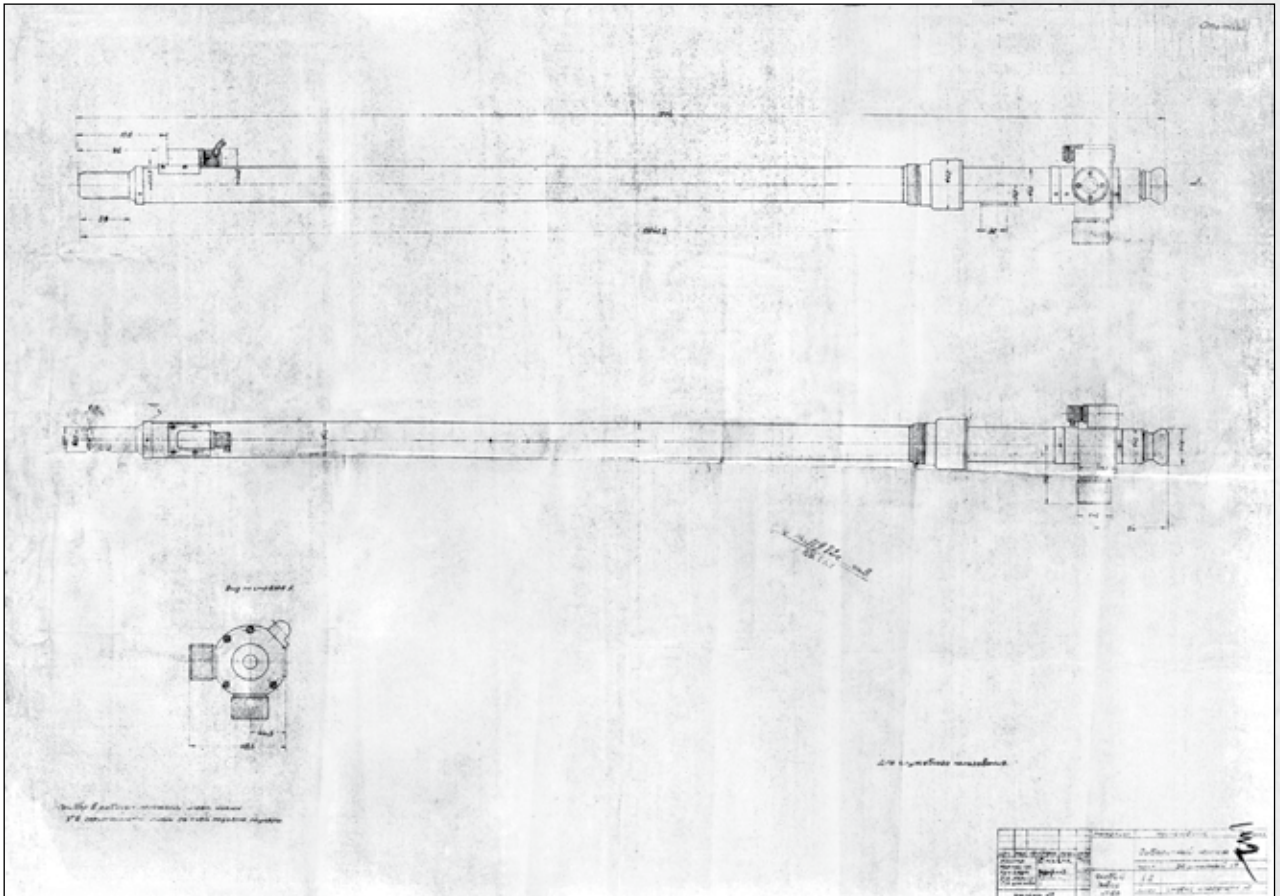
It should be noted that the T-9 sight had been chosen out of necessity. According to correspondence with Factory No. 69, it was selected because it was the only suitable sight in production at the time. To simplify production, in June 1943 Factory No. 69 developed a sight with a similar name that was based on the ST-10 but had no elbow. The effort was led by Factory No. 69's lead designer, Finkelstein, one of the engineers who had worked on the TMFD-7 and TMFP-1 sights. On June 15, 1943, Factory No. 69's chief engineer, Skarzhinsky, sent a letter to the People's Commissariat of Arms in which he proposed replacing the ST-10 with the promising new sight.

The ST-10 sight (formerly the KT-1) is currently being used for the self-propelled gun.

The ST-10 sight was selected only because it was the sole available sight with the right characteristics and right length for the purpose.

Rear view of KV-14 SP gun from the first production run. The superstructure parts on SP guns from the first production run showed excellent workmanship (IZh).





**Drawing of simplified
ST-10 sight, June 1943
(TsAMO).**

However, we could suggest a simpler, better designed, and better quality sight that would be less difficult to manufacture. Indeed, the sight's elbow, which contains two prisms and an erector lens, adds unnecessary parts that, regardless of their reliability, can cause problems with the sight's alignment and operation. They also reduce image quality because the system cannot be properly centered no matter how carefully they are assembled and aligned, especially since one of the prisms is not located in a parallel light beam. Also, manufacture of the elbow requires the expenditure of manpower, machinery, and nonferrous metals and other scarce materials that could better be used for other purposes.

We have developed a new sight (that has no elbow) based on the ST-10. Its length can be modified to meet your requirements, and it is more reliable, of better quality, and simpler than the existing sights.

Enclosed herewith is a dimensional drawing of the sight. I request that you instruct the Kirov Factory to develop a new mount for it and relocate the opening in the mantlet as appropriate. The factory can begin producing these sights immediately upon receipt of your consent.²

² TsAMO RF, collection 81, series 12063, file No. 11, p. 140.



An SU-152 produced between March and June 1943. A pickaxe is visible on the right side; the attachment for it appeared in March 1943 (TsAMO).

The People's Commissariat of Arms and the Main Artillery Directorate took an interest in Factory No. 69's idea, and a proposal to pursue development was sent to GABTU's Self-Propelled Artillery Office (USA GABTU). That, however, is where the history of the simplified version of the ST-10 ends. The Kirov Factory was completely unable to modify the mantlet and sight mounts at that time. Thus, the temporary solution in the form of the ST-10 became permanent. Moreover, the ISU-152 and ISU-122 SP guns that came later employed the same sight.

In addition to the sights, development was also underway on a program for using Bessemer steel to manufacture the system frame. According to People's Commissariat of Arms Order No. 08ss of February 16, 1943, the project was assigned to Factory No. 40 of the People's Commissariat of the Tank Industry, which had been Factory No. 592 of the People's Commissariat of Arms until early 1943. However, that enterprise was not up to working on frames at the time: it was preparing to produce T-80 light tanks. By February 27, the factory had received the design documentation for the frame, but production of the prototypes was delayed because it lacked coke, pig iron,



and foundry sand. The factory was unable to supply the first two frames for testing until March 27, and their workmanship was so poor that they were not tested. Factory No. 172 did not receive specifications for the frame until the end of May, and only one of two frames was accepted for testing. Tests were performed, during which an ML-20S system mounted on a Bessemer steel frame fired 200 rounds. The tests revealed no warping of the frame after firing, so manufacture of the component using Bessemer steel was considered a success.

Because various units and assemblies were in short supply during February 1943, 15 KV-14's were produced instead of 30. During March, 90 systems rather than 75 were scheduled to be produced; 15 went to make up for the February shortfall. The systems were being turned out under difficult conditions: only 23 KV-14's had been completed as of March 28. A lack of tracks was holding up production. The 90-vehicle production quota was met through truly heroic efforts during the remaining three days of the month. The Chelyabinsk Kirov Factory experienced this kind of production crisis often over the next several months.

It is also worth noting that the new SP guns only began reaching troops in the field in April—the systems had a large number of different kinds of defects, and that had an impact. In the beginning, many of the flaws were actually discovered only after the vehicles reached the troops. For example,



Experimental Bessemer steel frame for the ML-20S system manufactured at Factory No. 40 in March 1943 (TsAMO).



the 1536th and 1537th SP Artillery Regiments identified defects in seven vehicles. Ten were discovered by the 1538th SP Artillery Regiment and twelve by the 1539th SP Artillery Regiment. All of this delayed the new SP gun's debut on the front lines until July 1943. The KV-14 was not the only system haunted by such problems; virtually all Soviet SP guns had manufacturing defects that held up their delivery to troops in the field.

The first modifications to the SU-152 design (as the SP gun began to be called in late April 1943) were introduced in March 1943. Initially, the modifications were high-priority improvements that had resulted from the tests conducted on the prototype. External changes worth mentioning include the coarse aiming sight on the driver-mechanic's vision block. It consisted of a bar welded in the middle of the observation slit. A simplified handrail design was one of the more identifiable changes. The handrails on the first SU-152's were connected, but in March they were made separate, which simplified production. The cover over the system's fixed mantlet was also simplified. Whereas previously it had been somewhat rounded in shape, now it was made more angular. Pickaxes were attached to the right rear side of the superstructure.

Although the SU-152 hulls were produced by just one factory, the external appearance of the SP guns varied slightly. In the beginning, the superstructure plates were cut quite precisely, but by March their appearance

Left-side view of an SU-152 produced between March and July of 1943 (TsAMO).





left something to be desired. The rear hatch, which had originally been somewhat rounded, began having a very rough shape. Little effort was going into the superstructure's sides: they were made such that frequently the edges of the plates extended above the roof level, cutting off the view from the periscopic vision devices. The protruding edges were cut away locally so that the devices could be used. Not all SP guns had such "embellishments." The edges of the plates could be at different heights, making each vehicle somewhat unique. In addition, until about the summer of 1943 at least two types of caps were used for the bogie brackets. In addition to the convex caps that had been used on the Chelyabinsk KV's since 1941, some vehicles received flat caps of simplified design. They appeared on the KV-1S in early 1943. Another distinguishing feature of some SP guns was a counterweight that was sometimes attached to the mantlet. The counterweight was not a feature of a particular production run; it could be found on vehicles produced on almost any day.

Front view of an SU-152 produced between March and July of 1943. A coarse sight was welded to the driver-mechanic's vision hatch (TsAMO).



Rear view of the SU-152 produced between March and July 1943. The hand grab design had been simplified, and the edges of the superstructure and rear hatch were more roughly finished (TsAMO).

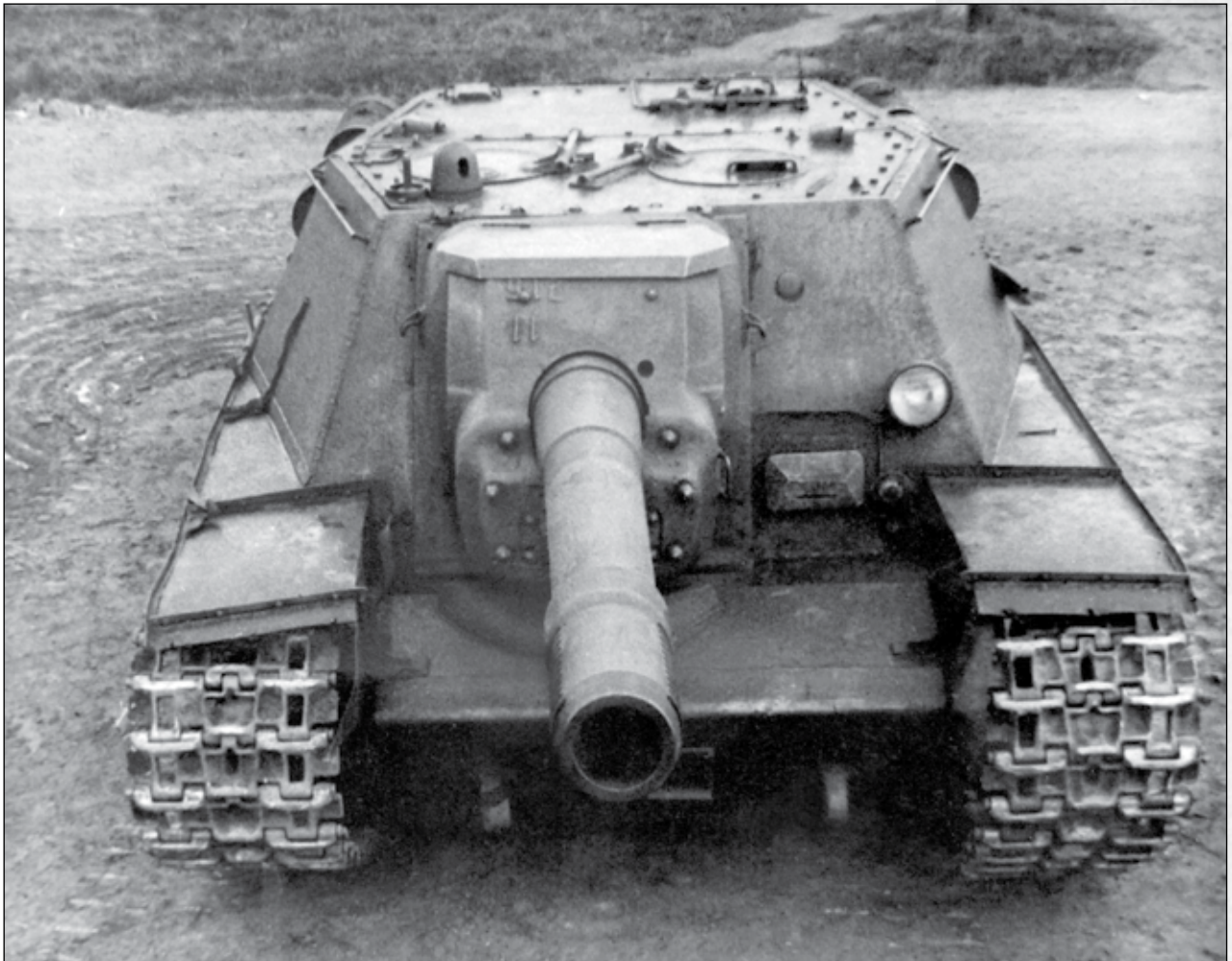
Meanwhile, there were problems with component supplies in April. SU-152 assembly was held up by delays in deliveries of the artillery systems and wiring harnesses for the Luch illumination device. Due to a lack of rounds for testing the carriage, strength tests had not been performed on the gun system mount. Only the engineering had been considered during acceptance. A total of 31 vehicles were accepted by April 24 because of all of the problems with suppliers. Despite all the delays, the factory was able to fulfill the April plan for 75 vehicles, but it expected more problems the following month. Only five SU-152's had been completed as of May 25, 1943, and the factory workers could offer no encouraging news. Factory No. 200 was the chief cause of failure this time; it had delivered only 28 hulls by May 25. There were serious problems with backlogged transmissions and other assemblies. This meant that a total of 25 SU-152's were completed instead of 75. In addition, a number of SP guns that needed to be studied for correction of defects had accumulated at the factory. Things were no better at the beginning of June: according to reports by military representatives at the factory, it had assembled only 36 SP guns by the 10th, but not a single one of them had been completed and accepted. The reason was that a large number of engines and transmissions



had been rejected because they were breaking down. The situation could not be reversed until the end of the month, and 84 vehicles were accepted instead of 75. In addition, the plan called for the factory to repair 15 SU-152's that it had produced previously.

While SU-152's were being produced in Chelyabinsk, events at the front were gradually causing adjustments to be made to their original role. Two German heavy Pz.Kpfw. VI Tiger Ausf. E tanks were captured on January 18, 1943, near Worker's Settlement No. 5. One of them underwent testing in late April by being fired on with antitank and tank guns, and with division- and corps-level artillery. The test results clearly showed that the Germans possessed a tank that could not be defeated by the majority of antitank weapons and division-level artillery. The heavy tanks that had been expected in 1941 were finally at the front. The question now became how to combat them.

Front view of SU-152 superstructure roof. The roof over the fixed armor system has obviously been simplified (TsAMO).





Even before the Tiger had been tested, the Chelyabinsk Kirov Factory had been tasked to install the tipping parts of the A-19 122 mm gun-howitzer in the SU-152 superstructure. The job was simplified by the fact that the A-19 and the ML-20 had identical carriages. Their barrels constituted the main difference between them. Plans called for the 122-millimeter heavy SP gun prototype to be finished by May 10, 1943, but that was not done for a variety of reasons.

While design work was being done to install the A-19 122 mm gun in the SU-152, GAU and the People's Commissariat of Arms initiated projects to develop an armor-piercing shell for the ML-20 152-millimeter gun-howitzer. This munition, which was developed by the summer of 1943, was assigned the designation BR-540. GAU Artillery Committee Chairman Khokhlov wrote GABTU about the introduction of the new munition in his letter of June 14, 1943:

Concerning the addition of the armor-piercing tracer shell to the SU-152 SP gun's basic load, the Artillery Committee of the GAU of the Red Army considers it necessary to inform regimental commanders of the following:

1. The cylindrical section of the armor-piercing tracer shell hull bears the following marking in black paint: BR-540.

German Pz.Kpfw. VI Tiger Ausf. E tank captured near Worker's Settlement No. 5 on January 18, 1943. This tank forced GAU and GABTU to develop weapons to counter it (TsAMO).





One type of bogie bracket cap used on SU-152's during the spring and summer of 1943 (YuP).

2. In addition to its marking, the armor-piercing tracer shell differs from the concrete-piercing howitzer shell in that it has a shorter warhead.

3. The armor-piercing tracer shell may only be fired using a special charge in a case bearing the marking: "Charge, special, BR V0 = 600 m/s."

4. Firing the shell using a full variable charge is strictly prohibited.

5. If no special charge is available, the shell may be fired using a full normal charge of a new device minus one equilibrium bag (base + 7 equilibrium bags).

6. When firing the armor-piercing tracer shell, the scale inscribed on the left half of the ST-10's field of view with the following inscriptions must be used for laying the gun:*

ДГ
ПУШ
ПЕРВ

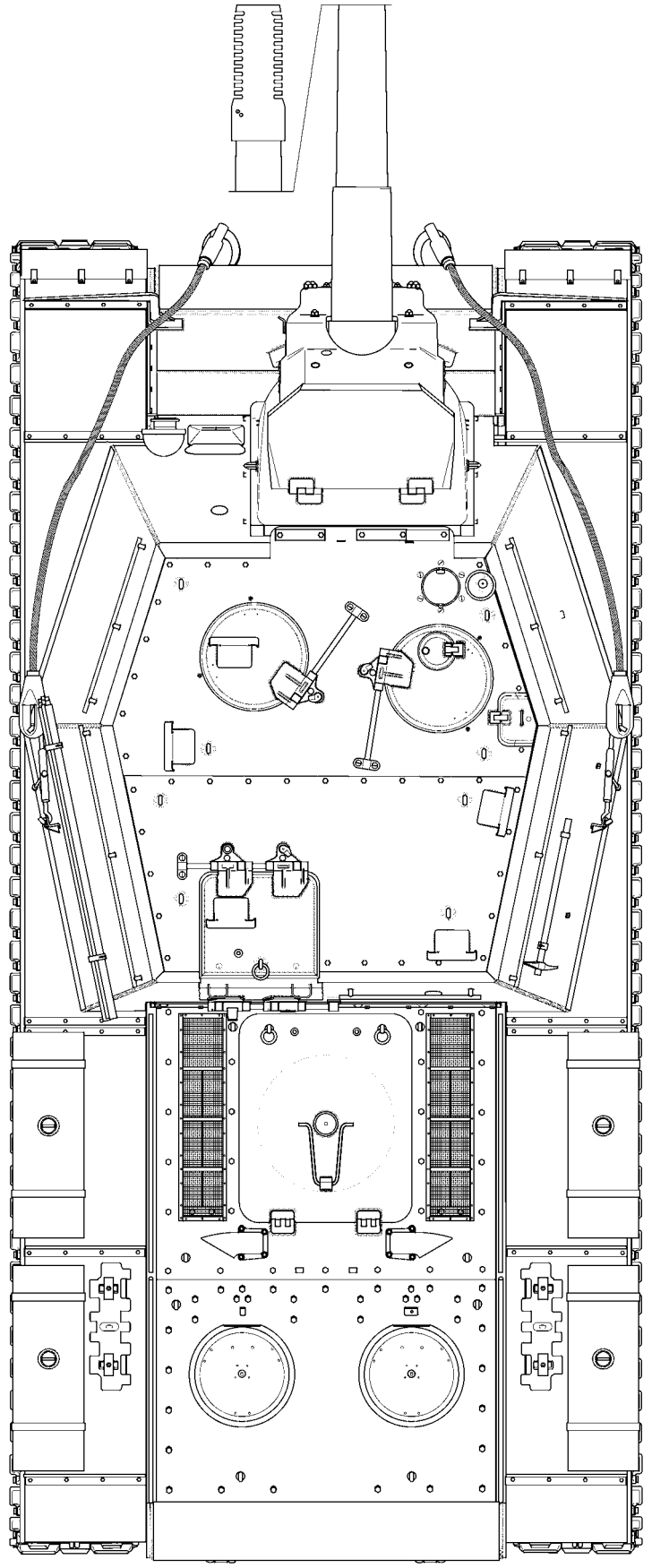
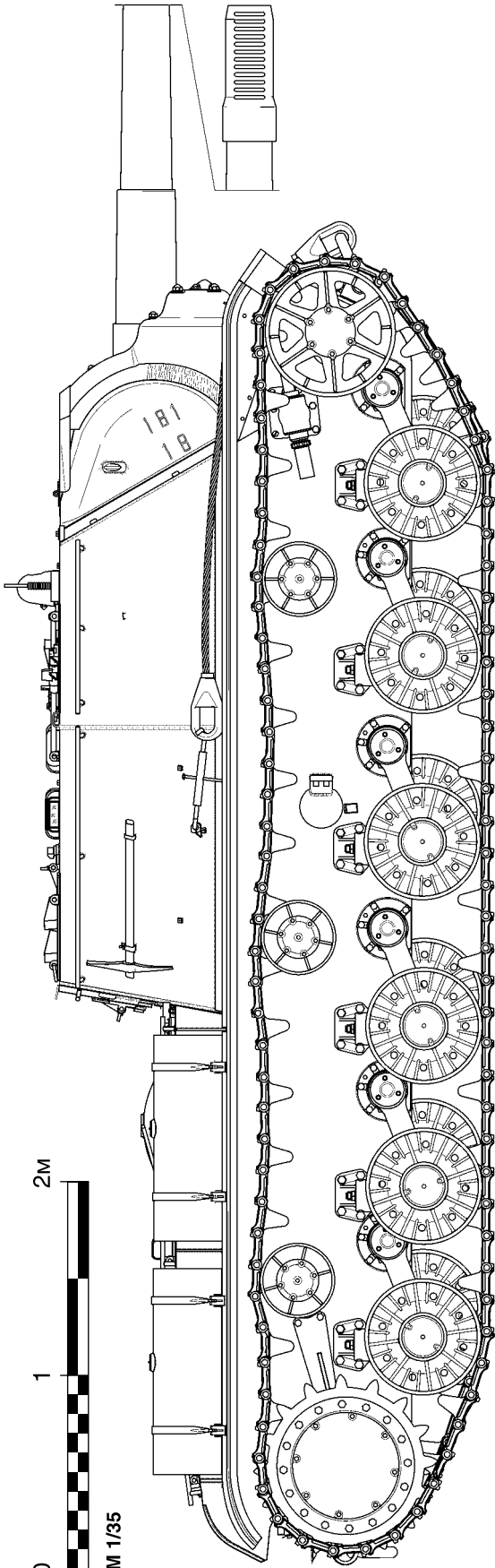
7. Use only the panoramic sight when laying the gun for firing the long-range high-explosive fragmentation shell with reduced variable charge.³

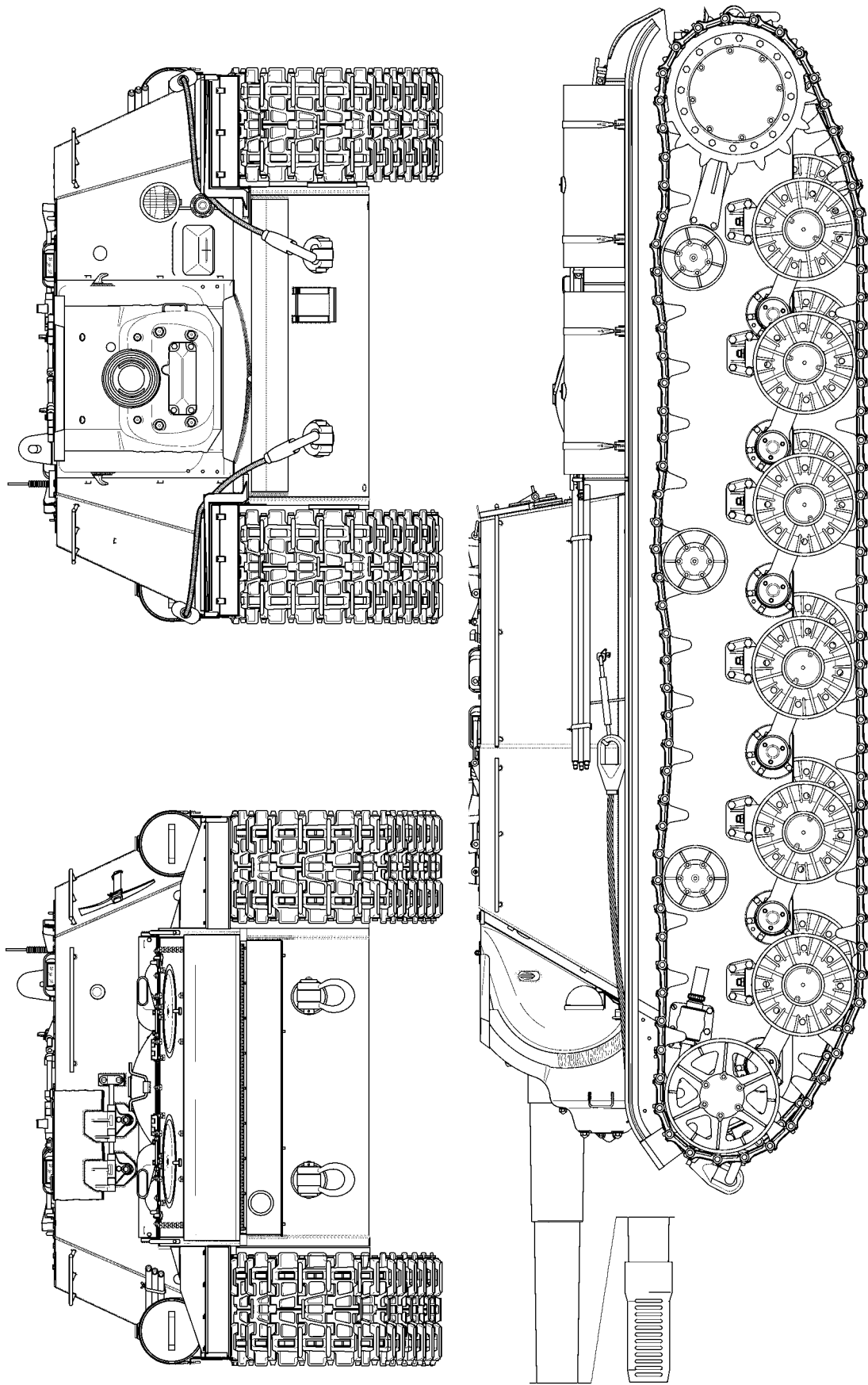
However, deliveries of the DR-540 armor-piercing shells were delayed. The SU-152's first engagements took place with the standard basic load; forces in the field did not get the armor-piercing shells until August 1943.

Meanwhile, production of SP guns continued as usual. Since the second quarter of 1943 ended with the SU-152 behind schedule, the SP gun production quota for the third quarter was adjusted. Instead of 75 vehicles, the July plan called for 80 SP guns, and the numbers increased to 84 SU-152's

*DG (abbreviation for cannon)
PUSH
FIRST

³ TsAMO RF, collection 81, series 12063, file No. 11, p. 127.

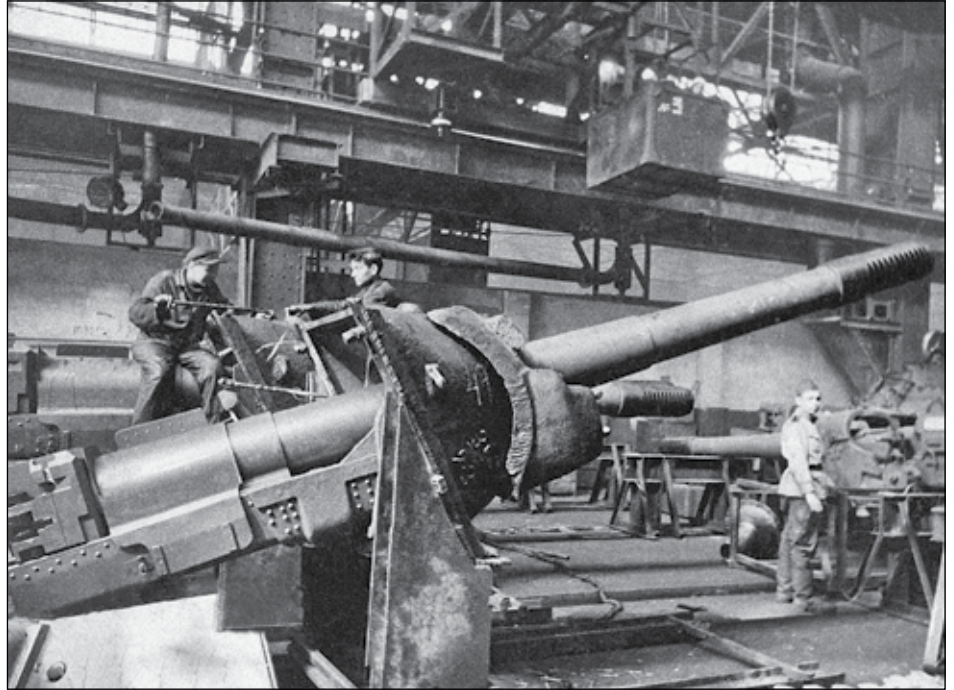




SU-152 SP gun as manufactured between March and July 1943, 1:35 scale drawing.



An ML-20S ready for mounting on an SU-152, Chelyabinsk, summer 1943 (RGAKFKD).



per month in August and September. In addition, a contract between the Kirov Factory of the People's Commissariat of the Tank Industry and the GAU's Artillery Tractor and Self-Propelled Artillery Department reduced the price of each SU-152 to 250,000 rubles.

By July 10, 1943, only 10 of the 80 SU-152's had been accepted. This time, however, the situation was under control: according to the schedule of the People's Commissariat of the Tank Industry, full-scale production of SP guns was planned for the second half of the month. By the 20th, 36 vehicles had been accepted, and the factory met its quota of 80 SU-152's by the end of July. Some modifications had been made to the vehicles produced late in the month. The handrail on the rear of the superstructure was strengthened and given three brackets. The SP gun received another design change in conjunction with the KV-1S. The exhaust stacks were altered and given a short, armored shield. The SU-152 was produced in that form until the end of September 1943.

August was a relatively calm month for the Chelyabinsk Kirov Factory. SP guns were not produced in a lump but were spread evenly over the month—28 vehicles by the 10th, 36 by the 15th, and the 84 set by the quota were delivered by September 1. However, there were some mishaps that only became apparent after the SP guns had been delivered to troops in the field. Sharonov, the Kirov Factory's military representative, accepted several dozen SU-152's with defective mantlets. The recoil mechanism keyhole was incorrect, which made it impossible to use the key to open the valve for filling



the recoil mechanisms with fluid. The defect was identified after the SP guns had been sent to the Moscow Self-Propelled Artillery Center. The flaw had to be corrected on site, using gas cutting equipment.

By August, a list of SU-152 design changes that needed to be made based on field operations had been drawn up. There was also a backlog of problems that had been pending since the winter of 1943. B. G. Vershinin, chief of the



Mounting an ML-20S
on an SU-152 SP gun
(RGAKFD).



Red Army's Main Armor Directorate, wrote the GAU's Artillery Committee about one of them on August 3:

According to the February 6, 1943, decision of the State Commission that tested the SU-152 prototype, the Kirov Factory and Factory No. 172 were required to move the traversing mechanism housing to the right in order to correct problems that made things difficult for the driver.

Six months have passed since this decision was made, but neither the Kirov Factory nor Factory No. 172 has made the change.

Moreover, as is apparent from Kirov Factory letter No. 2883 of July 24, 1943, that addressed, in part, the ML-20S howitzer's traversing mechanism, Factory No. 172 is behind schedule on completing the job, and the Kirov Factory and Factory No. 172 have not reached a joint decision regarding the needed design changes.

Since I believe the situation concerning correction of this flaw in the SU-152 is completely unacceptable, I hereby urge you to take the appropriate steps to



**A newly built SU-152
in the factory, summer
1943 (RGAKFD).**



modify the ML-20S howitzer traversing mechanism as needed and immediately produce a prototype of the mechanism.

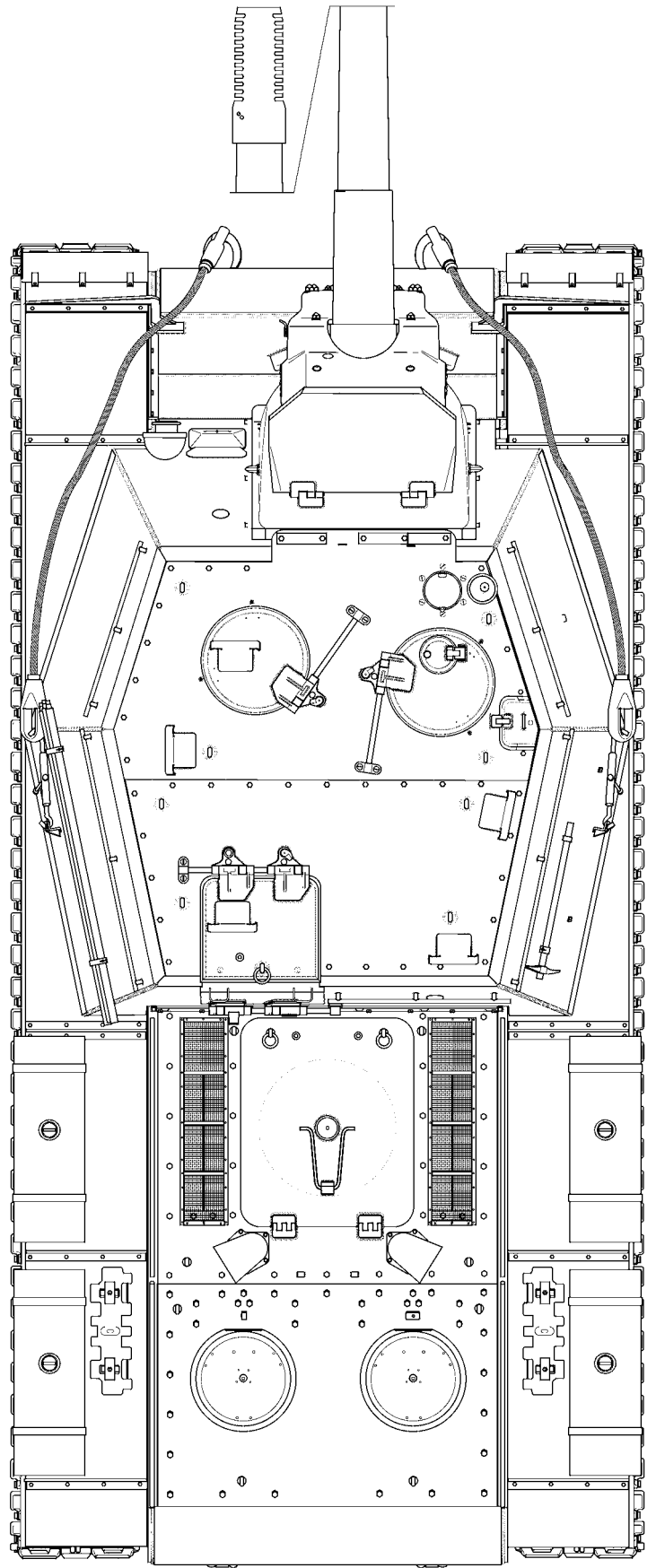
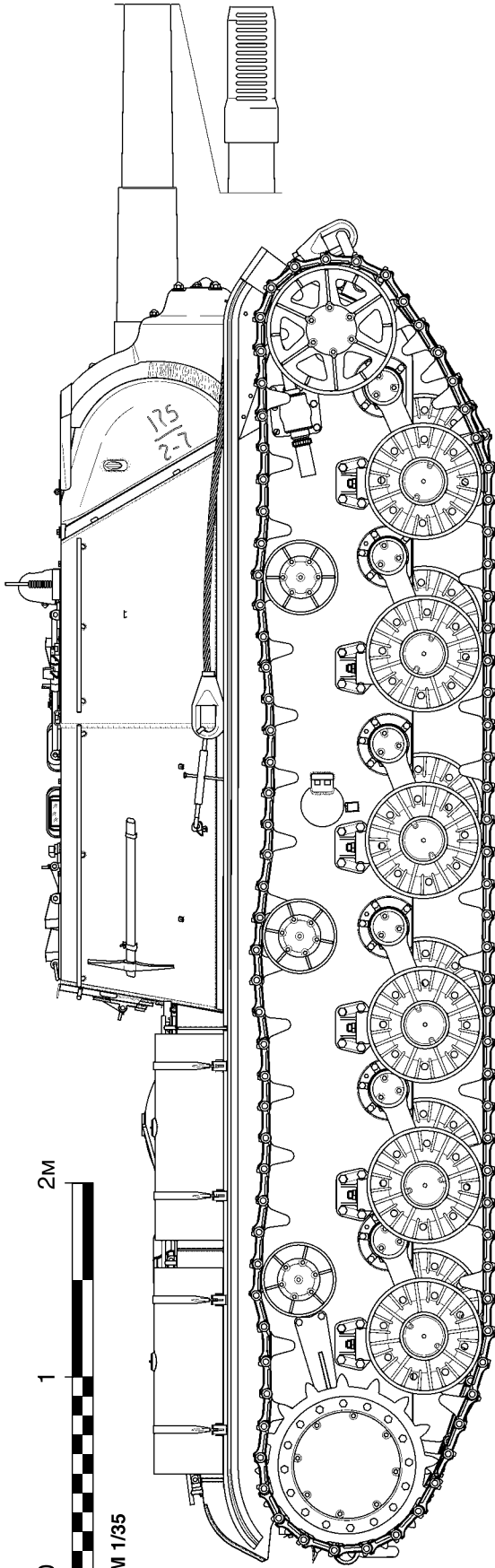
I request that Kirov Factory Dir. Comrade Zaltsman contribute to improving the location of the gun traversing mechanism and modifying it and develop the appropriate measures for improving the driver's operating conditions.⁴

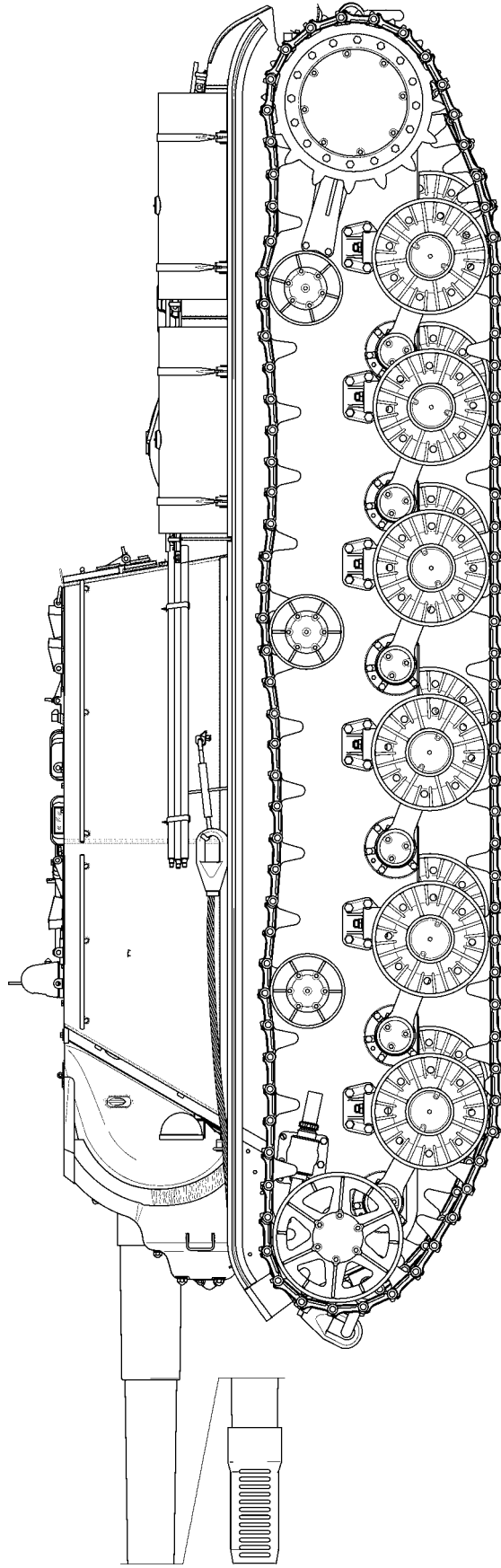
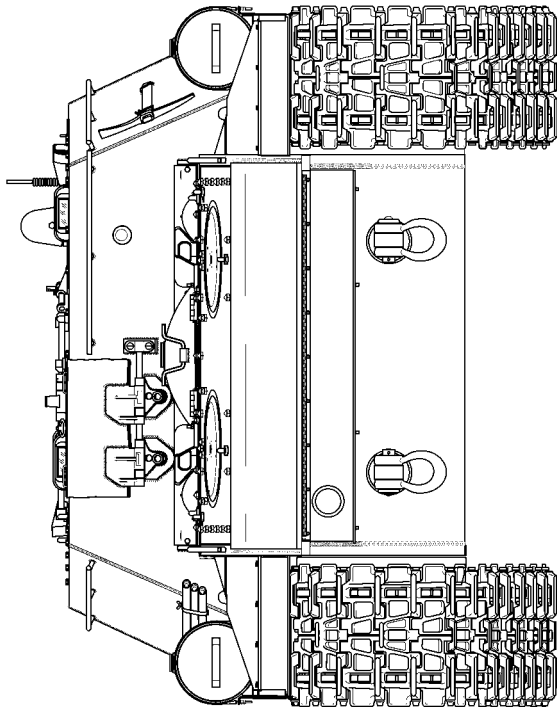
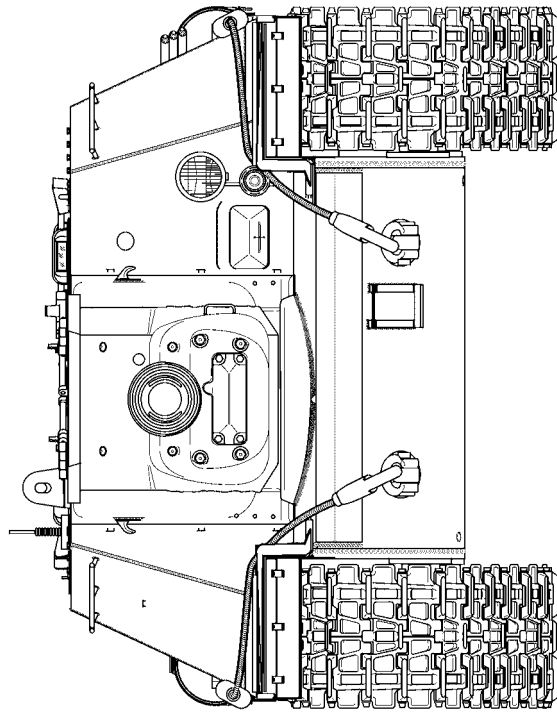
However, the letter had no impact. The SU-152 continued to have ML-20S systems with the old traversing mechanism that pressed against the driver-mechanic's right shoulder and back at certain angles for the entire time it was in production. The mechanism was never shifted to the right, although this was done when the IS-152 (ISU-152) SP gun was designed.

Some changes regarding the location of the ammunition were considered. In August 1943, the BR-540 armor-piercing shell was added to the SU-152's basic load. USA GABTU Chief Eng. Col. N. N. Alymov demanded a 50/50 ratio of armor-piercing and high explosive rounds from the Chelyabinsk Kirov Factory. If the armor-piercing shell required a different storage rack design, it would have to be modified as quickly as possible. The

A Chelyabinsk product at the factory's campus. The picture shows a T-34 in addition to the SU-152 (RGAKFD).

⁴TsAMO RF, collection 38, series 11369, file No. 74, p. 90.





SU-152 as manufactured between July and September 1943, 1:35 scale drawing.



modifications were not required, however, but the workmanship of the storage racks needed to be improved. There had been cases in which 4–6 shells could not be placed in the storage rack due to poor workmanship. Also, in the field it was common to increase the basic load to 25 rounds. The problem was solved by placing the additional five rounds under the gun; the shells and charges lay on the floor, held in place by wooden blocks. A proposal was made to manufacture regular racks for the additional ammunition, but this was never done.

A heated discussion about the technical documentation for the SP gun took place between July and September 1943. Some of the conditions for accepting SP guns were changed. According to the specifications, each SU-152 underwent routine firing tests—three supercharged rounds were fired. Since no instance of failure during firing was recorded from February to August 1943, it was decided on August 24 that only every tenth vehicle would be test-fired.

Among the issues discussed were modifications to the SU-152 design:

- 1) *Group 06. Add a housing to protect the oil tank valve when removing shells from sleeves. The deadline for beginning production is October 1, 1943.*
- 2) *Group 04. On the fuel tank drawings, specify that an anticorrosion coating is to be applied to their inner surface after manufacture. The deadline is November 1, 1943.*



Modified exhaust stack shield introduced for the SU-152 and the KV-1S in late July 1943 (YuP).



3) *Group 50. Eliminate the heads of bolts securing the fighting compartment roof from the field of view of the vision blocks with mirrors by replacing them with countersunk bolts. The deadline is September 15, 1943.*⁵

The factory completed the drawings of the housing for protecting the oil tank by September 5. The problem with roof bolts in the field of view of the periscopic vision devices had been solved earlier, on August 30. Instead of replacing them with countersunk bolts, they were simply shifted to the side. The Chelyabinsk Kirov Factory rejected the requirement to give the fuel tanks an anticorrosion treatment on the grounds that no failures due to corrosion had been observed.

Things went smoothly for the Chelyabinsk Kirov Factory in September 1943. The first 36 SU-152's were delivered by September 10 and another 73 were delivered by the 20th, easily surpassing its quota of 84 SP guns. That month, however, Factory No. 172 "distinguished itself" by producing a number of vehicles with technical defects. On September 3, 1943, Eng. Col. Sharonov, senior military representative of the GABTU's Self-Propelled Artillery Office, sent letters to GAU and GABTU:

Stalin inspecting and SU-152 and questioning the crew about working conditions. The Kremlin, September 8, 1943 (IZh).

⁵TsAMO RF, collection 38, series 11369, file No. 78, p. 43.



I hereby report that the ML-20S guns submitted by Factory No. 172 have defects that have repeatedly been pointed out by the Kirov Factory's QC Department and the military acceptance office.

1. *The bracket with a hole that is used to mount the ST-10 sight is not in the right location.*

During the inspection of the six systems numbered 8239, 8244, 8247, 8266, 8287, and 8241, a check of the location of the bracket for the vision blocks specially made by the Kirov Factory revealed that the hole in the bracket matched the drawing on only one system, No. 3241, whereas the holes in the brackets on the other systems were out of position along all coordinates.

The shift in the location of the holes causes darkening of the field of view of the ST-10 sights

2. *Systems lack the Luch system when they are shipped by the factory. In the third quarter of 1943, the factory failed to meet its quota by 40 systems. The shortfall of Luch devices is delaying timely submission and shipment of SU-152's to the front.*
3. *The bubbles in sight levels sometimes break during assembly of the system, as well as during tactical drills.*

The lack of replacement levels is also delaying delivery of the self-propelled guns.

I have received no answer to my message to the regional engineer of Factory No. 172 concerning these problems.

I hereby request your guidance concerning the issues I have raised.⁶

The SU-152 underwent additional changes in late September; these modifications were the last to occur in the production cycle. A border was placed around the submachine port in the superstructure's rear plate. Much more significant changes were made to the superstructure roof, and these modifications are still causing disputes.

Reports about the SU-152 from the front made it known that a large quantity of powder gases accumulated inside the fighting compartment during firing, "poisoning" the crew. This became known both at GABTU and at the highest level. Stalin himself asked about a solution to the problem during a display of new armored vehicles at the Kremlin. N. S. Popov and V. I. Petrov wrote about the episode in their book "Without Secrets" (*Bez tayn i sekretov*).

The armored vehicles that had been brought to Moscow were housed at Cherkizovo Station in workshops of a factory that had been evacuated to the East. From here, on August 5, 1943, the men from the Kirov Factory watched the firing of the first salute celebrating the Red Army's victory in the battle on the Kursk Salient. And on August 8, experimental tanks were sent under their own power to the Kremlin for display to government officials. They were placed not far from

⁶ TsAMO RF, collection 38, series 11369, file No. 79, p. 31.

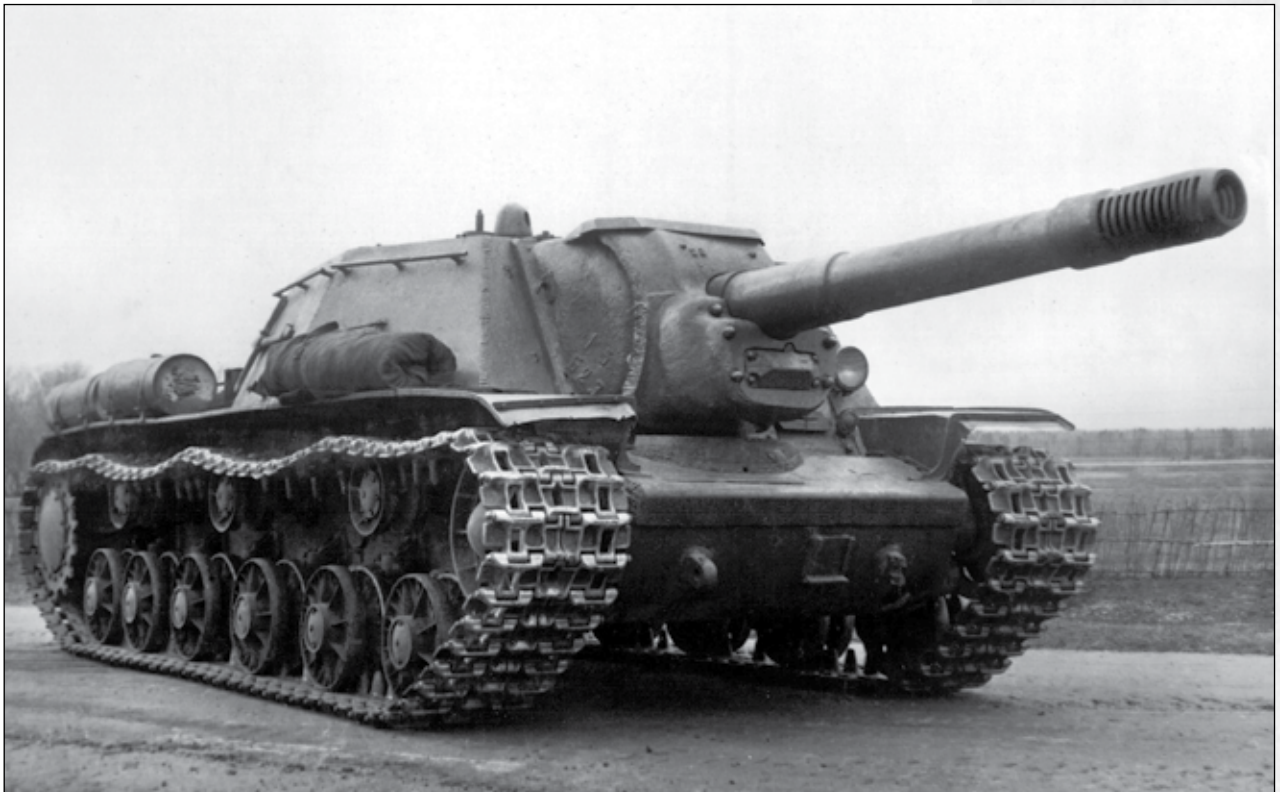


the Tsar Cannon, facing the Supreme Soviet building. Not long after, members of the State Defense Committee led by Stalin came out onto the square. Among them were V. A. Malyshev, People's Commissar of the Tank Industry, and Col. Gen. Ya. N. Fedorenko, armored forces commander. Responding to Malyshev's description of the vehicles' combat capabilities, Stalin pointed to the 122 mm gun and said that it was quite impressive and well suited for a heavy tank.

That conversation took place next to the pacesetter IS-2 tank. Next, the Supreme Commander walked up to the ISU-152 SP gun. He obviously knew that the SP guns, which were called "beast killers" in the Battle of Kursk, had acquitted themselves well in combat. Approaching the vehicle, he suddenly climbed up onto its hull without the help of a ladder and, looking into the open commander's hatch, asked how matters stood with ventilation of the fighting compartment. Someone had obviously told him that the crews in some of the first vehicles produced were being poisoned. Test driver K. Ye. Yegorov quietly answered him: "Exhaust gases do enter the vehicle, but improved ventilation has been developed for these guns. It passes three times as much air through, and the danger that the turret will fill with smoke or powder gases has been completely eliminated."

Stalin was completely satisfied with the driver-mechanic's competent answer and never asked any of the engineers about that again.

An SU-152 produced in October 1943. The vehicle was manufactured in this form until production ended (TsAMO).





Unfortunately, there are a number of inaccuracies in this account, which has been cited many times. To begin with, neither an IS-2 nor an ISU-152 could have been in Red Square on August 8, 1943. The first ISU-152 prototype entered testing in October 1943, and testing on the IS-2 (IS-122) began after that. Stalin's comment on the D-25 gun is nothing more than artistic license on the author's part. The display actually included a production version of the SU-152 that had been produced in August, the KV-85 prototype (Object 239), the IS prototype with a D-5T (Object 240) 85 mm gun, an SU-85, and an SU-76M (SU-15M). The author was not only confused about the types of armored vehicles on display, he also got the date of the display wrong. Here is what People's Commissar of the Tank Industry Malyshev wrote about the event in his journal:

September 8, 1943

Today, Comrades Stalin, Molotov, Voroshilov, Beria, and Shcherbakov examined the new IS, KV-85, SU-152, SU-85 and S-76 tanks and SP guns at the Kremlin.

Comrade Stalin himself climbed up on the IS tank and the SU-152 and SU-85 (Comrade Stalin got on the tanks first). He asked detailed questions about the advantages of the new tanks, especially the IS and the SU-85.

He delivered a rebuke because the SU-152 didn't have a fan in the fighting compartment. I promised that one would be installed within seven days.

He questioned why the IS tank with its thicker armor and more powerful gun doesn't weigh more than the KV. I showed Comrade Stalin both tanks and pointed out to him that the IS tank is smaller than the KV and said that made it possible to reduce the weight. Comrade Stalin said: "That's good."

He said we need more vehicles like the SU-85. "It's a light and agile vehicle with good mobility, and it will do a good job of beating up the German Tigers and Ferdinands," Comrade Stalin said.

"I was impressed that at his age Comrade Stalin was able to so easily climb up on the tanks without help. He questioned the drivers and artillerymen about whether the vehicles were easy to operate, did they feel crowded, didn't they choke on the gases, etc."

The Chelyabinsk Kirov Factory had not worked on developing fans for the SU-152's roof before the display. The issue was not mentioned in the list of required design improvements for the SP gun. In short, Stalin himself initiated it. On September 10, 1943, a letter over Alymov's signature addressed to the senior military representative of the Self-Propelled Artillery Office of the Red Army's Main Armor Directorate (USA GBTU KA), Eng. Col. Markin, arrived in Chelyabinsk:

I hereby bring to your attention that, beginning on September 23, 1943, all SU-152 self-propelled guns produced must have exhaust fans.

You are required to report when this is done.



The factory management will receive an order to this effect from the People's Commissar of the Tank Industry.⁷

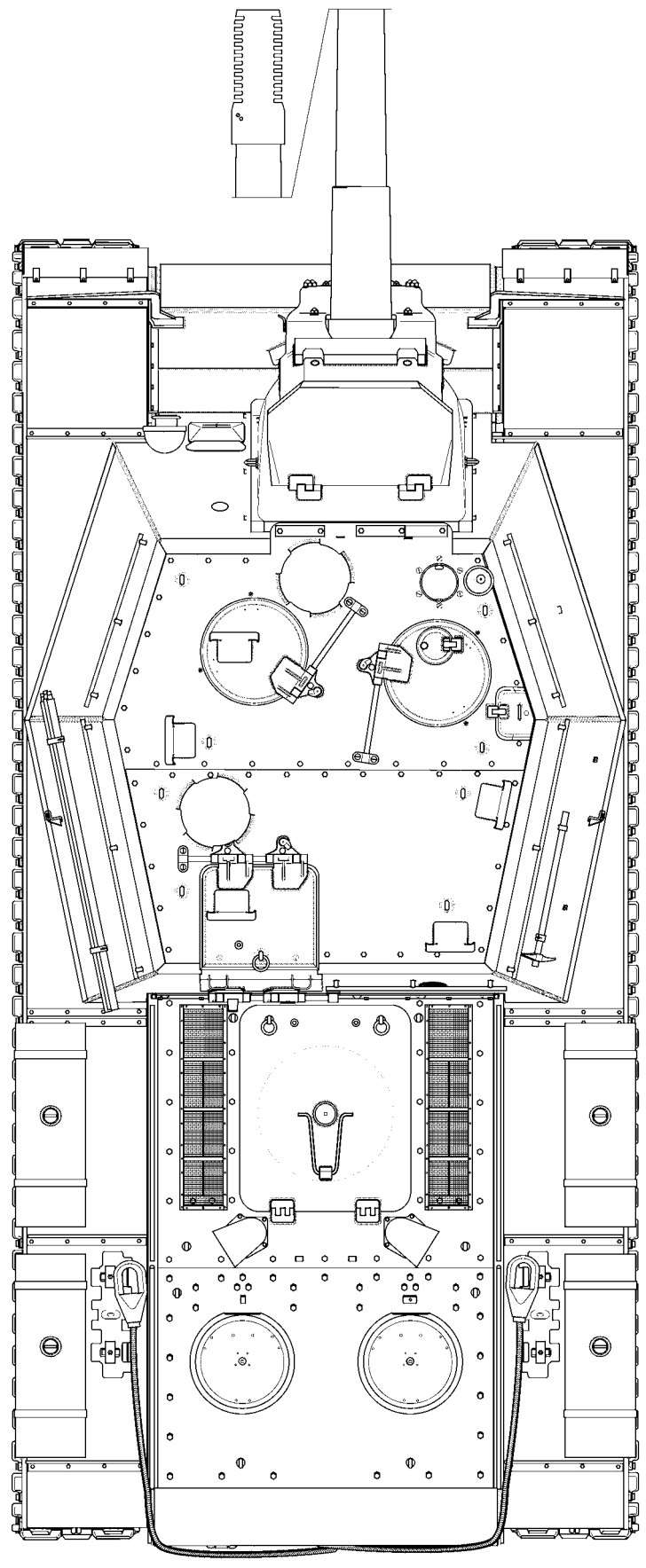
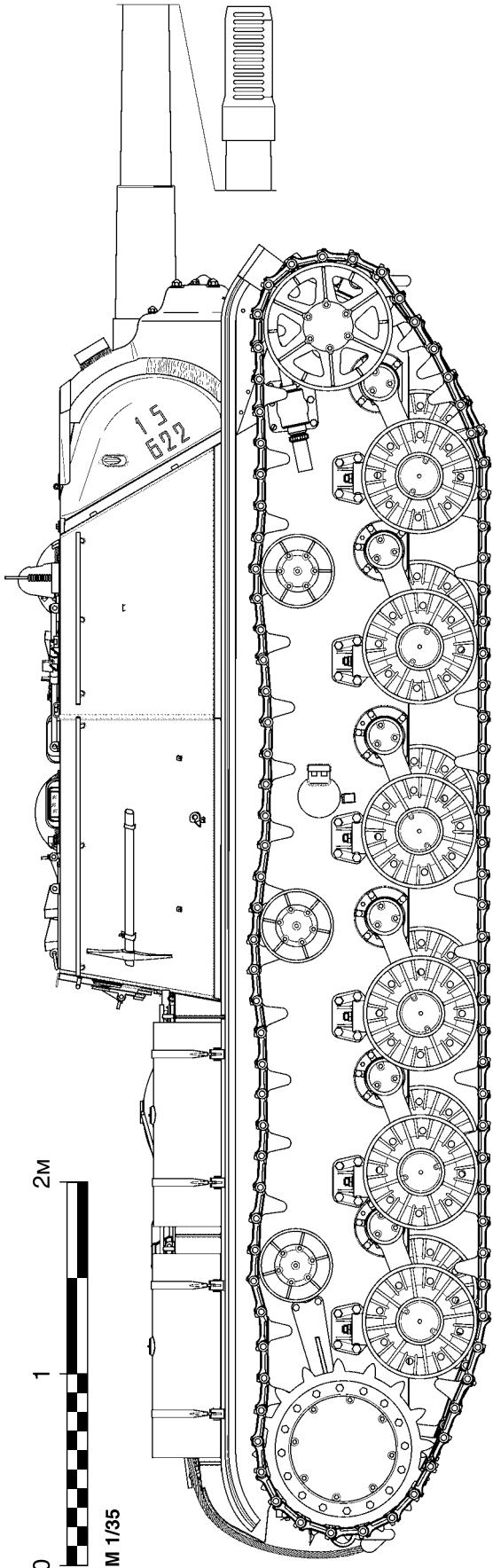
It is safe to say that this urgent task was completed on schedule. The last vehicles produced in September had fans in their roofs, and SP guns continued to be manufactured with fans until production ended.

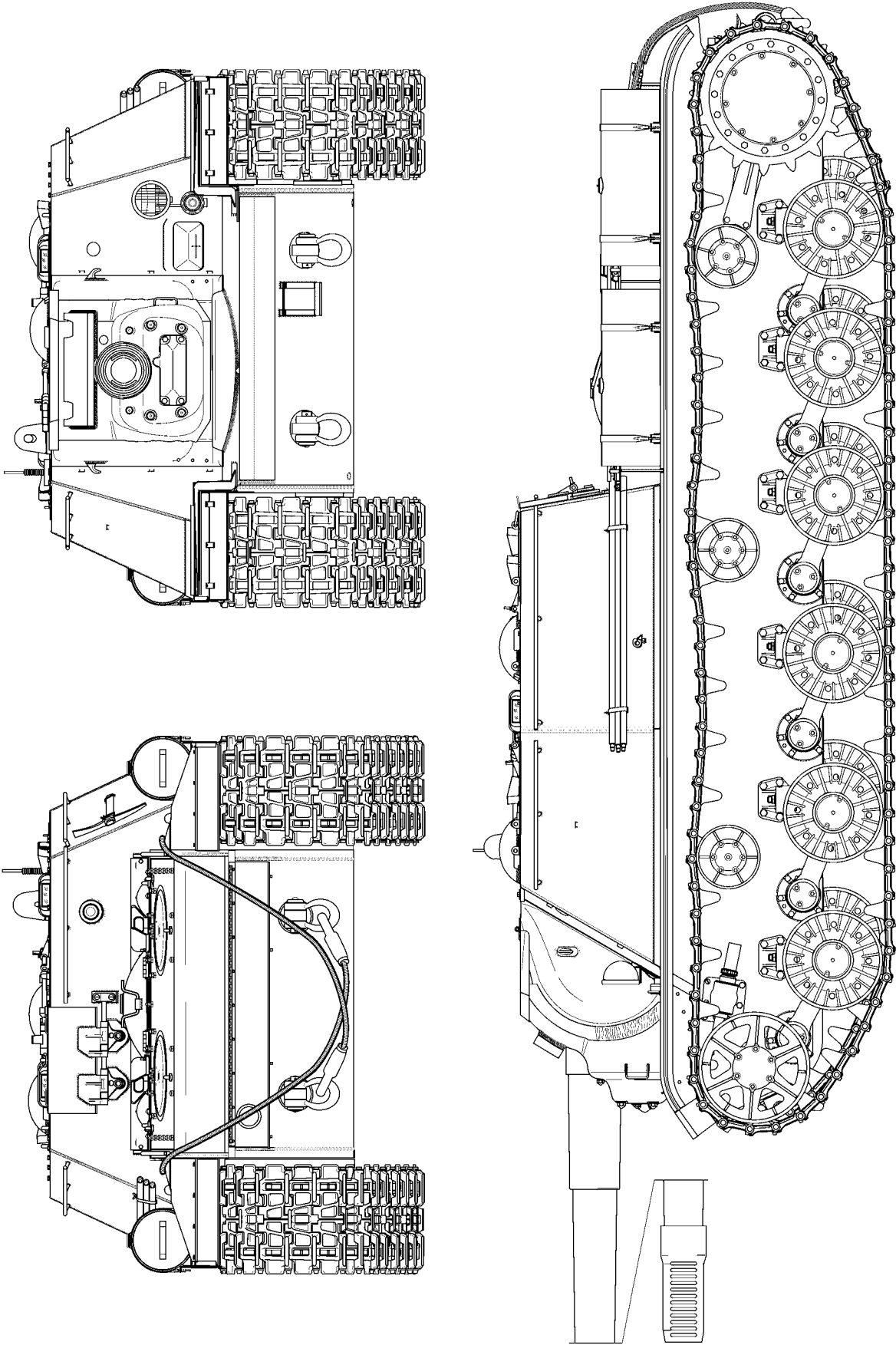
Thanks to good management, SP gun production at the Chelyabinsk Kirov Factory proceeded like clockwork. September's quota of 84 vehicles was met on schedule. However, this well-oiled mechanism would soon stop functioning. The IS-152 (ISU-152) SP gun went for testing in October 1943. State Defense Committee Decree No. 4504 "On the IS-152 Heavy Self-Propelled Gun with the ML-20s Gun-Howitzer," dated November 6, accepted the new SP gun into the inventory. The IS-2 heavy tank, which served as the basis for the ISU-152, had been commissioned previously, on October 31, 1943. Thus the era of the KV heavy tanks and the SP gun based on it had come to a close.

The Chelyabinsk Kirov Factory began production engineering for the ISU-152. On the day the new SP gun was commissioned, an order

An SU-152 produced in October 1943. Vents are clearly visible in the superstructure roof (TsAMO).

⁷ TsAMO RF, collection 38, series 11369, file No. 78, p. 45a.





The SU-152 SP gun as manufactured between September 1943 and February 1944, 1:35 scale drawing.



An SU-152 produced on the birthday of the Komsomol, late October 1943. The name “General Rokossovsky” is visible on the superstructure (RGAKFD).

discontinuing production of the SU-152 was issued. The production plan for the vehicle was cut to 42. The last SU-152's had been manufactured by November 20, and five ISU-152's had been delivered in Chelyabinsk by the end of the month. Some mishaps occurred because the factory was forced to produce the old vehicles while setting up to produce the new ones. A number of parts intended for the ISU-152 were made of the new grade 40 steel, and because engineering analyses of parts made of the new steel had been done incorrectly, there were numerous instances of breakage. However, the breakages were corrected based on results from company-level exercises.

The Chelyabinsk Kirov Factory delivered the last SU-152's after production had ceased. Interestingly, these vehicles were not listed in the factory's reports, but they are found in the reports on factory deliveries of SP guns that were sent to Stalin, Molotov, and Beria every five days. According to those reports, the Chelyabinsk Kirov Factory delivered four SU-152's in December 1943 and the last two production vehicles in late January 1944. Including the prototype, a total of 670 SU-152's were produced.