

Restoration of M46-A1 Medium Tank with 90mm M3A1 Gun



BAIV BV | British American Infantry Vehicles

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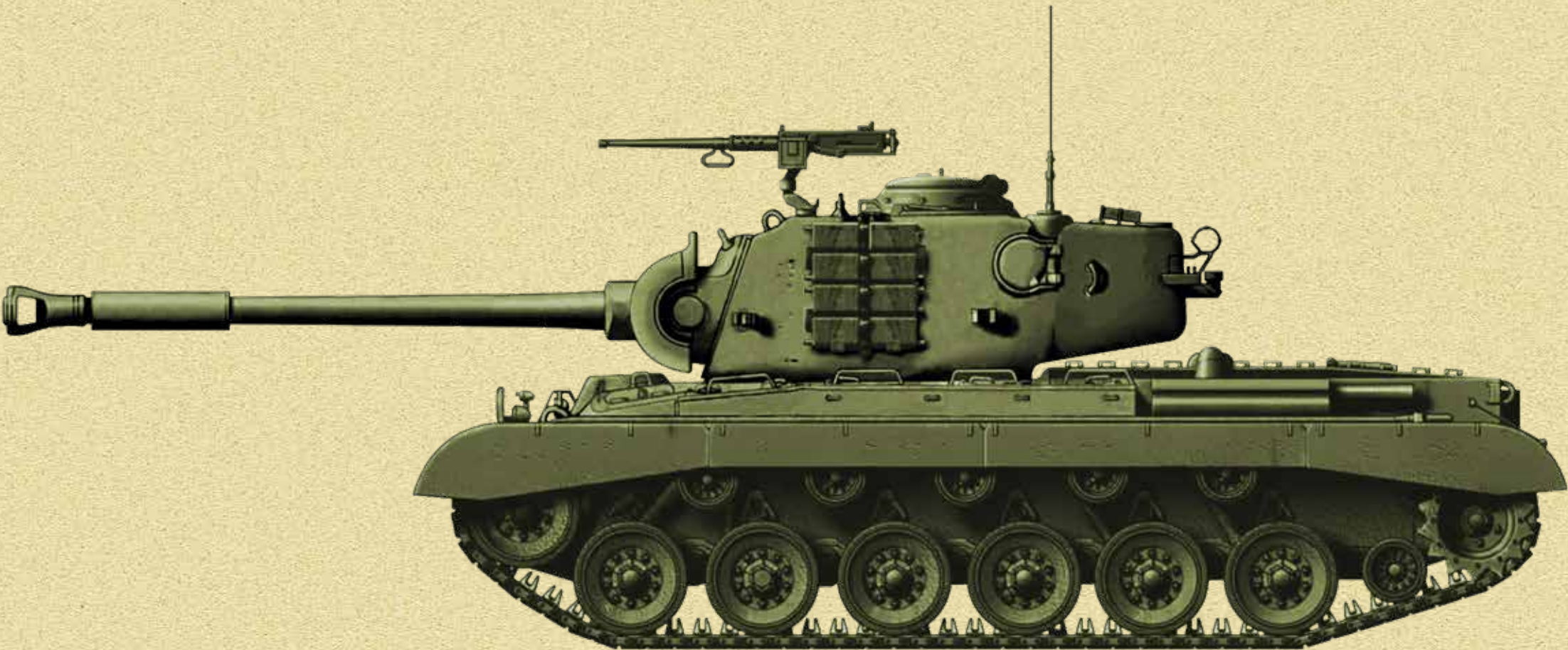
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M46-A1 Medium Tank with 90MM, M3A1 Gun



Technical Specifications

Manufacturer:	Detroit Tank Arsenal Plant	Operational range:	81 miles (130 km)
Production period:	1948 till 1950	Fuel capacity:	232 U.S. gal (880 l)
No. built:	1,160 (all variants)	Dimensions	Length: 31.17 ft (9.50 m)
USA registration:	USA 30164056 (original); USA 30163086 (after restoration)		Width: 11.48 ft (3.50 m)
Serial No.:	1131		Height: 10.37 ft (3.16 m)
Date of Delivery:	1950	Ground clearance:	18.82 in (478 mm)
Weight:	97,003 lb. (48,502 short tons; 44,000 t)	Electrical installation:	24 Volt
Crew:	5: Commander, Gunner, Loader, Driver, Assistant Driver	Armament Main:	90mm M3A1 Gun
Engine:	Continental AV-1790-5C V12, air-cooled gasoline engine	Secondary:	1 x .50 cal. (12.7 mm) M2 Browning machine gun 2 x .30 cal. (7.62 mm) M73 Machine gun
	Displacement: 1790 cubic inches (29.3 litres)	Aarmor:	Up to 102 mm (4.0 in)
	Power (gross): 810 HP at 2,800 RPM	Parts List:	G-244
	Power (net): 650 HP at 2,800 RPM	Operators Manual:	TM 9-718
	Torque: 1,250 pound-feet (1,190 Nm) at 2,200 RPM	Maintenance Manuals:	TM 9-1718-A, TM 9-1718-B, TM 9-1718-C, TM 9-1718-D, TM 9-1718-E
Transmission:	Allison CD-850-4A4, 2 ranges forward, 1 reverse		
Suspension:	Torsion bars		
Speed	High: 30 mph (48 km/h)		
	Low: 12 mph (19 km/h)		
	Reverse: 12 mph (19 km/h)		

M46-A1 Medium Tank with M3A1 gun

The 'Godfather' of the US Patton series



The Decision Maker in the Korean War!

On December 17th, 2019 Ivo Rigter Sr. and Ruud Caspers of BAIV visited the National Museum of Military Vehicles (NMMV) in Dubois, Wyoming. During this meeting Mr. Daniel Starks informed BAIV that the M46 tank was a hot topic on his wish / bucket list. Adding this tank to the collection of the NMMV would be the completion of the M40 series!



It was stored for many decades under roof since and recently transported to its current location in Poland for our inspection.

The entire interior is still almost complete and with the turret it might be relatively easy to get this tank back to its original condition. The only major missing parts seem to be the turret ring, the gun and all turret accessories!

With Mr. Dan Starks, President of the National Museum of Military Vehicles in Dubois Wyoming we rapidly agreed an order for the initial purchase. It was also agreed that for the rest of the works additional work packages will be released.

After the initial purchase next step was to organize the paperwork for the transport from Poland to The Netherlands. This is always a complicated procedure. In August 2021 finally the hull and turret arrived at our New Workshop in Nederweert. In December 2021 the hull was transported in.

An M46 Patton tank of the United States Marine Corps, in July 1952, during the Korean War.

The actual restoration process started in January 2022. Restoration was completed in May 2023, which equates to a total lead time of 16 months. This can certainly be called an impressive performance by the entire BAIV team from which the core of which consisted of MSGT and Team Leader Martijn van Kuijk, SGT Maik van Boxmeer supported by SGTFC Leroy Broks and CPL Jari van der Steen. Over 4.150 hrs. are invested in the restoration.



HISTORY OF THE M46 PATTON

US post war tank production

After World War II, most U.S. Army armored units were equipped with a mix of M4 Sherman and M26 Pershing tanks. Designed initially as a heavy tank, after the war the M26 Pershing tank was reclassified as a medium tank. The M26 was a significant improvement over the M4 Sherman in firepower and protection. Its mobility, however, was deemed unsatisfactory for a medium tank, as it used the same engine as the much lighter M4A3 and was plagued with an unreliable transmission.

In January 1948 the work started of replacing the original power plant with the Continental AV1790-3 engine and the Allison CD-850-1 cross-drive transmission.

This design was initially called the M26E2, but modifications continued to accumulate. Eventually, the Bureau of Ordnance decided that the tank needed its own unique designation, the M46.

The upgraded M26 received a new power plant and a main gun with a bore evacuator.

Upon completion of the first model of the Detroit Tank Arsenal production line in November 1948, the M46 was christened after the late General George S. Patton.



Note: during the restoration we found out that this tank actually started its life as an M26 Pershing. Later it was modified into the M46 which easily can be identified due to the welding work on the hull of the tank!



By December the Army had ordered several hundred. In July 1950 Detroit Arsenal was producing Pershing's and M46s at a rate of over a dozen a day. In August 1950 President Harry S. Truman authorized funding for increased M46 production as part an expansion of heavy tank development program.

A total of 1,160 M46s of all variants were built.

Combat Service

The only American combat use of the M46 Patton was during the Korean War, however, its performance was impressive!

On August 8th 1950, the first M46 Patton tanks, belonging to the 6th Tank Battalion, landed in South Korea. The M46 proved to be capable of fighting against North Korean T-34 medium tanks



By the end of 1950, 200 M46 Pattons had been fielded, forming about 15% of US tank strength in Korea; the balance of 1,326 tanks shipped to Korea during 1950 were 679 M4A3 Sherman's (including the M4A3E8 variant), 309 M26 Pershing's, and 138 M24 Chaffee light tanks.

Subsequent shipments of M46 and M46A1 Pattons allowed all remaining M26 Pershing's to be withdrawn during 1951, and most Sherman equipped units were also reequipped.

M46 series operators include:

- 1st Tank Battalion and regimental Antitank Platoons of the 1st Marine Division by 1952,
- 72nd Tank Battalion of the 2nd Infantry Division by January 1952,
- 64th Tank Battalion of the 3rd Infantry Division,
- 73rd Tank Battalion of the 7th Infantry Division by January 1951,

- 6th Tank Battalion of the 24th Infantry Division,
- 140th Tank Battalion (took over the tanks of the 6th Tank Battalion) and regimental tank companies of the 40th Infantry Division by October 1951,
- 245th Tank Battalion of the 45th Infantry Division by 1952.



Several other regimental tank companies gained M46/M46A1s by the end of the war, including the 7th and 65th Infantry Regiments of the 3rd Infantry Division.

For more info on the M46 in Korea see YouTube: <https://youtu.be/1sm2tgJ-Mq0>



Back to Europe

In the late 1950s, small numbers of M46s were leased for training purposes at no cost to some European countries, including Belgium, France and Italy, in preparation for the introduction of the M47. All were M46's returning from Korea.

American instruction teams used the vehicles to train European tank crews and maintenance personnel. During the training the tanks were completely stripped and rebuilt. The instrumental panel was upgraded to the A1 configuration.

Note: Fortunately, this M46 was one of three units which was leased to the Italian Army. Later in this article there is more information regarding the usage in the Italian Army.

Surviving M46 Tanks

Based on current research worldwide, there are only 23 survivors of the M46 left, all non-running and owned by museums and military collections (United Kingdom: 1, Belgium: 4, USA: 9, South Korea: 7 and Russia: 1). Except this one!!

Based on the above we can conclude that the M46 is a very rare tank and almost impossible to find. This makes it very collectible, especially as this is a running survivor!

This M46



As mentioned earlier, this example was used by the US Army for a long period. It was still marked with its original US Korean war markings!



Next to this it had a Calimero logo on the hull. Calimero was in the sixties a very popular Italian-Japanese animation about a charming baby chicken; the only black one in a family of yellow chickens. For more information on Calimero see: <https://en.wikipedia.org/wiki/Calimero>

Based on this we conclude that after its services in Korea the tank was one of the M46's which was leased for training purposes and in this specific case to Italy, in preparation for the introduction of its successor the M47.

This M46 was treated very well after its service in the Korean War. The Italian crew added the logo including a 'baco' spanner as the American instruction teams used it to train Italian tank crews in how to operate it as well as maintenance personnel in how to maintain it!



Unfortunately, for the specific training and instruction purposes, the turret was removed to make everything more accessible. However, the the driver and co-driver compartment remained intact, and the same for the engine bay.

It is absolutely unique to find such a very rare tank in this complete condition and with its very unique history. This unit was, with the exception of a very small cut in the front, never deactivated.



During a further inspection of the yard BAIV also discovered an original turret, so we concluded that from the main items only the 90 mm gun, the turret race ring and almost all turret related equipment was missing.

THE RESTORATION PROCESS

As mentioned the actual restoration process started in January 2022, was completed in May 2023, which equates to a total lead time of 16 months during which over 4,150 hrs. were invested.

Rapidly we, unfortunately, concluded that the engine was beyond repair, but Ivo Jr. was lucky to find a good take-out example in Belgium. Most difficult to source was the turret race ring (which differs from the Sherman type) and of course the 90 mm M3A1 Gun.



In that period coincidentally a Dutch partner company of BAIV received a contract to clean up a German training ground. To their great surprise, they discovered a completely riddled Pershing wreck with the cannon still usable. How lucky can you be sometimes?

Despite this enormous windfall, it was still a huge job for Martijn and especially Maik to restore the cannon. Maik needed to weld for many days to make the whole thing somewhat presentable. The result was a gorgeous restoration.

In the end, the result was a beautiful piece of work. This book will guide you step by step through the whole restoration process. On June 21st the tank was field tested at a Dutch Military training ground close to BAIV's premises prior to its shipment to the US!

TRIBUTE TO TOM LYKE



**CPL Thomas (Tom) A. Lyke
1932–2017
Second Platoon, 6th Tank
Battalion, Korea
1950–1953.**

In close coordination with the National Museum of Military Vehicles parties have decided to finish this tank as a tribute to Corporal Thomas A. Lyke.

Thomas was born on October 5, 1932 in Weirton, WV as a son of Arthur and Martha Laura (Forester) Lyke. Tom attended Follansbee High School and went on to serve his country in the United States Army having served time during the Korean War.



In Korea Tom became one of the crew of Tank C8 of 6th Tank Battalion. Tom and his crew named there tank "DAGWOOD" (Dog Company) which referred to the character from the 1930's comic strip Blondie.

On March 6th 1951 the US 6th Tank Battalion formed up in firing positions against Chinese forces in the so called 'The Valley of Death'. After heavy fightings against the Chinese his tank was destroyed on 25 April 1951. Tom managed to hide in a cave. After four days he slipped through enemy lines in search



*D-10 "Dagwood", disabled on the night of April 25, 1951.
Photo taken by elements of Dog Company on April 29.*



Second Platoon, Dog Company, 6th Medium Tank Battalion, 24th Infantry Division, Pusan, S.K., August 1950.

- 1.** Roger Jelkins, **2.** Bernard Williams, **3.** Wayne Gee, **4.** George Lee, **5.** Lareno Jimenez (POW), **6.** Samuel Mosthere, **7.** Michael Martin (POW), **8.** Robert Dotson, **9.** John Trautman (KIA), **10.** Hayward Hodges, **11.** Joseph Roy, **12.** Albert Myers, **13.** Ray Maxwell, **14.** Carlton Slider (POW), **15.** Louis Lehman, **16.** Thomas Lyke (POW), **17.** Donald Harrell, **18.** Harry Griffin, **19.** Bobby DeGraw (POW), **20.** Robert Alexander, **21.** Milton Jenkins, **22.** Steve Wallace, **23.** Frank Hand, **24.** Plt. Ldr. 1st Lt. Kenneth Sharp, **25.** Pok, and **26.** Plt. Sgt. Joseph Kirkland.

of water, but was captured on 29 April 1951. He spent the next 855 days as a prisoner of war (POW) of the Chinese and North Korean Communists!

Finally, on the 19th of September 1953, when he was released as POW, Thomas went home for a furlough with his family

Tom's story in his own words

Source: 6th Medium Tank Battalion, 24th Infantry Division, The Valley of Death, 24thida.com

I coaxed my mother that if she would sign for me, I would enlist in the Army, even though I had just turned 16 years of age on October the 5th, 1948. She laughed but said if I could convince the recruiting SGT, she would sign. I altered my birth certificate to show I was born in 1931 instead of 1932. The recruiter accepted it, my mother signed, and I left WV for Fort Knox, KY, for basics in January 1949. After basic, I was shipped to Fort Hood, Texas, for advanced armor training with the 6th Medium Tank Battalion, 2nd Armor Division.

I went home on furlough for Christmas of 1949, when I met my future wife, Charlotte A. Hoch. I returned to Fort Hood to continue training in January 1950. In July 1950, the 6th Tank Battalion was ordered to Korea, where we were attached to the 24th Infantry Division. All the UN had left Korea, when we arrived there was a 35-mile perimeter around Pusan.

We started our push north in September and joined the Marines and the 7th Division in Seoul; then on to the North Korea capital of Pyongyang (although officially assigned to the 24th Division, the 6th Tank Bn. supported many other units in the Korean War).

*Cpl. Tom Lyke,
Chipyong-ni,
N.K., Feb. 16, 1951*





From left to right: Kirkland, Lyke, DeGraw, Hodges and Lehman.

I was wounded for the first time north of Pyongyang at Anjou, North Korea. The first elements of the Chinese attacked us that day with 120mm mortars. It was Oct. 26, 1950, 21 days after my 18th birthday. I was evacuated to Tokyo General Hospital.

Along with five of my friends, I volunteered to return to Korea; we wanted to stay with our outfit because we had been together since basic. It was a whole new war when we rejoined Dog Company in the first week of January 1951. The UN forces were retreating to a defense line they could hold. We fought hard to hold our positions. The 6th Tank Bn was used all over place, being attached to anybody that needed armor support.

We were in support of the 24th Division and the 6th Republic of Korea Forces at Kapyong, Korea, when the Chinese started their spring offensive on the 25th of April, 1951.

The Chinese and North Korean forces broke through our defenses and cut off elements of the units supporting the 24th Division and South Korean troops. The 6th Tank Battalion stayed as rear guard to allow the UN troops to withdraw to another defendable line.

Dog Company, 6th Tank Bn, got word of a group of wounded Airborne Rangers who were surrounded in a draw. We took five tanks from the second

platoon and went in to get them. We found 65 rangers, loaded them on our tanks, and brought them out. From there, they were loaded in trucks and escorted to the rear.

The second Platoon was asked to stay as rear guard, as other elements were still straggling through. T

The 5th Regimental Combat Team had the 555 Triple Nickel Artillery Battalion, which was also cut off. They had a truck loaded with 155mm artillery shells blocking the road. Our tank retriever, which had been towing one of our disabled tanks back for repair, tried to push the truck off the road, so the rest of the column could get through.

Unfortunately, the truck exploded, and blocked the escape of all other vehicles. During the night the Chinese were able to move in close enough to knock out all of our tanks, halftracks and trucks, including my tank.

I was again wounded and knocked out. When I came to, things were much quieter, and all I saw were dead bodies – ours and theirs. I moved out and headed south later that night, but I had to seek refuge in a cave when faced with a barrage from our own artillery. I tried to leave when daylight came, but there were enemy troops all around. I went back and burrowed deeper into the cave.

As the day went on, I heard noises outside. Three South Korean soldiers entered. They suggested we wait till night and try to move south. I fell asleep, and when I awoke the South Koreans were gone. I tried to move out, but the valley was swarming with Chinese; I returned to the cave. Four days passed, and I needed water and food. Trying to slip through the Chinese lines, I went up a hill and spotted a stream on the other side. I got a drink, but when I started to move, the Chinese were all over me. This was the 29th day of April 1951.

I spent the next 855 days as a prisoner of the Chinese and North Korean Communists. I went from 157 pounds to 87 pounds in a matter of 2 months. I was moved on several occasions to different camps, because the Chinese claimed I had a reactionary attitude.

One of my dearest friends in captivity was William Deer With Horns, of the 19th Regiment, 24th Division. He, two other POWs, and I escaped in July of 1951, but we were recaptured shortly thereafter.

Deer, as we called him, died the following night from his beating.

After the peace talks began in July of 1951, the treatment and conditions improved somewhat. I weighed 105 pounds upon my release on 28th August 1953. I arrived home on the 19th day of September, 1953, for a furlough with my family. I was discharged on the 24th day of October, 1953.

Charlotte and I were married on October 1st, 1954. We became two children, Thomas J. Lyke and Charlene K Floyd.

I have been blessed to have had the privilege to serve my fellow EX-POWs and veterans in several organizations and have received many Military Medals and Ribbons.



Tom Lyke
Texas City

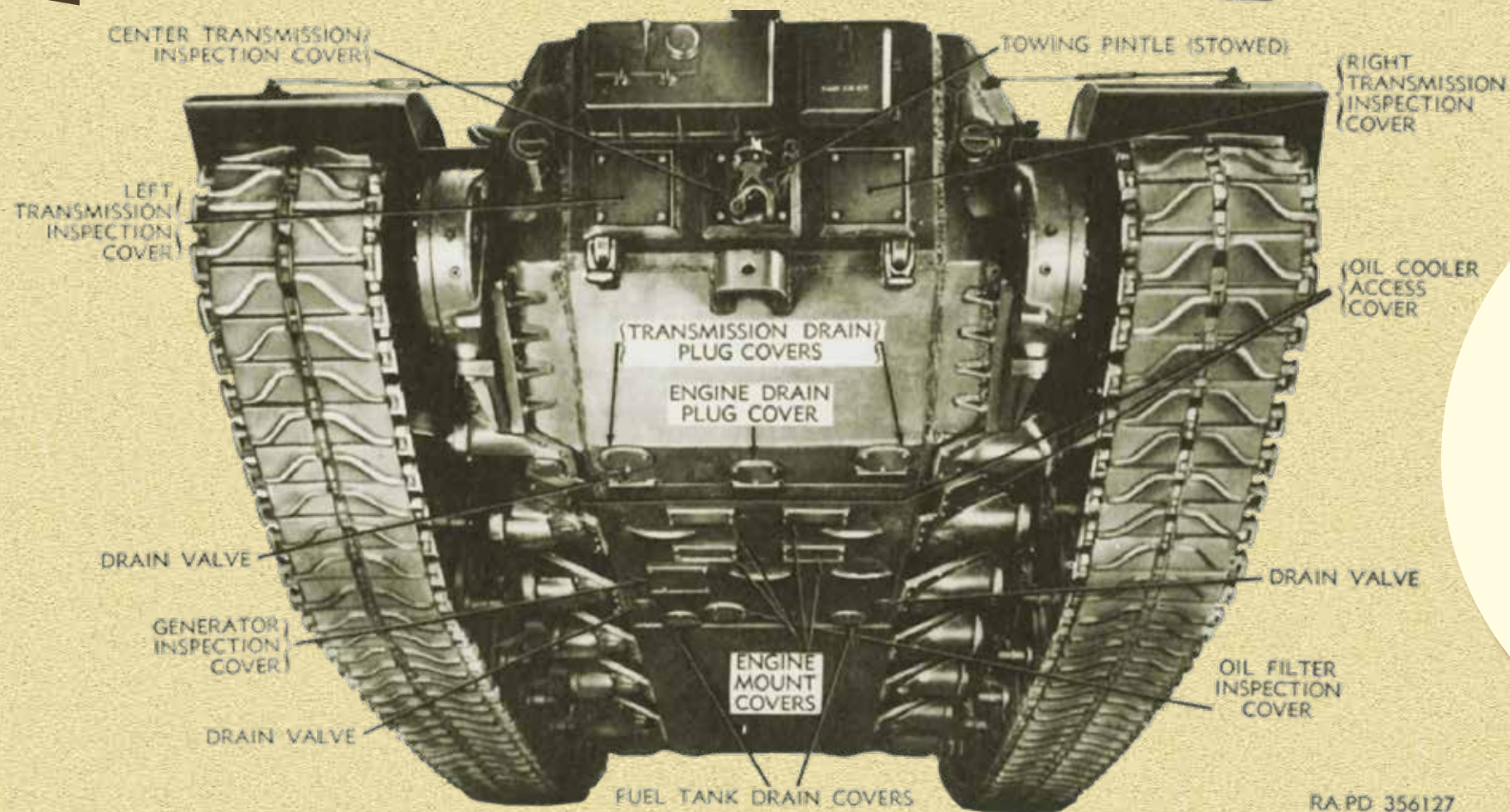
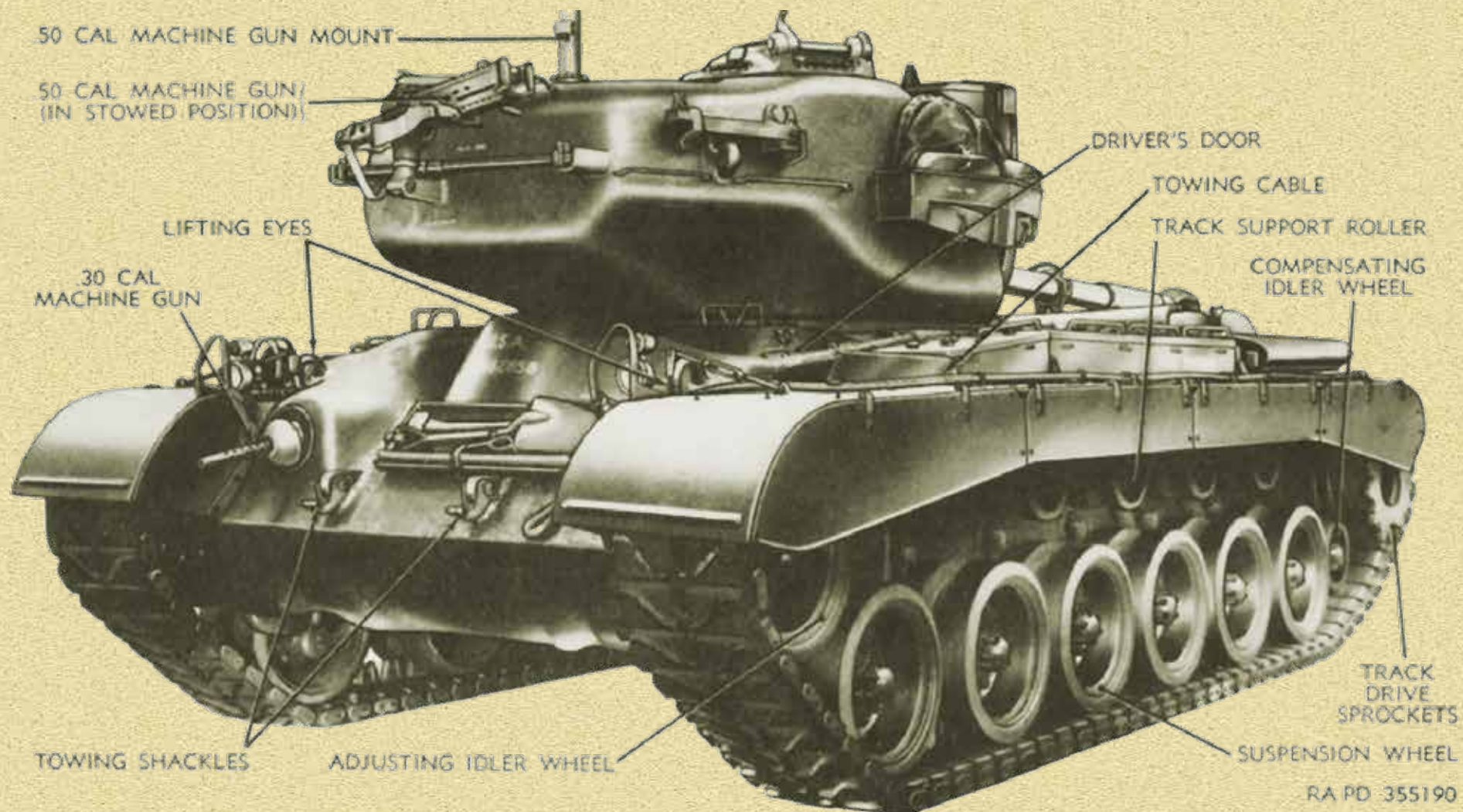
Tom Lyke received the Honorary Airborne Ranger award; from left to right: Bill Rhatigan, Lou Lucasick, and Tom Lyke.

After he returned to the US Thomas was a member of the Ex Korean POW Association. He was awarded the Prisoner of War Medal. Thomas worked as a construction worker and owner of Lyke Construction Company before retiring with Still Brother's Construction Company. Thomas Arthur Lyke, 84 of Colliers, WV died peacefully on October 1, 2017 at the Wyngate Senior Living Community in Weirton, WV.

THE M46 TIGER COLOUR SCHEME: OPERATION RIPPER

At the start of their assignment in Korea the 6th Tank Bn. adopted the tiger color scheme for their tanks in order to instill terror in the supposedly superstitious communists. According to the Chinese zodiac 1950 was the Year of the Tiger. This M46 Patton is a tribute to the US 6th Tank Battalion, which formed up in firing positions during an action against Chinese forces, 6 March 1951. All tanks had the Tiger color schemes.

M46 Patton Tank



Blondie Dagwood

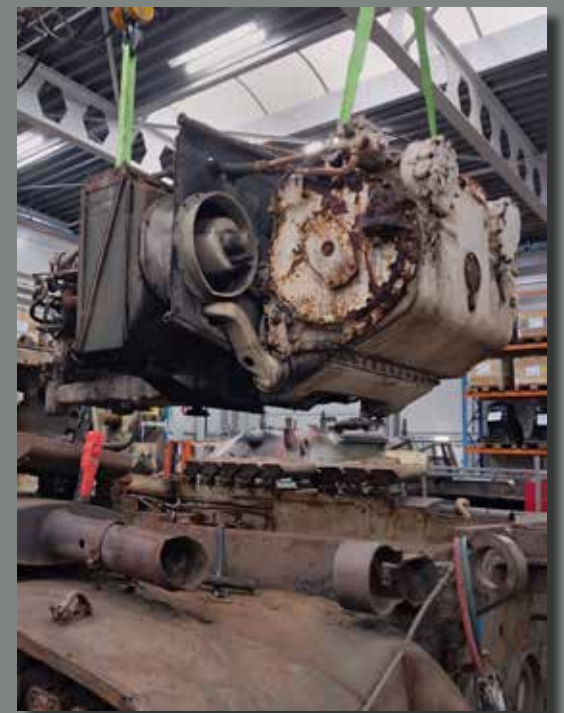
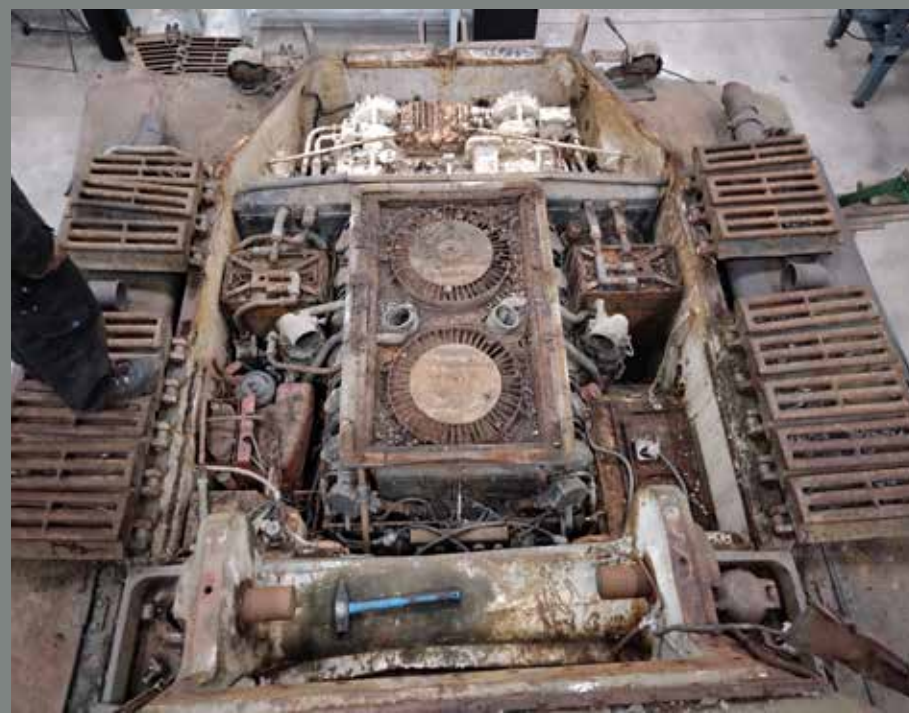


The Find





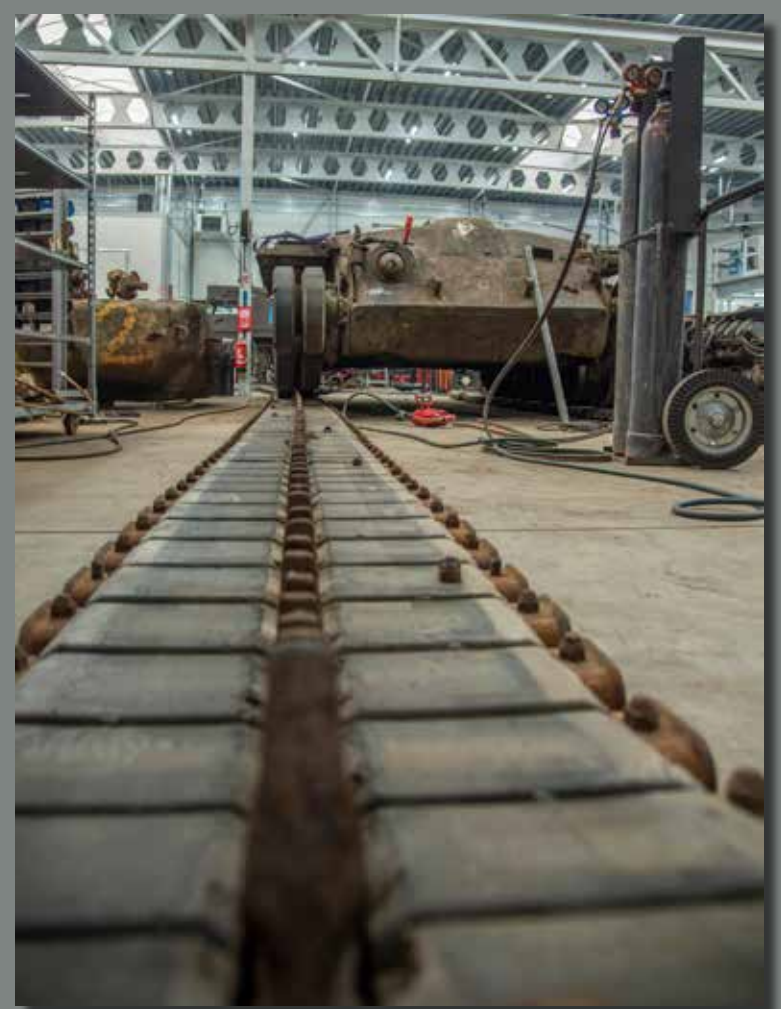




















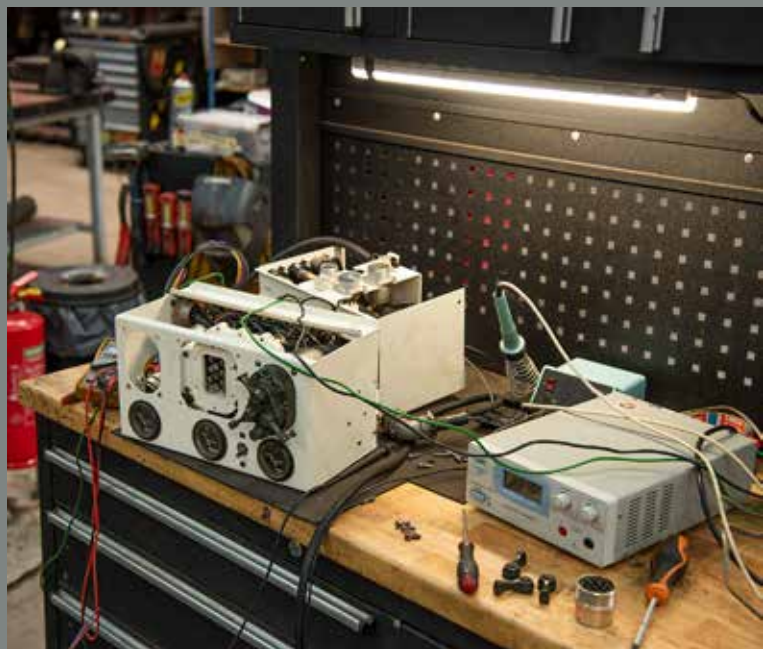










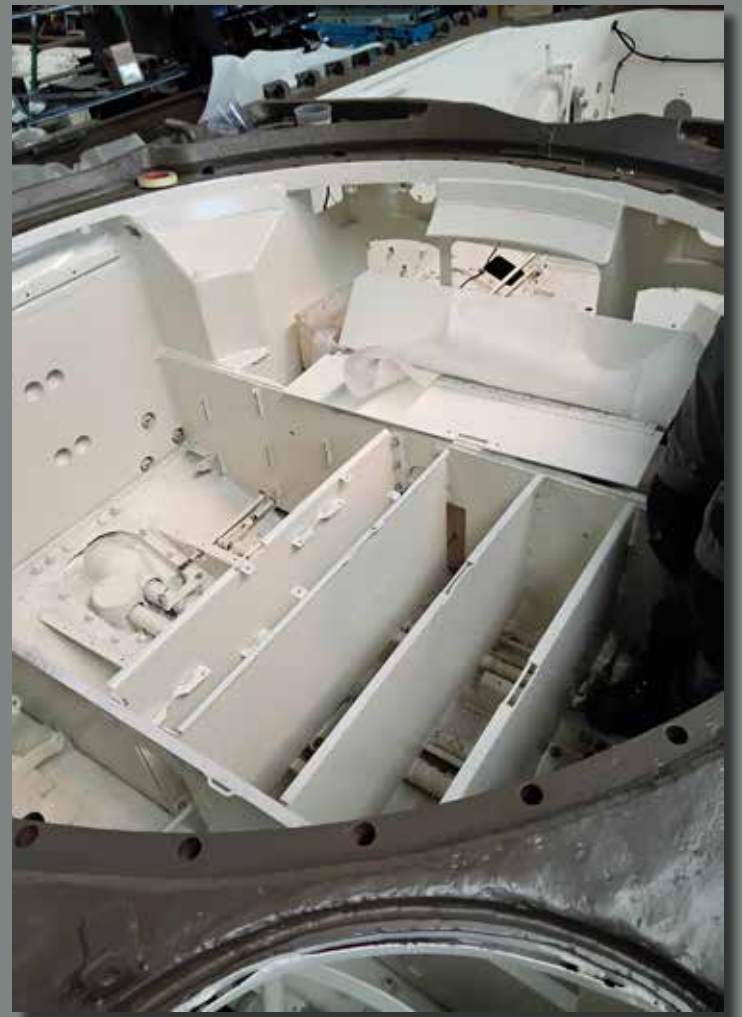
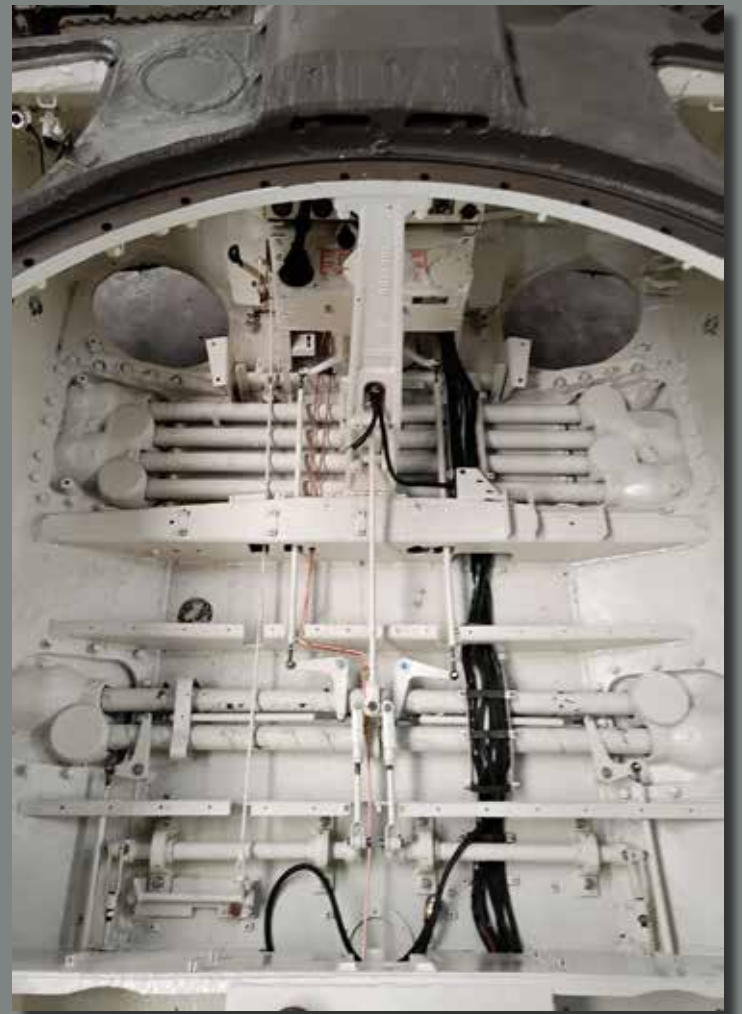




















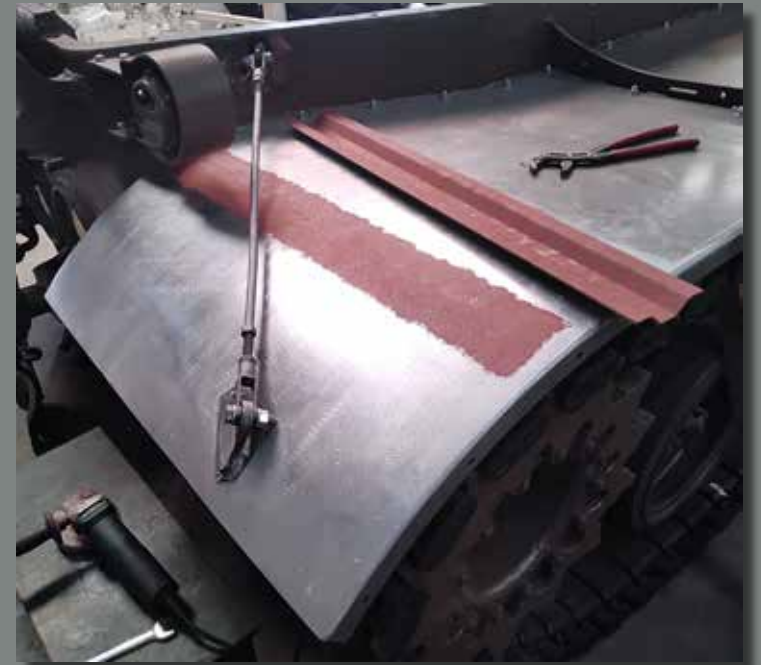






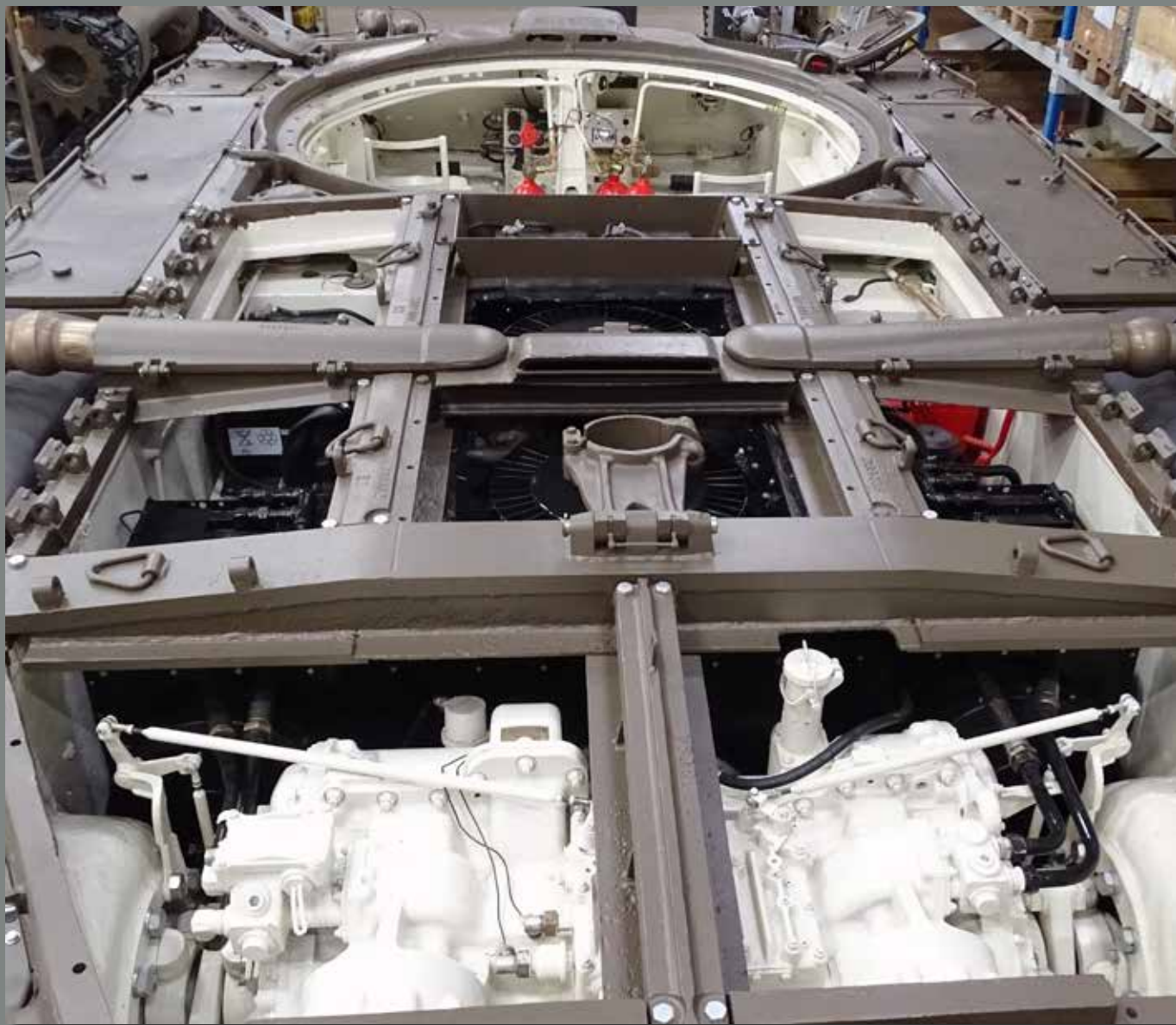








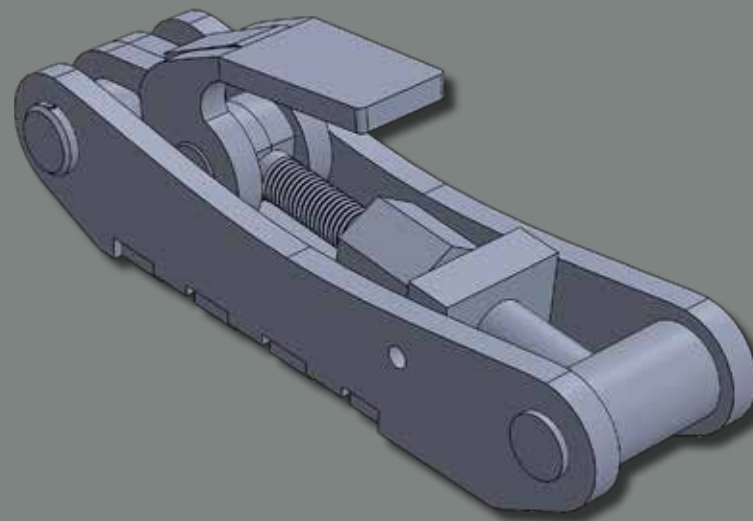






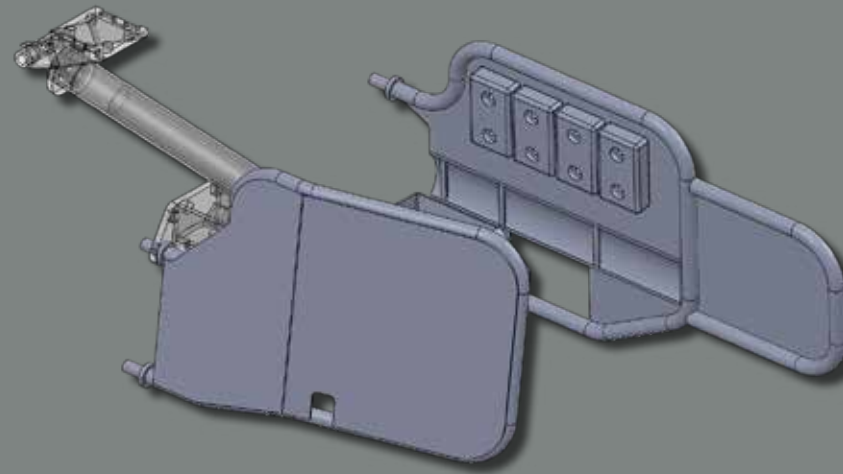






*CAD-design for reproduction
of gun lock assembly*



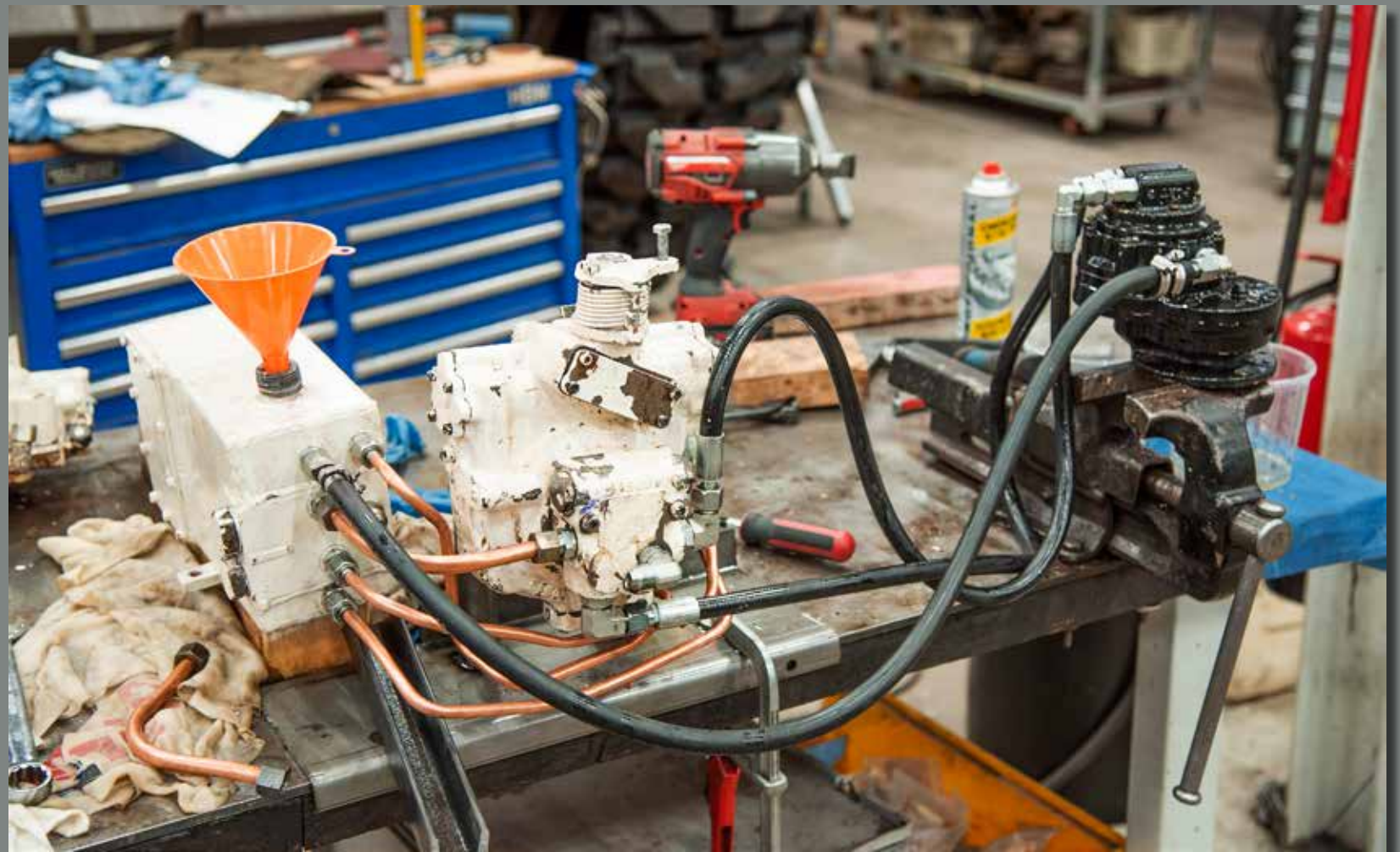


*CAD-design for reproduction
of gun shields*

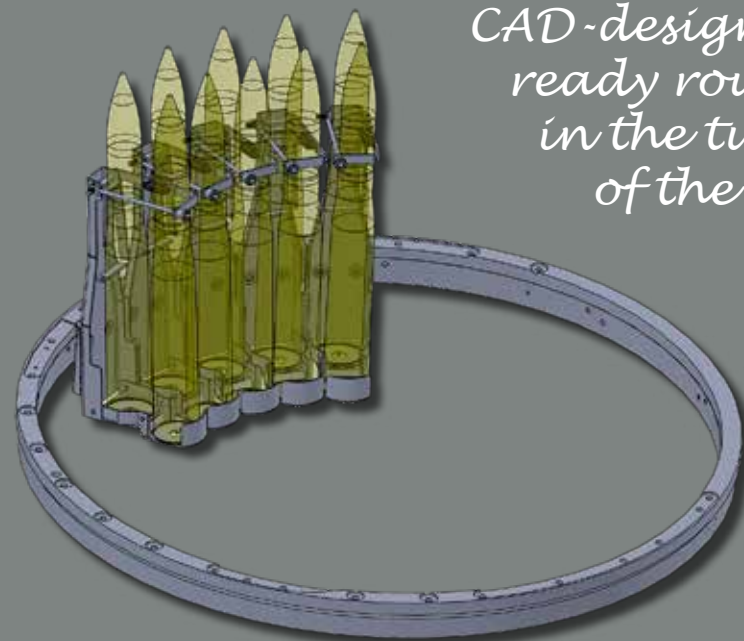












*CAD-design for
ready rounds
in the turret
of the M46*













***The experts of Team BAIV
are proud to have worked on this successful restoration***

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