# Restoration of M-26 Heavy Tank (Pershing)


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# M-26 Heavy Tank (Pershing)

## Technical Specifations

| | | | |
|---|---|---|---|
| **Manufacturer:** | Fisher Tank Arsenal, Grand Blanc, MI, USA<br>From March 1945 Detroit Tank Arsenal, Warren, MI, USA | **Range:** | Cross country: 75 miles<br>Highway: 110 Miles |
| **Production period:** | 2,212 from November 1944 till December 1945 | **Fuel capacity:** | Right; 75 ½ gallon (285 litre)<br>Left: 116 gallon (439 litre) |
| **USA registration:** | USA 30127281 | **Dimensions** Length: | 20 ft 9 ½ in (6.337 m) (turret facing aft)<br>28 ft 4 ½ in (8.649 m) (turret facing forward) |
| **Date of Delivery:** | April 1945 | Width: | 11 ft 6 in (3.510 m) |
| **Weight:** | 46 Short Tons (41,700 kg) | Height: | 9 ft 1 ½ in (2.780 m) |
| **Crew:** | 5 (commander, gunner, loader, driver, co-driver) | **Electrical installation:** | 24 Volt |
| **Engine:** | Ford GAF; 8-cylinder, gasoline;<br>Displacement: 1,100 cu in (18.025 cc)<br>Power output: 450–500 hp at 1,600 rpm (340–370 kW)<br>Torque: 1,050 lb.ft at 2,200 rpm (1.425 Nm) | **Armament** Main: | 1 × 90 mm Gun M3 with 70 rounds |
| | | Secondary: | 1 × .50 cal. Browning M2HB mg with 550 rounds<br>2 × .30-06 Browning M1919A4 mg with 5,000 rounds |
| **Transmission:** | Manual operated semi automatic gearbox with three speeds forward and one reverse<br>The differential operated three drum brakes on each side | **Armor:** | Front glacis max 4 ½ inch<br>Manlet 5 ½ inch |
| **Suspension:** | Individual torsion arms with bumper springs and shock absorbers | | |
| **Speed:** | 30 miles/h (48 km/h) | | |

# M26 Pershing "ALICE" · USA 30127281
## Unit 12 of Company C, 73rd Armored Regiment

# The Iconic US Korean War Veteran
## Restored for the National Museum of Military Vehicles, Dubois, Wyoming USA

The M26 Pershing descends from a long series of medium and heavy tank prototypes, dating back from 1936. During the war, heavy tank development was long delayed or given low priority since the US Army, USMC and Allied forces required a mass-built, good-all-around medium tank, which took the shape of the medium M4 Sherman.

By 1944, the High Command was aware of the limitation of the M4 when facing German tanks. By mid-1944, both the British and US army upgraded the Sherman in armor and guns, and developed tank destroyers instead of mass-producing a brand-new model. By fall of 1944, these 'stopgap' measures proved insufficient, and the innovative M26 was eventually pushed forward for production, parallel to the A34 Comet for the British army, as serious opponents of the German upgraded Panzer IVs, Panthers and Tigers.

### Design of the M26

Compared to the Sherman and previous models, the Pershing was absolute revolutionary. The Ford GAF engine and short (automatic) transmission gave it a low profile.
The glacis plate was one of the thickest fitted on an American tank (4 ½ inch). The mantlet measured even up to 5 ½ inch!
The torsion bar system conferred a noticeably better ride and

was superior to the tractor based VVSS and simpler than the HVSS suspension on a Sherman. The wide tracks contributed to lowering the ground pressure and giving much better grip on soft terrain. Two wide mudguards mounted large storage bins for tooling, spares, and equipment.

The drivetrain counted six pairs of rubberized roadwheels, each fitted on its own wheel arm and connected to the torsion bars by the way of an eclectic spindle. Each was also connected to a bump stop, which limited the motion of the arm. Three out of the six were fitted with extra shock absorbers. On each side it had one idler (identical to the roadwheels) at the front and a sprocket at the rear. The idler could be precisely adjusted to the track thanks to a huge notch. This meant that the idler could be displaced forward or backward and thus change the track tension. There were also five return rollers.
The tracks were a new model, but rather classic in appearance, each link being articulated with wedge bolts and having a two-piece center guide.

Construction called for large cast sections, front and rear, attached to the hull sides and welded together. Another cast section went across the engine deck for better strength.
On the Korean versions an infantry telephone was fitted on the back panel of the engine compartment, inside an armored box, allowing them to communicate with the tank, for close support, even during battle.
The engine compartment was covered by eight armored grids, only accessible when the turret was turned to the side. The two rearward ones gave access to the engine, while the two

forward ones allowed access to the left and right fuel tanks, the right being shorter to make room for the auxiliary engine and electric generator.
There was also a semi-automatic fire extinguishing system. The gun travel lock was located at the rear.
The semi-automatic transmission had three speeds forward and one reverse. The differential operated three drum brakes on each side.

The M26 commander's cupola had a one-piece hatch and six direct vision prisms made of thick bulletproof glass, inserted inside the cupola bulge. The top of the hatch mounted a periscope and the entire structure moved freely around a fixed azimuth scale. When inside, the commander had a lever for traversing the turret left or right.
Just behind him was mounted the SCR 528 radio set. Due to its lengthwise position, a mirror allowed the commander to use the commands at hand.
The gunner had an M10 periscope, with x6 magnification, and to its left was an M71 auxiliary telescope with x4 magnification.

The 90 mm (3.54 inch) M3 gun was hydraulicly power traversed, with a joystick controlling elevation and a pump for manual traverse. The gun also had an elevation handle and, just behind it, a manual trigger, in case of failure of the electrical fire system. There was also a gear change lever, for choosing between the manual or hydraulic options for traverse.
At a lower position, the manual traverse lock was located, which was used when the turret was reversed, and gun lowered and attached for transportation. The gun had a classic percussion fire system and manual breech.

The loader also fired the cal.30 (7.62 mm) coaxial machine gun and had his own vision system. Just left of him were the ready racks, storing ten rounds of various types for immediate use. Additional stowage inside six floor compartments was used. The loader also had a pistol port.

The driver and assistant driver both had spring suspended seats and single-piece hatches. The driver had a rotatable periscope, immediate access to the semi-automatic fire extinguisher to his left and a brake release.
The instrument panel counted five circuit breakers, a fuel gauge, a lever for fuel tank selector, electrical starter, electrical gauge, tachometer, personal heater, differential settings, fuel cut-off emergency button, panel light trigger, main lights, speedometer, oil pressure & engine temperature gauges, as well as several lamp indicators.

The two brake levers had no neutral positions. The turning radius was about 20 feet (about 6 m). The assistant driver was in charge of the bow machine-gun; a ball-mounted cal.30 (7.62 mm) and had a complete set of driving levers to replace the driver if needed and had a simple hatch periscope which allowed him to see his machine-gun tracers.
The turret roof also housed, near to the commander cupola, a multi-purpose cal.50 (12.7 mm) heavy machine gun. Ammunition racks for it and the coaxial cal.30 were found inside the turret rear cast basket.

## Production
The actual production of the T26E3 pre-series, which was standardized in March 1945 as the M26, only began in November 1944 at the Fischer Tank Arsenal. Only ten were built in the first month. Then production grew to 32 in December, 70 in January, and 132 vehicles in February 1945. In March 1945, the Detroit Tank Arsenal joined the production effort, releasing some additional tanks. From then, around 200 left both factories each month.
In total about 2,212 Pershing Tanks were built.

## Active service in WW2
Twenty vehicles of the first batch were sent to Western Europe, landing at the Belgian port of Antwerp. Although months were needed to train crews and maintenance teams, the first real operations began in western Germany in February-March 1945. The Pershing was used by the 3rd and 9th Armored Divisions being part of the US First Army.

## The Korean War
The bulk of the M26 (and M26A1) force saw action during the Korean War. In July 1950 four US infantry divisions stationed in Japan were shipped, with a few M24 Chaffee tanks and howitzer support models. More divisions were sent, mostly with medium tanks. However, they were no match for the T34-85s of North Korea.

Hastily M26s were reconditioned and shipped. By the end of 1950, some 305 Perishings managed to arrive in Korea and saw combat. The Pershing displayed sufficient fire power, but unfortunately insufficient mobility on the mountainous terrain of Korea. For this reason, the M26s were gradually replaced by the M46 Patton (also purchased by the NMMV), the upgraded version of the M26.

## The discovery of this M26 Pershing
After the Korean War, many Perishings were shipped to Germany. Reason was that re-import to the US was restricted due to the 'Armor Ban', a protective regulation agreed upon in World War II between the American industry and the government to avoid that many in WW-II produced equipment was dumped on the US market after the war.

During that time, the M26 was obsolete so many ended up in reserve or storage or were sent to shooting ranges. In this period the German army received the M47 Patton, so also in this respect the Pershing was outclassed by its successor. Most M26s were scraped, only some examples did survive.

Over the years they became highly collectable. That is why nowadays Pershing tanks are extremely rare, especially compared to the Sherman and other US tanks which were built in much larger quantities. Therefore, it's unique that BAIV has acquired such a 'holy grail' of unique US Tank History.
This M26 Pershing was discovered by BAIV in Germany at an historic scrap yard in the spring of 2018. Over the years it was overgrown with tares, weeds, and even small trees. Though it was in extremely poor condition, the tank was relatively complete.

After D-DAY Conneaut Ivo Rigter Sr of BAIV offered it as a project to Dan Starks in August 2018. Dan immediately saw the uniqueness of this example and on August 22nd he signed the purchase agreement.
However, in the autumn of 2018 it was impossible to salvage the tank. Weather was very bad, so proper access to the location was not possible.
The actual salvage started in the spring of 2019. A very difficult operation in which first a wide path had to be cleared by chopping several trees and removing many bushes before the tank could be approached. The next step, being the transport to BAIV's previous workshop in Maarheeze, was in this respect 'a piece of cake'.

In 2019 however, BAIV faced an enormous workload with many ongoing projects. 2019 was also the year of the 75th anniversary of D-DAY Normandy in France and of Operation Market-Garden in the Netherlands, major events in which the BAIV crew participated. On top of that in spring 2020 BAIV as a company was relocated to its new workshop in Nederweert. Due to this all the actual restoration of this project started in July 2020.

## Restoration process

On April 29th 2020, one day prior to the birthday of Ivo Sr. and in the middle of the first wave of the Corona crisis, a mail was received from Dan Starks with the following request:

*Dear Ivo and Ivo,*

*First, all of us here in Wyoming hope you, your families, and all your colleagues are healthy and doing well. All here have avoided COVID-19 (fingers crossed) and are continuing to advance the museum the best we can while most of our vendors still are closed.*

*One area where we have made a lot of progress is in beginning the design of our Puller Gallery. We have decided to devote the 55,000 sq. ft. of the Puller Gallery to interpreting the Korean and Vietnam War and have hired a new museum design build to help us. Concept design already is complete, and we now are moving forward with schematic design. Our target is to open the Puller Gallery in May 2021. Depending on progress with COVID-19 therapy and vaccine development, it is possible that we conduct one Grand Opening in May 2021 for the entire museum.*

*This brings us to the topic of your schedule for completing restoration of the M-26. The M-26 will hold a prominent position in our Korean War display. Currently, restoration is scheduled to be complete by the summer of 2021. Is it possible to advance this schedule so that we can include the M-26 in our Korean War display in time for a May 2021 opening of the Puller Gallery? I am guessing we would have to ship the M-26 sometime in April in order to have it on the museum floor by the middle of May. As you can imagine, the earlier the better for our design/build firm.*

*Kindly let us know when you can.*

*Warm regards,*
*Dan Starks*

At that time BAIV had not yet started with the restoration because the entire company was in the middle of its relocation process. Completion of the entire project was at that time scheduled for July 2021!!
But never ones to shy away from a challenge, the dedicated BAIV team, led by MSGT Martijn van Kuijk, started to work as soon as the tank arrived at BAIV's new location in Nederweert.

The process of the restoration of a tank is basically relatively simple: disassembly, repair and renewal, painting, and assembly. However, restoration is always a true exploration journey, with learning moments, great excitements, unique discoveries, and of course of various setbacks.

One of the unknown things is that tank wrecks are always a wonderful repository for the winter supplies of squirrels and mice. The team had to remove over two wheelbarrows full of broken walnuts during the dismantling. Also, it became clear that the front of the tank had seen significantly more water than the rear and the engine compartment. As a result, almost the entire drive and co-driver section had to be rebuilt.
Another phenomenon in a tank restoration process is the dismantling of bolts. The people at BAIV became very adept at this over the years and have developed numerous solutions for removing 'unwilling' and broken bolts.

The entire fenders and storage bins were gone and had to be fully rebuilt in accordance with the original design, same as the fuel tanks, oil coolers and many other small parts. Muzzle brake, escape hatches, left engine deck cover, driver and co-driver support spring system and gun support bracket were reproduced. Furthermore, many parts have been found at specialized companies all over Europe and even in the US. The electric system is always a challenging task too. Lots of effort was invested to make this as original as possible with usage of all different model's milspec connectors, shielding and special fabricated wiring with timely correct cotton cloak.

Thanks to a lot of effort and commitment the entire project was completed by Martijn van Kuijk and his team within the time frame as requested by Mr Dan Starks. An exceptional achievement by all people involved because the lead time of the project was only 7 months!!

## The history of the 'Alice'

While the restoration was in progress Ivo Rigter Jr. traced down the history of the tank. During this process he found out the specific history of the 'Alice' and even found photographs showing the tank deployed in Korea.

The battle for the Pusan Perimeter was a large-scale conflict fought between the United Nations Command and the North Korea forces. It was one of the first major engagements of the Korean War starting on August 4th and continuing until September 18th, 1950.
The pictures found were taken by photographer Carl Mydans for LIFE magazine and showing the 'Alice' during the Battle of Taegue, which took place from August 5th to 20th 1950.
During that battle, the 'Alice' of C-Company, 73rd Regiment, disabled together with its platoon three North Korean T34-85 tanks. 'Alice' however also emerged not unscathed from the fierce fighting as numerous impacts on the hull and turret still testify... For the record; the team of BAIV has left most of them as they were.

## BAIV *in short*

**We have a distinct passion for high-quality restoration and preservation of historic military armored equipment.**
**The love for as well as the traditional knowledge and craftmanship of technical restoration is in our DNA.**
**We operate in the high-end sector of this specific market and make a sustainable and valuable contribution to the preservation of Military Cultural Heritage.**
**We also promote the real experience of this equipment for current and future generations.**

- **Founded on February 2nd 2012 in Eindhoven The Netherlands by Ivo Rigter Jr. and Sr.,**
- **Since July 1st 2020 BAIV moved to a new dedicated tank workshop in Nederweert,**
- **Building footprint; 1.217 m2 ,**
- **Commercial Organization for Restoration of Military Heritage; specialized in Armored Vehicles and Tanks,**
- **Socially involved and educational organization creating opportunities for employees as well as volunteers,**
- **17 permanent employees; average age 36 years,**
- **Licensed Arms & Weapons Dealer Category 2 NL20191618779**

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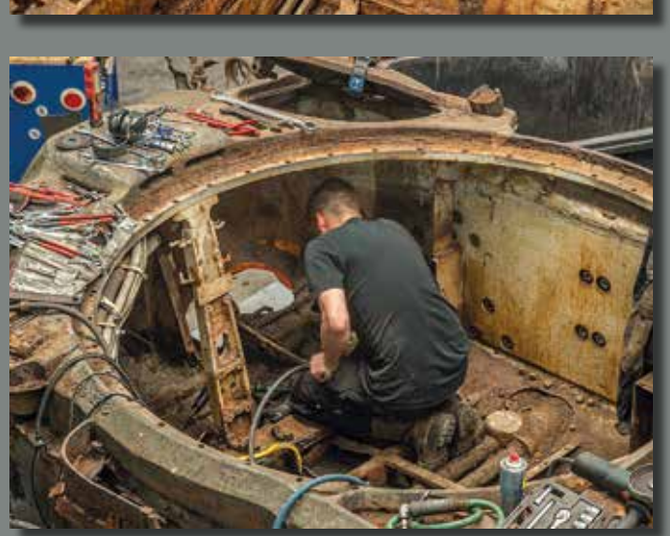

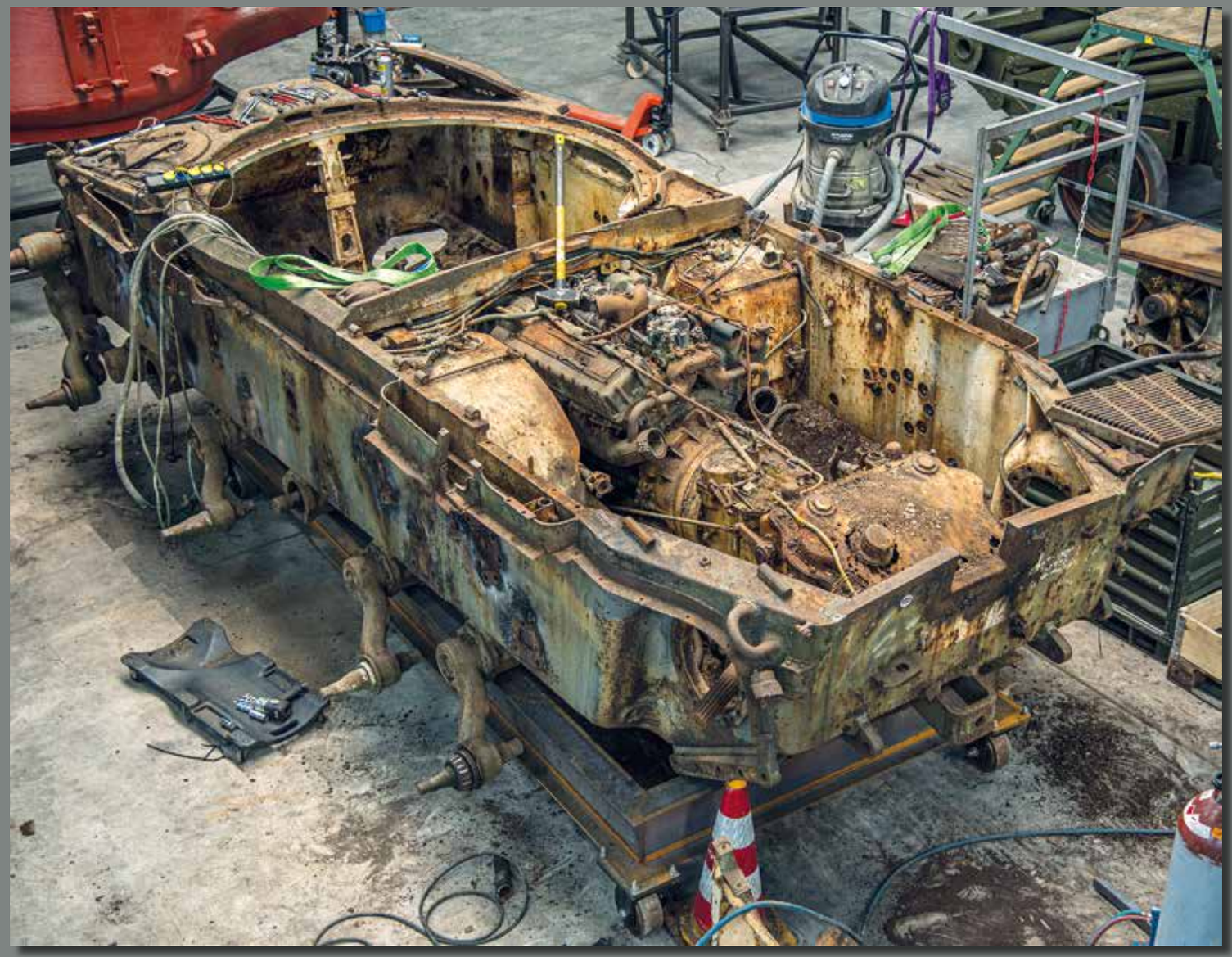

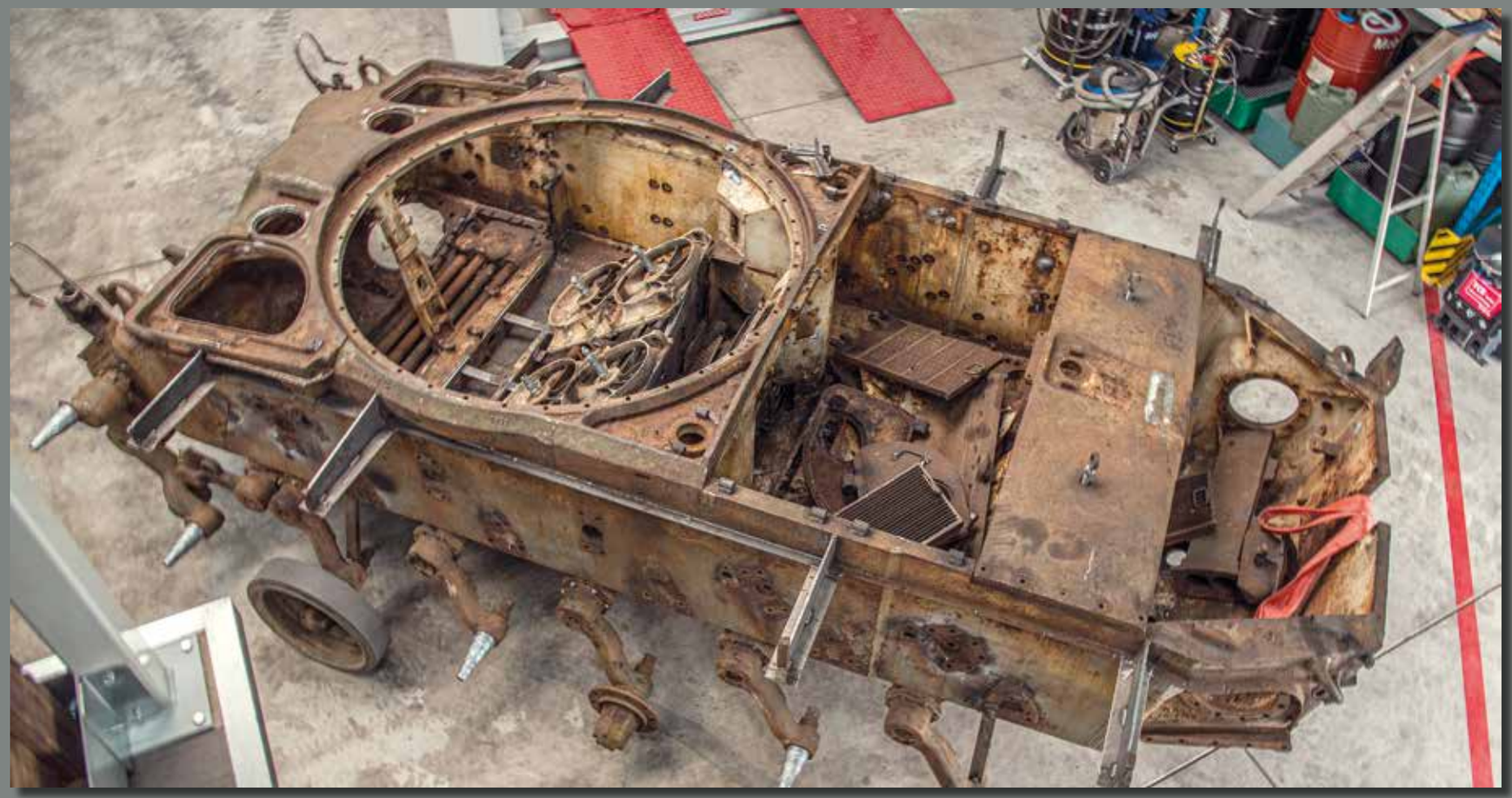

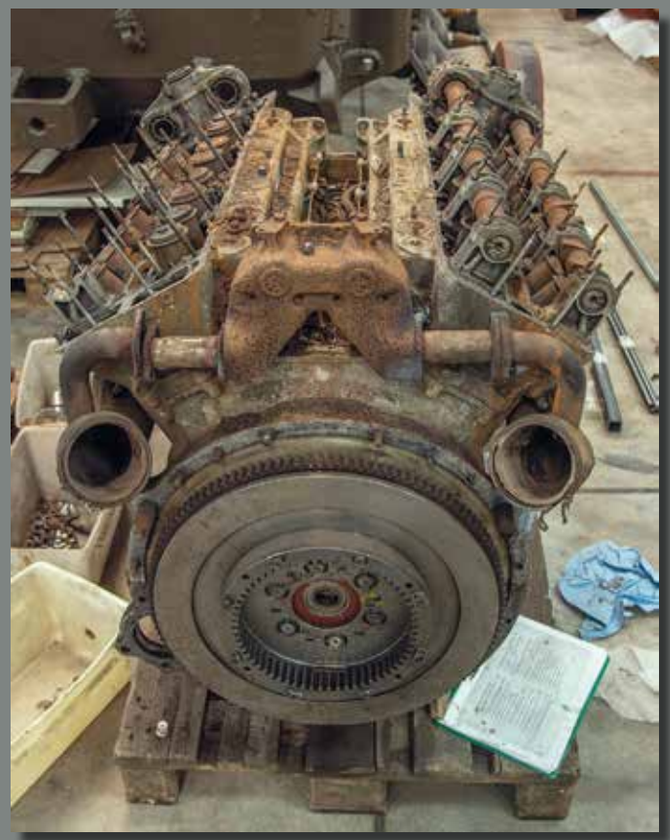

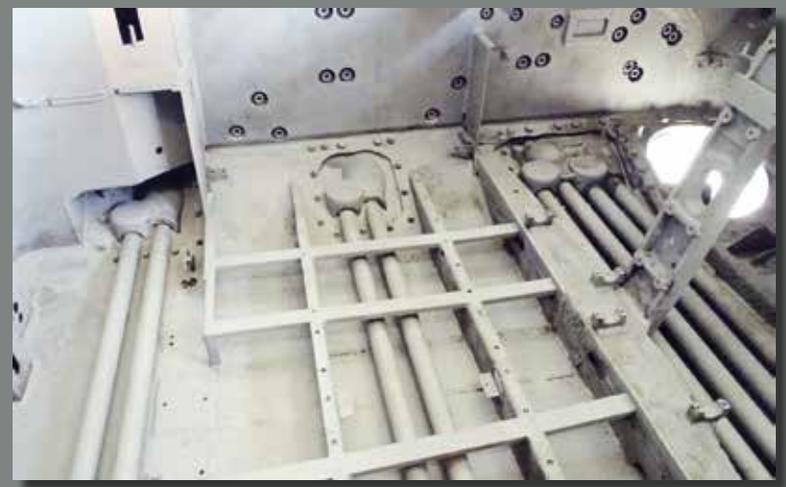

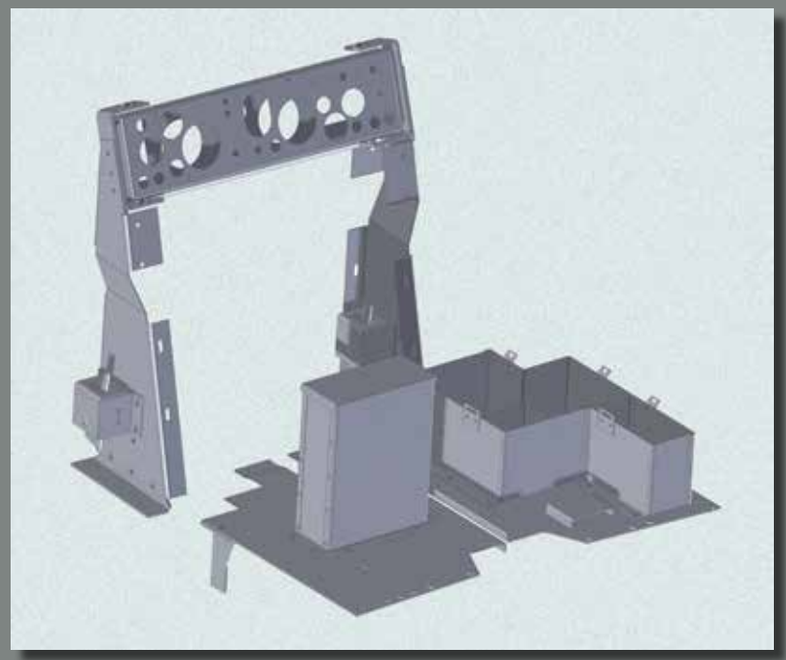

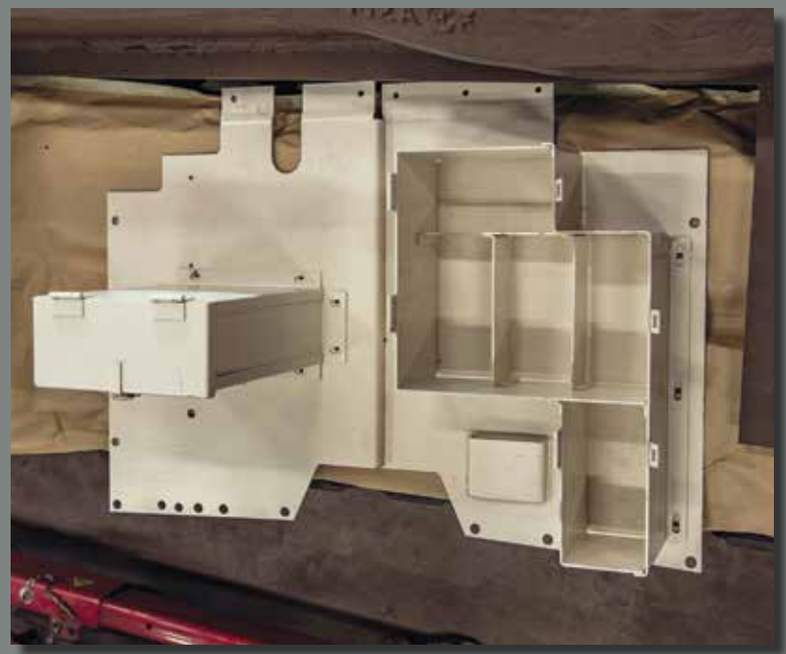

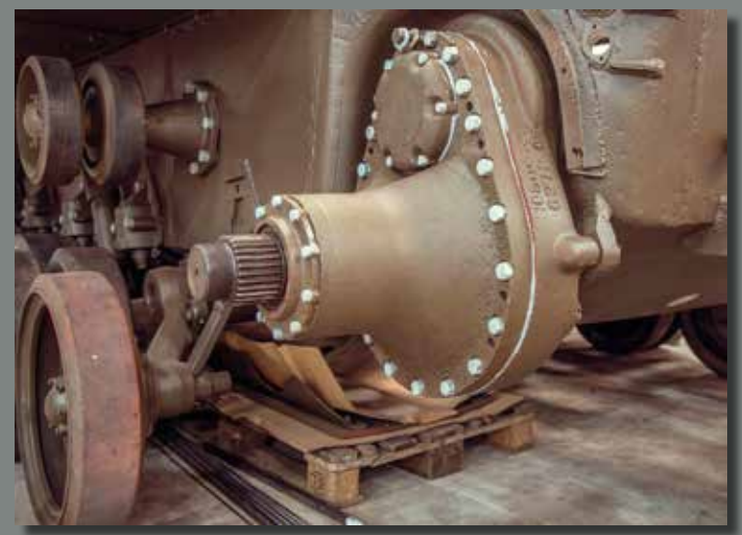

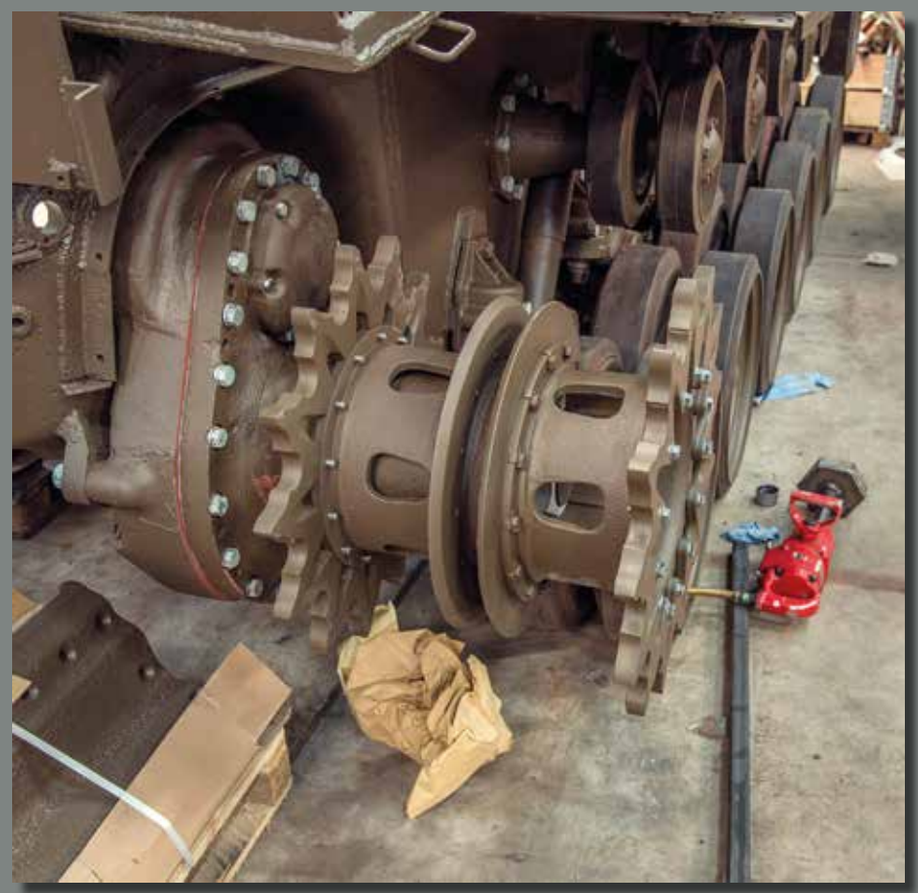









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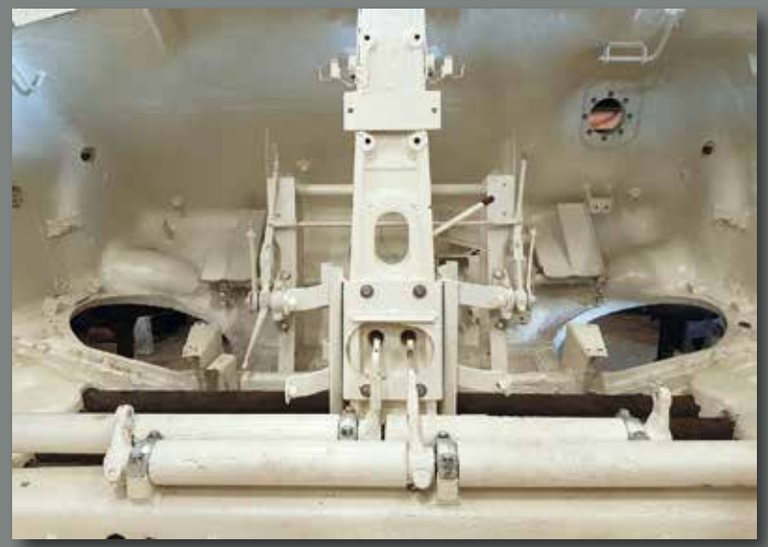

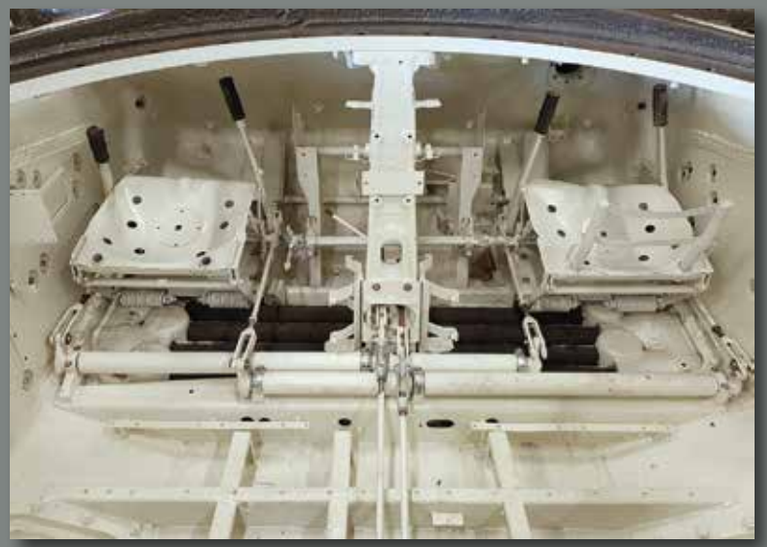

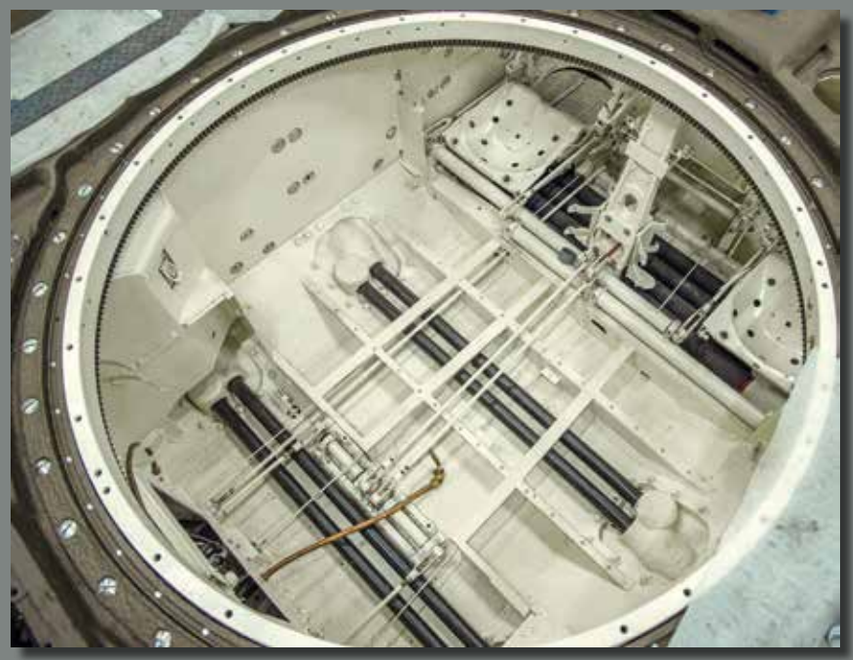

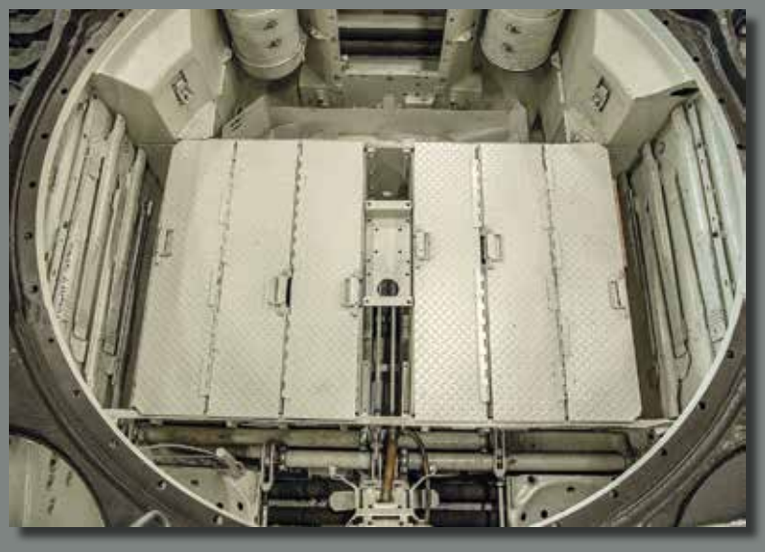


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