Restoration of M48A3 Patton Tank

BAIV BV | British American Infantry Vehicles

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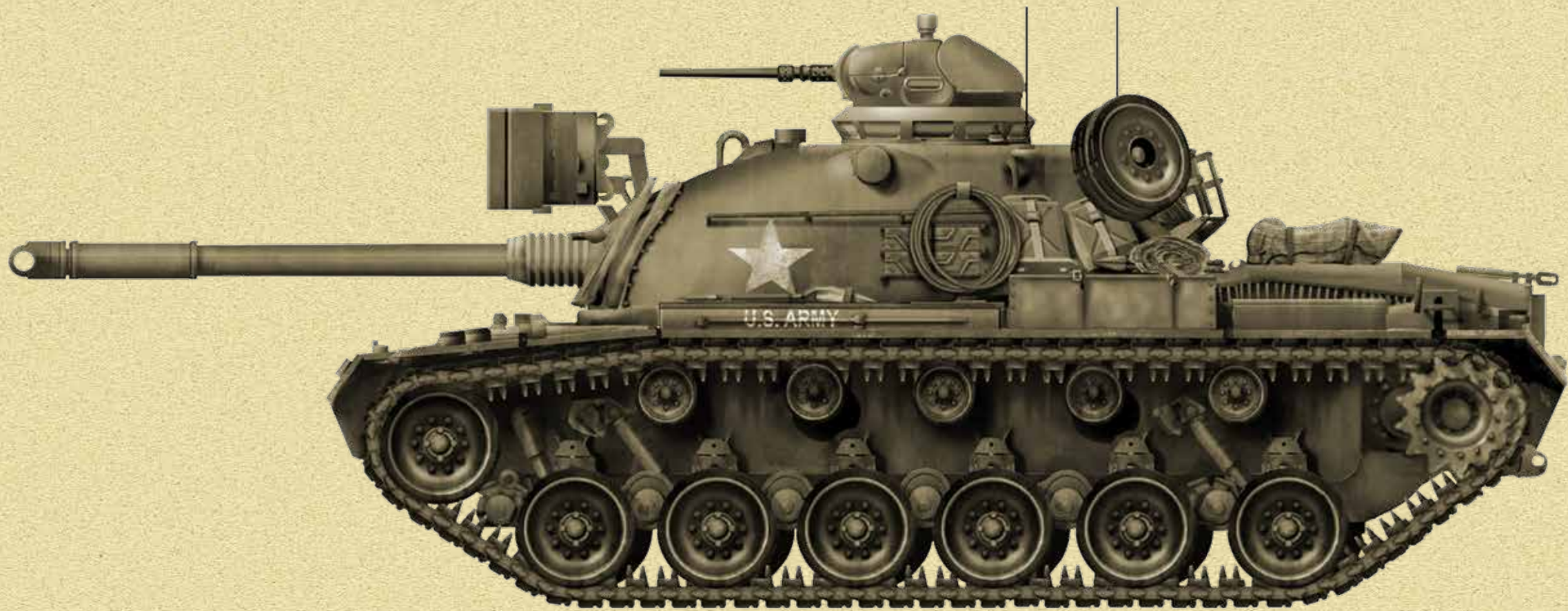
M48A3 Patton Tank



Technical Specifations

Model:	**M48A3 90mm M41**
Manufacturer:	**ANAD (Anniston Army Depot) Products Inc., USA**
Production date:	**Built as M48A2 in February 1959; From 1963 converted in M48A3**
Serial No.:	**A 6311**
Registration No.:	**US ARMY 9A6311**
Weight:	**48.5 short tons (43.545 KGS)**
Crew:	**4 (Commander, Driver, Loader, Gunner)**
Engine:	**Continental AVDS-1790-2D; 12-cylinder, 4 cycle, 90° vee, supercharged diesel Serial 41873 Contract No.: DAAE07001-C-0201**
Transmission:	**General Motors CD-850-6A, 2 ranges forward, 1 reverse Serial 0238 Built in 27-10-81, renovated in 3-1-91**
Suspension:	**Torsion bars consisting of six dual rubber roadwheels, with the idler at the front, drive sprocket at the rear and five return rollers on each side**

Speed:		**30 mph (48 km/h)**
Range:		**298 miles (480 kilometers)**
Fuel capacity:		**385 US gallon (1,460 liter)**
Dimensions	**Length:**	**Overall: 341.8 in. (8,680 mm) Without gun: 270.5 in (6.870 mm)**
	Width:	**142.9 in. (3,630 mm)**
	Height:	**129.3 in. (3,284 mm) over cupola**
Electrical installation:		**24 Volt**
Armament	**Main:**	**90 mm M41 gun**
	Secondary:	**M2HB 12.7 mm machine gun & M73 7.62 mm machine gun coaxial with 90mm main gun** *(not included in delivery)*
Armor:		**Cast homogeneous steel, assembly welding**
	Hull front:	**min. 2.4 in. (6.1 cm); max 4.0 to 4.33 in. (10 to 11 cm)**
	Turret front:	**7.0 in. (18 cm)**

M48A3 Patton Tank

Introduction
The OTCM #33791 directive designated the 90mm Gun Tank T48 as to be the next step in tank design and development on February 27, 1951. As on the drawing board, the design was in every bit revolutionary!
The most externally striking aspects were the complete new hull design; longer, lower, with a sloped front part, and the hemispherical turret which had, without any discussion, many similarities with the characteristic Soviet T-54/55 design.
Internally, the crew was reverted to four after abandonment of the hull machine-gunner. After the usual 1/8 and 1/4 models kits, and the test prototype T48 the Ordnance Technical Committee Minutes (OTCM) approved the new model for standardization. The production of the 90mm Gun Tank M48 started on April 2, 1953. Total production from 1952 till 1959 was over 12,000 units.

The development took some gradual improvements over time. After the unsuccessful M48C; quickly relegated to training, the M48A1 and A2 had some engine troubles which were eventually corrected on the M48A3 diesel conversions.

Long after the production was over, the M48A5 final upgrade saw the adoption of the more modern M68 105 mm main gun along with new FCS (Future Combat Systems) and other improvements to the M60 standard.

M48 in action: The Vietnam war
Over 600 M48A3s were deployed in Vietnam!
The US Marine corps was the first user, landing the 1st and 3rd Tank Battalions in 1965, reinforced by the 5th

for forward operations. In the southern sector three other armored battalions were deployed: the 1-77th near the Demilitarized Zone (DMZ), the 1-69th in the Central Highlands, and the 2-34th near the Mekong Delta. Each with approx. 57 M48 tanks.
They also served with Armored Cavalry Squadrons till they were replaced by the faster Sheridan. In Vietnam M48A3s tanks were used by the 11th Armored Cavalry Regiment until the end of the war.

Due to the nature of this war, the M48A3s were mostly deployed as infantry support, and to back up large scale search and destroy operations. They also proved useful in massive sweeps in North Vietnam Controlled (NVC) areas, especially in urban combat.
Also they were successfully employed against covered units in the jungle, because of their volume of fire and the protection they offered. Particularly the flame-thrower M67s versions were successful in these difficult circumstances.

Very few tank-to-tank engagements occurred, except for the battle of Ben Het in 1969 when Pattons of the 1-69th Armor destroyed 202nd Armored Regiment PT-76s of the North Vietnam Army (NVA).
The Pattons performed well against landmines and rocket-propelled grenades. The crews appreciated their level of protection, even for the men behind the enclosed heavy MG of the A3 cupola.
At An Khe and Pleiku, M48s were employed in pairs to quickly clear mines; each on one side while constant firing on the trail to make the devices explode. If one M48 was struck, it was only a matter of replacing one or two roadwheels, while the column kept advancing.

By the time US forces withdrew, hundreds of M48s were passed onto 20th Tank Regiment of ARVN (Army of the Republic of Vietnam), thus forming the bulk of the South Vietnamese armored forces along with some M41 Walker Bulldogs.
They immediately saw heavy action in 1972 with NVA armored battalions and performed quite well against T-54s, T-55s, PT-76s, and T-34/85s. On April 1972, one became the first casualty of the Soviet-built 9M 14M Malyutka "SAGGER". They slowed down the massive, final Ho Chi Minh Offensive in 1975, pinning the advance of much bigger forces in some sectors.
However, due to the US Congress ban of deliveries of fuel, parts and ammunitions to South Vietnam, the remaining M48s quickly ran out of supply.

Production figures & models
The M48A1
The main feature of this version, appearing in 1955, was the M1 commander's cupola. The cupola engulfed the rear of the .50cal machine gun, which could, therefore, be loaded and even fired from inside the tank. This new cupola also had a roof periscope for all-round visibility and rear-hinged section.
But it was also cramped, and ammunition storage was severely limited (50 instead of 100 rounds inside).
Modifications also included a larger driver's hatch.

The M48A2
This version, first accepted in 1956, had an improved powerpack and transmission being the fuel-injected version of Continental's V-12. Secondly, a redesigned rear plate with exhaust louvers and side hull intake grilles surrounded a solid center area over top of the exhaust tunnel, thus greatly improving the infrared signature.
The more compact design inside the engine compartment allowed to fit bigger capacity fuel tanks, for 335 US gallons (1.270L), giving an approximate range of 160 miles or 260 km. In addition the A2 had an improved turret control and relocated engine's air cleaners for better access and maintenance.
The suspensions were also altered, with a modified compensating idler wheel attachment, double bump spring on the first road wheel arm, and friction snubbers instead of the hydraulic shock absorbers. The second and fourth track return rollers were deleted.
The driver's steering wheel was enlarged, and the transmission shifter was relocated to the floor on the driver's right. It had also a modified personnel heater exhaust pipe, an improved turret control system, and flattened fenders.
Of this version 2,328 were produced in all.
The M48A2C had its telescopic rangefinder replaced by a more user-friendly M17 coincidence model, coupled with a new ballistic drive which integrated temperature data, while the entire Fire Control System (FCS) shifted to all-metric measurements (notably for exports!!).
The main gun had also a larger bore evacuator, and the rear auxiliary tension wheels were deleted.

The M48A3
The issues experienced with the gasoline engines led to a completely new engine upgrade in February 1963, which was applied to 1,019 A1 and A2 production models. These conversions were handed over by the Anniston Army Depot and the Red River Army Depot.
The stereoscopic rangefinder was upgraded to the M17A1 standard, the driver received an M24 IR sight and the main gun was upgraded to the M87A1 mount.
The Continental AVDS-1790-2 V12, air-cooled Twin-turbo diesel was completed by the fitting of the M60 grilles and exhaust louvers, and dry air cleaners instead of the oil bath system prone to catch fire.
Of course, the auxiliary engine/generator was omitted due to the better performances of the new powerpack.
The suspension and personal heaters (with the exhaust relocated to the right) were also taken to the M48A2 and M60 standards.
There was also a better fire extinguisher, and the gun was externally characterized by a xenon white light

or an infrared searchlight above its base and shield, which also featured an upgrade of the FCS.

By 1967, Bowen-McLaughlin-York, Inc. started the Mod. B upgrade for the M48A3, featuring a modified armor framing, armor box around the taillights, but first and foremost, a distinctive raised-up commander cupola, consisting of an adapter ring incorporating all-around vision blocks.
There were improved driver's controls and gauges (from the M60A1) and relocated fuel lines for more safety. This included knock-out holes for the torsion bars, modified mud guards above the return rollers, detachable headlights, raised-up detachable telephone intercom, and Infrared fire control.
In 1968 and the early 1970s they received the excellent AVDS 1790 2C/2D diesel series rated at 750 horsepower, which also was found in retrofitted NATO models like the US M47, M88A1, the British Centurion, and among others the French AMX-30.
When the Mod. B was applied to all remaining M48A3s, the distinction was abandoned.

This example, its discovery and restoration

In the summer of 2019 BAIV received a message from their Greek Agent (Efthymios Gourgouris) that this M48 was offered for sale by a scrapyard near Athens.
Ivo Rigter Jr. together with Erwin Beijk immediately booked a flight to Greece to investigate this together with the agent.
After some research, it turned out to be one of the two survivors of a huge tender issued by the Greek Army in 2006 (35x M48A5 and 40x M60A1). While almost all other units were eventually scrapped, this example had miraculously survived the melting furnace.
It took BAIV almost twelve months to organize the legal paperwork and transport, but finally, in July 2020 the tank arrived at BAIV's new facilities in Nederweert.

Early 2020 the tank was sold by BAIV to the National Museum of Military Vehicles in Dubois Wyoming. On January 12th Mr. Daniel Starks informed BAIV by E-Mail that he wanted to go ahead with this M48A5 project. However, he mentioned that BAIV's offer to convert this example to a M48A3 to match the variant used in Vietnam was compelling!
Therefore, Mr. Starks asked in addition for a proposal for the cost of conversion along with the required restoration. This proposal was issued by BAIV to NMMV in September 2021 and accepted by the client.
Total restoration including conversion was budgeted for 3,504 hrs. and over Euro 70,000.- out of pocket expenses. Please note that these figures do not include the initial purchase, transport, and other initial costs!

Work on this project started in August 2021 (kickoff: 18-08-2021) under the inspiring leadership of MSGT & Team Leader Vincent Kooijman under BAIV reference 7251. A challenging job because many systems had suffered greatly from the at least crudely executed deactivation.
In this book you find an impression of all work performed by the team to restore the M48 to its former glory.
Next to Vincent the following members of the BAIV team contributed to this project: Eddy Huijerjans, Erwin Beijk, Ivo Rigter Jr., Jari van der Steen, Luc Wevers, Martijn van Kuijk, Roel Ermers, Ruud Caspers, Sander Hamacher, Quinten Janssen and Anneke IJzerman for the Artwork!

On July 27th, 2022 the M48A3 was loaded at BAIV's warehouse in Heythuysen for its destination, back home to the US.

Markings

The M48A3 is marked as the "Road Runner". This is a tribute to the veterans of the 2-34th Armor (2nd Battalion, 34th Armor Regiment) attached to the 4th Infantry Division. Above mentioned picture was taken when the tank was patrolling in a perimeter near Chu Chi in January 1969. On the Xenon searchlight cover is the image of the 1950-60s comic/cartoon character "The Road Runner" visible.

DREADNAUGHT

The 2-34AR earned their nickname 'Dreadnaught' with reason.
On August 3, 1966 the 2-34AR was alerted to move to the Republic of South Vietnam. Arriving at Vung Tau on September 10, 1966 with their M48A3 Patton tanks, the 2-34th Armor began conducting limited operations with the 173rd Airborne Brigade and the 1st Infantry Division. The Battalion was headquartered southeast of Long Binh on Highway 1.

While supporting the 1st Infantry Division, elements of the 2-34th Armor conducted search and destroy operations in the II Field Force Area. The Vietnamese rainy season, however, had turned the ground into a problem for the Tankers. Thirty-four of the Battalion's tanks became mired, causing their mission to be in jeopardy. Major General William E. DePuy, 1st Division Commander, monitored the situation from a helicopter. He contacted Lieutenant Colonel Stailey, the 2-34th Armor commander, and asked: *"How many Tanks do you have stuck, Tanker?"*. Lt.Col. Stailey responded with his situation report of 34 tanks mired.

Major General DePuy then challenged Lt.Col. Stailey to a case of beer that he could not get all his tanks recovered by nightfall. With determination and hard work, the tankers met this challenge and were on the move again (and thirsty) before dark with all 34 vehicles recovered!
Impressed by their performance, Major General DePuy nicknamed the battalion 'Dreadnaught', meaning they could do the impossible and feared nothing.
From that point on, 2-34th Armor would be known as "Dreadnaught" and also become a familiar call sign throughout Vietnam as its tank companies would be parceled out to other units until the Battalion's departure.

In October 1966, B Company known as 'Battlin' Bravo' was attached to 1-4th Cavalry of the 1st Infantry Division at Phu Loi, where it would remain until the invasion of Cambodia in 1970. A Company, the 'Orphans', were detached to the 25th Infantry Division at Cu Chi. C Company, 'Fighting Aces', was sent north to the I Corps Tactical Zone. A and C Companies participated in numerous operations in the III Corps area while still staying close to the Battalion Headquarters at Long Binh.
The constant parceling out of its tank companies seldom left the Battalion with more than one company under its own control. At some points it controlled none of its organic companies.

In 1967, the Battalion began to participate in larger combined arms operations. Operation 'Junction City', which began in the early part of March 1967, saw 2-34th Armor conducting search and destroy operations as part of the 3rd Brigade, 4th Infantry Division Task Force. On 21 March 1967, 2-34th Armor distinguished itself in combat near the village of Soui Tre.
Fire Support Base Gold, established only two days prior, had come under attack from the 272nd Viet Cong Main Force Regiment consisting of over 1,100 soldiers. In a four hour battle 'Dreadnaught' helped turn an enemy victory into a defeat, and the unit received its second Presidential Unit Citation.
C Company would stay with the Battalion for the remainder of 1967.
On August 1, 1967 2-34th Armor was reassigned to the 25th Infantry Division.

On the eve of the 1968 Tet Offensive, the Fighting Aces began a series of moves that would take it away from the Dreadnaughts' area of operations. The moved to the Demilitarized Zone (DMZ) in I Corps, over 800 miles away. For the remainder of their time in Vietnam, the Fighting Aces would be attached to various units including the 101st Airborne Division, 1st Cavalry Division, 23rd Infantry Division (AMERICAL), 5th Infantry Division, and the 3rd Marine Division.
C Company was attached to 3rd Brigade, 25th Infantry Division and further attached to Task Force Oregon from August 1, 1967 to August 20, 1967, where it earned the Valorous Unit Award for being involved in fierce fighting against well-fortified and prepared Viet Cong and North Vietnamese Army positions in Quang Ngai Province.
A Company would remain with the Battalion Headquarters and conducted operations with the 25th Infantry Division until the Cambodian incursion.

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The Restoration









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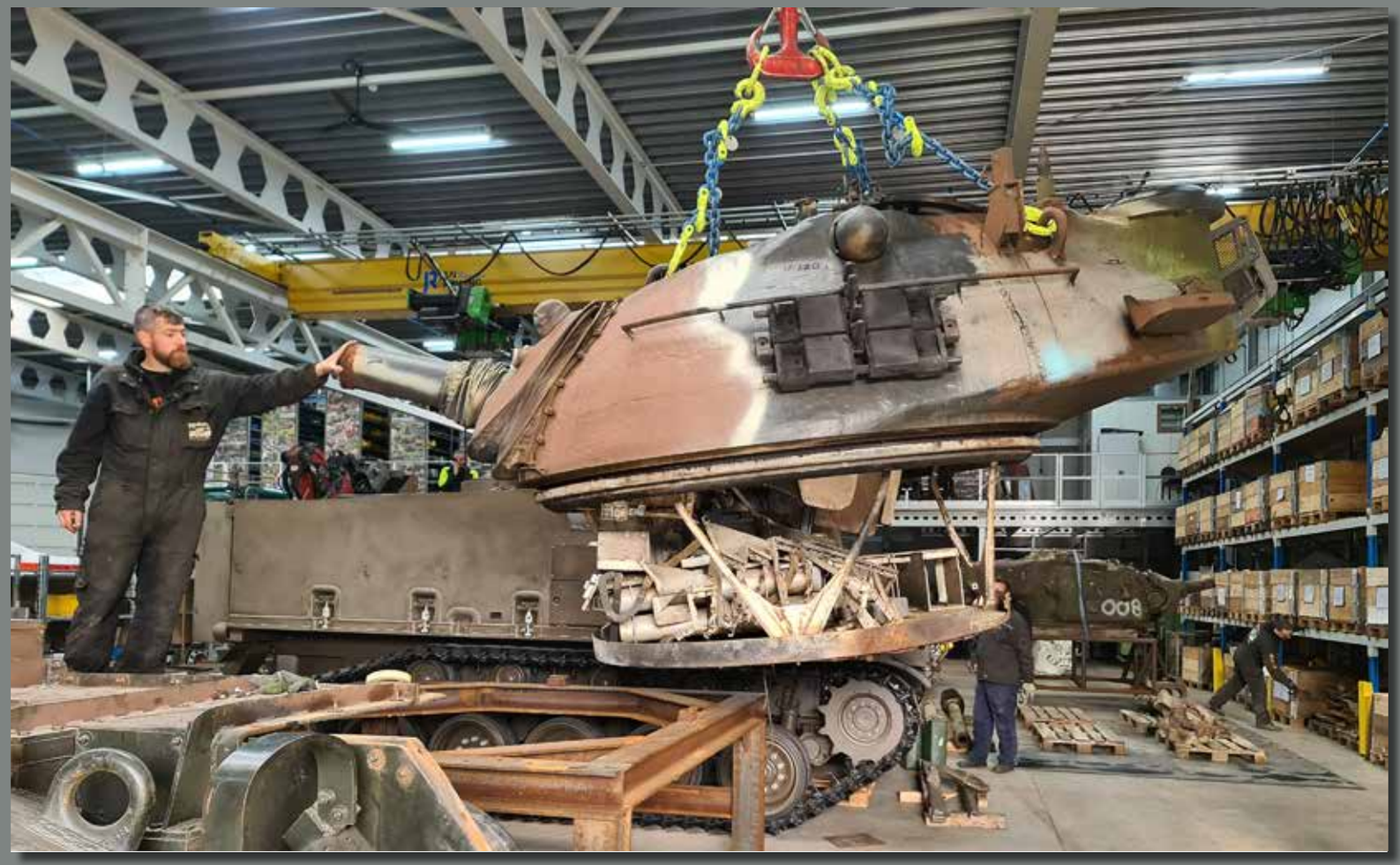


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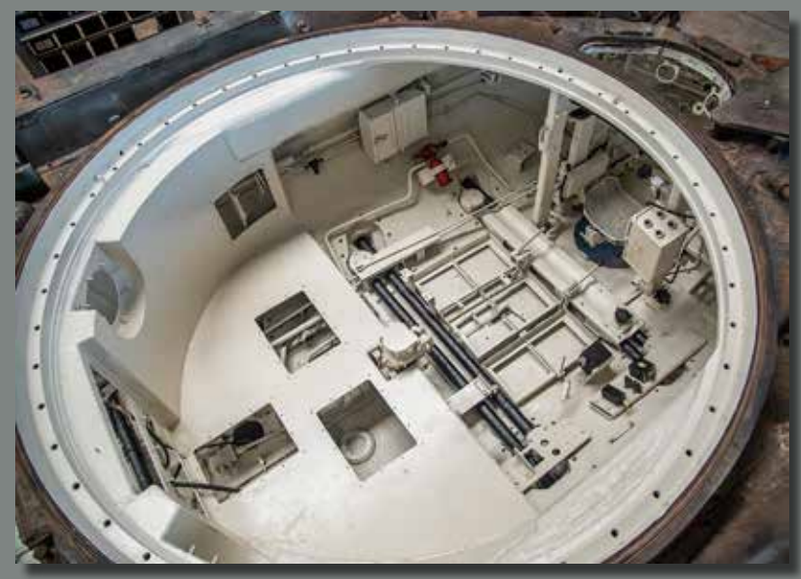

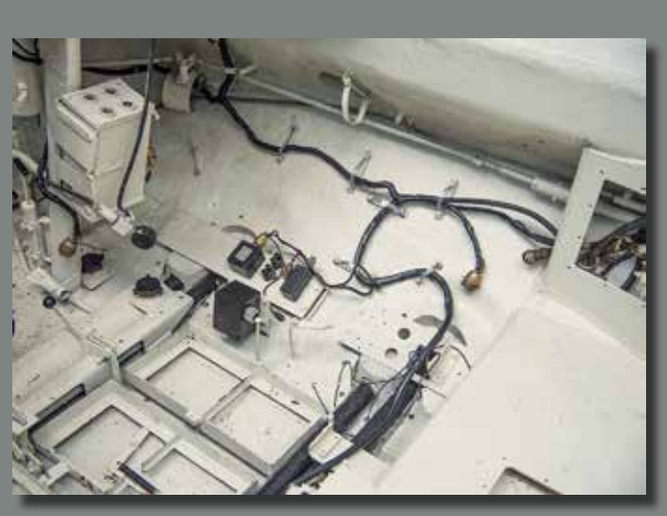


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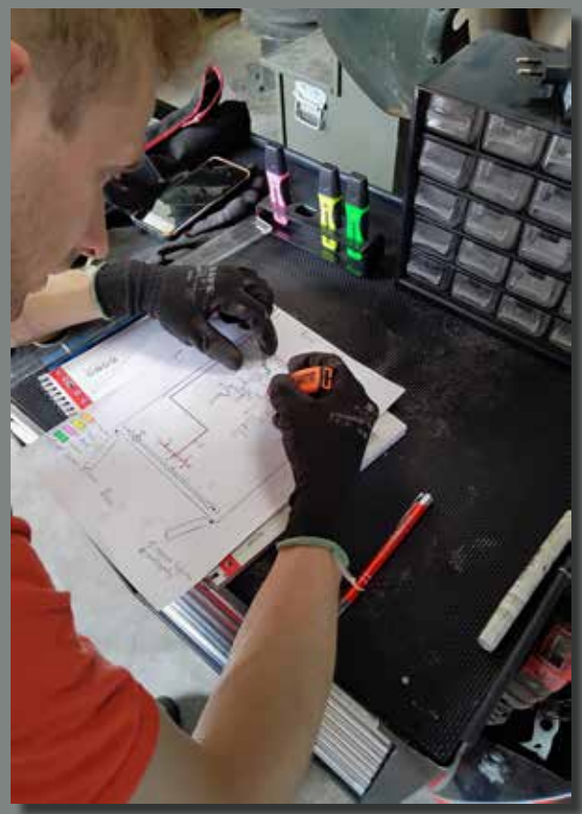


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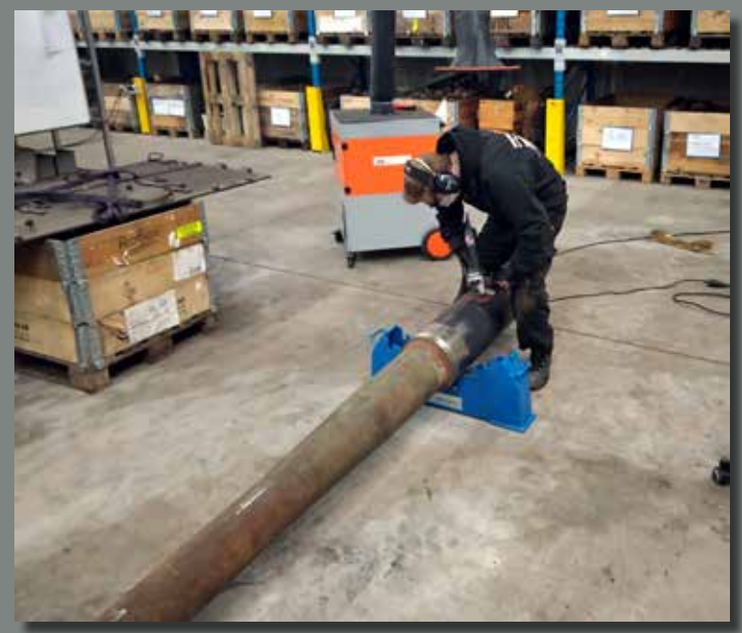


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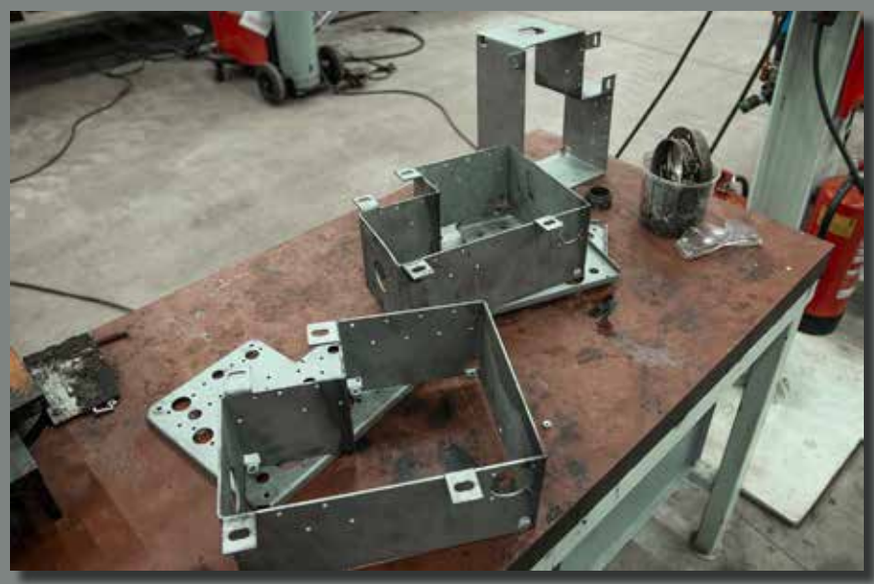
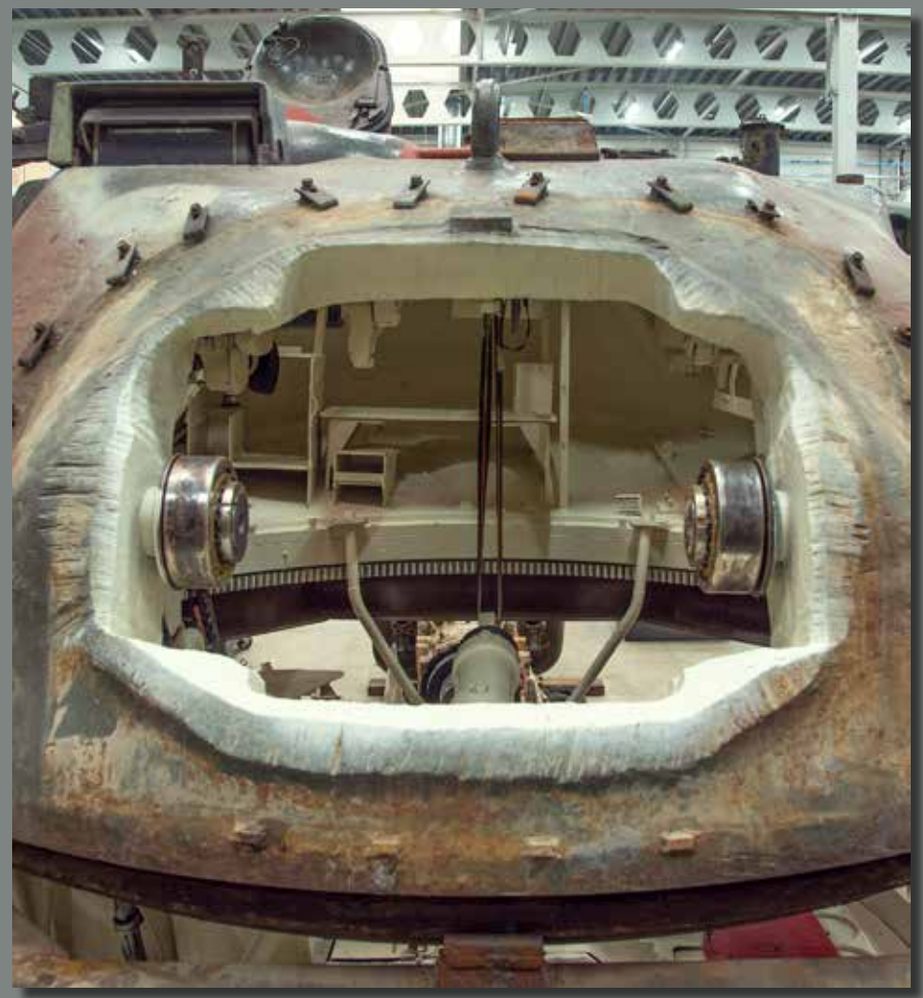
JA GRAAG



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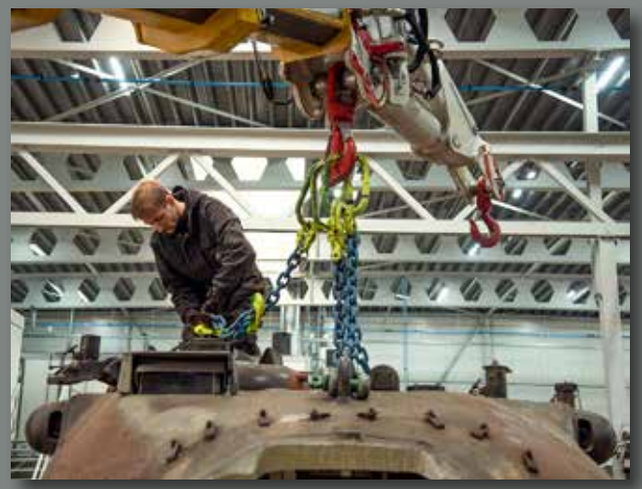







1/2 inch


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"OLE VIRGINITY OR BUST"
BEEP! BEEP!


"OLE VIRGINITY OR BUST"
BEEP! BEEP!


DREADNAUGHTS
U.S ARMY 9A6311


4-2Δ34
B-32
52


U.S ARMY 9A6311


DREADNAUGHTS


R.P.M.
040568
MILES PER HOUR


DREADNAUGHTS
U.S ARMY 9A6311


B-32


4-2Δ34
B-32


4-2Δ34


MAX VEHICLE SPEEDS


ENGINE
TRANSMISSION
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OIL PRESSURE
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OIL TEMPERATURE


CANTEEN


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CAL. 45 AMMUNITION
HAND GRENADES


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