words and pictures **David Garden**

Sherman MUSCLE

The M32 recovery vehicle answered the call when the big guns got bogged down on the battlefield

This view clearly shows the lack of armament on the museum example and how even the top superstructure is laden with stowage to help disabled tanks

When tanks break down, get bogged down or knocked out due to enemy action the crews turn to the recovery vehicles to get them out. The same vehicles can also remove obstructions that limit or prevent the movement of armour.

During World War Two the US M3 Lee and then the M4 Sherman tanks provided the basic chassis for the M31 and M32 armoured recovery vehicles (ARV) respectively. Being based on the combat vehicles the recovery vehicles used the same parts and fuels and were also mechanically familiar to the crews. The M32 and its family are surely among the unsung heroes of the armour world.

The ARV became an important part of the inventory to armoured advance as it removed roadway obstacles, recovered disabled vehicles and could handle in-field repair duties. In World War Two such vehicles were invaluable to clear vital roadways, bridges and even airfields to clear

RIGHT (FROM TOP): ***M32B1A1 near Humhung during the Korean War. Note HVSS suspension.*** *WIKIMEDIA COMMONS;* ***World War Two photo showing an M32 with extended crane ready to start lifting. The Jerrycans at the side show signs of recent refuelling; The M32 was based on the chassis of a Sherman tank.*** *WIKIMEDIA COMMONS;* ***ARV crew cook supper in front of their vehicle while local children wait for a share. Note 81mm mortar in ready position***

'The M32 and its family are surely among the unsung heroes of the armour world'

the path for the advance of friendly forces. ARVs were assigned to tank battalions, a pair of them assigned to the Battalion HQ company with a dozer tank.

When the US military began mobilising and equipping for war the ordinance department decided that the army would require vehicles that could recover combat damaged or stranded armour on the battlefield. This was based on observation of British practice.

The availability and reliability of the M4 Sherman tank made it an ideal vehicle for the base of a new ARV, the M32. A fixed structure replaced the turret and an 18ft A-frame crane and a 27 ton winch were installed.

The A-frame crane was fixed to the front of the hull but folded back to the rear in a horizontal position for travelling. The crane had stabilisers that locked it in place when in use. The winch on the M32 could be attached to a load on the front or rear of the vehicle, over the crane or directly via an opening in the front armour to the load.

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It was operated by a power take-off (PTO) from the main drive shaft. The winch was mounted beside the driver and the drum was mounted on the outside of the vehicle.

The prototypes of the M32 were produced by the Lima Locomotive Company on January 11, 1943. These prototypes were the T5, T5E1, T5E2, T5E3 and T5E4. The designs were tested in competition at Aberdeen Proving Grounds against another two, the T2 and T7 which had turret-mounted booms.

After several weeks of rigorous testing the T5 was felt to be the best design. Further tests took place at Aberdeen with the T5 and T5E1, Camp Hood using the T5E2 and Camp Seely which was given the T5E4. The T5E3's engine had seized and could not be tested further.

The designs were standardised in June 1943 by OCM 21553 as M32 (T5), M32E1 (T5E1), M32E2 (T5E2), M32E3 (T32E3) and the M32E4, (T32E4). The T7 was dropped and the M32E4 never entered production. Some M32s were converted into M34 prime movers to tow heavy artillery. They were unarmed and had equipment suitable for their task to pull heavy guns.

The M32 had a Spicer manual synchromesh transmission gearbox with five forward and one reverse gear. Suspension was of the vertical volute spring suspension type for the earlier versions and horizontal volute spring suspension (HVSS) for the later A1 versions.

Armament consisted of one 81mm field mortar mounted on the front hull. This was designed mainly for smoke laying to shield recovery operations. Also carried was one 0.50 M2 heavy Browning machine gun and one 0.30 Browning M1919 machine gun.

Ammunition stowage consisted of 30 x 81mm mortar smoke rounds, 300 x 0.50 rounds, 2,000 x 0.30 rounds, 20 hand grenades and six smoke grenades.

Turrets taken from gun tanks being converted to ARVs were kept in storage and shipped to factories producing 75mm gun tanks to save casting new turrets. As they did not have the new cheek armour and had no loaders hatches, they tended to be added to M4 composite hulls.

Model Kits of the M32

The M32B1 *was first produced as a kit by Italeri in 1980. The original and later re-boxes can be bought quite cheaply online and was a very good model for its time. Tamiya also produced this version using the Italeri moulds but this I believe is quite a rare find and I do not know what if any improvements Tamiya made. In 2012 Tasca released a M32B1 followed by Asuka in 2014. The only 1/72 model in injected moulded plastic is by UM again of the M32B1 version. There are various resin replacement parts, photo-etched detail sets and decal sets to enhance your M32B1 model.*

Striking 1980 box art for the Italeri 1/35th model

Rear view of World War Two M32 fully stowed and with heavy tow chain. The 0.50 machine gun is fitted for anti-aircraft or local defence

A M32 Tank Recovery Vehicle on display at Fort Knox, Kentucky. *WIKIMEDIA COMMONS*

Variants

M32B1: *A M32 based on the M4A1 tank. A larger production total of 1,085 vehicles were produced by the companies of Federal Machine, Baldwin Locomotive and Pressed Steel Car Company. Several were supplied to the United Kingdom under Lend-Lease. These were named ARV Mark III by the British armed forces.*

M32B2: *A M32 based on the M4A2 tank. Only 26 were built by the Lima Locomotive Company.*

M32B3: *The M32 variant based on the M4A3 tank. A total of 344 were made by Lima Locomotive and Pressed Steel Car Companies.*

M32B4: *This type never entered production. It was based on the M4A4 tank and the prototype had a Chrysler Multibank engine.*

M32A1: *A M32 with HVSS suspension.*

M32A1B1: *A M32B1 with HVSS suspension, 175 examples being converted by Baldwin Locomotive Company.*

M32A1B2: *A M32B2 with HVSS suspension.*

M32A1B3: *A M32B3 with HVSS suspension.*

T14E1: *M32B3 with HVSS suspension produced for the US Marine Corps late in 1945. A total of 80 were produced.*

M34 Prime mover: *These were M32B1 recovery vehicles without the recovery gear. Simply used for towing heavy artillery such as the 240mm howitzer into their positions. It had no armament and was provided with air brakes, tail lights and electrical outlets for towing heavy loads. Four seats were provided for the crew. M34s production started in 1944 and finished in 1945.*

T1E1 Mine Exploder 'Earthworm': *T1 mine exploder used with the boom on the M32. First developed and produced in 1943 it did see some limited service in combat.*

T2E1 Mine Exploder: *This used the T2 mine exploder attached to the boom of the M32. It was designed for the US Marines but was found to be impractical and was dropped in October 1943.*

Chenca: *A Mexican army designation of its M32s*

Every sergeant major would be proud of vehicles as clean as the museum's collection. Each one spick and span to show off to the paying public

Lima Locomotive Company started production of the M32 by converting five gun tanks into M32B2s in June 1943.

This was followed by production of 26 M32B3s in May 1944 and 20 more ARVs during the summer of 1944.

Pressed Steel Car Company was more prolific making 163 M32s and 475 M32B1s between December 1943 and December 1944. The same company converted 298 M4A3 Sherman tanks into M32B3s from May to December1944. Licences were granted to Baldwin Locomotive Works and Federal Machine Works in November 1944. The former produced 195 M32B1s by June 1945 and the latter producing 385 M32B1s by May 1945. Overall 1,562 M32s were produced.

The M32 succeeded the M31 ARV built on the chassis of the M3 Lee Medium Tank. The availability of the Sherman M4 tank made it an excellent basis for conversion to other battlefield vehicles. The M32 was a classic example of this, being designed from the outset as an ARV.

The M32 first started service with the US Army in July 1943. They served in Italy, Europe and in limited numbers in the Far East. They were also used by the British Army, the M32B1 being designated as the Armoured Recovery Vehicle (ARV) Mark III.

A few M32B2s were given to Tito's forces in Yugoslavia. During World War Two the M32 was considered adequate for the task and were well received.

M32A1 variants produced by the Baldwin Locomotive Company in 1945 served through the Korean war. However, these were considered inadequate and underpowered for the recovery of newer tanks such as the M26 Pershing and the M46 Patton when they were introduced. After the Korean war the M32 was replaced with the M74 Tank recovery vehicle based on the M4A3. The M32 was planned to be equipped with mine exploding equipment such as the T1E1 'Earthworm' and the T2E1 Mine Exploder. Only the T1E1 saw service in limited numbers.

After World War Two, several M32s were given to the Mexican Army. These were called 'Chenca' and served until 1998. M32s were also given to the Israeli Army in the late 1940s. They served during the Suez Crisis, Six-Day War and Yom Kippur War in units equipped with the M51 'Super Sherman'.

Tanks break down in or out of combat. Things like trees, landslides, mud, sand, landslips can all get a tank stuck and prevent the progress of an armoured assault. Tanks also collapse bridges, get stuck on buildings, simply tip over or lose a track. For all these a call for the ARV is the answer to the problem and the best ARV is the one based on the tank it recovers. The M32 family answered the call and being derived from the M4 Sherman gun tank with which it served provided the ideal solution until the introduction of heavier main battle tanks.

SPECIFICATIONS

Type Armoured Recovery Vehicle.
Make M32
Nationality United States
Operators United States, Great Britain, Israel, Mexico and Yugoslavia
In Service July 1943 to September 1952. (Mexico to the late 1990s)
Production run 1,562
Engine M32 and M32B1: Continental R975-C1 or C4. Nine-cylinder radical gasoline engine. 350 or 400hp at 2,400rpm. M32B2: General motors 6046 twin in-line diesel engine producing 375hp at 2,100rpm. M32B3: Ford GAA V8 gasoline engine producing 450hp at 2,600rpm
Transmission Spicer manual synchromesh transmission. Five forward and one reverse gears
Suspension Vertical Volute Spring Suspension (VVSS). All the -A1 variants had Horizontal Volute Spring Suspension (HVSS)
Fuel Capacity 148 to 175 US gallons depending on model
Operational Range 120 to 150 miles (190 to 240km)
Top Speed 24mph (3kph)
Crew Four
Armament One 81mm mortar, one 0.50 M2 machine gun, one 0.30 M1919 machine gun
Armour 51mm to 13mm

Dimensions (overall)
Length 19.3ft (5.9m)
Width 8.86ft (2.7m)
Height 9.66ft (2.94m)
Weight M32, M32B1 and M32B3 64,300 lb. M32B2 67,600lb

An M32 ARV (aka M32 TRV) in Batey ha-Osef Museum, Tel Aviv, Israel.
WIKIMEDIA COMMONS