

ARCHIVED REPORT

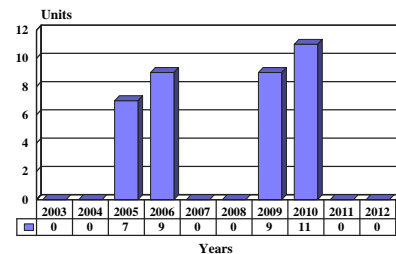
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TM 170 - Archived 8/2004

Outlook

- Production rate of the TM 170 is expected to continue, albeit in a mercurial manner
- Some sales will go unreported as they are for various internal security organizations
- The vehicle will continue to be enhanced to keep it competitive
- There is essentially no modernization or retrofit potential

10 Year Unit Production Forecast
2003 - 2012



Orientation

Description. A wheeled vehicle.

Sponsor. The TM 170 is a private development program funded by the prime contractor, Rheinmetall Landsysteme.

Contractor. This vehicle was developed and is manufactured by Rheinmetall Landsysteme, which purchased Henschel Wehrtechnik in 2000. Henschel Wehrtechnik had purchased the original prime contractor, Thyssen Maschinenbau, in 1997. The firm is located in Kassel, Federal Republic of Germany. DaimlerChrysler (Mercedes-Benz) and Deco Delta are the principal subcontractors.

Licensees. None

Status. The TM 170 is in production on an as-needed basis and is in service with the Federal Republic of Germany and several export customers.

Total Produced. As of 2003, 399 TM 170 vehicles in all models and variants have been manufactured.

Application. A multipurpose armored personnel carrier for the transport of troops to and within the battlefield. The TM 170 is the contractor's replacement for the UR-416 in this market.

Unit Price. In equivalent 2003 United States dollars, the unit price of the TM 170 armed with a 7.62 millimeter machine gun is \$256,200. This price can be significantly higher as additional equipment is added.

Technical Data

TM 170 M3

Crew. Driver and commander plus 10 infantrymen, one of whom can act as the gunner.

Configuration. 4x4

Armor. The hull of the TM 170 is fabricated of alloy steel armor plate that is proof from 7.62 millimeter armor piercing projectiles and ballistic fragments.

Design Features. The TM 170 is a greatly improved version of the UR-416, an integration of an armored hull with a commercial chassis (the Mercedes-Benz UNIMOG). The vehicle is optimized for use by military police and similar organizations.

Dimensions. The following data are for the latest production model of the TM 170, the TM 170 M3. The height figure is to the top of the hull.

| | <u>SI units</u> | <u>US units</u> |
|----------------|-----------------|-----------------|
| Length: | 6.28 meters | 20.60 feet |
| Width: | 2.49 meters | 8.17 feet |
| Height: | 2.41 meters | 7.91 feet |
| Combat weight: | 11.65 tonnes | 12.84 tons |
| Fuel capacity: | 200 liters | 53.19 gallons |

Performance. The maximum speed and range figures are on a metaled road.

| | <u>SI units</u> | <u>US units</u> |
|----------------|-------------------------|----------------------|
| Maximum speed: | 100 kilometers per hour | 62.1 miles per hour |
| Maximum range: | 870 kilometers | 540.27 statute miles |
| Step: | 60 centimeters | 1.97 feet |
| Trench: | 78 centimeters | 2.56 feet |
| Slope: | 44% | 44% |
| Gradient: | 80% | 80% |
| Fording: | 1.2 meters | 3.94 feet |

Engine. The TM 170 M3 uses the DaimlerChrysler (Mercedes-Benz) OM 366 LA EURO 1 supercharged diesel engine rated at 159.58 kilowatts (214 horsepower) at 46.67 revolutions per second (2,800 revolutions per minute). The power-to-weight ratio is 13.69 kilowatts per tonne (16.67 horsepower per ton). A 24 volt electrical system with two 12 volt batteries is the standard electrical fit.

Gearbox. The TM 170 M3 is fitted with an unspecified automatic gearbox with five forward and two reverse gear ratios.

Suspension and Running Gear. The TM 170 M3 is considered a four-wheel-drive vehicle, but two-wheel drive can be selected as needed. Each wheel station is fitted with a coil spring and a hydropneumatic shock damper. The 14.00x20 radial tires have run-flat inserts.

Armament. The TM 170 M3 can be fitted with almost any type of machine gun or light cannon up to 25 millimeters in caliber. These weapons can be fitted in a variety of mounts ranging from a ring mount to a turret. Various turret options can be fitted with HOT or MILAN anti-tank guided missile launchers.

TM 170 Hardliner

Crew. Driver and commander, plus 10 infantrymen, one of whom can act as the gunner.

Configuration. 4x4

Armor. The hull of the TM 170 Hardliner is fabricated of alloy steel armor plate that is proof from 7.62

millimeter armor piercing projectiles and ballistic fragments.

Design Features. The TM 170 Hardliner is a lower-priced version of the original TM 170 but has comparable performance and capability.

Dimensions. The following data are for the TM 170 Hardliner armored personnel carrier. The height figure is to the top of the hull.

| | <u>SI units</u> | <u>US units</u> |
|----------------|-----------------|-----------------|
| Length: | 6.14 meters | 20.14 feet |
| Width: | 2.47 meters | 8.10 feet |
| Height: | 2.32 meters | 7.61 feet |
| Combat weight: | 11.2 tonnes | 12.34 tons |
| Fuel capacity: | 200 liters | 53.19 gallons |

Performance. The maximum speed and range figures are on a metaled road.

| | <u>SI units</u> | <u>US units</u> |
|----------------|-------------------------|----------------------|
| Maximum speed: | 100 kilometers per hour | 62.1 miles per hour |
| Maximum range: | 870 kilometers | 540.27 statute miles |
| Step: | 60 centimeters | 1.97 feet |
| Trench: | 78 centimeters | 2.56 feet |
| Slope: | 44% | 44% |
| Gradient: | 80% | 80% |
| Fording: | 1.2 meters | 3.94 feet |

Engine. The TM 170 Hardliner is fitted with the DaimlerChrysler (Mercedes-Benz) OM 352A super-charged diesel engine rated at 125.32 kilowatts (168 horsepower) at 46.67 revolutions per second (2,800 revolutions per minute). The power-to-weight ratio is 11.19 kilowatts per tonne (13.61 horsepower per ton). A 24 volt electrical system with two 12 volt batteries is the standard electrical fit.

Gearbox. The TM 170 Hardliner is fitted with an unspecified automatic gearbox with five forward and two reverse gear ratios.

Suspension and Running Gear. While the TM 170 Hardliner is considered a four-wheel-drive vehicle, two-

wheel drive can be selected as needed. Each wheel station is fitted with a coil spring and a hydropneumatic shock damper. The 14.00x20 radial tires have run-flat inserts.

Armament. The TM 170 Hardliner can be fitted with almost any type of machine gun or light cannon up to 25 millimeters in caliber. These weapons can be fitted in a variety of mounts ranging from a ring mount to a turret. Four electrically operated smoke grenade launchers can be mounted on each side of the hull. Various turret options can be fitted with HOT or MILAN anti-tank guided missile launchers.

Variants/Upgrades

Variants. The TM 170 can be procured in an amphibious version powered by propellers driven by hydraulic motors. Aside from the two models described above, the contractor has developed the TM 170 Hardliner Patrol, a lighter version of this vehicle that is essentially an armored pickup truck. The TM 170 Hardliner Patrol vehicle is a lower-priced version of the original TM 170 BGS.

In July of 1988, (then) Thyssen Maschinenbau began to offer the NBC Scout Car, a private venture between the prime contractor and Deco-Delta. Crewed by three personnel, this version of the TM 170 is equipped with an ASGI automatic nuclear tracing device, MM-1 mass spectrometer, M43A1 chemical nerve agent detector,

and remote sampling device. Various meteorological sensors are fitted, as is a Teldix FNA 5 vehicle navigation system. A special ventilation system is fitted to this version of the TM 170.

A more recent variant of the vehicle is the TM 170 AS, optimized for the increasingly important airport surveillance role. The specialized equipment provided on this vehicle includes day/night video recording equipment with the camera mounted on a six meter (19.7 foot) elevating mast.

Modernization and Retrofit Overview. As of mid-2003, no significant modernization or retrofit programs had been developed for the TM 170. The potential for any programs of this type is very low.

Program Review

Background. The TM 170 is the contractor-designated follow-on to the UR-416, the production of which was completed in the late 1980s. The TM 170 was designed primarily with the military police, paramilitary, and similar forces in mind, providing a basic armored personnel carrier able to be outfitted for a variety of internal security missions as required. Development of the original model of the TM 170, the TM 170 BGS, began in 1974, and the program was announced publicly in 1978; serial production commenced in 1979. Early on, the only disclosed domestic users of the vehicle

were the German State Police and border guards. In 1982, an order was placed for 87 vehicles, although the total requirement (before reunification) was expected to be at least 250 units. Deliveries of the initial 87 units began in 1983 and were completed in 1986. In the late 1990s, these vehicles were turned over to the Bundeswehr, where they remain active today. Some of these vehicles were subsequently passed on to Macedonia, where the TM 170 is known as the Hemmelin. A number of additional vehicles have been sold to undisclosed countries in the Middle East, but

since the 1994 sale of fifteen vehicles to Kuwait, there have been no reports of further orders on the export market. At one time, the United Kingdom was interested in the TM 170 for use by its military units stationed in Berlin, but nothing came of this. The TM 170 M3 and TM 170 Hardliner are the present production standards.

Description. The TM 170 has a relatively large all-welded alloy steel hull that provides protection against armor piercing rounds up to 7.62 millimeters caliber and ballistic fragments. The windows have the same level of protection. The body is attached to the chassis at five mounting points to allow easy removal for servicing. The vehicle layout is conventional, with the driver and commander sitting behind the large bulletproof windscreen at the front. The rest of the vehicle is available for carrying personnel or other loads with access via rear and side doors. Armored shutters can be lowered over the windows if required. Vision

blocks and firing ports are provided in each side of the hull. A roof hatch allows a variety of weapons to be mounted. All vehicles have a significant fording capability, and a fully amphibious version is available. The TM 170 can be equipped with a nuclear, biological, and chemical defense system; air conditioning system; automatic fire warning and suppression system; run-flat tires; winches; hydraulically operated dozer blade; searchlight; anti-riot protection grids; tear gas/smoke grenade launcher; and a choice of weapons up to 25 millimeter cannon and turret-mounted anti-tank guided missile systems such as the HOT or BGM-71 TOW.

Condor. Rheinmetall Landsysteme makes another 4x4 vehicle in this class that is often confused with the TM-170, the Condor armored personnel carrier. This vehicle, covered in a separate report, entered production in 1983 for the Federal Republic of Germany's Ministry of Interior for border patrol.

Funding

Funding for the development of the TM 170 has been supplied by the contractor.

Recent Contracts

Not available, as contractual information is not released.

Timetable

The following timetable relates to the TM 170 only.

| <u>Month</u> | <u>Year</u> | <u>Major Development</u> |
|--------------|-------------|--|
| | 1974 | Development begun |
| July | 1978 | TM 170 program announced |
| | 1978 | Initial prototype vehicles constructed |
| | 1979 | TM 170 entered production |
| | 1982 | Initial orders for 87 vehicles placed by German State Police and border guards |
| Mid | 2003 | Production continues on an as-needed basis |

Worldwide Distribution

Export Potential. As many of the sales of vehicles of this type are to police and other internal security units, they go unrecorded. However, the quality of German vehicles of this type should ensure their continued demand by a number of nations.

Countries. Aside from **Germany** with 109, several nations in the Middle East operate the TM 170, including **Egypt** (25), **Kuwait** (15), and **Iran** (53). In addition, **El Salvador** has two and **Macedonia** has 12 ex-German vehicles. Other users remain unidentified.

Forecast Rationale

Our latest review of the TM-170 program finds that the serial production of the vehicle is dormant with no sales having been reported in the last year. However, this is the norm with this class vehicle as many sales are for only a few units to military police or internal security organizations. While designed as a replacement for the long-lived UR-416, the TM 170 has yet to achieve a level of sales approaching that of the earlier vehicle, although future UR-416 replacement cycles could

change this. Although no new sales have been reported over the last year, this is no reflection on the quality of the TM 170, a very well-built and easily maintained vehicle that does the job required of it.

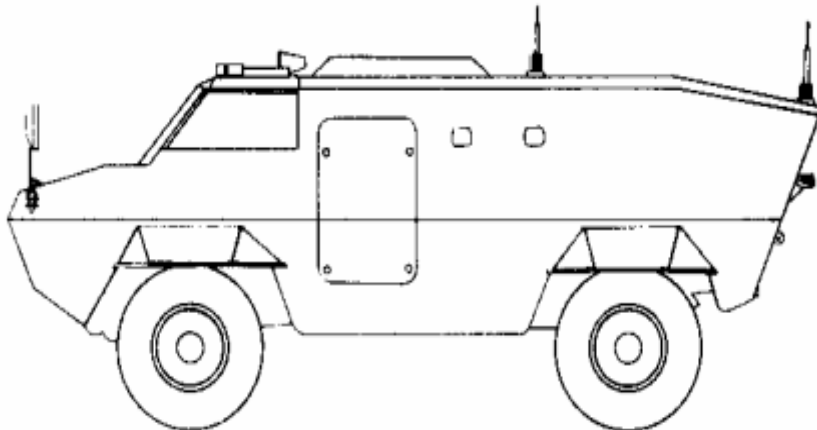
A mercurial level of production for the TM-170 is forecast for the coming 10 years. Export orders are expected to be the norm, as a number of countries will need vehicles of this type for internal security and police duties.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

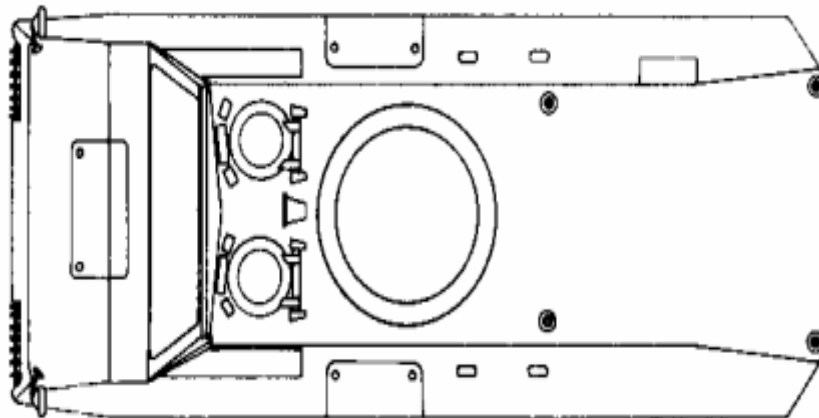
| Vehicle | (Engine) | through 02 | High Confidence Level | | Good Confidence Level | | | | Speculative | | | Total 03-12 | |
|-------------------------|----------|------------|-----------------------|----|-----------------------|----|----|----|-------------|----|----|-------------|----|
| | | | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | | 12 |
| RHEINMETALL LANDSYSTEME | | | | | | | | | | | | | |
| TM 170 (a) | OM 352A | 399 | 0 | 0 | 7 | 9 | 0 | 0 | 9 | 11 | 0 | 0 | 36 |
| Total Production | | 399 | 0 | 0 | 7 | 9 | 0 | 0 | 9 | 11 | 0 | 0 | 36 |

(a) The through 2002 production figure includes four prototype and developmental vehicles.



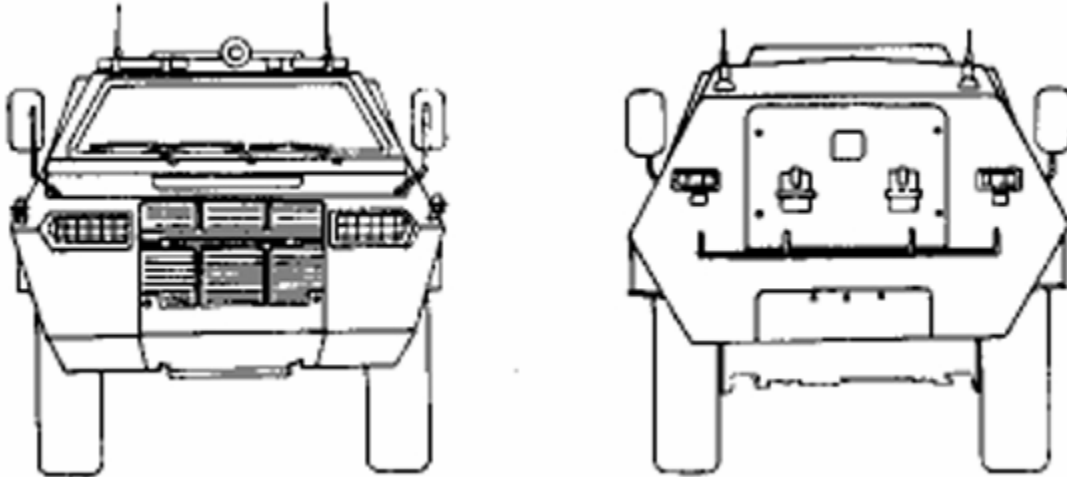
TM 170 (4x4)

Source: Henschel Wehrtechnik



TM 170 (4x4)

Source: Henschel Wehrtechnik



TM 170 (4x4)

Source: Henschel Wehrtechnik