

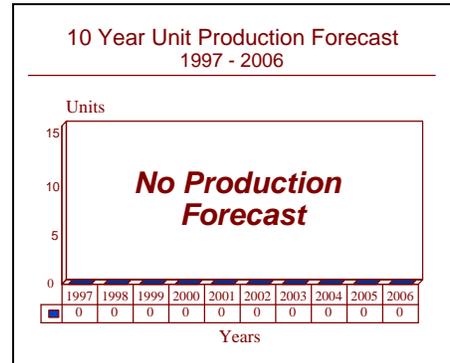
ARCHIVED REPORT

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FV4201 Chieftain - Archived 1/97

Outlook

- Production of the Chieftain is complete
- The Chieftain remains in service in a number of nations
- A number of modernization and retrofit programs are in various stages of implementation
- The Chieftain will continue to be traded on the open market for some time



Orientation

Description. A tank.

Sponsor. The development and British Army procurement of the Chieftain has been sponsored by the United Kingdom Ministry of Defence, Ministry of Defence Procurement Executive, Ordnance Board through the Ministry of Defence Army Department, the British Army.

Contractors. The Chieftain was initially developed by Leyland Motors; the tank was manufactured at two production facilities. One facility was operated by Royal Ordnance, Leeds, Yorkshire, United Kingdom. Vickers Defence Systems Limited acquired the Leeds facility and production rights to the tank in late 1986. The other facility was operated by Vickers Defense Systems; it was located at Elswick. Avimo, Barr and Stroud, Catton and Company, Coventry Climax, George Blair, Helio Mirror Company, Leyland Motors, Marconi Avionics, Marconi Command and Control Systems, Peak Engineering Company, Pilkington PE, Rank Taylor Hobson, Royal

Ordnance and Self-Changing Gears were the main subcontractors.

Licensees. None

Status. The production of the Chieftain is complete and the tank is in service in the United Kingdom and a number of other nations. A variety of modernization and retrofit programs are in various stages of development and integration with this tank.

Total Produced. A total of 2,268 Chieftain tanks (including prototypes) was delivered. This figure does not include any derivatives other than tanks.

Application. A tank for the projection of power as well as defensive operations.

Price Range. In equivalent 1985 United States dollars, a new late-production Chieftain Mark 15 tank had a unit price of \$2.01 million. This tank has not yet been traded by international brokers.

Technical Data

Crew. Four: commander, gunner, loader, driver.

Armor. One of the heaviest armored tanks in the world, the Chieftain's armor suite is said to be based on steel alloy within a spaced mode, possibly integrated with some

composite armor. British Army Chieftains are now fitted with the still-secret (as of early 1997) Stillbrew appliqué armor suite, probably consisting of an outer steel-armor

shell, behind which is a layer (or layers) of composite armor.

Dimensions. The following data are for the Chieftain Mark 5.

	SI units	US units
Length	10.79 meters	35.41 feet
Width	3.66 meters	12.0 feet
Height	2.89 meters	9.48 feet
Fuel capacity	950 liters	252.66 gallons
Combat weight	55 tonnes	60.62 tons

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

Maximum speed	48 kilometers per hour	29.8 miles per hour
Maximum range	460 kilometers	285.6 statute miles
Step	91.4 centimeters	35.98 inches
Trench	3.15 meters	10.33 feet
Slope	30%	30%
Gradient	60%	60%
Fording	1.06 meters	3.48 feet

Engine. This tank is powered by the Leyland L60 Number 4 Mark 8A two-stroke, six-cylinder (12 opposed pistons) engine rated at 559.5 kilowatts (750 horsepower) at 35 revolutions per second (2,100 revolutions per minute). This multi-fuel engine gives a power-to-weight ratio of 10.17 kilowatts per tonne (12.37 horsepower per ton). A Coventry Climax H30 Number 4 three-cylinder diesel engine rated at 17.16 kilowatts (23 horsepower) at 33.34 revolutions per second (2,000 revolutions per minute) is used for an auxiliary power unit. A 28.5 volt electrical system with four 12 volt 200 ampere-hour batteries for engine start and normal electric load, and two 12 volt 100 ampere-hour batteries in the turret for radio operation and emergency power to the fire control system, is the standard electrical fit.

Gearbox. The TN12 gearbox with six forward and two reverse gear ratios is provided by Self-Changing Gears. The gearbox incorporates the Merrit-Wilson differential steering mechanism.

Suspension and Running Gear. The Chieftain uses a Horstman-type suspension system with three bogies on each side of the tank, each bogie mounting two rubber-tired road wheels and three horizontally mounted springs. The first road-wheel station is fitted with a hydraulic shock damper, and there are three track return rollers. George Blair provides the tracks, top rollers, drive sprockets, road wheels and idler wheels; Catton and Company has also provided the track for this tank.

Armament. The main armament is the Royal Ordnance 120 millimeter L11A5 rifled tank cannon. This cannon, fitted with a thermal sleeve and fume extractor, develops a muzzle velocity of 1,500 meters per second (4,921.25 feet per second). The Armor Piercing Fin Stabilized Discarding Sabot/High Explosive Anti-Tank ammunition is the separate type; a total of 64 main armament rounds can be carried, depending on mix. Elevation of the L11 is

+20°; depression is -10°. The secondary armament consists of two 7.62 millimeter machine guns, one of which (an L8A2) is coaxially mounted, while the other (an L37A2) is for the commander. A total of 6,000 rounds of machine gun ammunition is carried. The Number 17 Mark 2 AFV Cupola is provided by Helio Mirror Company. Another M2HB 12.7 millimeter machine gun is optionally fitted as a ranging machine gun. Five (Number 18) or six (Number 22) electrically operated smoke grenade launchers are mounted on each side of the turret; this equipment is provided by Peak Engineering Company.

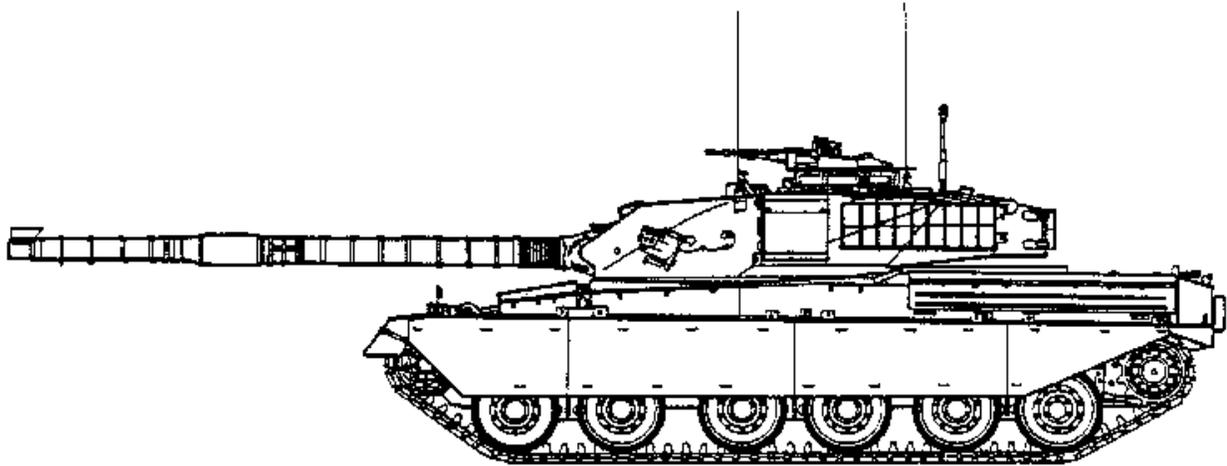
Fire Control. Originally, the Chieftain used a 12.7 millimeter ranging machine gun to aim its main armament. The gun control system is the Marconi Command and Control Systems Fighting Vehicle Gun Control Equipment Number 7 Mark 4, with four modes of operation. In addition to this system, most Chieftains are now fitted with the Tank Laser Sight, a neodymium yttrium-aluminum garnet laser system from Barr and Stroud. This system incorporates an integral gunner's sight, and it is linked to the gun control system. A major enhancement, which is fitted to all the British Army Chieftains except the Mark 1 tanks, is the fully integrated Improved Fire Control System, also from Marconi Command and Control. This system features the Marconi 12-12P digital ballistic computer, various sensor inputs, full control by both the commander and gunner, and new gun control equipment. More recently, the Pilkington PE Projector Reticle Image has been incorporated into the fire control system; this component provides an optical link between the main armament and the commander's sighting system, allowing him to lay the main armament in day or night conditions. The AV Number 37 Mark 6 Tank Commander's Periscope, with two magnifications of one- or ten-power, is provided by Avimo. The latest enhancement for the British Army Chieftains is the addition of the Thermal Observation and Gunnery Sight, which greatly enhances

the tank's fire control performance at night or in other degraded conditions; this equipment is provided by Barr & Stroud. Among the features of this system are duplicated controls in the commander's station. Helio Mirror provides the various periscopes for the Chieftain.

Variants/Upgrades

Variants. The Chieftain has proven to be a versatile tank, having been manufactured in twelve different marks and developed into at least six major variants. The following is a list of the production models and variants to date. All Chieftain tanks mount some version of the L11 120-millimeter rifled tank cannon.

Model	Remarks
Chieftain Mark 1	40 manufactured; for training has 436.4-kilowatt (585-horsepower) engine
Chieftain Mark 1/2	Mark 1 brought up to Mark 2 standard; used for training
Chieftain Mark 1/3	Mark 1 with 484.9-kilowatt (650-horsepower) engine; for training
Chieftain Mark 1/4	Mark 1 with 484.9-kilowatt engine and ranging machine gun; for training
Chieftain Mark 2	First model to enter service; 484.9-kilowatt (650-horsepower) engine
Chieftain Mark 3	New cupola, machine gun, other automotive improvements
Chieftain Mark 3G	Prototype with turret air breathing for engine
Chieftain Mark 3/2	The Mark 3G with unspecified modifications; no production
Chieftain Mark 3/S	Production model of the Mark 3G
Chieftain Mark 3/3	Mark 3 with 537.1-kilowatt (720-horsepower) engine, laser rangefinder
Chieftain Mark 3/3P	Export version of the Mark 3/3 for Iran
Chieftain Mark 4	Two built; increased fuel capacity, other minor changes
Chieftain Mark 5	Greatly enhanced Mark 3/3 with many automotive, fire control improvements
Chieftain Mark 5/2K	Slightly modified Mark 5 for Kuwait
Chieftain Mark 5/3P	Slightly modified Mark 5 for Iran
Chieftain Mark 6	Mark 2 with 537.1-kilowatt (720-horsepower) engine, other changes
Chieftain Mark 7	Mark 3 and Mark 3S with same enhancements as the Mark 6
Chieftain Mark 8	Mark 3/3 with same enhancements as the Mark 6
Chieftain Mark 9	Mark 6 with Marconi Improved Fire Control System
Chieftain Mark 10	Mark 7 with Marconi Improved Fire Control System
Chieftain Mark 11	Mark 8 with Mark 9 changes, Stillbrew armor, TOGS, improved NBC system
Chieftain Mark 12	Mark 5 with Mark 9 changes, Stillbrew armor, TOGS, improved NBC system
Chieftain 900	New engine, armor, many other features; no longer offered
Chieftain ARV	Based on the Mark 5, total of 257 built; designated FV4204
Chieftain AVRE	Prototype for FV4203; never entered service
Chieftain AVRE	No turret; 12 locally modified by the British Army of the Rhine
Chieftain ARRV	FV4204 locally modified with a hydraulic crane
Chieftain AVLB	Conversion of Mark 1/4 tank to armored-vehicle-launched bridge
Chieftain AVLB	New production armored-vehicle-launched bridge designated FV4205
Improved Chieftain	More fuel, improved mine protection; called FV4030/1



FV4201 Chieftain Mark 5

Source: Forecast International

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