



MATADOR MARK II

4 x 4 TRUCK CHASSIS



U.K. AND EXPORT

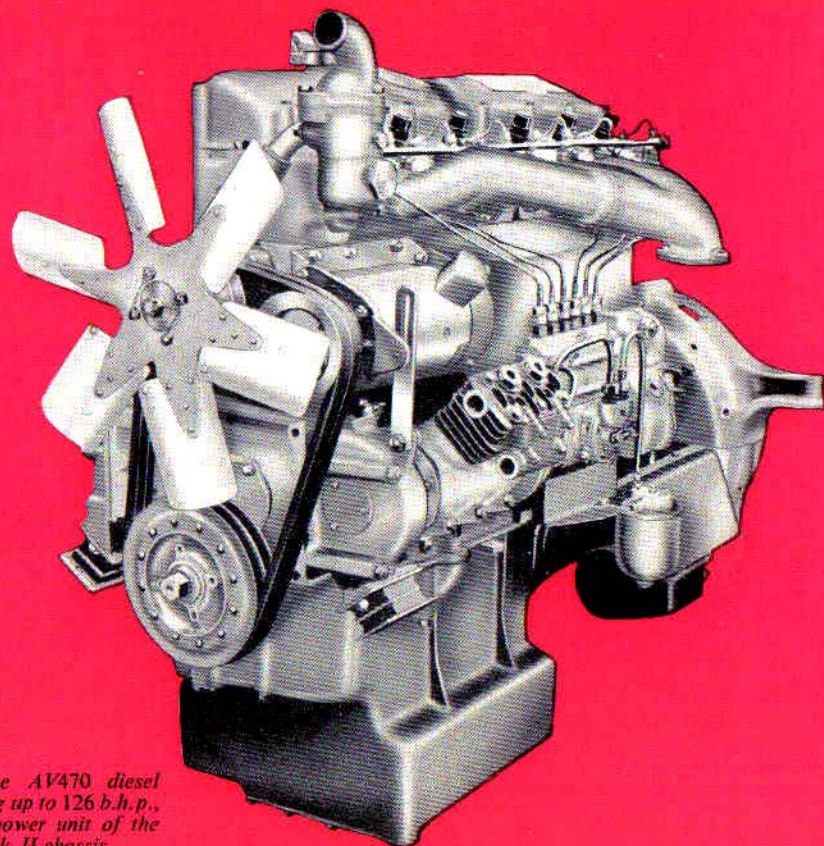
MATADOR MARK II

A RUGGED, ALL-WHEEL DRIVE TRUCK FOR CIVIL AND MILITARY TRANSPORT

THE A.E.C. "Matador" Mark II chassis has been specially designed to meet the requirements for an all-wheel drive truck to operate under difficult conditions across rough terrain where the use of all-wheel drive is essential for efficient functioning of the vehicle.

It will find employment in the many types of service, civilian and military, where the world famous A.E.C. "Matador" gun tractor has proved itself, and will meet the demand for a four wheel drive vehicle in the A.E.C. medium weight range with which it shares many common components.

The gross vehicle weight is 14 ton (31,350 lb. 14200 kg), the wheelbase 13 ft 3 in. (159 in., 4039 mm) and the overall width 8 ft 0 in. (96 in., 2438 mm). Either right or left-hand control is available, and power-assisted steering and/or winch can be supplied as extra equipment.



The A.E.C. type AV470 diesel engine, developing up to 126 b.h.p., is the standard power unit of the "Matador" Mark II chassis.

ENGINE

A.E.C. type AV470, 6-cylinder vertical, 4-stroke direct-injection diesel engine with a bore of 4.41 in. (112 mm), a stroke of 5.12 in. (130 mm) and a swept volume capacity of 469 cu. in. (7685 cu. cm), developing 112 b.h.p. at 2000 r.p.m. or 126 b.h.p. at 2200 r.p.m. (135 b.h.p. DIN 70020 rating; 144 b.h.p. SAE rating) with a maximum torque of 335 Lb-ft (46.3 Kg-m) at 1200 r.p.m. (50 Kg-m DIN 70020 rating).

The design incorporates a combined cylinder block and crankcase, wet cylinder liners with an external ceramic coating, and a crankshaft carried in seven aluminium-tin lined precision bearings. Two interchangeable cylinder heads are used. A direct-injection combustion system using toroidal cavity pistons and inclined injectors, together with masked inlet valves, is employed to ensure complete combustion and low fuel consumption. The camshaft, air compressor, fuel injection pump and oil pump are gear driven, while the fan, water pump and dynamo are driven by belt. An oil bath air cleaner with a centrifugal pre-cleaner is also fitted as standard.

A separate brochure, available on request, gives further particulars of this engine.

CLUTCH

The clutch is a single dry plate unit with hydraulic actuation and has a diameter of 14 in. (356 mm) and a total friction area of 187 sq. in. (1206 sq. cm).

GEARBOX

A 5-speed synchromesh gearbox is used, unit-mounted with the engine. All gears are of the straight spur type with the four highest ratios engaged by involute spline dog clutches protected by inertia lock synchromesh. First and reverse speeds have normal sliding mesh engagement. Lubrication is by splash, and lip type oil seals are fitted.

RATIOS

1st speed	6.25:1	4th speed	1.56:1
2nd speed	4.40:1	5th speed	1:1
3rd speed	2.65:1	Reverse	6.01:1

AUXILIARY GEARBOX

A two-speed auxiliary gearbox is fitted. The layshaft also drives the front axle, engagement being by a sliding gear which meshes with a gear on the gearbox output shaft. A sliding gear on the input shaft has dog engagement with the output shaft for high ratio or engages with the layshaft gear for low ratio. The gear levers are interlocked so that low ratio can only be used with the front axle drive engaged.

When a winch is required a further shaft is fitted with a sliding gear which can be engaged with the pinion on the input shaft.

Ratios: High 1:1, Low: 2:31:1.

PROPELLER SHAFTS

Propeller shafts are of open tubular construction with Hardy Spicer 1600 series needle roller bearing universal joints.

Where a winch is fitted, drive from the auxiliary gearbox is by close coupled 1500 series universal joints.

REAR AXLE

The rear axle is of the double reduction double helical type, primary reduction being by spiral bevel gears. The axle shafts are fully floating. The axle casing is fabricated from two pressed steel halves, and a casting bolted to the front of the casing carries the final drive and differential assembly.

Final drive ratios: 6:27:1, 6:92:1 or 7:84:1.

The hubs are carried on taper roller bearings with lip type seals to retain the lubricant.

FRONT AXLE

The front axle is of the driving and steering type and is basically similar to the rear axle, having a double reduction double helical gear unit. Matching ratios to the rear axle are employed and the gearing is interchangeable. "Tracta" constant velocity universal joints are fitted, and the hubs are each carried on two taper roller bearings provided with shim adjustment.

STEERING

Right or left hand control is available and A.E.C. worm and nut steering is fitted. Hydraulic power-assistance by a combined ram and valve assembly unit coupled to the drop arm is available if required. Mean steering ratio, 40:1 or 6½ turns from lock to lock.

BRAKES AND AIR PRESSURE/ HYDRAULIC SYSTEM

The foot brake operates on all four wheels and the hand brake on the rear wheels only. The rear brakes are direct air-pressure operated and the front brakes by air pressure/hydraulic means.

Girling two leading-shoe wedge expanded brakes are fitted to the front wheels and cam operated leading and trailing shoe type to the rear wheels. The brake drums are 15½ in. (394 mm) diameter with brake linings 4¼ in. (108 mm) wide on the front and 7 in. (178 mm) wide on the rear. Both front and rear linings are ½ in. (13 mm)

thick, and the total lining area is 678 sq. in. (4374 sq. cm). Pressure is controlled by a single 'E' valve mounted on the chassis frame and actuated by rod from the pedal. A twin cylinder air compressor mounted on the engine supplies a single chamber reservoir which is controlled by a safety valve and unloader valve.

SUSPENSION

Normal suspension by four 3½ in. wide (89 mm) semi-elliptic leaf springs clamped to the axles by nickel-steel bolts and anchored at the ends to the spring brackets by shackle pins. Hydraulic dampers are fitted to the front axle.

FRAME

The frame is of bolted construction with channel crossmembers and 10.3/16 in. (259 mm) deep by 3 in.

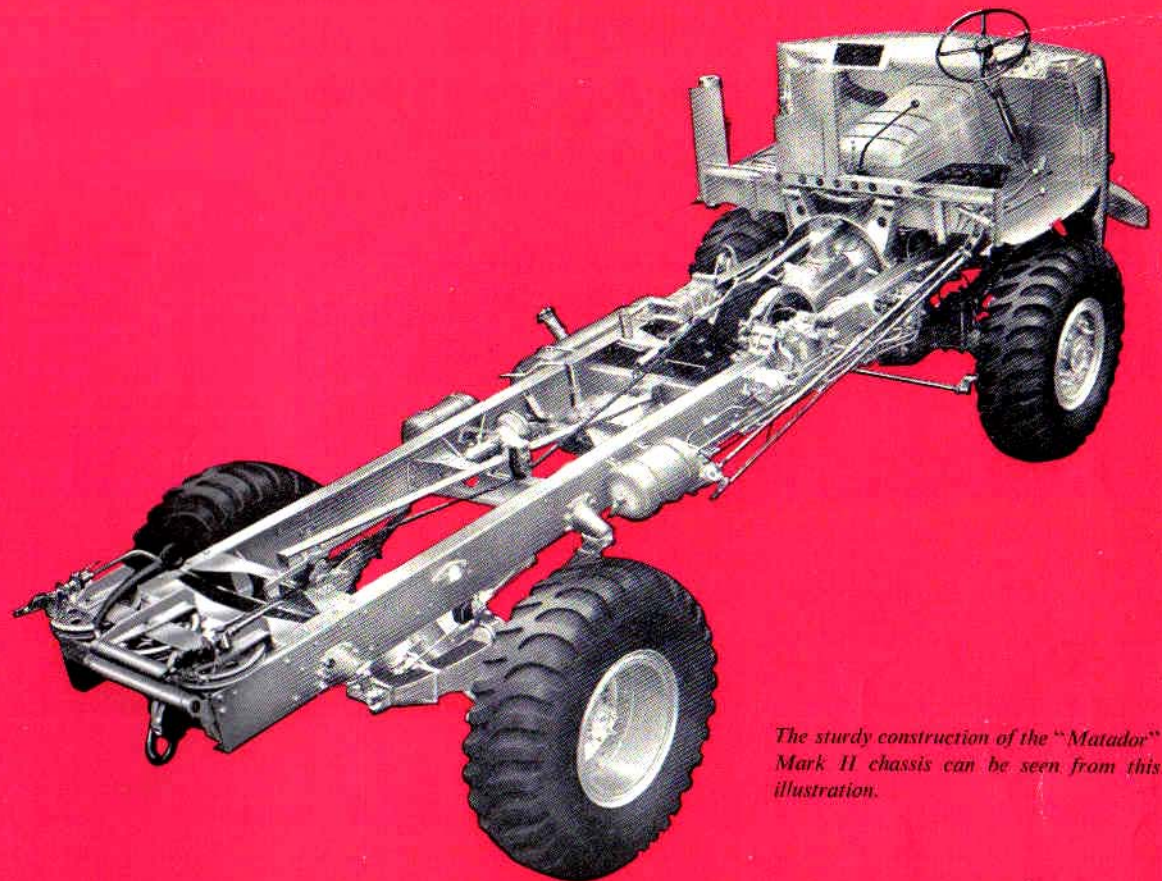
(76 mm) flange and 9/32 in. (7 mm) thick pressed steel channel section sidemembers. A full-width 6¼ in. (156 mm) deep bumper is provided at the front end of the chassis frame, and the ends are angled to protect the driver's structure.

Towing hooks are provided at front and rear, and the radiator and headlamps have protection guards.

RADIATOR

The radiator is built up from a vertical tube and horizontal gill plate block, sweated to pressed brass top and bottom tanks and steel side standards. It is flexibly mounted centrally on the frame front cross-member, with two resiliently mounted tie bars securing its top to the front bulkhead.

A high-speed 18 in. diameter (457 mm) fan is driven by twin vee belts.



The sturdy construction of the "Matador" Mark II chassis can be seen from this illustration.

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FUEL SUPPLY SYSTEM

A 36-gallon (164 litre) tank is mounted on the frame left-hand sidemember behind the front axle.

A twin bowl paper element filter with parallel feed head is fitted in the circuit from the fuel-lift pump to the fuel injection-pump.

WHEELS AND TYRES

Alternative tyre equipment can be fitted as follows:—

10-00-20, 14-ply rating, single front and twin rear.

11-00-20, 12-ply rating, single front and twin rear.

14-00-20, 18-ply rating, single front and rear.

ELECTRICAL EQUIPMENT

24-volt insulated return lighting and starting equipment of C.A.V. or Simms manufacture is fitted.

A 5 in. (127 mm) diameter dynamo is swing-mounted from the engine casing and driven from the crankshaft by twin vee-belts at 1.86 × engine speed. The maximum output of the dynamo is 288 watts.

A combined switchboard and dynamo control unit is supplied which incorporates a regulator and cut-out unit, fuse box, dynamo charge tell-tale light, starter push button, inspection light plug sockets; also switches for head, side and tail lamps, foglamp and 'start' circuits.

INSTRUMENTS

A comprehensive instrument panel carries a speedometer, oil pressure gauge, a duplex air pressure gauge, water temperature gauge, ammeter and rheostatic control for indirect panel illumination. A horn push is fitted to an arm extending from the steering column. A foot-operated dip switch is also provided.

WINCH (Optional Equipment)

An 8 ton (18,000 lb. 8156 kg) pull capacity winch is available as an extra. The winch is located between the frame sidemembers and is driven from the auxiliary gearbox. Guide rollers and fairleads are provided to enable a forward pull to be made.

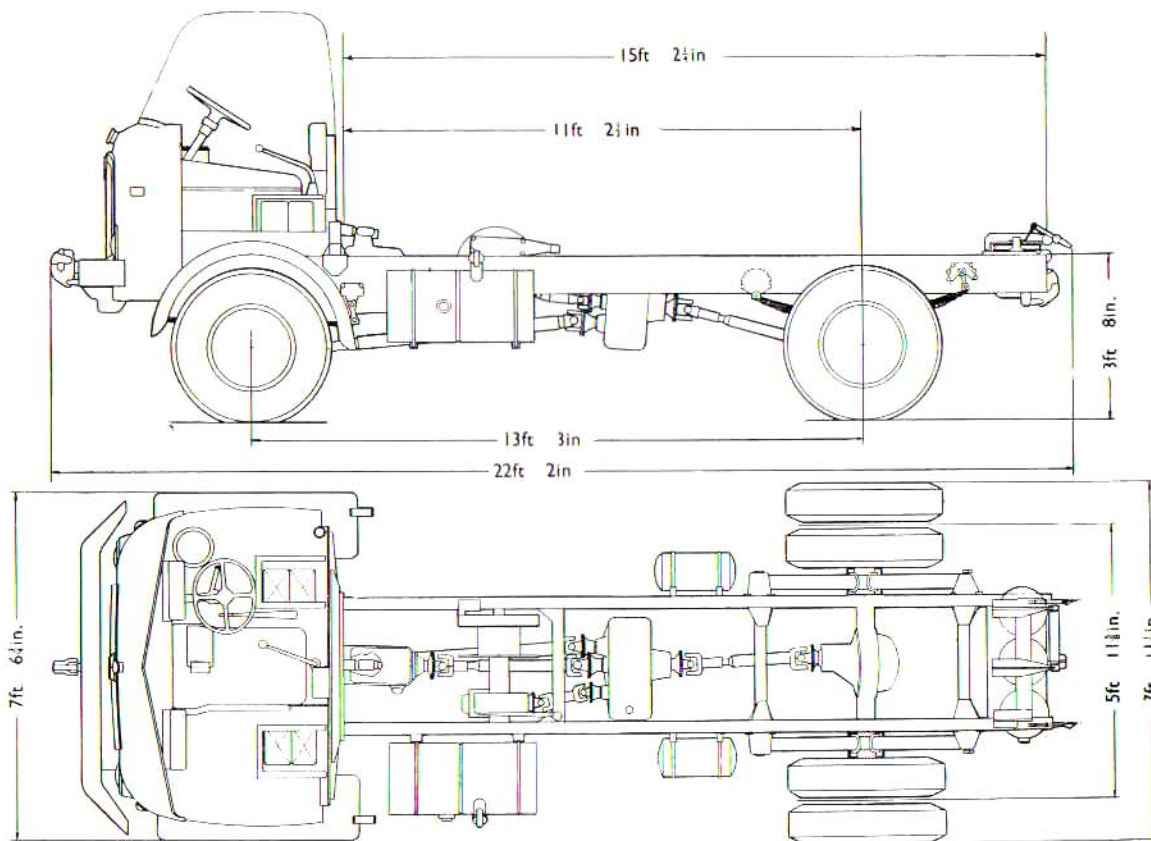
A safety device is incorporated to stop the engine in the event of maximum pull capacity being exceeded.

The chassis is suitable for a gross weight of 14 ton (31,350 lb. 14220 kg) distributed 5 ton (11,200 lb. 5080 kg) at the ground on the front axle, and 9 ton (20,150 lb. 9140 kg) on the rear.

LOAD RATINGS

All the above weights are subject to the provision of suitable wheel and tyre equipment.

Estimated ready-for-road weight (when fitted with 11-00-20 tyres, but excluding weight of winch and cab) 4 ton 19 cwt (11,100 lb. 5035 kg).



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