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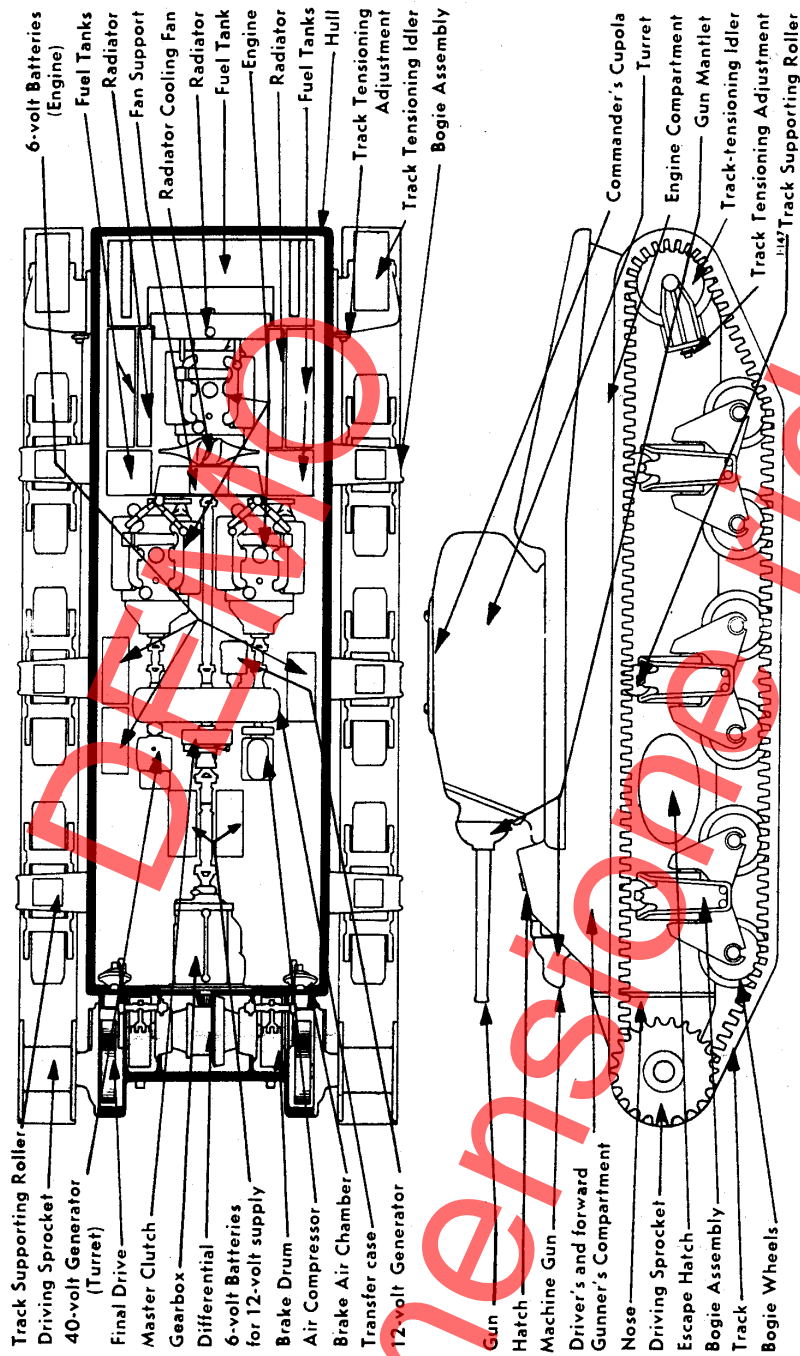


Fig. 1. General arrangement of principal components

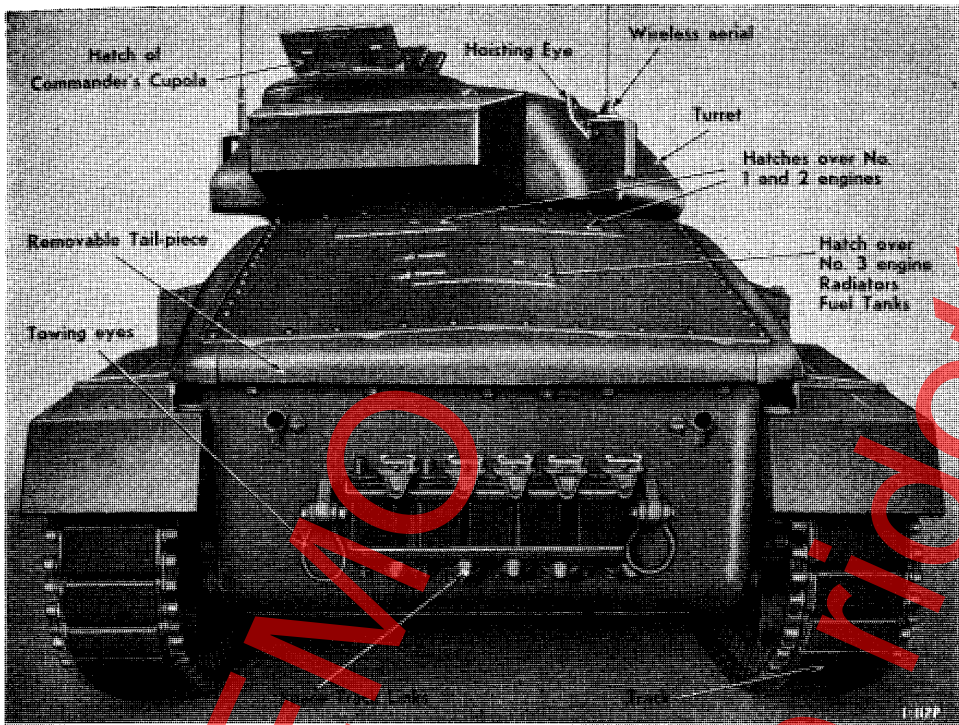


Fig. 3. Rear view of the A.C. Mk. 1 Tank

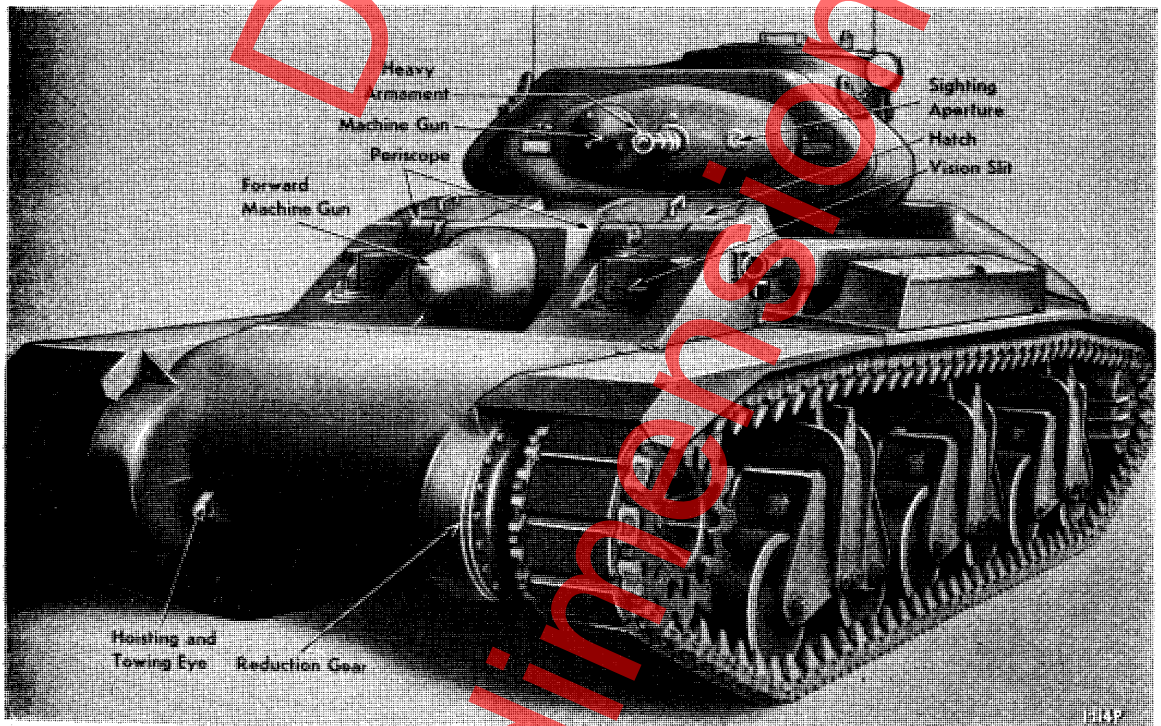


Fig. 4. Front and L.H. side view

Fig. 5.

Driver's Compartment

1. Tachometer.
2. Oil pressure gauge gear box pump.
3. Speedometer.
4. Ignition switches.
5. Starter switches.
6. Emergency starter switches.
7. Fire extinguisher push button.
8. Starter push button.
9. 12-volt ammeter.
10. Red tell-tale lights oil circulation.
11. Engine temperature.
12. 6-volt ammeter.
13. Gear box filler.
14. Speedometer drive.
15. Gear shift lever.
16. Clutch pedal.
17. Steering levers.
18. Air pressure gauges.

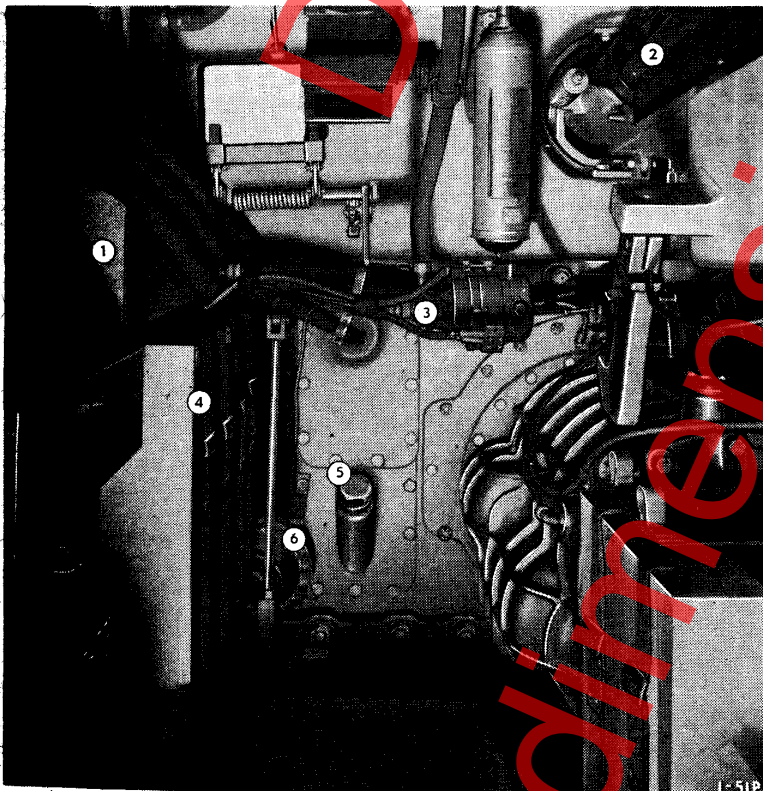
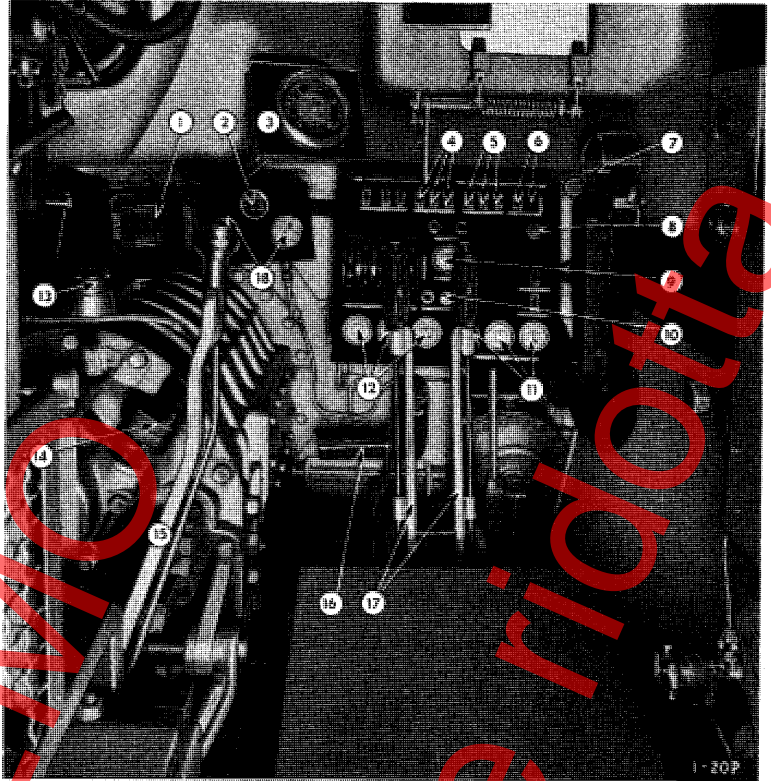


Fig. 6.

Gunner's Compartment

1. M.G. water tank.
2. Machine gun.
3. M.G. water pump.
4. .303 ammunition box.
5. Differential filler.
6. Diaphragm air brake.

HULL AND FITTINGS

The hull (see Figs. 2, 3 and 4) consists principally of four main castings of armour plate; these include the nose, main body, turret and power unit cover plate.

Nose:

The nose is a separate casting which is bolted to the machined face of the main body. It houses the front axle drive assembly, braking components, final drive and gearbox pinion.

Main Body:

The main body is a large one-piece casting to which all the above mentioned smaller castings are fitted. For purposes of description it can be divided into three sections - front, middle and rear.

The front compartment, (see Figs. 5 and 6) accommodates the driver and forward gunner for whom individual seats are provided. These seats slide forward and backward and are adjustable for tilt. On the right hand side is the driver's compartment containing the various controls and their accessories. On the left is the forward gunner's seat, adjacent to which a Vickers machine gun is installed. A small electric motor, with a centrifugal pump, is bolted to the hull above and to the left of the gear box; its function is to circulate cooling water through the jacket surrounding the barrel of the gun. The motor is described in the section of this manual entitled "Electrical System". The gun is held in position by clamps (friction plates). Hatches are provided above the driver's and the gunner's seats and near each of these hatches is a periscope. In the front of the compartment, and between the driver's and gunner's positions is the gearbox.

The gearbox oil cooler is mounted between the driver's and the gunner's seats; it consists of a radiator through which the oil circulates and a cooling fan driven from the main cardan shaft.

In the middle compartment, just above the floor, are the universal joints, shafts, transfer box, and master clutch. Various electrical components and accessories are also located in this section as well as ammunition for the main armament and machine guns. See

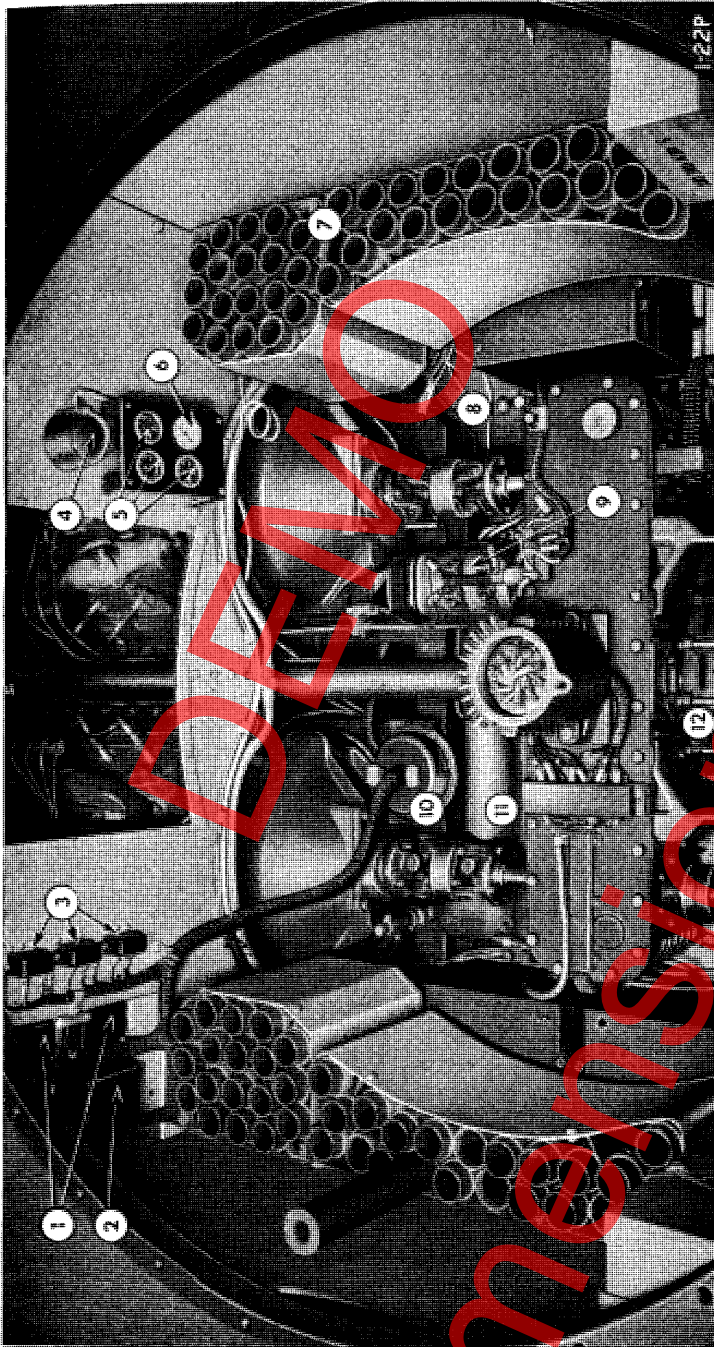


Fig. 7. Central Compartment, looking backward

- | | |
|---|---------------------------|
| 1. Voltage Regulators. | 7. Heavy Ammunition Rack. |
| 2. Commander's Ignition Control Solenoid. | 8. Earth Strap. |
| 3. Ignition Relays. | 9. 12-volt Generator. |
| 4. Fire Extinguisher Push Button. | 10. Junction Box. |
| 5. Oil Gauges for Nos. 1, 2, and 3 Engines. | 11. Air Reservoir. |
| 6. Air Pressure Gauge. | 12. Master Clutch. |

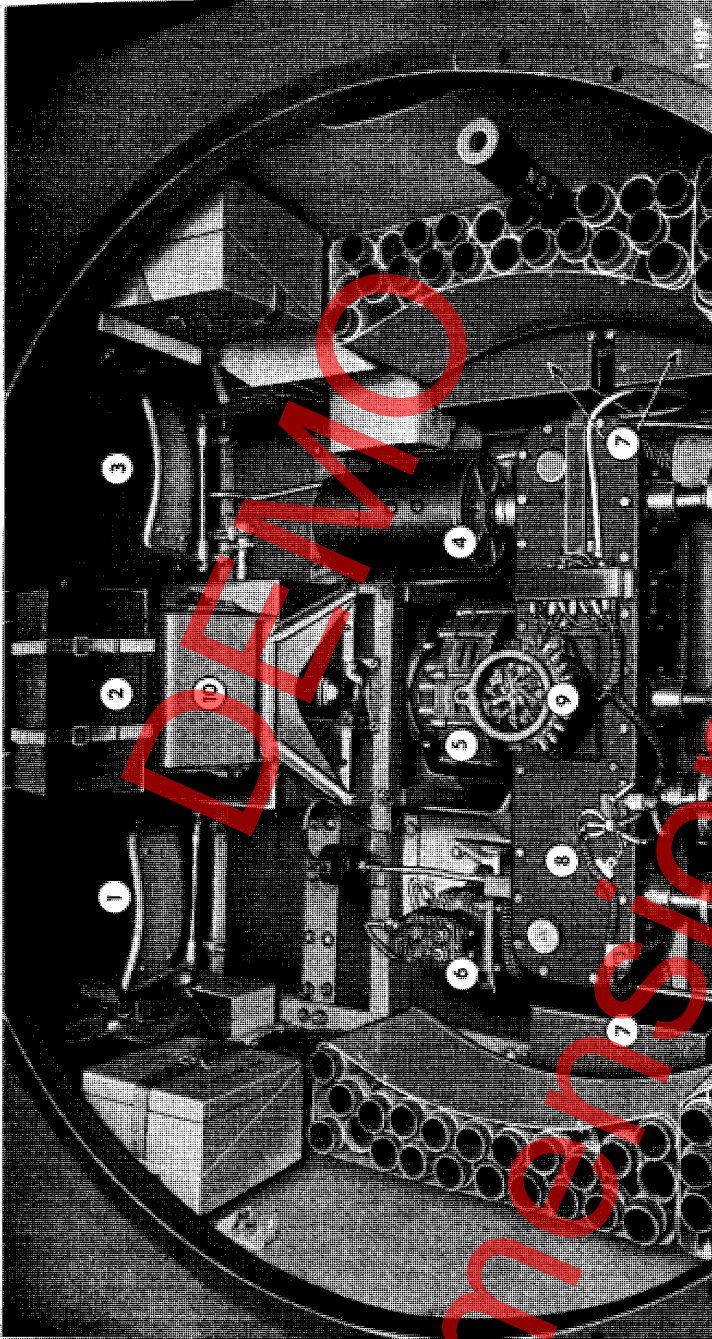


Fig. 8. Central Compartment, looking forward

1. Gunner's Seat.
2. .303 Ammunition Boxes.
3. Driver's Seat.
4. 40-volt Generator.
5. Master Clutch.
6. Air Compressor.
7. Batteries for Nos. 1, 2, and 3 Engines.
8. Transfer Box.
9. Turret Base Junction Connector.
10. Oil Radiator.

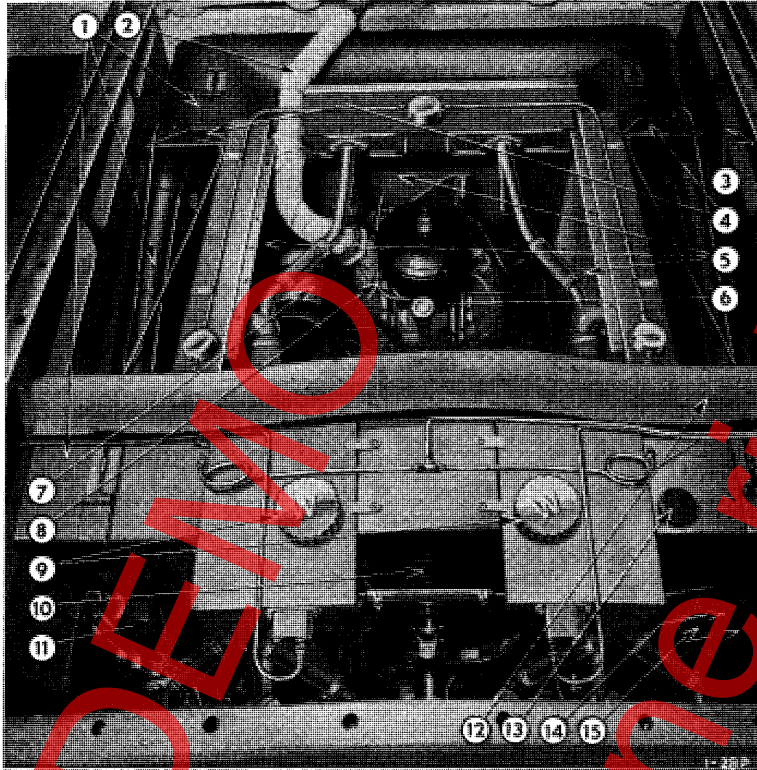


Fig. 9. Rear engine compartment

1. Fuel tank.
2. Rear exhaust pipe.
3. Air vent.
4. Engine unit lifting eyes.
5. Radiators.
6. Oil filler cap.
7. Oil cleaner.
8. Fire extinguisher pipe.
9. Radiator filler caps.
10. Fan driving pulley.
11. Fire extinguisher bottles.
12. Felt seal.
13. Fuel filler cap.
14. Fire extinguisher bottle.
15. Fire extinguisher bottle.

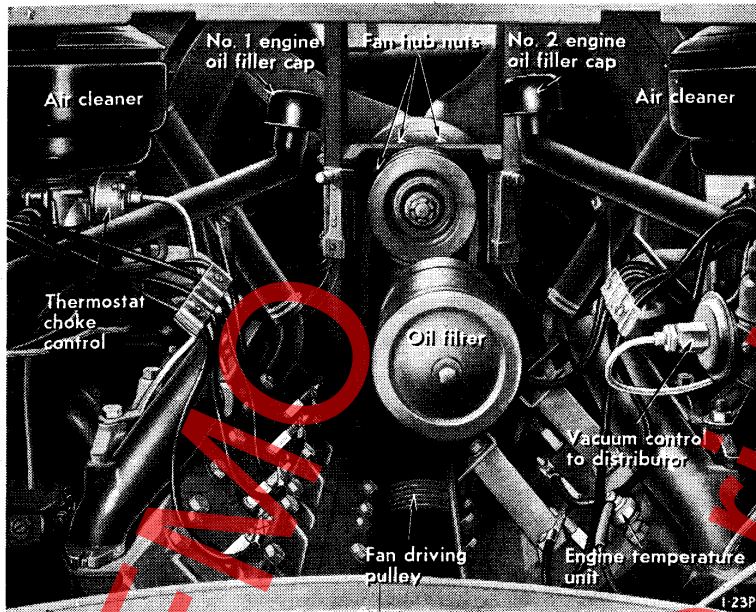


Fig. 10. Close up of Nos. 1 and 2 engines through bulkhead aperture

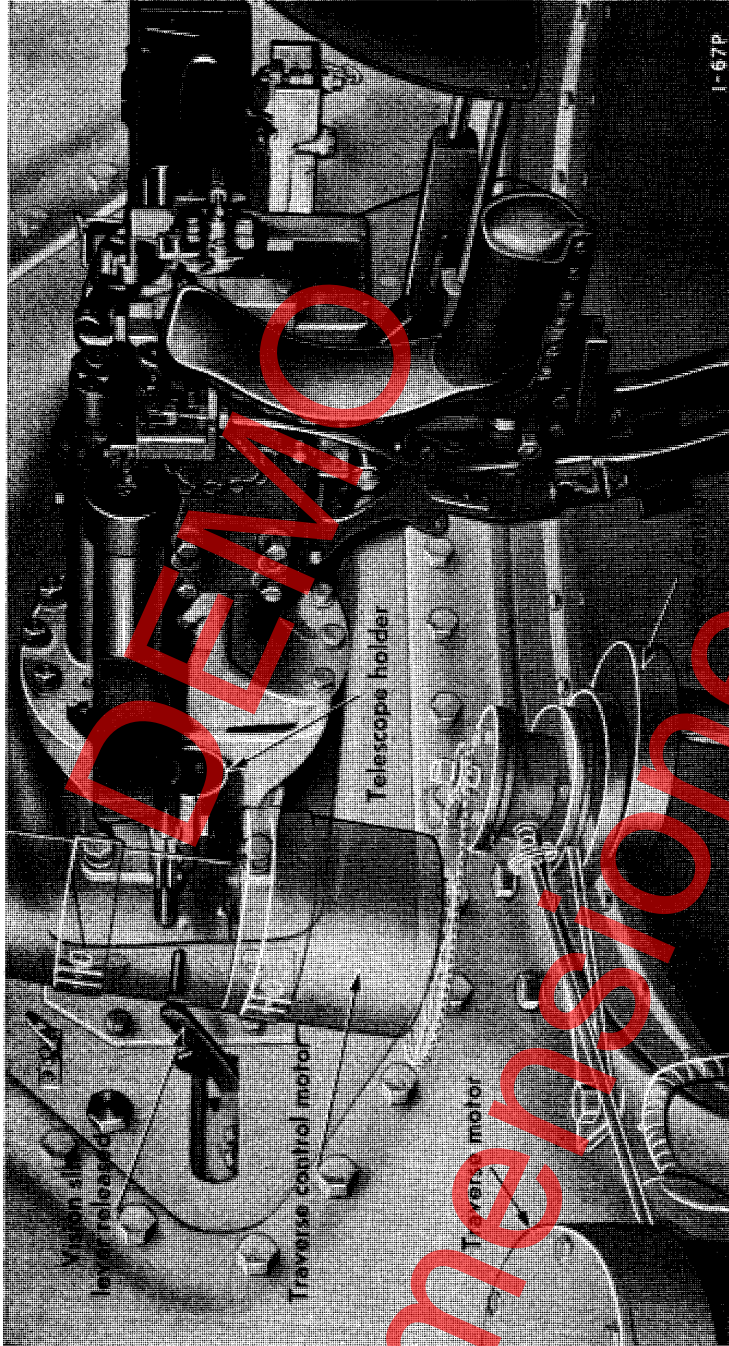


Fig. 11. R.H. view turret interior

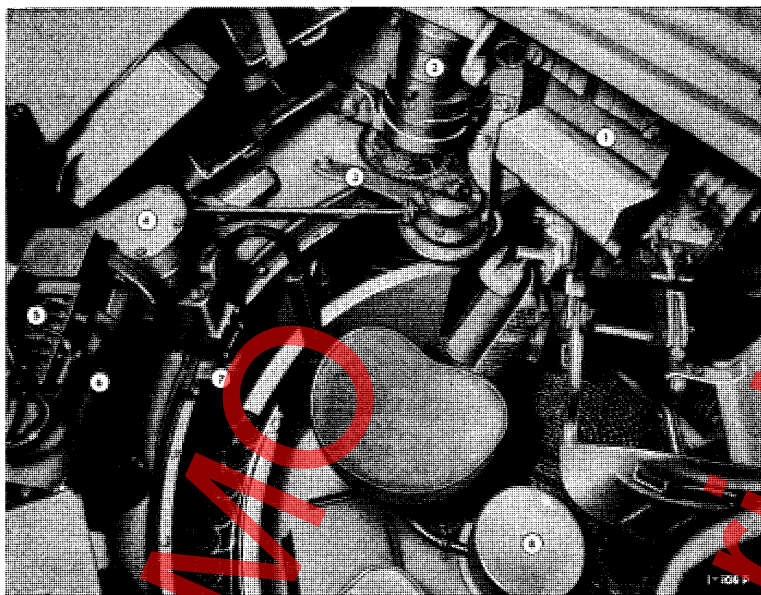


Fig. 12. L.H. view Turret interior

- | | |
|---------------------------------|---|
| 1. Periscope. | 5. Terminal Box. |
| 2. Control Motor. | 6. Traverse Motor. |
| 3. Operator's Control of Motor. | 7. Gear Engaging Turret Internal Ring Gear. |
| 4. Bevel Gears. | 8. Base Junction Connector. |

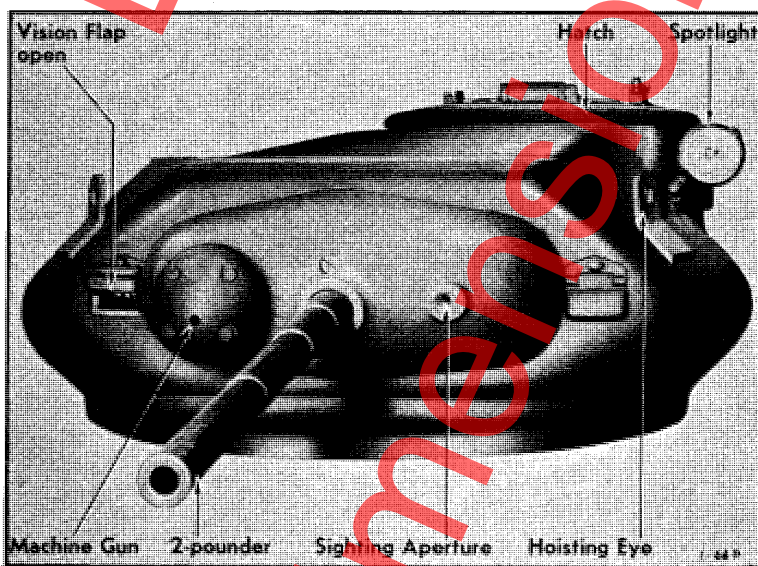


Fig. 13. Turret detached.

Figs. 7 and 8). A wheel operated escape hatch is provided on each side of the Tank. See Fig. 1 for location.

The rear compartment houses the power unit, radiators, petrol tanks and fan. See Figs. 9 and 10. The engines cover plate forms the roof of this compartment and is bolted to the main body. The removal of this plate permits the lifting of the engines, as a unit, out of the hull. Three hatches are located one above each engine to provide for refilling radiators and petrol tanks and for adding engine oil. See Fig. 3.

A track cover plate extends along the full length of the Tank on each side. On top of each of these plates, parallel with the centre of the hull, is a tool box. For contents of these tool boxes and other equipment attached to the hull, see "Lacking List" at the back of this manual.

Turret:

The turret is supported, centrally, on top of the main body and in it is mounted the main armament. Suspended from the turret is the fighting basket which accomodates the commander, gunner and loader. The turret is supported on ball bearings and can be rotated either electrically or manually. The commander's cupola forms the near-side half of the turret roof. It is divided into two segments which work on hinges and are pushed open from inside the turret.

A detailed description of the electrical arrangements for rotating the turret will be found in this manual under the heading "Turret Traverse Operating Mechanism" in the "Electrical System" section.

The turret has a full circle traverse and contains a two pounder gun, a machine gun and a wireless set. See detailed description under "Electrical System" for particulars regarding machine gun water cooling motor and wireless circuits. Figs 11, 12 and 13 provide interior and exterior views, together with the various components and accessories attached to and contained in the turret.

CONDENSED SPECIFICATIONS

GENERAL DIMENSIONS

Length (overall)	- 20 ft. 9 ins.
Height "	- 8 ft. 4 ³ / ₄ ins.
Width "	- 9 ft. 7 ¹ / ₂ ins.
Width of track centre to centre	- 7 ft. 6 ¹ / ₂ ins.
Ground clearance	- 15 ¹ / ₂ ins.
Minimum turning circle	- 58 ft. diameter.
Width of trench spanned	- 8 ft.
Weight (unladen)	- Approx. 26 tons.
Total area of track (steel) in contact with the ground	- 32 square ft.
Bogie wheel loading	- 43-1/3 cwt. each.
Ground pressure	- 13.4 lbs. per sq.in.

MAXIMUM PERMISSIBLE SPEEDS AT 3,600 R.P.M.

Fifth gear	29.5 m.p.h.
Fourth "	22.0 m.p.h.
Third "	12.5 m.p.h.
Second "	6.0 m.p.h.
First "	3.0 m.p.h.
Reverse "	3.5 m.p.h.

MAXIMUM TRAINING SPEEDS AT 3,000 R.P.M.

Fifth gear	24.0 m.p.h.
Fourth "	18.5 m.p.h.
Third "	10.5 m.p.h.
Second "	5.0 m.p.h.
First "	2.5 m.p.h.
Reverse "	3.0 m.p.h.

ENGINE

Make	- Cadillac "75"
Total number of engines	- Three
Arrangement	- Clover leaf
No. of cylinders per engine	- Eight
Firing order	- 1, 8, 7, 3, 6, 5, 4, 2.
Compression ratio	- 6.25 to 1
Compression pressure at cranking speed	- 110 lbs. per sq. in.
Total combined B.H.P.	- 330 at 3,050 r.p.m.
Normal oil pressure	- 25 lbs. per sq. in.
Idle oil pressure	- 15 lbs. per sq. in.
Carburettor:	
Make	- Stromberg A.A.V. 26
Type	- Downdraft.

TRANSMISSION & DRIVE

Transfer case ratio	- 1 to 1
Differential pinion	- 17 teeth
Differential crown wheel	- 60 teeth
Final Drive pinion	- 23 teeth
Final Drive spur wheel	- 73 teeth