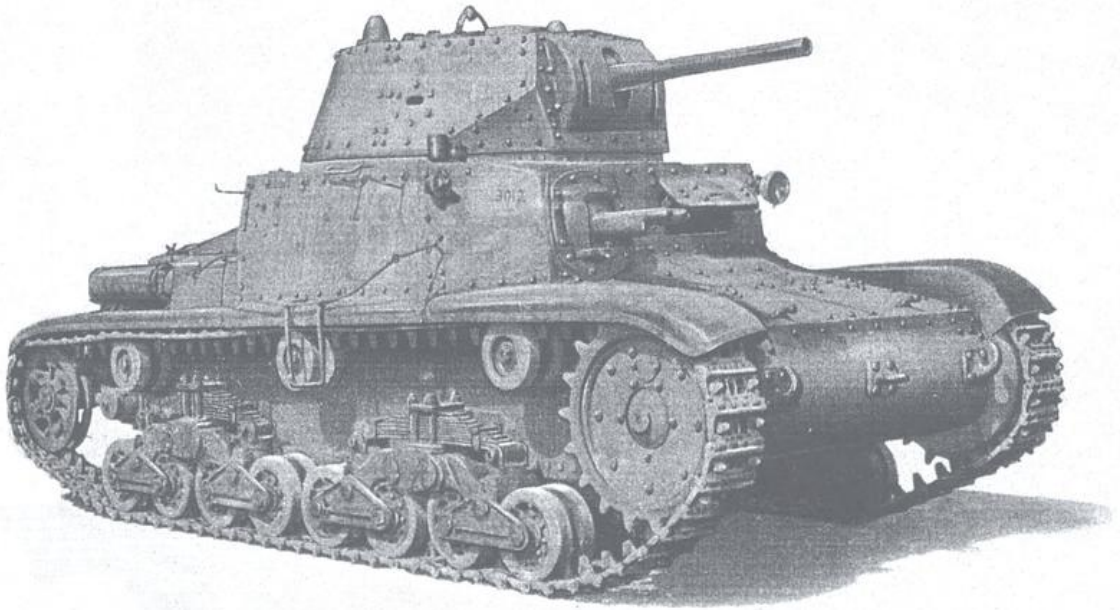


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PRELIMINARY REPORT N° 18

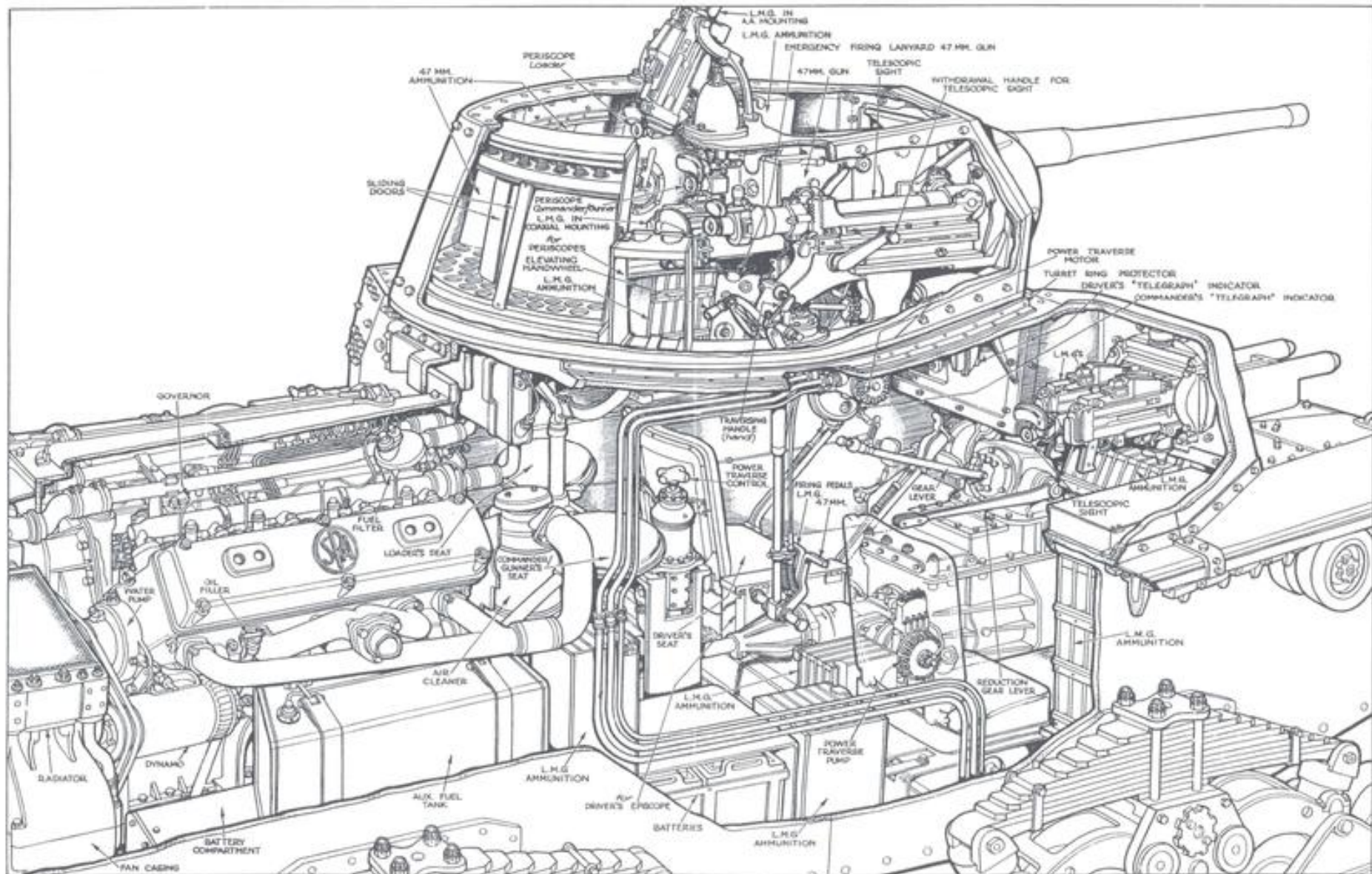
ITALIAN TANK M 13/40

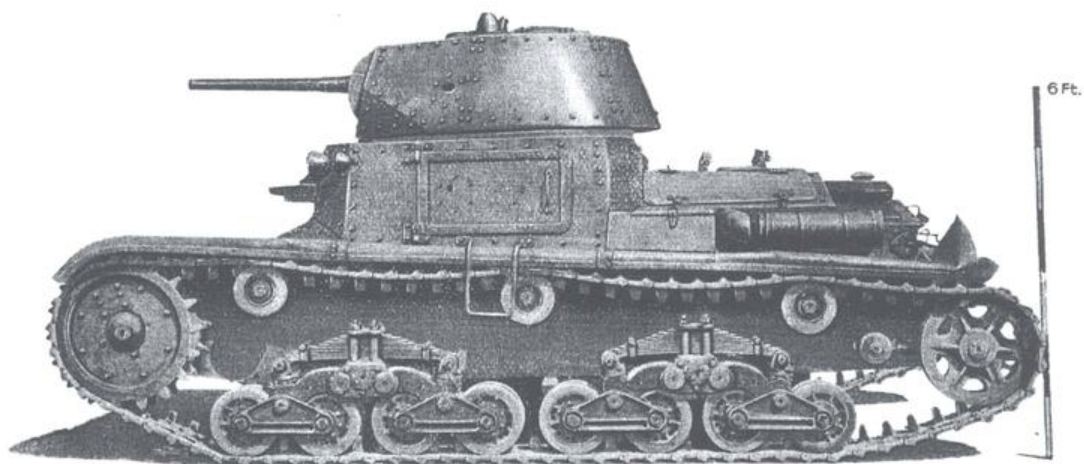


Military College of Science
SCHOOL OF TANK TECHNOLOGY
Chobham Lane Chertsey



November 1943





FOREWORD

This vehicle which is in good running condition, has a similar mechanical layout to the Semovente, described in S.T.T. Preliminary Report No. 14, and the hull, suspension units transmission and final drive are identical.

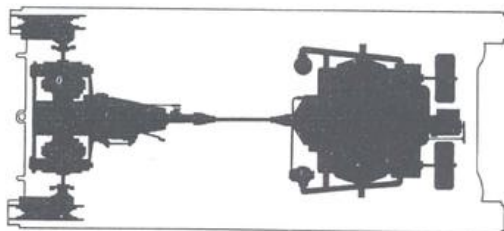
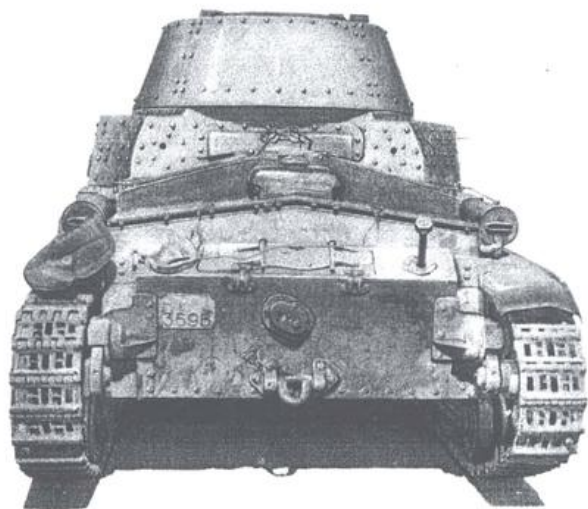
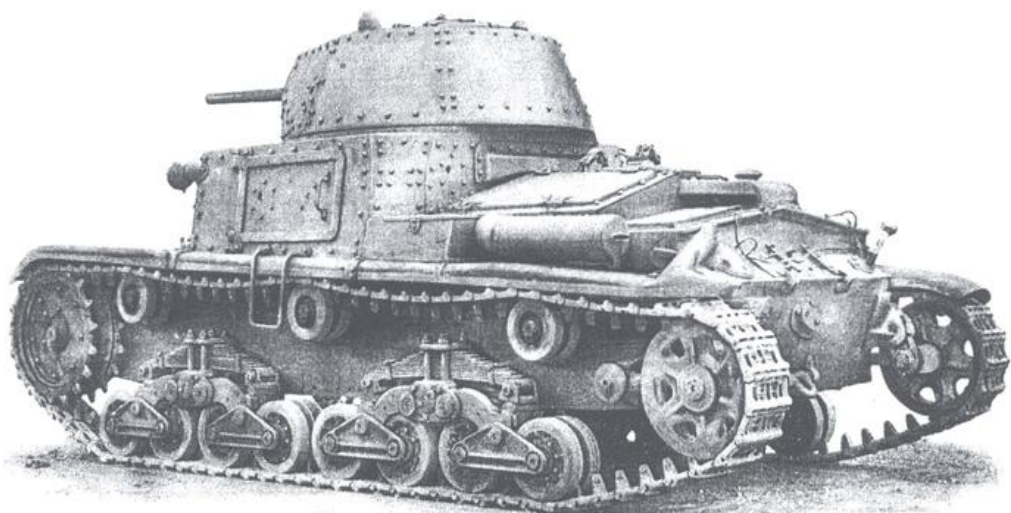
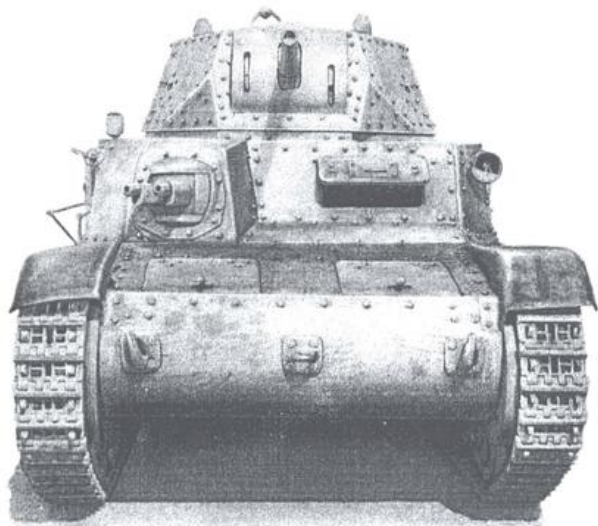
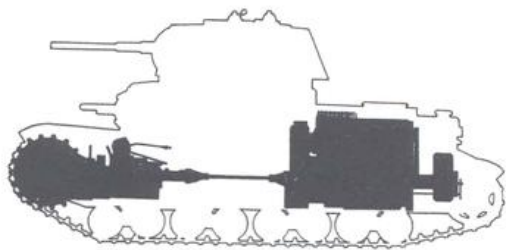
The 8T power unit of the Semovente is replaced in the M. 13/40 by the 15T engine. This is identical except for an increase in the bore size and certain detail modifications; the power output being increased from 105 to 145 B.H.P.

A roomy turret of horseshoe plan, with all round traverse, is mounted on the superstructure.

Interesting features of the vehicle are the hydraulic power traverse and the manual visual telegraph between the commander and the driver, a description of which appears in Para. 7. of this report.

The usual Italian method of bolted construction is employed throughout.

A captured handbook of this vehicle has been available for reference and certain data contained in this report has been obtained therefrom.



PRELIMINARY REPORT

STT/8/5/3

ON

M. 13/40 ITALIAN TANK

EXAMINED AT CHOBHAM

D.T.D. NO. 3012

OCTOBER, 1943

EXAMINERS: MAJOR J.D. BARNES, R.T.R., and LIEUT. P.L. GUDGIN, R.T.R.

D.T.D. PROJECT NO. V. 7037

GENERAL SPECIFICATION

<u>TYPE</u>	M. 13/40	Chassis No. 01473
<u>ARMAMENT</u>	One 47 mm. 32 Calibres Ansaldo gun. Four 8 mm. Breda M.G. 38.	
<u>TRAVERSING GEAR</u>	Calzoni - Hydraulic and Hand	
<u>ARMOUR</u>	9 - 40 mm.	
<u>WEIGHT</u>	As received (less crew and a few stowage items) - 13 tons	
<u>MAXIMUM SPEED</u>	20.5 m.p.h. (as marked on speedometer)	
<u>CREW</u>	Four - driver, hull gunner, loader and commander/gunner	
<u>DIMENSIONS</u>	LENGTH 16' 3 $\frac{1}{2}$ "	GROUND CONTACT ' 9' 5 $\frac{1}{4}$ "
	WIDTH 7' 5"	TRACK CENTRES ' 6' 2"
	HEIGHT 7' 9"	GROUND CLEARANCE 1' 3"
<u>ENGINE</u>	V - 8 Diesel. 145 H.P.	
<u>GEARBOX</u>	Four forward speeds and reverse, incorporating dual range reduction gear.	
<u>STEERING</u>	Epicyclic clutch and brake	
<u>DRIVE</u>	Front sprocket	
<u>SUSPENSION</u>	Laminated semi-elliptic springs	

IDENTIFICATION MARKINGS

Front and rear number plates - R^o E^{to} 3596

Blue rectangle with vertical white stripe surmounted by "5" on each side and the rear of the turret.

"31" painted in white on the nearside rear of the superstructure and "XIII" painted in white on the offside rear of the superstructure

GENERAL CONDITION

The vehicle is generally in good running condition and does not appear to have suffered any hits. Slight damage to the track guard has probably been sustained during shipping.

The tracks, suspension assemblies, tyres and sprockets are in good order.

The mileage recorded on the speedometer is 1037 Km. (647 miles)

I. ARMAMENT

One Ansaldo 47,32 (32 calibres) semi-automatic gun in the turret, with one Breda 8 mm. Model 38 M.G. co-axially mounted.

Two further 8 mm. Breda M.G.'s are mounted in an auxiliary hull mounting, on the right of the driver.

One Breda 8 mm. Model 38 M.G. on an A/A mounting on turret roof.

Piece

<u>Dimensions</u>	<u>Ins</u>
Length of barrel	60
" " piece	64 $\frac{3}{8}$
" " chamber	8
" " rifling	52
Depth of breech opening	4 $\frac{3}{8}$
Diameter at base of cartridge case	2.1/16
Maximum recoil	7 $\frac{3}{4}$ (approx)
No. of grooves	24
Twist	Uniform right hand

AMMUNITION

From other sources it is known that the following types of ammunition are used in the 47/32 gun:-

A.P./T. shell	- M.V.	2067 ft/sec.	Weight	- 3.25 lbs.
H.E. shell	- M.V.	820 ft/sec.	"	- 5.19 "
APCBC/T shell			"	- 3.3 "

CONSTRUCTION

The piece is of monobloc construction, with a detachable breech ring. A short rectangular jacket is fitted inside the internal roller mantlet.

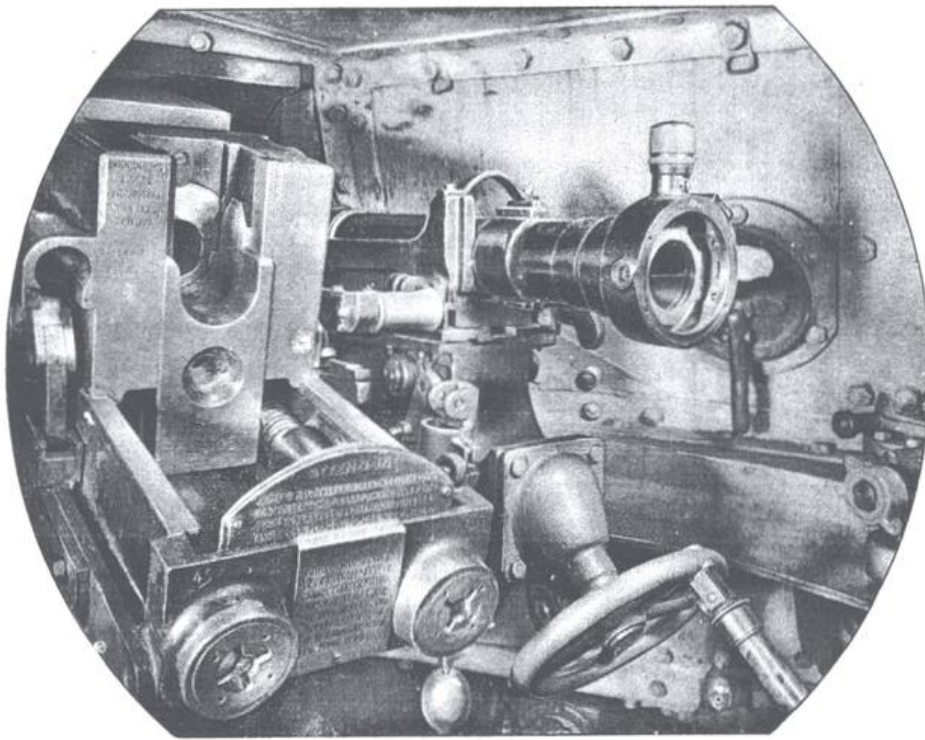


FIG. 1

BREECH MECHANISM - the breech mechanism bears a strong resemblance to that of the British 2-pdr. The breech block is of falling wedge type, and is operated by a breech mechanism lever on the right of the gun. When the breech is opened the breech mechanism lever stays in a horizontal position - there is no free return to the vertical as on the 2-pdr.

The breech block is held down by a hook on each extractor and is closed by a horizontally mounted breech closing spring, on the left of the gun, through a rack in the spring guide which meshes with a sector splined to the actuating shaft.

Semi-automatic operation of the breech mechanism is obtained by means of a trip lever, mounted on the breech closing spring sector on the left of the actuating shaft, which runs in a stepped channel.

FIRING GEAR - the striker case is removable, allowing the bore sighting of the gun. The striker case is deficient. Firing is by lanyard on the right of the gun through a train of levers to a percussion type firing gear.

According to the captured handbook for the M.13/40, pedal firing is also provided for both gun and co-axial machine gun. The standard pedals and Bowden cables are deficient on this tank, though the cranks and fitting for the cables, and the socket for the standard are fitted.

CRADLE - the cradle is cast and of rivetted construction. It carries the following:

- Externally toothed sector of the elevating gear on right.
- Cradle for the M.G. on left.
- Internal roller mantlet bolted on two projections forward of the trunnions.
- Semi-automatic trip channel
- Firing lanyard and levers.
- Two spring recuperators.
- Centrally mounted buffer under the gun.

The tops of the cradle are angled to form guides for the recoil - slots in the jacket are provided for this purpose, while the breech of the gun rides on top of the angles.

Trunnions are approximately 11" apart, of 2" diameter and $1\frac{1}{4}$ " long.

MOUNTING - the mounting has an internal mantlet with a fixed outer mantlet having three slots.

It is bolted to the turret ring and the front turret plate. The trunnion bearings, of plain type, are formed in two "U" shaped rearward projections.

On a further projection on the right, is the combined mounting for the telescope and hand elevation gear.

ELEVATING GEAR - the elevating gear consists of a handwheel which, through a worm and wormwheel, and pinion and sector, elevates or depresses the gun.

The handwheel is conveniently mounted for operation by the gunner's left hand with its axis at 45° to the vertical - operation is fairly stiff and fine adjustment is impossible owing to the coarse pitch of the teeth in the mechanism.

Radius of handwheel	-	4"
Maximum elevation	-	25°
" depression	-	15°
Total Arc.	-	40°
No. of turns of handwheel	-	$16\frac{3}{4}$ (full arc)
Ratio of degrees/turn	-	2.4° /turn

The elevation lock consists of a stay, hinged to the turret roof at one end threaded at the other. The threaded end fits into a socket on the 47 mm. gun cradle (deficient on this gun) and is secured by a wing nut.

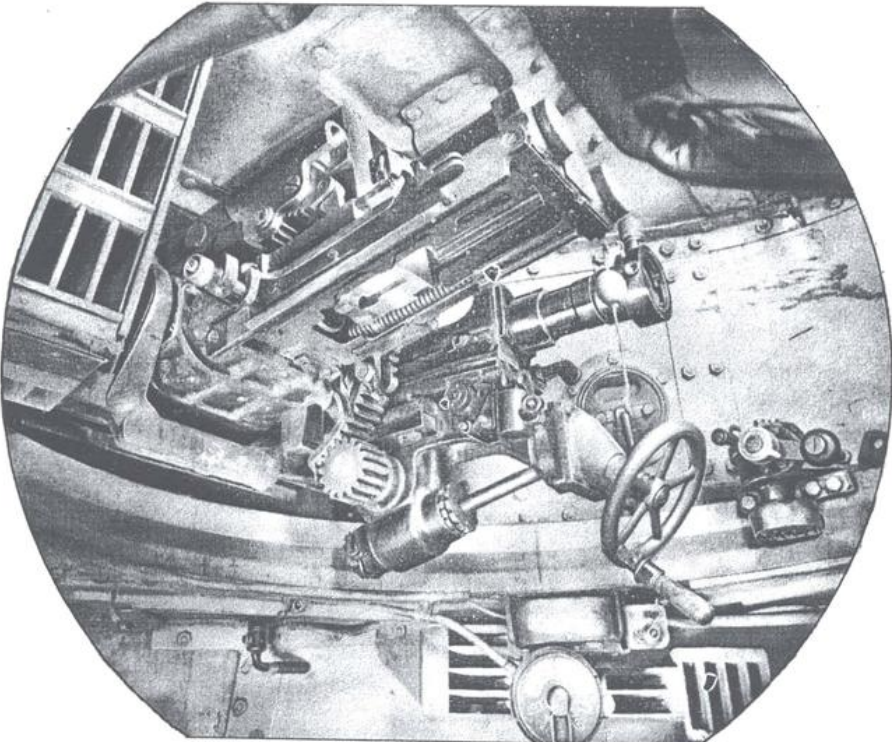


FIG. 2

TRAVERSE

The turret is mounted on a ball race and the balls appear to be captive in a cage, which is in eight separate sections.

Hand and power traverse of the main turret through 360° is provided. The floor of the turret does not rotate but the loader's and commander/gunner's seats are suspended from the turret ring and rotate therewith.

HAND TRAVERSE

Radius of handcrank - $4\frac{1}{2}$ "
Gear ratio - 172 : 1

The hand traverse consists of a housing on the right of the gunner containing a worm reduction gear. The housing is secured to the lower rim of the turret, to the right of the gunner.

A pinion is keyed to the shaft of the wormwheel and engages the internally toothed annular ring which is secured to the upper edge of the superstructure. When the handle of the traverse gear is operated the pinion rotates against the fixed annular ring and by carrying with it the housing to which it is attached, causes the turret to rotate.

As well as causing the turret to rotate the hand traverse handle also serves to lock it - it can be locked to the housing by means of a dog clutch which is controlled by wing nut on its axis. The pinion is prevented from turning and the turret is thus locked.

When the power traverse is in use the hand traverse can be disconnected by means of the dog clutch. The position of this clutch is controlled by a lever situated on top of the traverse housing. When the lever is up, the hand traverse is disengaged, and when it is down, it is engaged.

A traverse lock is fitted forward in the offside roof of the hull.

POWER TRAVERSE

The power traverse is of the Calzoni hydraulic type and is generally similar to that on the M.11/39 (See Appendix "A" to S.T.T. Preliminary Report No. 11). It consists of:

- (i) a rotary pump mounted on the right of the rear cover of the gearbox.
- (ii) a control valve situated vertically at a convenient height in the centre of the turret and supported by a pressed steel pillar bolted to the hull floor.
- (iii) a vane oil motor fixed under the roof of the hull in the right centre of the fighting compartment.
- (iv) an oil tank under the floor on the right of the frame supporting the gearbox on the offside of the fighting compartment.

The coupling which transmits the drive from the gearbox to the pump has sheared and rendered the installation unserviceable. It is not therefore possible to carry out any tests or make any comment on its performance and characteristics.

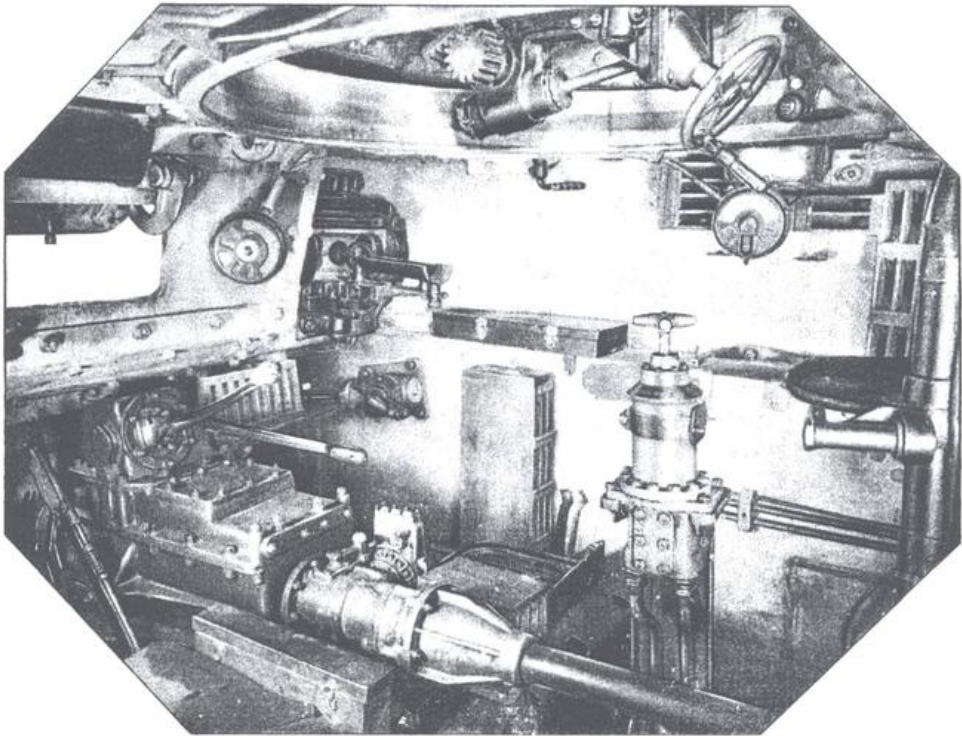


FIG. 3.

SIGHTS

Turret - Sighting is by telescope, the body attached to the mounting, and a prismatic extension mounted (with its axis to the left of the main telescope axis) on the cradle. This gives a stationary eyepiece and obviates movement of the gunner's head when sighting. The telescope is fitted but the eyepiece is deficient.

The telescope is believed to be the same as that on the M. 11/39, except possibly for the differences in the graticule. (See C.I.A. (F.C.) Drawing No. S.K. 129 - reproduced below - Fig. 4)

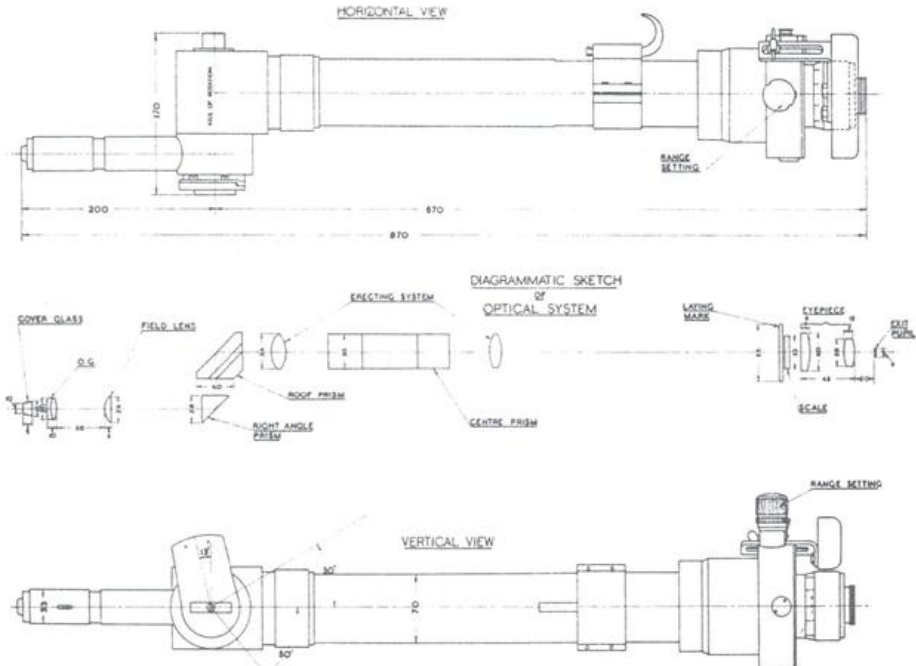


FIG. 4

Aiming is done by means of a vertically moving cross-wire with two fixed range scales (one each for A.P. and H.E.). The vertical cross-wire is inclined to allow for drift. The crosswire is moved by a knob on top of the graticule box. The height of the eyepiece may be adjusted within limits. There is also a focussing adjustment.

Illumination for graticule is provided, current for the lamp being led from one of four sockets placed at 90° round the turret ring, on the hull.

Removal of the telescope is a very laborious process, entailing the unscrewing of several components, clips, etc., which probably accounts for its presence in the tank on examination.

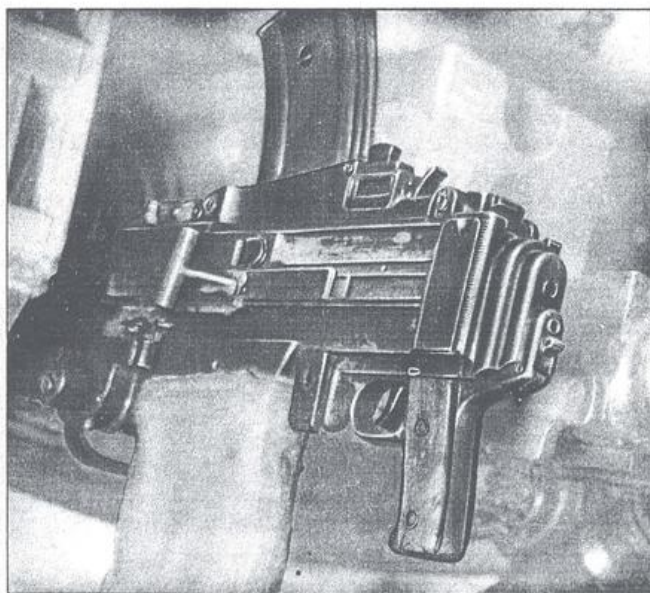
Magnification - 1.25 diameters
Field of view - 30°

Auxiliary Mounting - Sighting is also by telescope (deficient) centrally mounted between the two M.G.'s. From a captured handbook, the following information was taken:

Telescope Field - 30°
Magnification - 1x

Photographs in the handbook, reveal it to be of the same type as that fitted in the turret of the Autoblinda '40' Armoured Car, and this was verified by fitting a telescope of this type in the mounting. It is provided with an adjustable eyepiece and a browpad.

Control - The gunner/commander is provided with a cable operated signalling system on his right hand side for giving orders to the driver (See Para. 5.) As however, this is mounted on the hull the commander can only reach it when the guns are at 12 o'clock.



CO-AXIAL M.G.

This is mounted on the left of the 4.7 mm. gun on a two bracket mounting carried on the cradle. The gun is deficient. Firing appears to be by a Bowden cable, which pulls on a bell-crank operating on the firing plunger on the gun. The cable and operating lever are deficient.

FIG. 5

AUXILIARY M.G.'s

The twin Breda 8 mm. M.G.'s (both deficient) are mounted on the right side of the front vertical plate in a gimbal mounting with a fixed external mantlet and a spherical internally moving mantlet. Armoured jackets for the guns are welded to the ball. The external mantlet is built up of a top and bottom piece and two side pieces, and bolted to the front vertical plate.

The telescope (deficient) is mounted between the two guns and range adjustment is incorporated in the mounting. The method of mounting the guns is similar to that of the co-axial M.G.

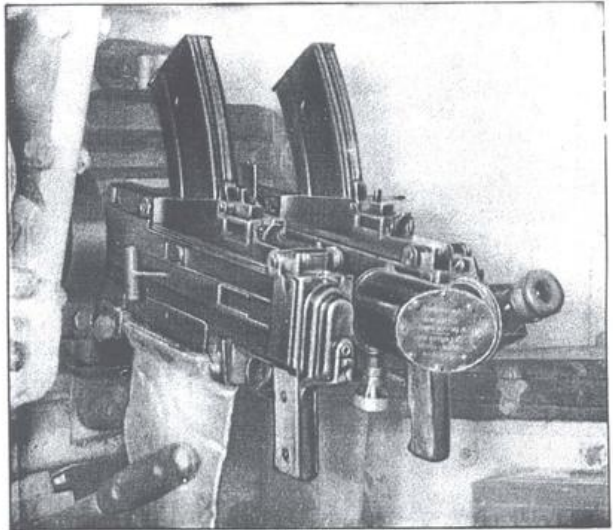


FIG. 6

Control for elevation and traverse is accomplished by the pistol grips of the guns themselves. The elevation lock is a spring loaded hook, which engages in a catch connected to the traversing part of the gimbal mounting, locking the gun in a horizontal position. The traverse lock consists of a screw clamp, which operates on the central vertical pivot of the gimbal - it is not fully efficient, giving about 2 inches of play when locked.

Maximum elevation - 20°
" depression - 10°
Arc of traverse - 30° (15° to left and right)

A/A M.G. - When in use this is mounted on a detachable pivoted bracket, allowing traverse and elevation, which in turn is mounted in a sleeve in the turret roof in front of the hatch. When not in use, the gun and bracket are horizontally mounted on two brackets on the right wall of the fighting compartment. No deflector bag is fitted - instead, a plate is provided under the gun, which deflects the empty cases out of the tank.

2. AMMUNITION CARRIED

4.7 mm. - 87 rounds
8 mm. (127 - 24 rd. mags) - 3048 "

It is disposed as under:

4.7 mm.

Near side of fighting compartment

Stowed vertically nose downwards,
in a sheet metal bin with lid 53 rounds

Rear of Turret

Stowed vertically nose downwards,
in two curved bins, covered by
curved sliding doors (There is a
spring cap to fit over the nose,
and a rubber washer on the base of
each round) .. left hand bin 9 rounds
right " " 25 "

Total 87 "

According to the instruction book the first hundred machines carried 104 rounds.

8 mm. (In magazines containing 24 rounds)

In Turret

In rack on left of co-axial M.G. 13 mags

Nearside of fighting compartment

One rack to right of escape hatch 15 "
 " " " left " " " 4 "

Offside of fighting compartment

One rack by engine bulkhead 25 "
 " " " traverse motor 6 "

Co-driver's compartment

One rack to right of co-driver 9 "
 " " in front " " 8 "
 " " to left " " 4 "

Driver's compartment

One rack 2 "

Two loose racks (correct position unknown). Each contain 12 magazines 24 "
 1 magazine on each gun 4 "

114 " (2736 rnds)

As the total given in the handbook of the M.13/40 is 127 magazines, or 3048 rounds, it is obvious that some of the racks have been removed from the rear of the fighting chamber on the offside. This is confirmed by a photograph in the handbook.

3. ARMOUR

	<u>BASIC</u>	<u>ANGLE</u>
C. Turret top front	14 mm.	85°
D. " " rear	14 mm.	85°
E. " sides	25 mm.	22°
F. " rear	25 mm.	22°
G. " front	40 mm.	16°
H. Gun mantlet	33 mm.	Round
J. Front vertical plate	30 mm.	11°
K. " glacis plate	25 mm.	81°
L. " nose plate	30 mm.	Round
M. " lower nose plate	15 mm.	81°
N. Side superstructure	25 mm.	9°
P. Side hull plate	25 mm.	0°
S. Top rear engine cover plate	9 mm.	76°
Lower " " " "	10 mm.	83°
U. Belly plate	15 mm.	90°
W. Tail plate (upper)	25 mm.	62°
" " (lower)	25 mm.	20°

(The "Angle of Plate" given is the angle between the plate surface and the vertical, which is equal to the "Angle of Impact" for horizontal attack)

The usual Italian practice has been followed in the construction of the vehicle which consists of bolted and rivetted plates and a few small castings. There is no welded armour. The turret front plate and the housing for the ball mounting for the hull M.G.'s are castings. Splash protection does not appear to have received particular attention and the turret ring protection consists only of a rectangular steel bar of 25 mm. x 50 mm. section secured to the superstructure top by rivetted angle section.

Examination by the "Poldi" portable hardness testing equipment indicates the armour to be of homogeneous machineable quality throughout varying from 210 Brinell in the case of the turret front to 245 Brinell in the case of the nose plate.

4. OBSERVATION & PORTS

Driver's Compartment - vision port in left hull front plate, with B.P. shutter containing vision slit, backed by laminated glass screen. Episcopes mounted in roof.

Turret - Two periscopes, one for loader and one for commander/gunner. Both are deficient.

Fighting Chamber - Two vision ports in hull sides, and two in rear of bulkhead, all closed by revolving shutter from the inside. These vision ports are similar to those described in S.T.T. Preliminary Report No. 12 on the Autoblinda '40 Armoured Car.

Pistol Ports - pistol ports with revolving shutters are provided in the offside of the superstructure, the nearside access door and in each side of the turret.

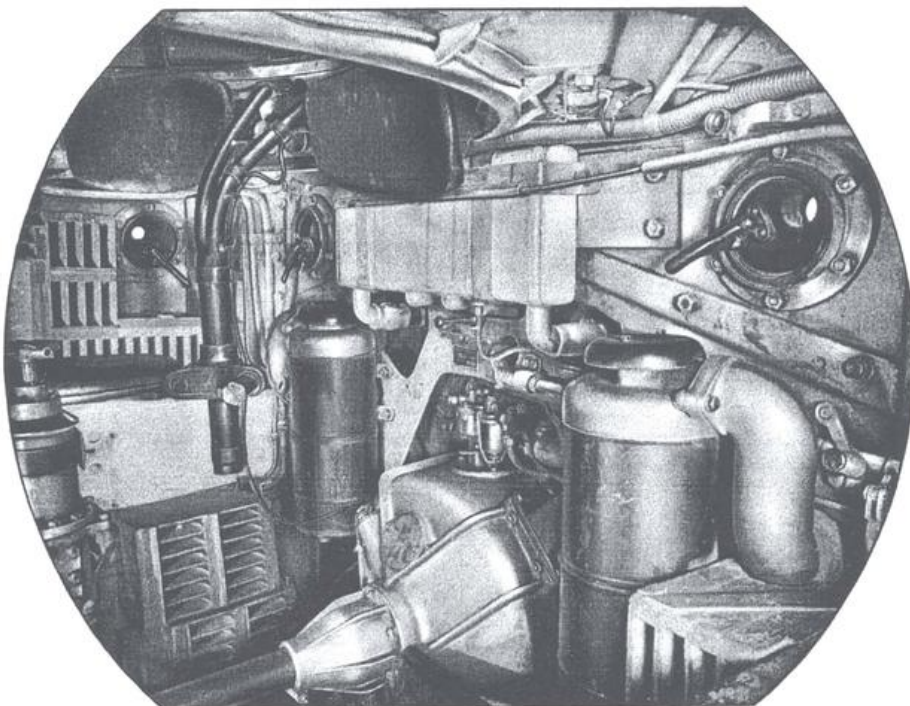


FIG. 7

5. ACCESS DOORS

Fighting Compartment

There is a lipped door measuring 2' 5 $\frac{1}{2}$ " x 1' 4" provided in the nearside superstructure. It is hinged at the front and may be retained open approximately 4" at the rear by a small stay hinged to the door and secured to the superstructure side plate by a cotter pin when in use. Two sliding bolts are operated by a single central lever from inside and by a key from outside. An opening 2' 1 $\frac{1}{4}$ " x 1' 3 $\frac{3}{4}$ " in the turret roof is closed by two doors hinged at either side and having a $\frac{1}{2}$ " lip fitting over a splash ring screwed to the turret roof. The offside door has a lip projecting over the near side door and a similar locking arrangement to the side door.

Steering Unit Covers

There are two doors in the glacis plate giving access to the steering brakes. They are operated from inside by a handcrank situated to the right of the hull gunner.

6. ELECTRICAL COMPONENTS

All electrical components operate on 24 volts with a negative earth return.

Two 12 volt lead acid accumulators of about 120 amp. hr. capacity connected in series, are mounted in the rear right corner of the fighting compartment. A screw type isolating switch on the driver's panel controls all circuits except the starter motors.

The accumulators are charged by two 24 volt 300 watt generators with voltage regulation. Each generator has an independent regulator of the vibrating contact type with the cut-out mounted in the same case. The regulators are of the current-voltage pattern. The generators are in parallel across the accumulator terminals. No ammeter is fitted but two charging pilot lights are mounted on the driver's panel.

Two 24 volt starters are fitted, connected in parallel and controlled through a solenoid switch operated from the starter button. The solenoid switch is the usual bridge pattern with the addition of carbon sparking contacts. The starters will not operate unless the driver's key is pushed home. The starters are of the Bendix type engagement with Belville washers replacing the shock absorbing spring.

External lighting consists of two headlamps and a tail lamp controlled by a three position switch on the driver's panel.

Internal lighting is by two lamps on the engine bulkhead in the fighting compartment and one on the driver's panel, controlled by built-in switches. A series of single pole sockets fitted under the turret ring allow for the connection of extra circuits or the use of an inspection lamp.

There are no lighting circuits in the turret and no rotary base junction is fitted.

7. COMMUNICATION

Wireless Telegraphy - provision is made for carrying a wireless set (deficient) on the right hand wall of the fighting compartment with a rod aerial mounted on the superstructure and dipped by hand only. The set is fed by a lead taken direct from the accumulators. Only one station is provided in the turret. Two double pole socket boxes are mounted on the turret ring at the rear for the head set and throat microphone. A single pole tumbler switch is carried between the two boxes and this may be the microphone control switch.

Since no rotary connection to the turret is provided, the head set and microphone must be disconnected from the set during the rotation of the turret.

Internal - for communication between the turret and the driver a signalling system similar to a ship's telegraph is fitted.

The two units are almost identical. That in the turret is mounted underneath the turret ring and consists of a slotted dial covered with a translucent material. The slots are independently illuminated and four of them are marked:

"ALT"
"RALL"
"D.T. FRONT"
"ACC"

The middle slot at the bottom is left blank, as is the large slot at the top except that both these slots are marked with a radial line down their centres.

An arm pivoted at the middle of the dial operates a shutter on the driver's dial through a flexible drive. The circuit is controlled by a single point tumbler switch and a push switch allows the lamps to be flickered to attract the driver's attention.

Heater Plugs - Eight heater plugs in the engine, and a ninth on the dash board are connected in series. They are connected to the supply through a fixed resistance.

8. INSTRUMENTS

A re-arrangement of the instrument panel from that of the Semovente is noted.

This now contains:-

- A water temperature gauge
- An oil pressure gauge
- Two dynamo charging lights
- A switch for the oil radiator fan
- A light switch with three positions
- A switch for the heater plugs
- A battery isolating switch
- Four fuses
- A starter switch

A heater plug is mounted in the panel in series with the heater circuit so that the driver has an indication that all heater plugs are functioning.

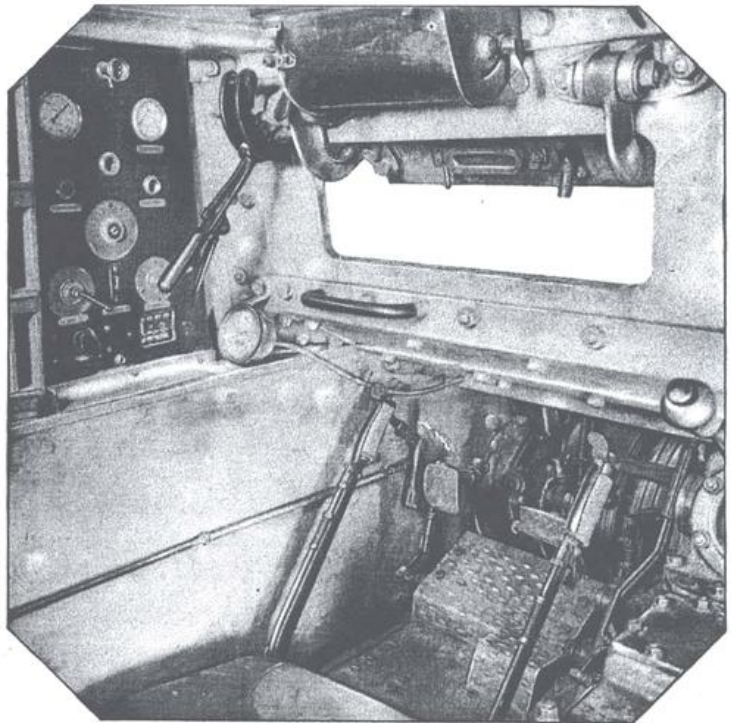


FIG. 8

9. RECOGNITION POINTS

A centrally mounted turret of horseshoe plan with cambered side plates distinguishes this vehicle from the M.11/39 Italian Tank.

The usual Italian bolted construction with numbers of prominent bolt heads is a very marked feature.

The large size of the turret compared with the hull gives the vehicle a slightly top heavy appearance.

10. VULNERABLE POINTS

There is no splash protection to the ball mounting for the dual M.G.'s in the hull.

The revolver port covers, being attached inside the armour, are vulnerable to heavy attack.

A gap of some 5" is left in the turret ring protection at the near side front in order to clear the driver's episcopes and this completely exposes the turret race at this point.

11. STOWAGE & FITTINGS

In ascertaining the stowage of this vehicle, frequent reference has had to be made to the handbook. Items quoted therefrom are in parenthesis.

External

Front

2 towing hooks (left and right)	}	On nose plate.
1 central towing eye		

Nearside

1 Tool bin	Track guard aft of turret
------------	---------------------------

Offside

1 Tool bin	Track guard aft of turret
------------	---------------------------

Rear

(1 Jack)	Deficient	Left of rear top plate
(1 Track puller)	"	Centre " " " (on 2 brackets)
(1 Spare bogie)	"	Right " " "
(1 Tow rope)	"	Across top of hull, between 2 eyes
(Towing shackle)		Rear bottom plate

(1 Shovel)	Deficient	}	On top of engine compartment
(1 Pickaxe)	"		
(1 Sledgehammer)	"		
(1 Crowbar)	"		

Internal

Turret

Stowed position for 2 periscopes	On turret ring behind gunner.
1 wooden holder (purpose unknown)	" " " on left of loader

Fighting Chamber

1 Set M.G. Tools	Deficient	On right hand M.G. magazine rack below revolver port.
------------------	-----------	---

Auxiliary Gunner's Compartment

(1 box for optical tools
and spares)(spares deficient)
1 Set M.G. Tools Deficient

Right hull side plate
On M.G. magazine rack on
gunner's right side.

12. MANUFACTURERS' MARKINGS

On plate on rear of fighting compartment:

CARRO TIPO M.13 TARGA 3596 ANNO 1941
MATRICOLA No. 01473

On Power Traverse: CALZONI, BOLOGNA

On Oil Pressure Gauge: ALLEMANO - TORINO

On Commander's Telegraph: MAGNETTI MARELLI SD1 0193

On Auxiliary Fuel Pump: SA. ALIT TORRINO BREVITALIANO MOD 80

On Face of Breech of Gun: CANNONE da 47/32 PERCARRO M.13 ANSALDO
S.A. GENOVA



PESO Kg. 108 MAT. 37848

On Breech Block: S. 1205



Engine Compartment

Engine No: SPA. 15T * 100162 *

Injector Pump: FIAT 00738 6.70 2 D 18

Fuel Filter: BOSCH Fa 11 S 1

Voltage Regulator: MAGNETTI MARELLI. REGOLATORE DI
TENSIONE 1 D 6 PER GENERAT 300W
V. 24

Track adjuster & Tracks: ANSALDO FOSSATI, GENOVA

Rear Suspension Arm: S, 1399 ?

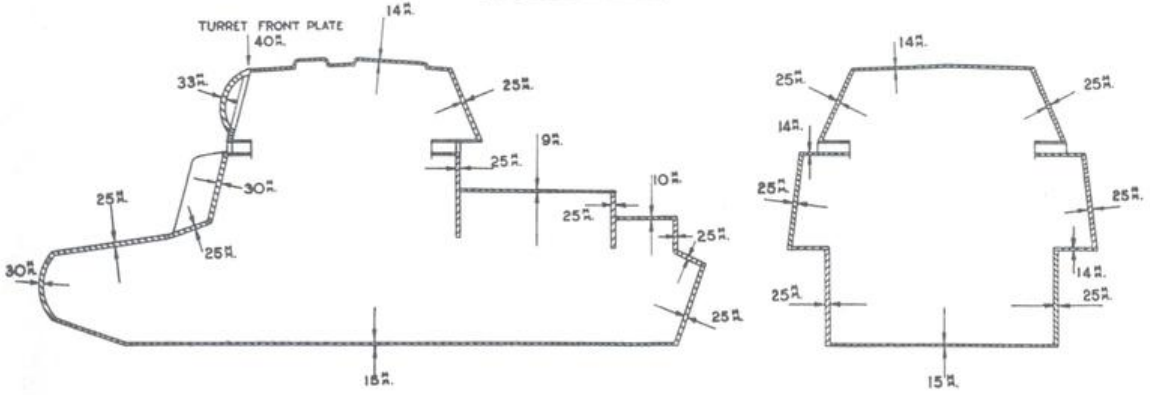
13. REFERENCES

In view of the similarity between this vehicle, the M.11/39 Italian Tank and the Semovente, (the subjects of S.T.T. Preliminary Reports Nos. 11 and 14 respectively), this report has been confined to a description of the modifications and differences which have been noted.

Aspects of design and individual components which are similar are listed hereunder:

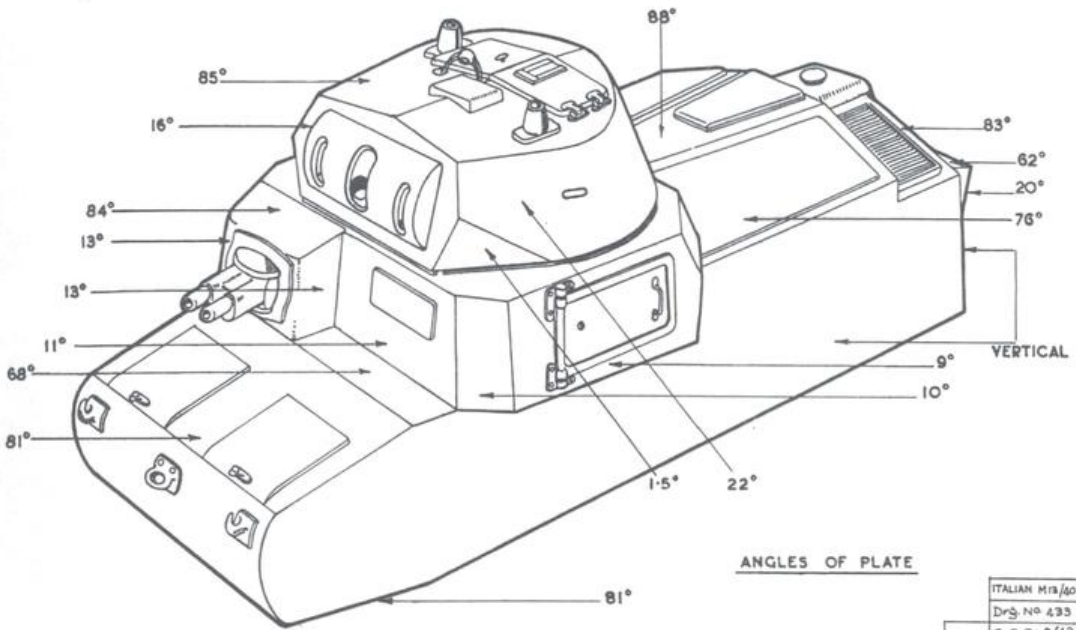
- CONSTRUCTION OF HULL
- CONSTRUCTION OF OBSERVATION & REVOLVER PORTS
- CONSTRUCTION OF ACCESS DOORS & ESCAPE HATCHES:
- GEARBOX AND TRANSMISSION
- STEERING AND FINAL DRIVE
- TRACKS AND SUSPENSION
- DRIVER'S CONTROLS

ITALIAN M 13/40



ARMOUR PLATE

	ITALIAN M13/40
	Drs. N° 460
F 18	C.G.P. 8/43
	S.T.T. 8/53

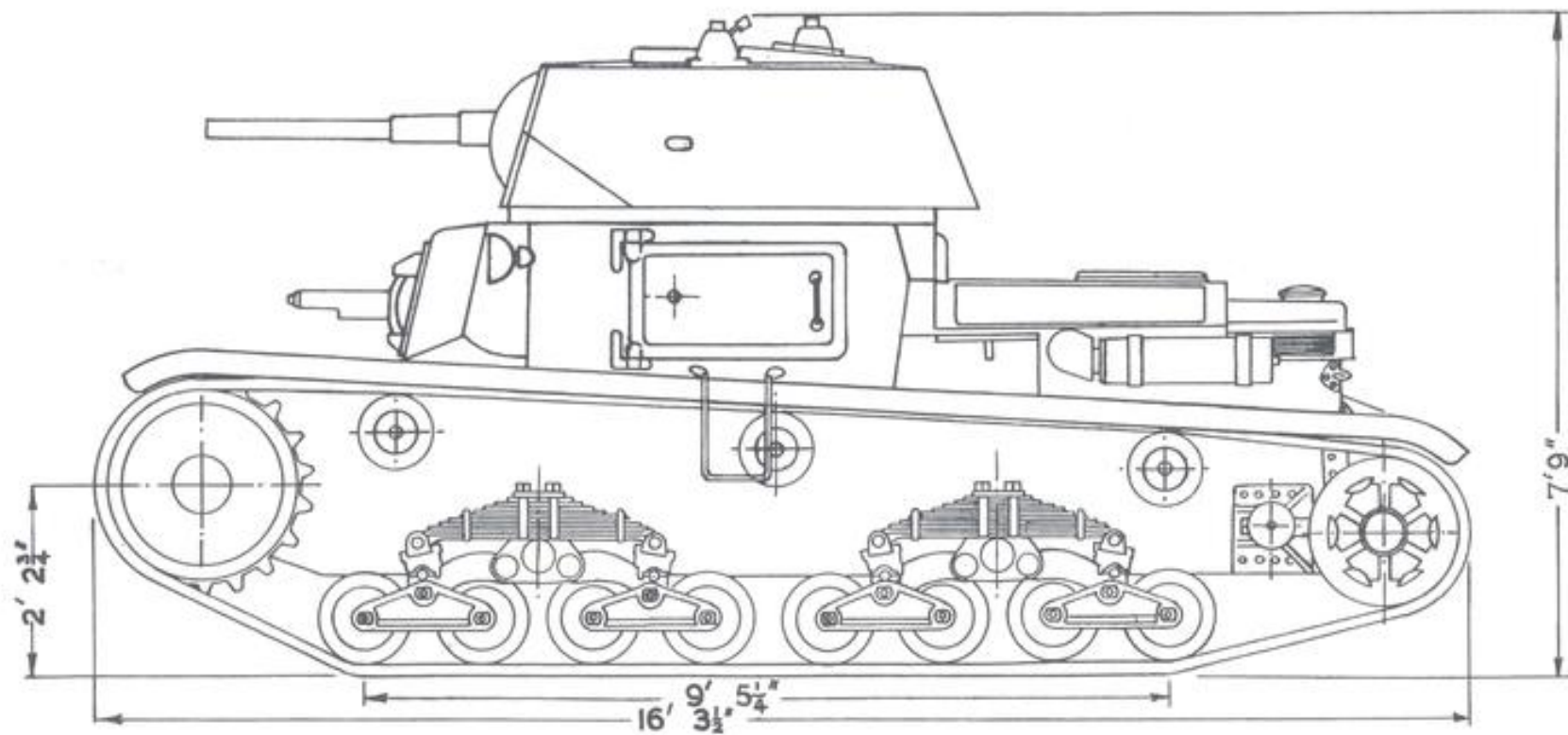


ANGLES OF PLATE

	ITALIAN M13/40
	Drs. N° 433
F 18	C.G.P. 8/43
	S.T.T. 8/53

ITALIAN

M 13/40



SIDE VIEW

ITALIAN M13/40

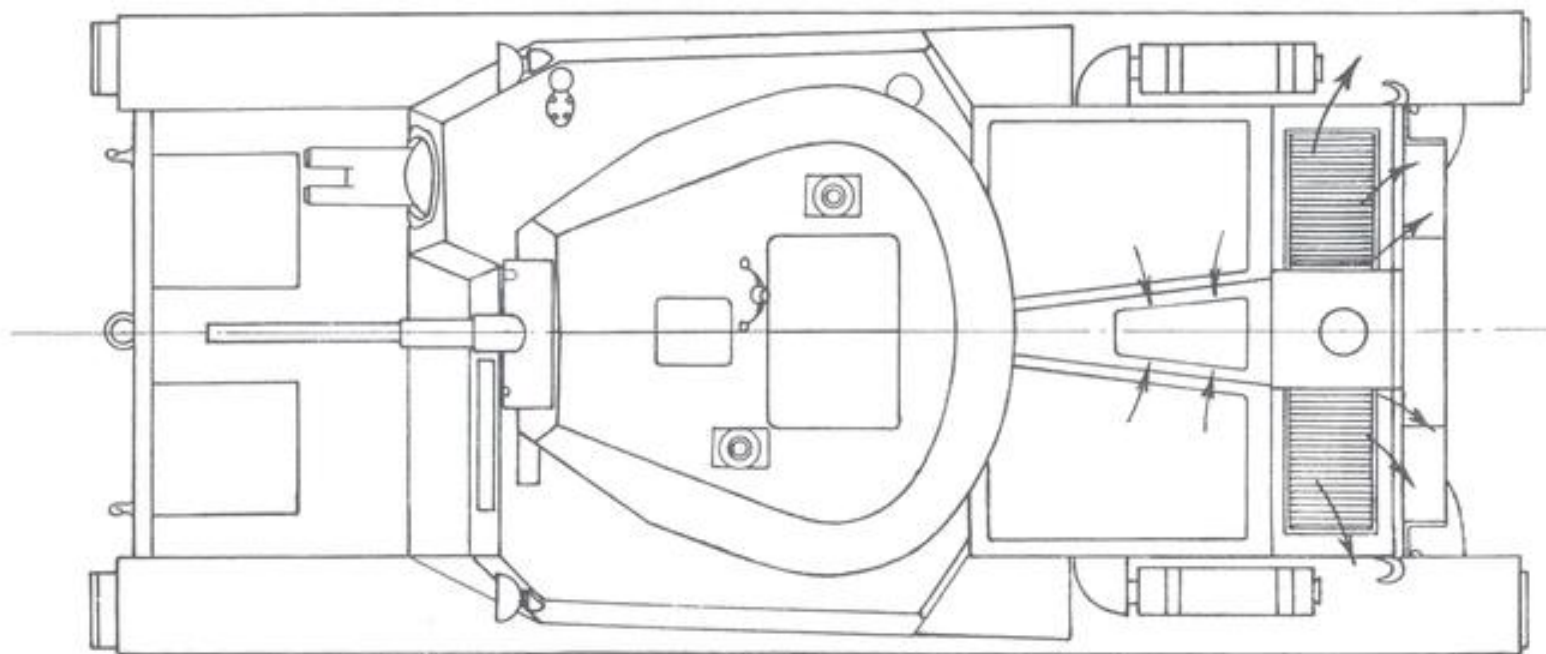
Drq. No. 438

C.G.P. 8/43

S.T.T. 8/5/3

F18

ITALIAN M 13/40



PLAN

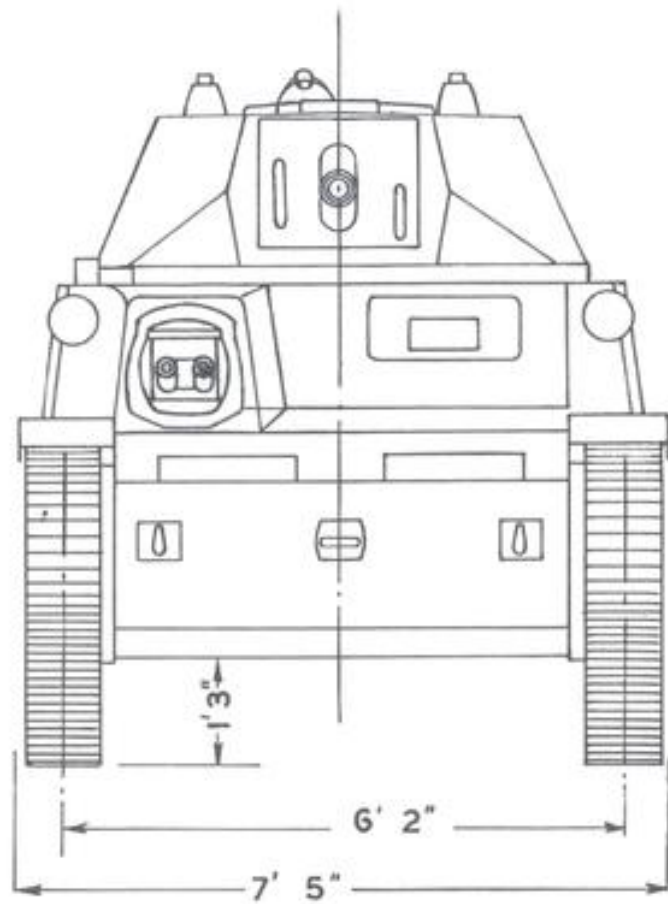
ITALIAN M13/40

Drg. N° 439

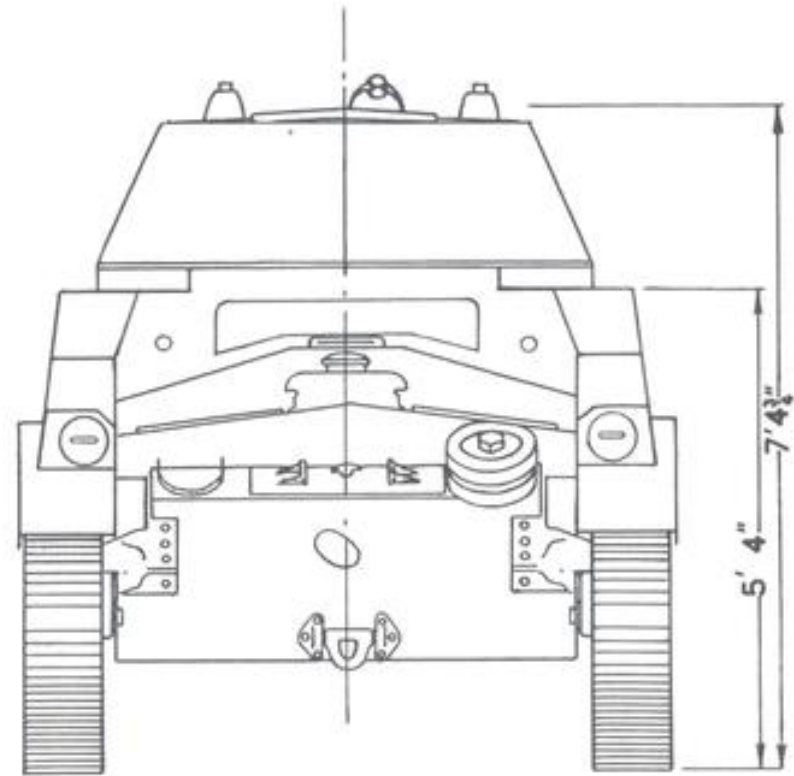
C.G.P. 8/43

S.T.T. 8/5/3

F18



FRONT VIEW



REAR VIEW

	ITALIAN M13/40
	Dwg. N ^o . 440
F 18	C.G.P. 8/43
	S.T.T. 8/5/3

D.T.D. Nos. 3024 and 3025

MILITARY COLLEGE OF SCIENCE,

D.T.D. PROJECT NOS. V.7049 and V.7050

SCHOOL OF TANK TECHNOLOGY,

MARCH 1944

CHOBHAM LANE, CHERTSEY.

APPENDIX "A"

TO

PRELIMINARY REPORT No. 18

ON

ITALIAN TANK M. 13/40

Reports on these two M. 13/40 tanks are given in this single Appendix to S.T.T. Preliminary Report No. 18 in which a similar vehicle was described. As both machines appear identical with the example previously reported upon, no further report is considered necessary. Some notes on condition and identification and manufacturer's markings are however, appended.

CONDITION

Both tanks are non-runners. Whilst there is no external damage the power plant in each case is incomplete. Various major components have been removed from the vehicle bearing D.T.D. No. 3024, and whilst the engine of vehicle D.T.D. No. 3025 is more complete, both fuel lines and manifolds are disconnected. The mechanical condition of the engines is not known since no dismantling has been attempted. There is no external evidence of damage to the transmission in either vehicle.

The armament and turret fittings in both vehicles are deficient of major components and damaged by exposure.

IDENTIFICATION AND MANUFACTURER'S MARKINGS

	<u>DTD. No. 3024</u>	<u>DTD. No. 3025</u>
<u>Vehicle Markings</u>		
On number plates at front and rear	R9E10 4867	R2 E10 4944
<u>Manufacturer's Markings</u>		
On plate in fighting compartment	FIAT ANSALDO CARRO TIPO M. 13 TARGA 4867 ANNO 1942 MATRICOLA 01903	FIAT ANSALDO CARRO TIPO M. 13 TARGA 4944 ANNO 1942 MATRICOLA 01982
On Engine	SPA 8T	SPA 8T
On Sprocket	POSSATI ANSALDO GENOVA	POSSATI ANSALDO GENOVA
On Bogies	21679	No Mark
On Return Rollers	PIRELLI	PIRELLI 27512

Manufacturer's Markings (Contd.)

On Breech Block of
47mm gun

CANNONE D.A.
47/32
PERCARRO M. 13
ANSALDO S.A.
GENOVA
Peso Kg. 108
Mat. 38320

CANNONE D.A.
47/32
PERCARRO M. 13
ANSALDO S.A.
GENOVA
Peso Kg. 108
Mat. 38350



On Piece

1728

On Breech of 8mm.
Breda M.G.



S. 1962

MITRAGEL BREDA
TIPO C.A. CAL 8
No. 5180.

D.T.D. No. 3026
D.T.D. PROJECT No. V. 7051
APRIL, 1944.

MILITARY COLLEGE OF SCIENCE,
SCHOOL OF TANK TECHNOLOGY,
CHOBHAM LANE, CHERTSEY.

APPENDIX B

To

PRELIMINARY REPORT No. 18

ITALIAN M.13/40

COMMANDER'S TANK

INTRODUCTION

This Commander's Tank is basically an M.13/40 tank from which the turret has been removed. The design of the chassis and the mechanical layout are unchanged and are described in S.T.T. Preliminary Reports Nos. 14 and 18.

The absence of the armament, (removed by D.T.D.) fittings and instruments in the commander's compartment renders it impossible to assess the usefulness of the tank as a command vehicle. This report is therefore devoted mainly to a description of the modifications in construction involved in its conversion for this role.

CONDITION

Outwardly the tank is in good order. The armour has not been penetrated. Suspension units, sprockets, idlers and return rollers are undamaged and show little sign of wear.

The engine is complete with all auxiliaries but considerable damage has been done to the aluminium rocker box covers, manifolds and water pipes. The injector pump is also holed and the inertia starter is inoperative.

Superficial examination reveals no defects in the transmission or final drive units.

CONSTRUCTION

The turret and turret ball race have been removed and an octagonal frame of 8 mm. rolled plate is bolted to the top of the superstructure top plate. Countersunk bolts are used and the perimeter of the frame follows the plan of the deflector bar which normally protects the turret ring joint.

Four doors, hinged to the frame at the front, rear and sides respectively complete the constructional alteration.

The doors may be locked in the closed position by a single bolt on the nearside door which engages an eye on the offside door. A lip formed by a flat strip rivetted to the centre doors secures the front and rear covers.

OBSERVATION

Commander's Vision

The commander is provided with a panoramic periscope the mounting for which is situated in the offside rear corner of the top plate. The domed mounting is identical with that fitted to the M.13/40 fighting tank. The periscope has been removed.

Other vision devices remain unchanged in position or type.

COMMUNICATION

In addition to the normal aerial mounting fitted in the M.13/40 fighting tank forward on the nearside of the superstructure top plate, there is an identical mounting at the rear nearside corner of the superstructure. The hole in the top plate to accommodate this additional aerial mounting is present in all M.13/40 vehicles but is normally blanked off.

The wireless sets and their mountings are deficient and all wiring has been torn away. Two double pole socket boxes are mounted on the nearside hull plate for the headsets and throat microphones of the driver and commander. There are tapped holes in the offside hull plate which indicate the fitting of a similar box for the gunner.

INSTRUMENTS

The normal M.13/40 instrument panel is fitted but all instruments and switches have been removed.

IDENTIFICATION AND MANUFACTURER'S MARKINGS

The manufacturer's plate has been removed from the Commander's compartment and there is consequently no indication of the chassis number.

Vehicle Markings

On front and rear	RQETD 5771
On Driver's vision and on tail	FERRAMOSCA
On front and rear of superstructure	Red Square - Large "L" superimposed on square at rear.
On nearside hatch cover in glacia plate	White clock face, graduated 1 - 12 in black figures.

D.T.D. No. 3030

D.T.D. PROJECT No. V. 7053

April, 1944

MILITARY COLLEGE OF SCIENCE,
SCHOOL OF TANK TECHNOLOGY,
CHOBHAM LANE, CHERTSEY.

APPENDIX 'C'

To

PRELIMINARY REPORT No. 18

ITALIAN TANK M.13/40

This vehicle is identical to the M.13/40 tank described in S.T.T. Preliminary Report No. 18 of November, 1943 and further comment upon its general arrangement is not considered necessary.

Some notes on condition, identification and manufacturer's markings are, however, appended.

CONDITION

The vehicle is a runner. It appears to be in good mechanical order and its general condition is in keeping with the small mileage recorded on the speedometer, i.e. 907 Km. (563 miles).

Several instruments on the driver's panel are deficient and the wireless set, aerial and aerial mounting have been removed.

The 47/32 semi automatic gun is in its mounting in the turret and whilst no detailed examination has been made it appears to be serviceable.

The co-axial M.C. and the auxiliary M.Cs are deficient. All sighting instruments have been removed. The power traverse apparatus is complete and is probably in working order but no tests have yet been undertaken.

IDENTIFICATION AND MANUFACTURER'S MARKINGS

Vehicle Markings

On Number Plate at front
and rear

C-TO 4703
R-E

Manufacturer's Markings

On plate in fighting compartment

FIAT ANSALDO CARRO TIPO M 13
TARCA 4708 ANNO 1941
MATRICOLA No. 01726

On Engine

SPA 15 T 100427

On Injector Pump

FIAT 00470 8 70 2 D 18

On Fuel Filter

BOSCH

On Oil Filter

SA.ALIT, TORINO
BREVITALIANO Mod. 80.

On Oil Radiator

Brevetti FERGAT Mondiali
No. A. 25555