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ABRIDGED SPECIFICATION NO.30 - CENTURIONS MK. 9 & 10

4 Sheets

DRAWINGS F.V.231921 - 5 SHEETS - CENTURIONS MKS. 7, 8, 9 & 10

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PHOTOGRAPHS Nos. 43012/1-6 - CENTURION MK.10 FIRST PRODUCTION VEHICLE

No.43012/1	Plan - Front
No.43012/2	Plan - Rear
No.43012/3	Side - Right
No.43012/4	Rearside - Gun to Rear
No.43012/5	Frontside - Gun to Rear
No.43012/6	Side - Front Right

Issued by:

D.F.V.(Co-ord)/F.V.3
Ministry of Aviation,
First Avenue House,
High Holborn,
W.C.1.

30.10.59

KUNGL ARMÉTYGFÖRVALTNINGEN

187 9 MRS. 1962

Nr FA H. 1160:2

SECRET

HEMLIG
jämlikt 4 § lagen 1937:249
9 MRS 1962
KUNGL ARMÉTYGFÖRVALTNINGEN

Visas CKS P. 24/362
12/3 J. Mel

CENTURION MK 10 FOR SWEDEN

ACCEPTANCE OF FIRST PRODUCTION VEHICLE

AT

MESSRS VICKERS ARMSTRONGS (ENGINEERS) LTD.,

NEWCASTLE

NOVEMBER 1959

KUNGL ARMÉTYGFÖRVALTNINGEN

787 9 MRS. 1962

Nr FA/H. 1160:2

017

✓

10/3-62
J. Mel

SECRET

CAPTAIN U.K.O. HEINE

Abridged Spec. No. 30

Vehicle: Centurion Mk. 9 and 10.

Sheet No. 1

No. of Sheets: 4

Date of Issue: 29.10.58.

NOTE:

The contents of this Specification were authoritative at the date of issue, and this copy will not be kept up-to-date. This Specification deals with a vehicle in the course of design and is subject to frequent alteration. Where reliable information is required at a date appreciably later than the date of issue, reference must be made to F.V.R.D.E.

Where blank spaces are found, authoritative information was not available at the date of issue.

1. GENERAL:

Vehicle Type	:	Centurion (Basic Mk. 7)
Crew	:	4 i.e. Commdr. Driver, Loader, Gunner
Weight laden	:	51 Tons
Weight Unladen, dry	:	47.5 Tons
Ground Pressure (Nominal)	:	13.2 lbs./sq.in.
P/WT Ratio	:	12.5 BHP/Ton
Fuel Capacity	:	230 galls. approx.
Bridge Classification	:	60

DIMENSIONS:

Length Vehicle	:	25' 8"
Length, Gun to front	:	32' 2½"
Length, Gun to rear	:	28'
Height	:	9' 9"
Width	:	11' 1½"
Width, overtracks	:	10' 8"
Ground Clearance	:	1' 8"
Track Centres	:	8' 8"
Length of track on ground	:	15' 0" approx.

2. ARMAMENT:

Main Armament: 105 mm. Cal. 105 mm. (4.14 ins.)
 Traverse : 360° (18° per second)
 Elevation : 20° to minus 10°

Auxiliary Armament: .30" Browning M/G (Elec. and Mech. firing)

Ground to Air Defence: .30" Browning M/G on Cupola (Mech. firing)

Traverse : 360°
 Elevation : 45° to minus 15° (Frontal arc)

Gun Control:

Elevation: Electric Power and manual (gunner), manual (commdr.)
 Traverse: Electric Power, manual and emergency.
 (gunner), Power - overriding (commdr.)
 Firing: Main - Electric firing gear and primer
 Aux. - Electrical and mechanical for Co-ax. M/G
 Automatic Control: Stabilised in elevation and traverse (by handswitch
 in Mk. 9 - by automatic velocity relay in Mk. 10).

Abridged Spec. No. 30

Vehicle: Centurion Mk. 9 and 10.

Sheet No. 2.

No. of Sheets 4.

Date of Issue: 29.10.58.

Personal Weapons:

1 Sterling m/carbine 9 mm. or equivalent

Smoke Protection:2 Multi-barrel Smoke Dischargers
Coverage - 360°Ammunition:

~~70~~ ⁶⁸ Rds. - 105 mm. (17 A.P.D.S. only)
 3,000 Rds. - .30" Browning M/G.
 16 Mags - 9 mm.
 9 Hand Grenades.

3. ARMOUR:

	<u>Hull</u>		<u>Turret</u>
Glacis	: 4 $\frac{3}{4}$ " (120 mm.) at 57°	Front	: 6" (152 mm.)
Nose	: 3" (76 mm.) at 45°	Sides	: 3 $\frac{1}{2}$ " (89 mm.)
Sides	: 2" (51 mm.) at 120°	Roof	: 1 $\frac{1}{8}$ " (29 mm.)
Floor	: .669" (17 mm.)	Rear	: 3 $\frac{1}{2}$ " (89 mm.)
Rear	: 1.25" (32 mm.)		

4. SIGHTING:

Commander: (i) Mk. 9 - 360° rotating ARV cupola inc. (i) x 7 monocular sight optically linked to gunner's sight.

Mk. 10 Fully contra-rotating cupola. (ii) 7 fixed episcopes.

(ii) x 10 cupola mounted binoculars.

Gunner: A.F.V. Periscopic Sight (X6 and unit power) - optically linked to commander's sight.

5. VISION:

Commander : See sighting
 Gunner : See sighting
 Driver : 2 Periscopes
 Loader : 1 Periscope

6. COMMUNICATIONS:

W/T Installation : No. C42 and B47 Sets, (Control C42 & C42 & B47)
 (Command C42 & C13 & B47)

Intercommunication : For all crew.

Emergency Crew

Control : Commander to Driver
 Remote Control : Cable Reel (220 or 440 or 880 yds.)
 Infantry telephone : On rear of hull (to inter-comm.)

Abridged Spec. No. 30

Vehicle: Centurion Mk. 9 and 10.

Sheet No. 3.

No. of Sheets 4.

Date of issue: 29.10.58.

7. ENGINE:

Make : Meteor Mk. 4B
 Bore and Stroke : 5.4" x 6"
 No. of Cylinders : 12
 Compression Ratio : 7 to 1
 Max. B.H.P. (Gross) : 635 @ 2550 R.P.M.
 Max. Torque (Gross) : 1550 lbs/ft. @ 1600 R.P.M.
 Coolant Capacity (Galls) : 33
 Oil (Galls) : 14
 Clutch : 16" - 3 plate - dry.

8. TRANSMISSION:

Gearbox : Z51R - Constant mech. - 5F and 2R speeds - mech. opn.
 Final Drive : Double reduction spur gears - 7.47 to 1 ratio.
 Steering : Controlled differential - mech. opn.
 Sprocket P.C.D. : 29 ins.
 Brakes : Girling Bendix.
 Bevel Drive : 13/25.

Gear	Gearbox Ratio	Overall Ratio	Max. Speeds	Turning Radii
5th	1.343	10.04	21.9	130 ft.
4th	1.807	13.51	16.3	96 ft.
3rd	2.855	21.34	10.3	61 ft.
2nd	4.593	34.33	6.4	38 ft.
1st	11.643	87.02	2.5	15 ft.
Rev.	22.894	171.11	1.3	7.6 ft.
H.Rev.	3.859	28.84	7.6	45 ft.

9. SUSPENSION:

Road Wheels : 12 of 31.6 dia. in pairs on $13\frac{1}{2}$ " rad. arms with horizontal coil springs in 6 bogies.
 Tracks : 24" x $5\frac{1}{2}$ " pitch - 108 shoes per track - manganese cast.

10. VEHICLE ELECTRICAL SYSTEM:

Power Supply : 24 volts (4 - 6V - 120 a/h batteries)
 Generators : (i) 3 KW dynamo driven by aux. engine
 : (ii) 1.5 KW dynamo driven from main engine
 W/T Supply : 24 volts.
 Wiring : Negative earth return

11. VENTILATION SYSTEM:

Crew Compartment : Aux. generator ventilating fan.

12. FIRE FIGHTING EQUIPMENT:

Internal : CO₂ System - (2-7 lb. bottles)
 : 2 Tetrachloride Extinguishers (Hand)
 External : 2 Methylbromide Extinguishers (Hand)

Abridged Spec. No. 30

Vehicle: Centurion Mk. 9 and 10

Sheet No. 4.

No. of Sheets 4.

Date of Issue: 29.10.58.

13. PERFORMANCE:

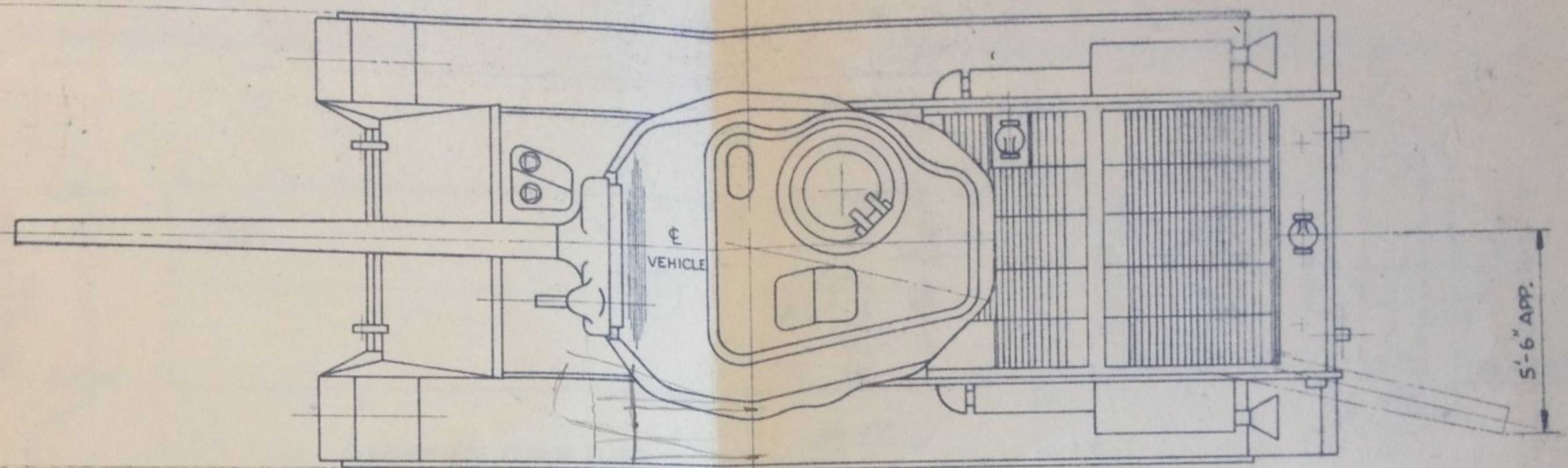
Max. Road Speed	:	21.5 m.p.h.	
Vertical Obstacle	:	3' 0"	
Max. Gradient	:	30° approx. at full tractive effort	
Trench	:	11' 0"	
Shallow Fording	:	3' 6" minimum requirement	
Fuel Consumption	:	.6 Pts./B.H.P./Hour	($\frac{1}{8}$ m.p.g. c.c. approx.) ($\frac{1}{8}$ m.p.g. road approx.)

14. SPECIAL FEATURES:

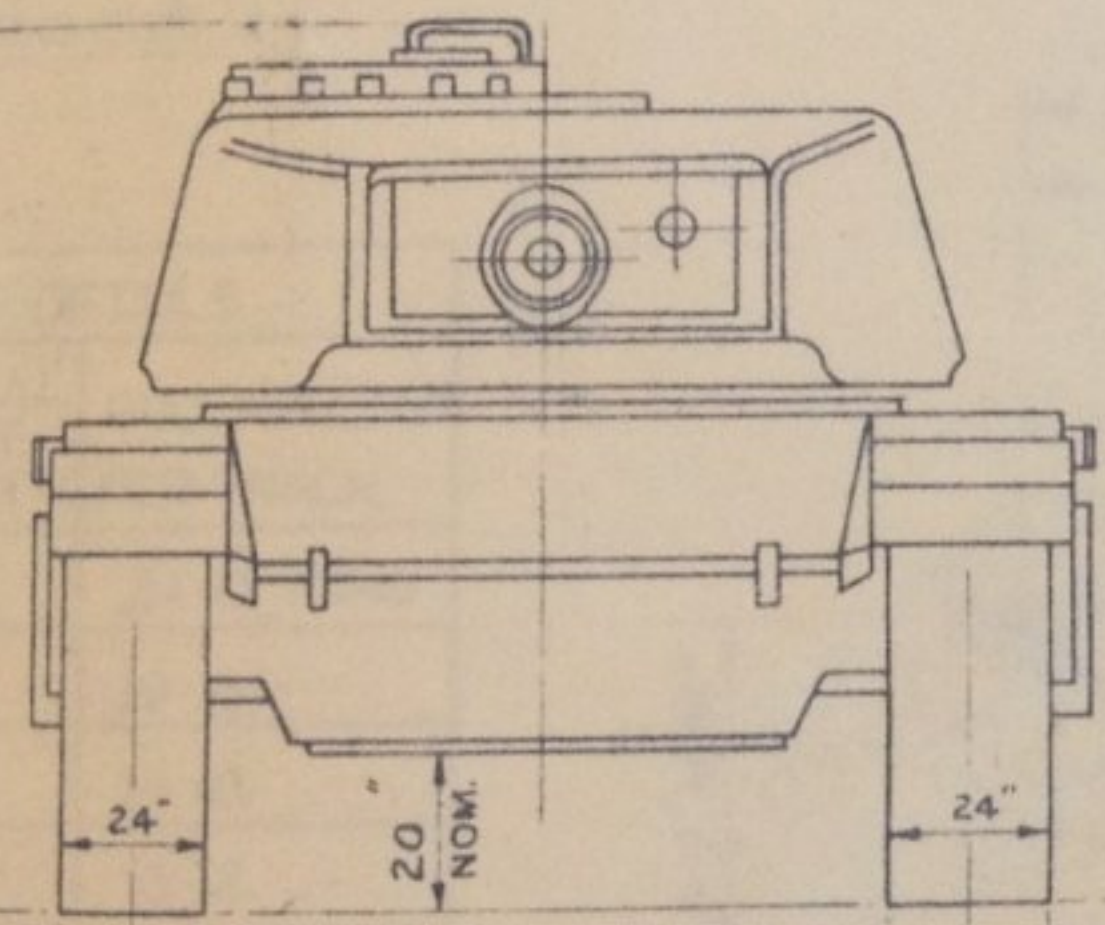
- (i) Provision for towing mono wheel jettisonable fuel trailer
 - Capacity : 200 galls.
 - Laden Weight : 2 Tons
- (ii) Provision for deep fording equipment on air louvres.

WEIGHT
UNLOADED 47.3 TONS (DRY)
LOADED 50.8 TONS. } APPROX.

11' - 1 1/2" OVERALL



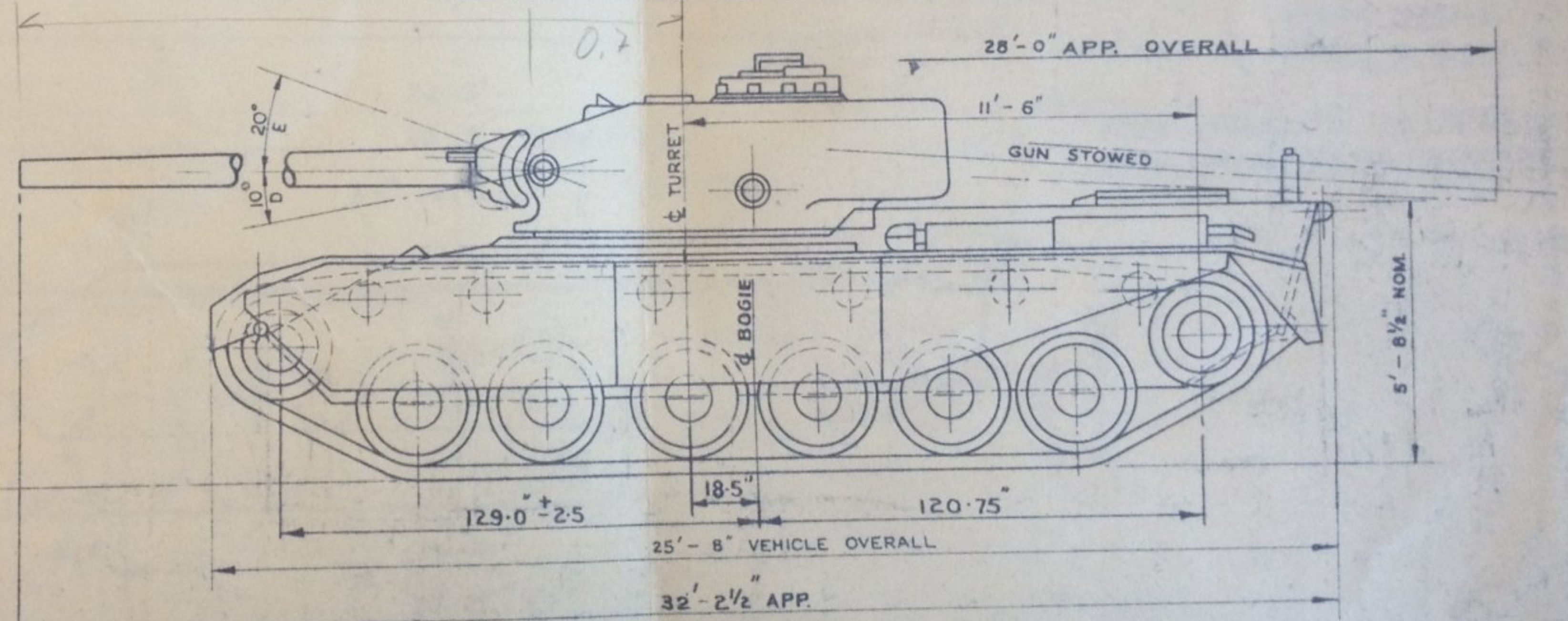
5' - 6" APP.



24" 20" NOM. 24"

8' - 8" TRACK CRS.

10' - 8" OVER TRACKS.



28' - 0" APP. OVERALL

11' - 6"

GUN STOWED

5' - 8 1/2" NOM.

129.0" ± 2.5

18.5"

120.75"

25' - 8" VEHICLE OVERALL

32' - 2 1/2" APP.

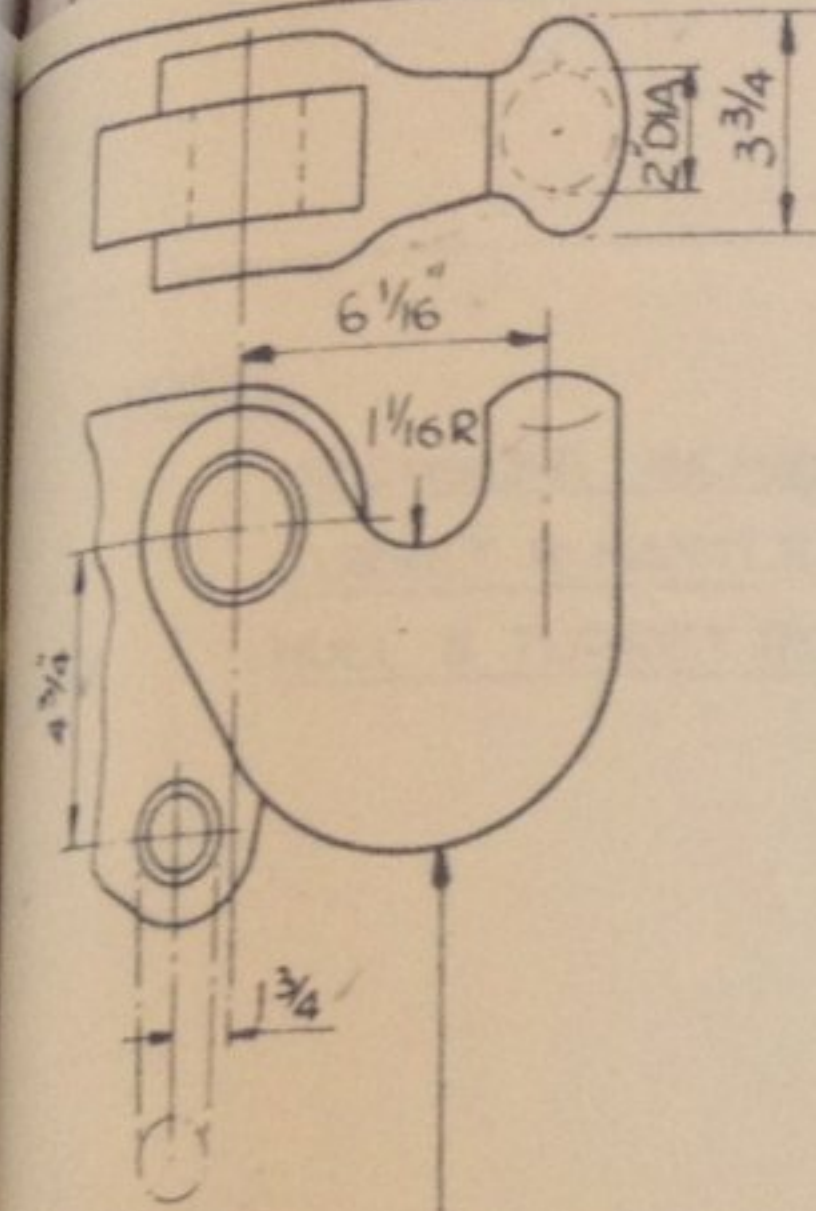
CENTURION 7, 8, 9 & 10. OUTLINE DIAGRAM

C	SEE A.S. 4667	S-A-A	16.6.58
B	SEE ALT. SH. 4325.	E.L.W	7.8.57
A	MARK B ADDED (A.S. 3701)	E.L.W.	10.4.56
AMENDMENTS		INITIAL DATE	
ORIGINAL DATE		26-3-53	

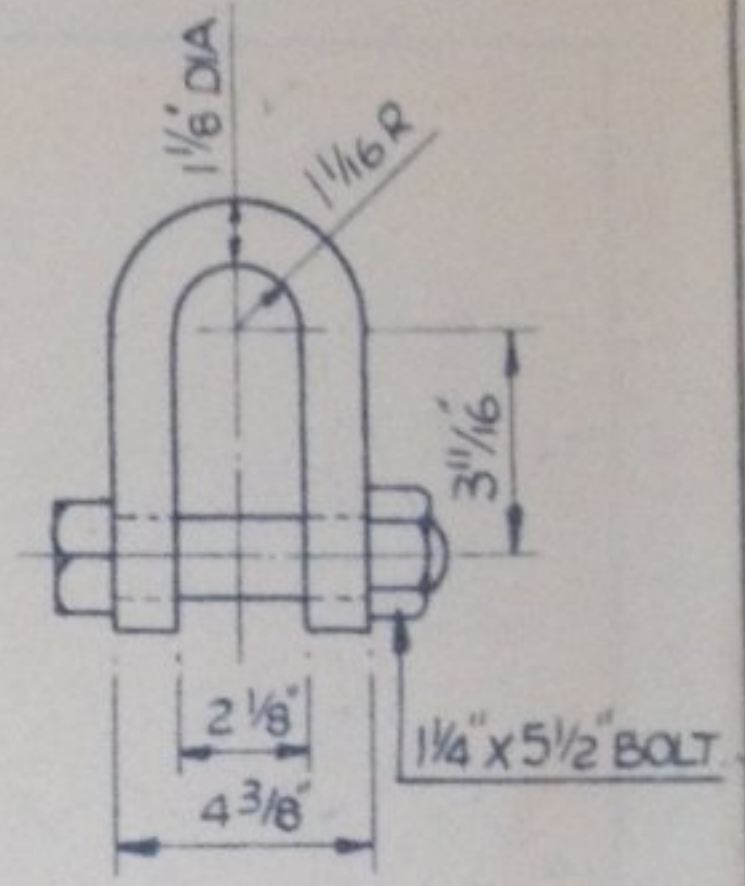
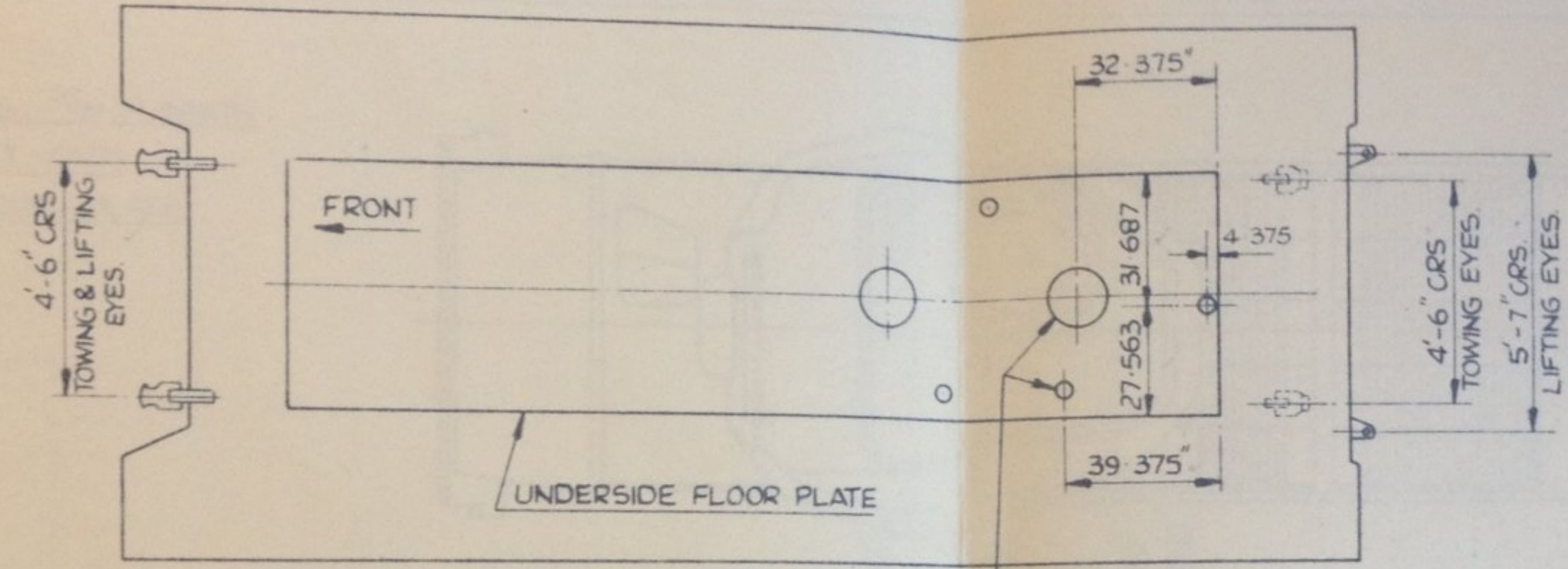
F.V. 231921
SHEET No. 1 OF 5 SHEETS

X B C

MAN
DESIGNED
CHECKED
BY
MAN
DATE
1/48
CE. F.V.R.D.E.



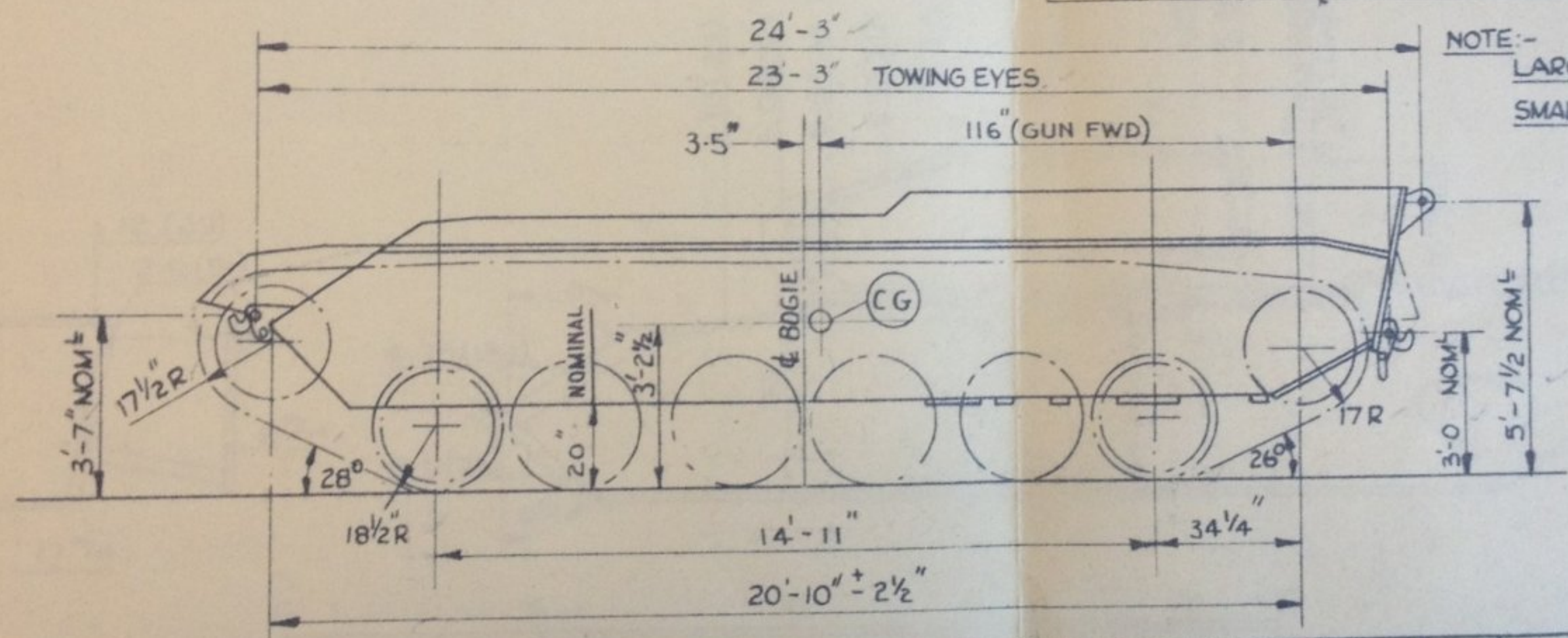
BOLLARD HOOK ON ALL TOWING EYES.



LASHING SHACKLE
FITTED TO TOWING EYES.

JACKING DETAILS.

HEIGHT OF HULL DOOR ABOVE STATIC POSITION	GROUND LOAD PER TRACK.
0 INS	24.0 TONS
1 "	19.8 "
2 "	16.8 "
3 "	13.2 "



NOTE:-
LARGE CIRCLES 13 1/2" DIA PROJECTING 5/8"
SMALL CIRCLES 7 1/4" DIA PROJECTING 3/8"

CENTURION 7, 8, 9 & 10.
TRANSPORT & CG DIAGRAM

NOTE:- FOR OVERALL DIMENSIONS SEE SHEET N°1

C	SEE A.S. 4667	S.A.A.	16-6-58
B	SEE ALT. SH. 4325	ELW	7-8-57
A	WAS SHEET N°8 (A.S. 3701)	ELW	17-4-56
	AMENDED - MK 8 ADDED	INITIAL	DATE
	AMENDMENT		
	ORIGINAL DATE		26-3-53

F.V. 231921.
SHEET N° 2

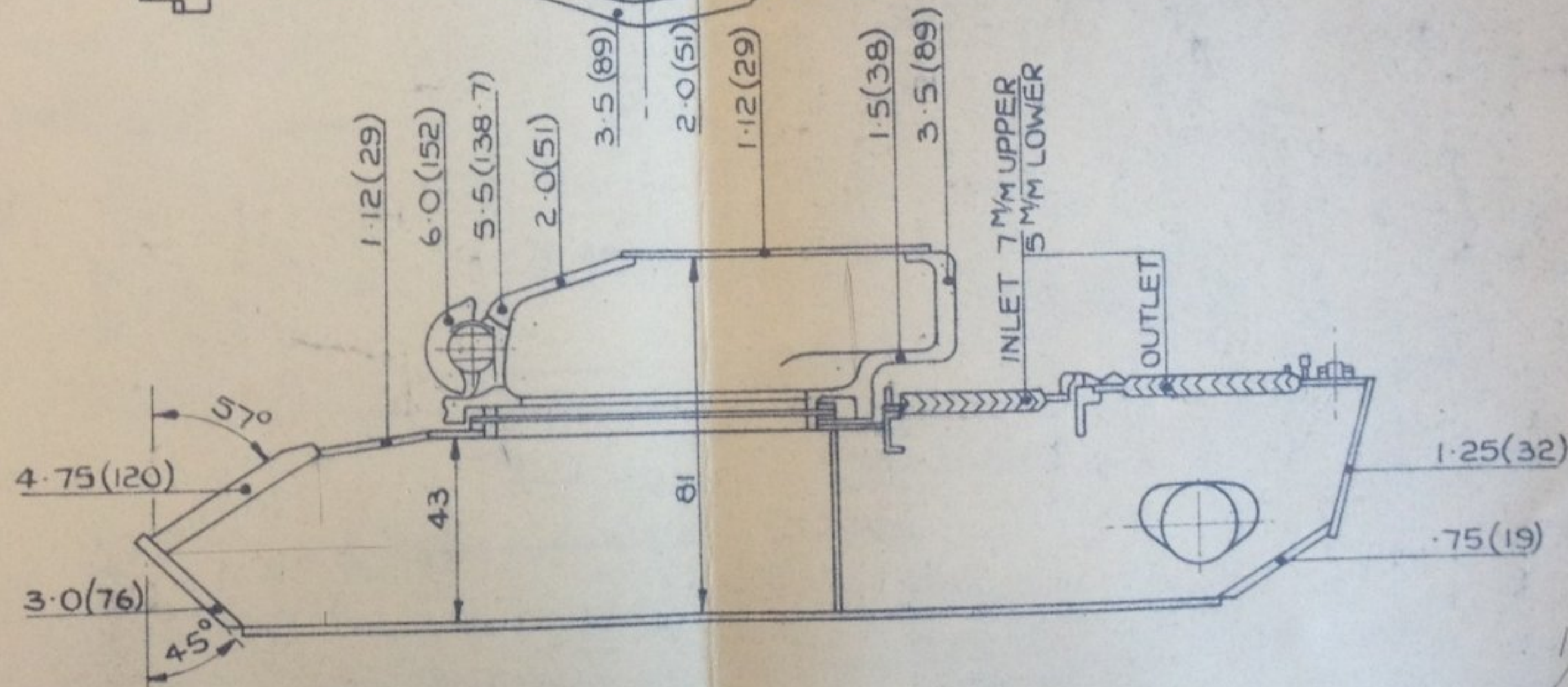
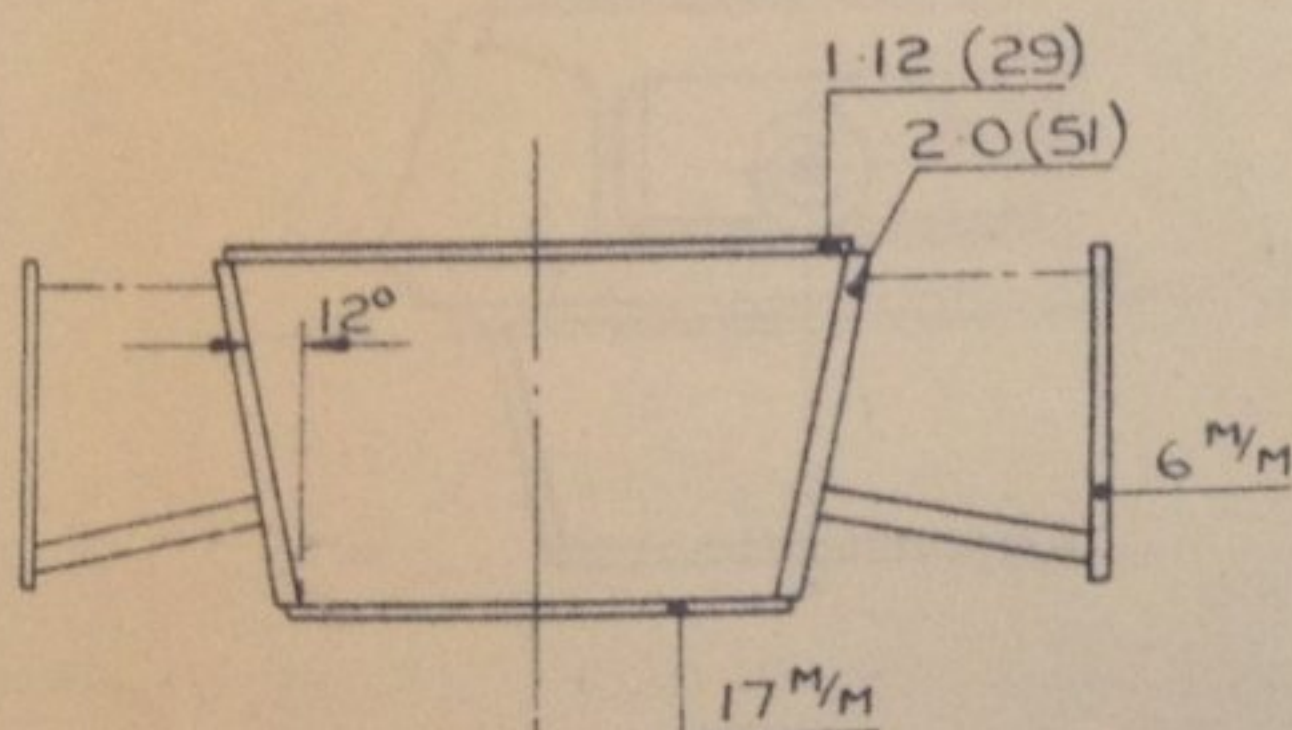
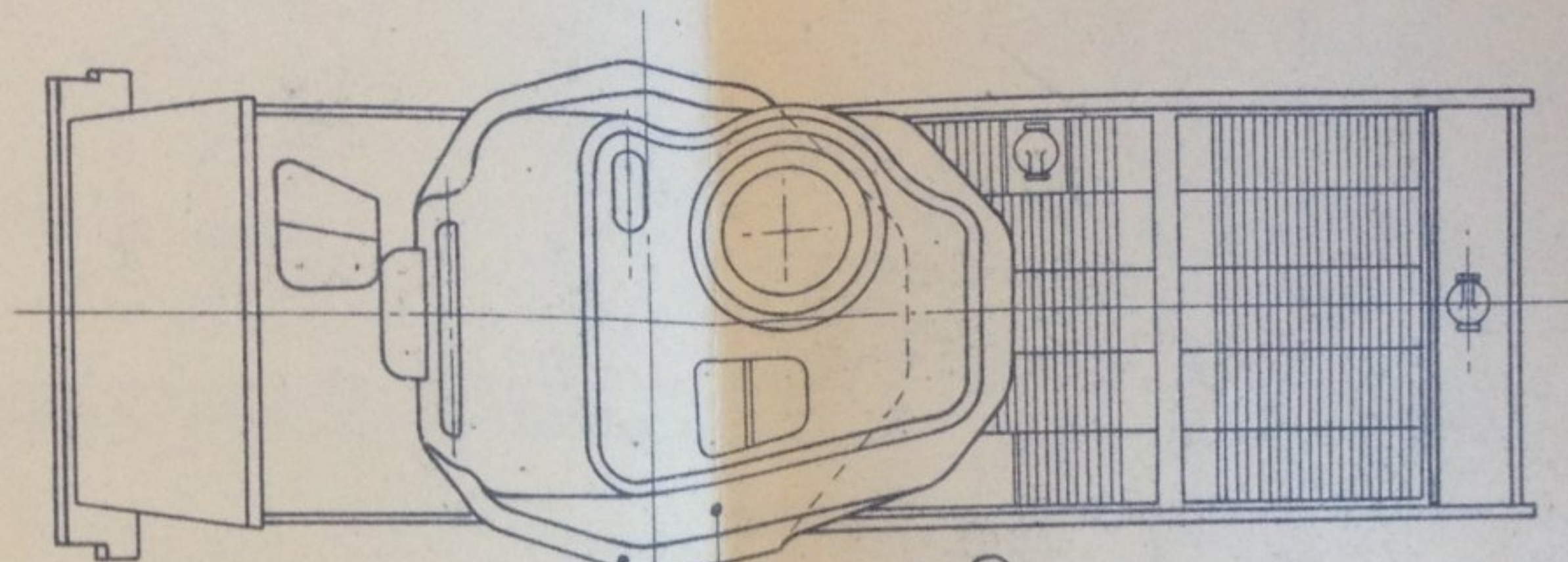
BJ HAINES.
S.A. ABERY.
1/48
CE FVRDE.

NOTES

DIMENSIONS: INCHES - M/M IN BRKTS.

TURRET & MANTLET - CAST

HULL & TURRET ROOF - PLATE.



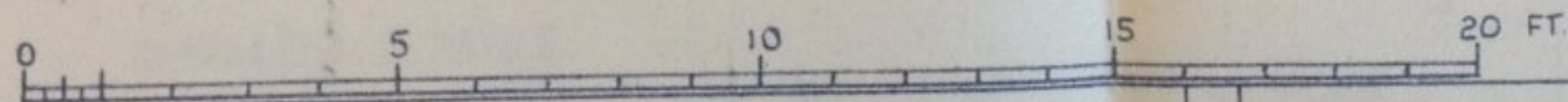
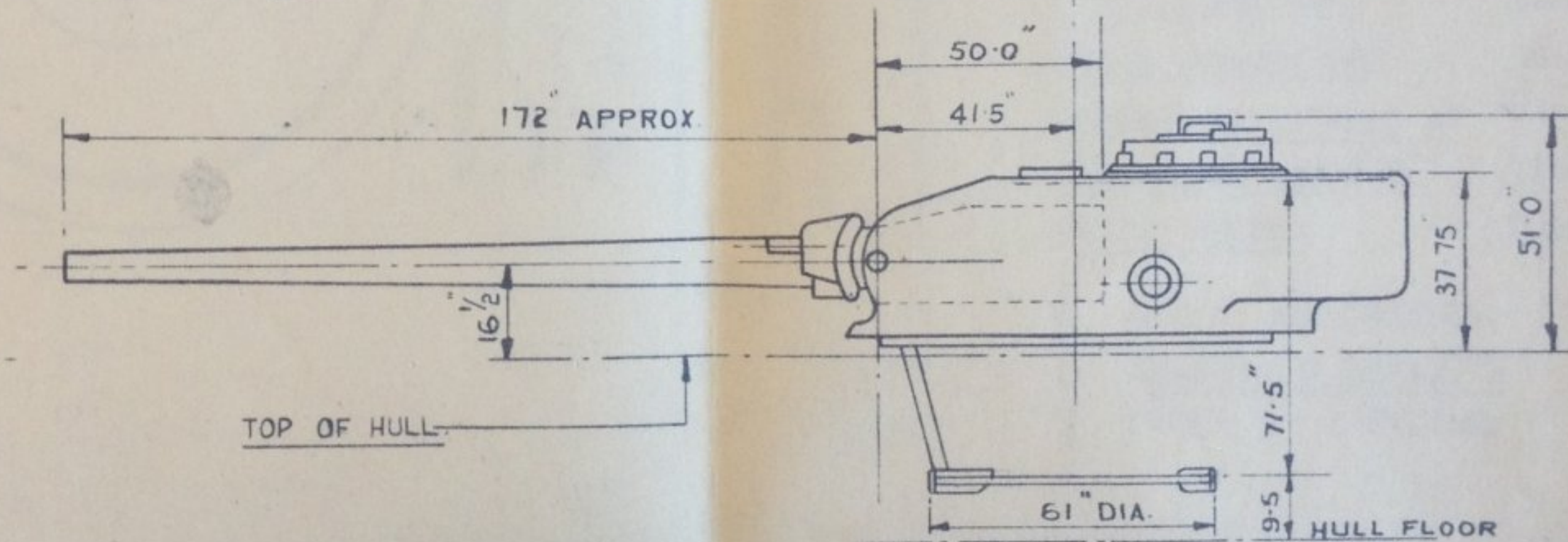
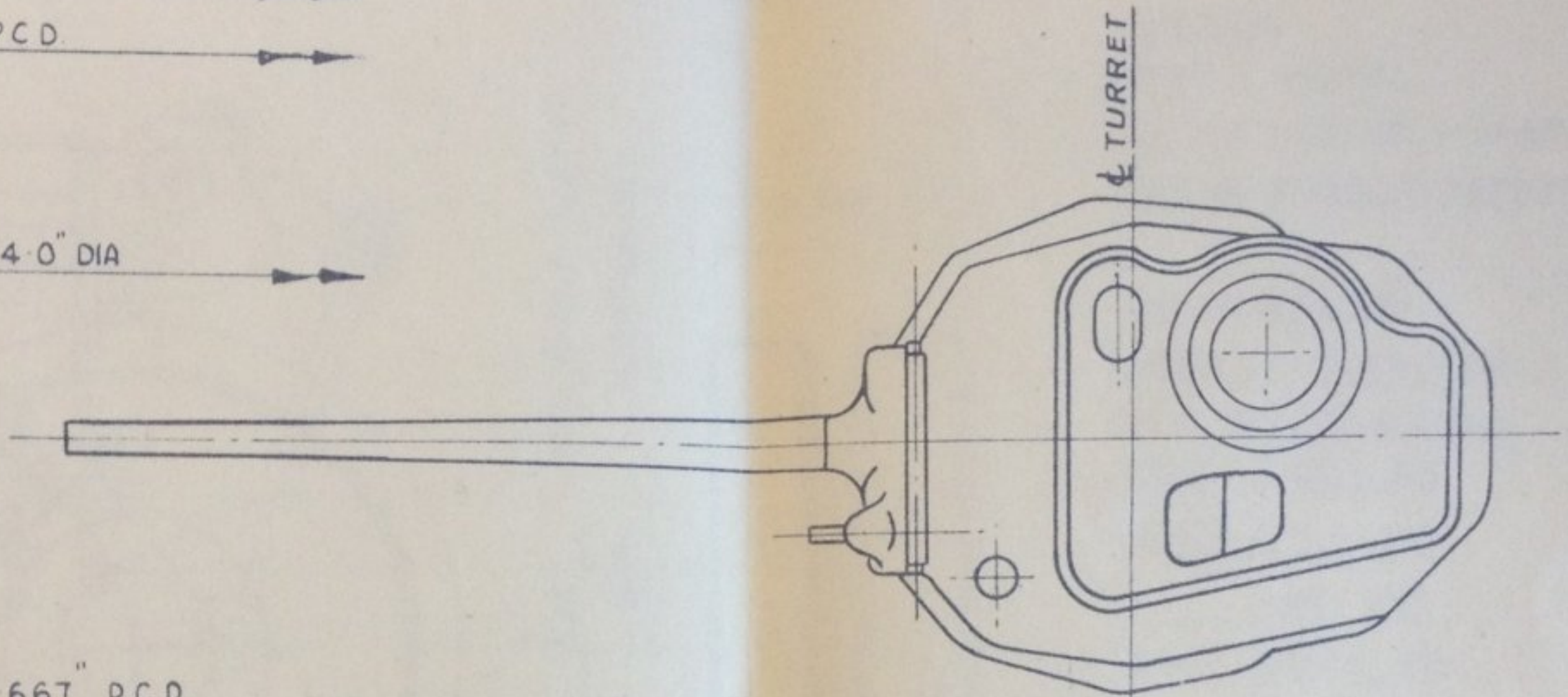
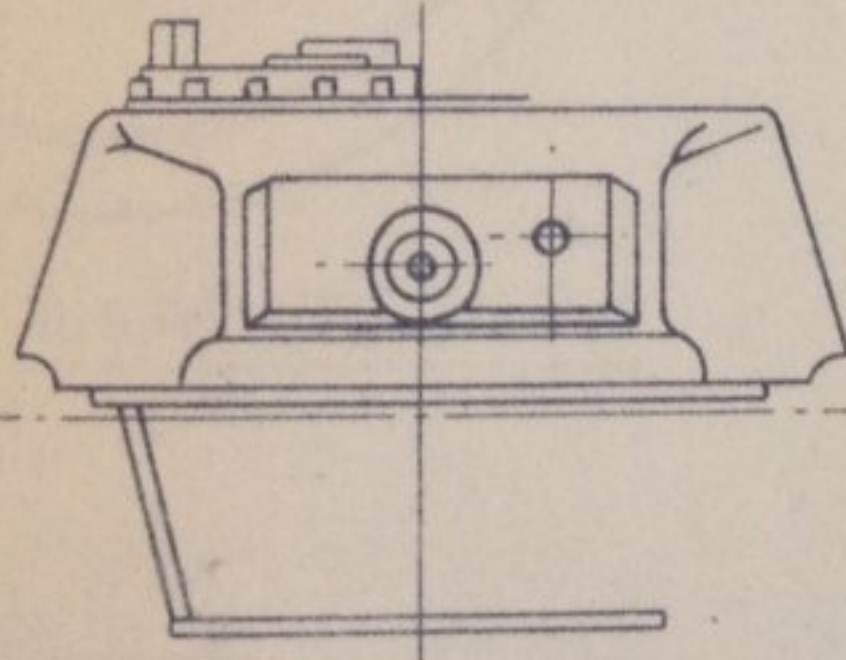
CENTURION, 7,8,9,&10 (FULLY MODIFIED)

ARMOUR DETAILS.

F.V. 231921.			
SHEET N° 3.			
B	16.6.58	4667	
A	6.4.56	3701	
ISSUE	DATE	ALT. SHEET	
ORIGINAL	DATE	26.3.53	

X B

DESIGNED	T.J. RENDALL
CHECKED	B.J. CAKEBREAD
APPROVED	E.L. WILSON
SCALE	1/48
DIRECTOR F.V.R.D.E.	



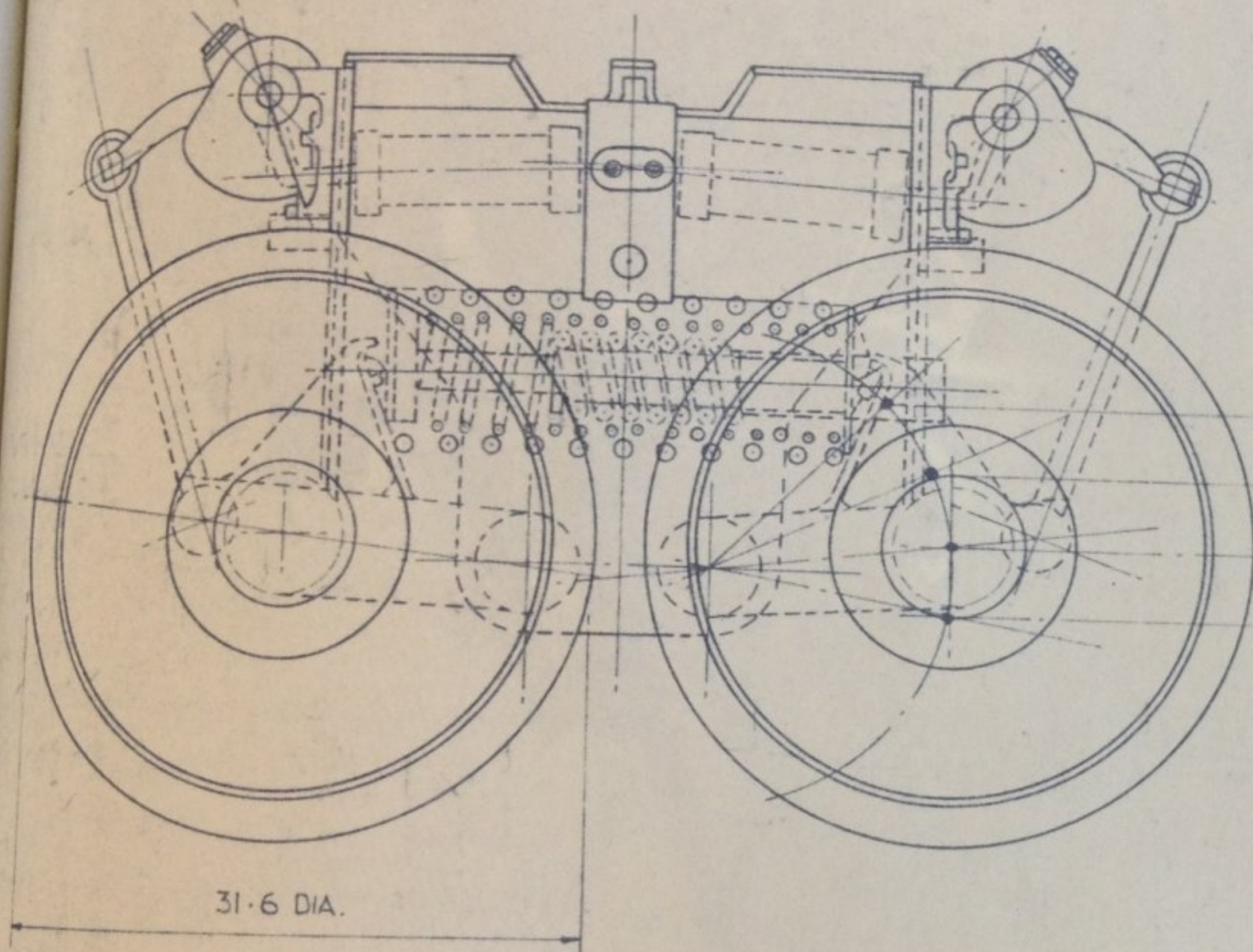
C	SEE A.S. 4667	S.A.A.	16-6-58
B	SEE ALT SH. 4325	E.L.W.	7-8-57
A	MR. 8 ADDED (A.S.3701)	E.L.W.	6-4-56
AMENDMENTS.		INITIAL	DATE
ORIGINAL DATE.		26-3-53.	

F.V. 231921.
SHEET N° 4

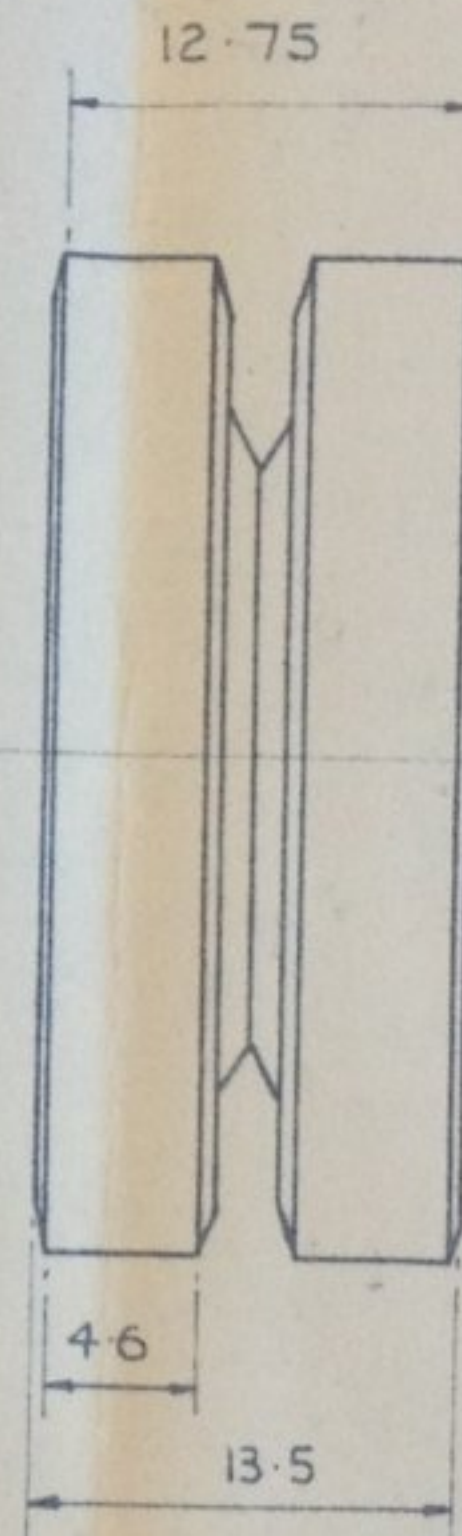
A	B	C					
---	---	---	--	--	--	--	--

NAME	T. RENDALL
AGE	J. A. WHITE
SEX	
DATE	S. ABERY
	1/48

[Signature]
FOR CE FVRDE.



REBOUND. 3.5
BUMP 3.25
BUMP 5.75
BOTH WHEELS TOGETHER.
INDEPENDENTLY.



SPRINGS.

TYPE :- HELICAL.

Nº :- 3 1-OUTER, 1-INNER, 1-BUMP.

DRG. Nº 29292 T. 29293 T. 35089 T.

	OUTER	INNER	BUMP
DIA. OF WIRE INS.	1.3125	.9375	1.063
MEAN DIA OF COILS INS.	8.687	6.1875	4.00
Nº OF EFFECTIVE COILS.	10	13.5	6
FREE LENGTH INS.	31.625	29.81	10.375
STATIC " INS.	20.65	19.65	10.375
" LOAD LBS.	7150	3550	0
BUMP LENGTH INS.	15.125	14.125	8.25
" LOAD LBS.	10720	5480	10600
SOLID LENGTH INS.	15.125	14.125	8.0
CORRECTED STRESS AT FULL BUMP LBS / $\square$ "	128000	128000	128000
RATE. LBS / IN.	650	350	5000

SHOCK ABSORBERS:-

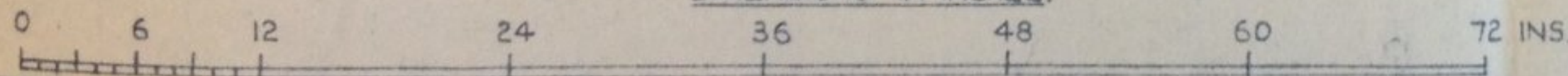
NEWTON & BENNETT

TYPE :- S - 2100 / NB.

Nº OF UNITS PER. SIDE :- 3.

SHOCK ABSORBERS FITTED TO 1ST. & 3RD UNITS ONLY.

DIMENSIONS IN INCHES.



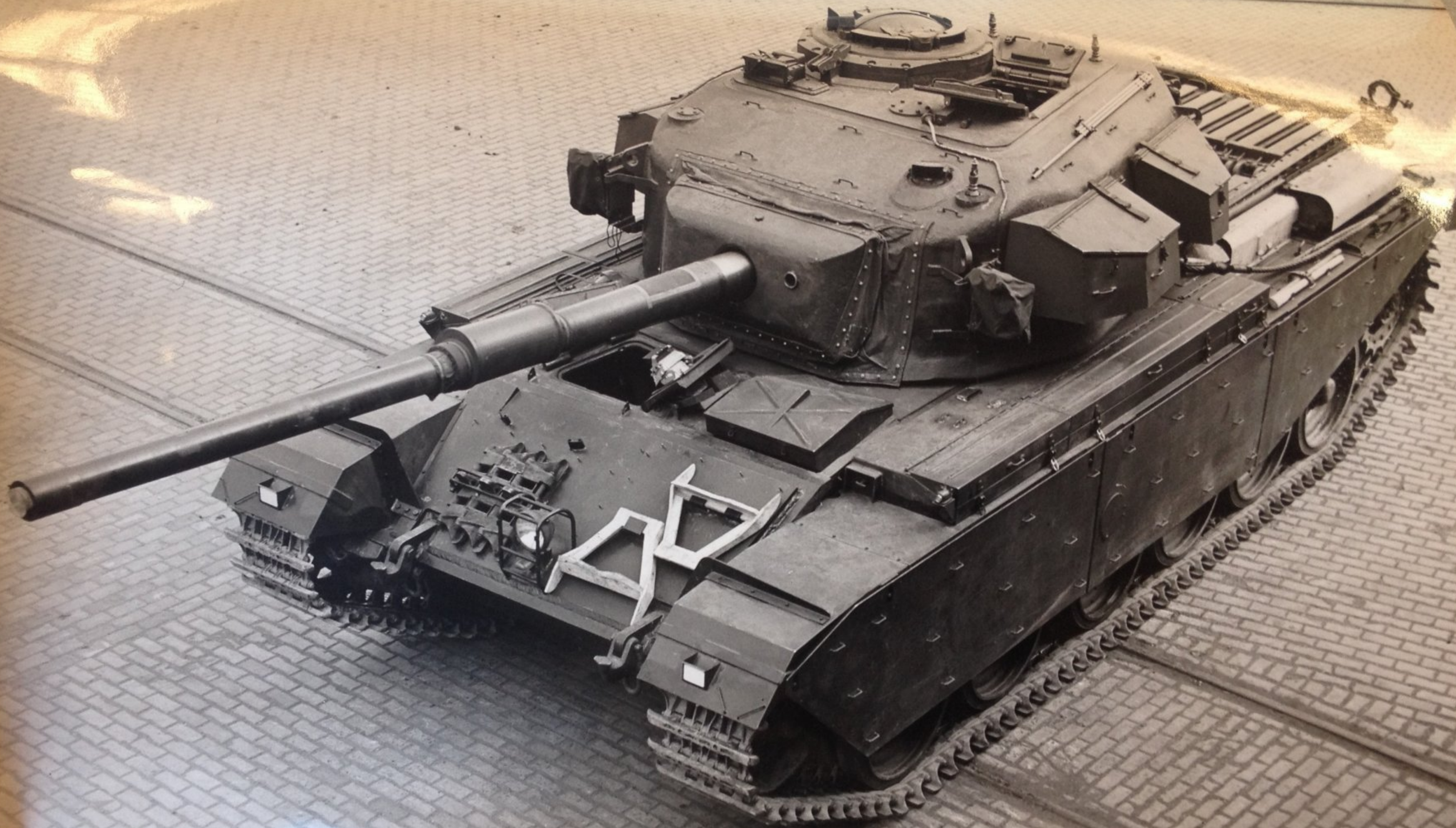
CENTURION 7, 8, 9 & 10.
SUSPENSION.

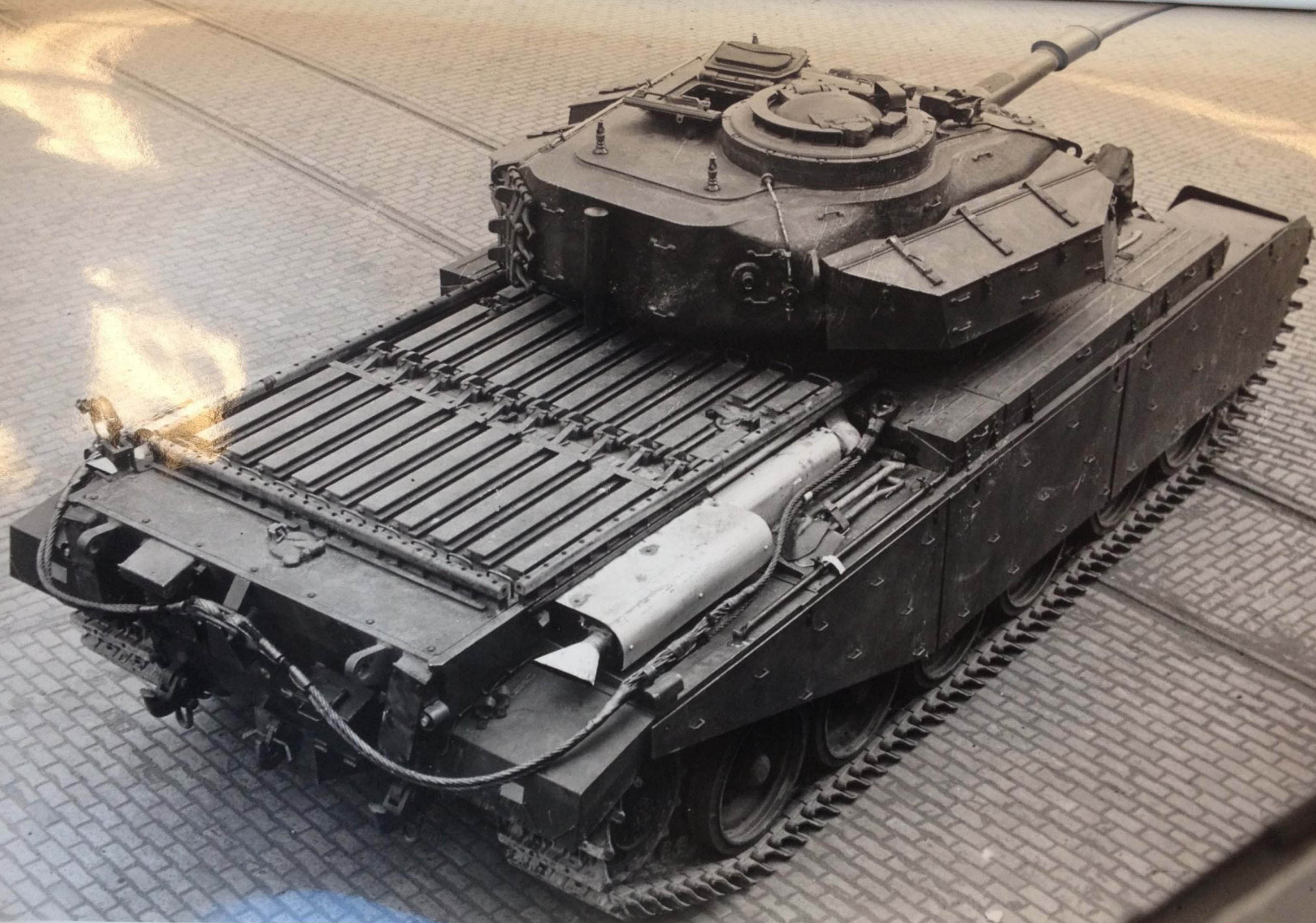
B SEE A.S. 4667 S.A.A 16.6.58
A MARK 8 ADDED (A53701) ELW. 6.4.56
WAS SHEET Nº 6.
AMENDMENTS
ORIGINAL DATE. 26.3.53

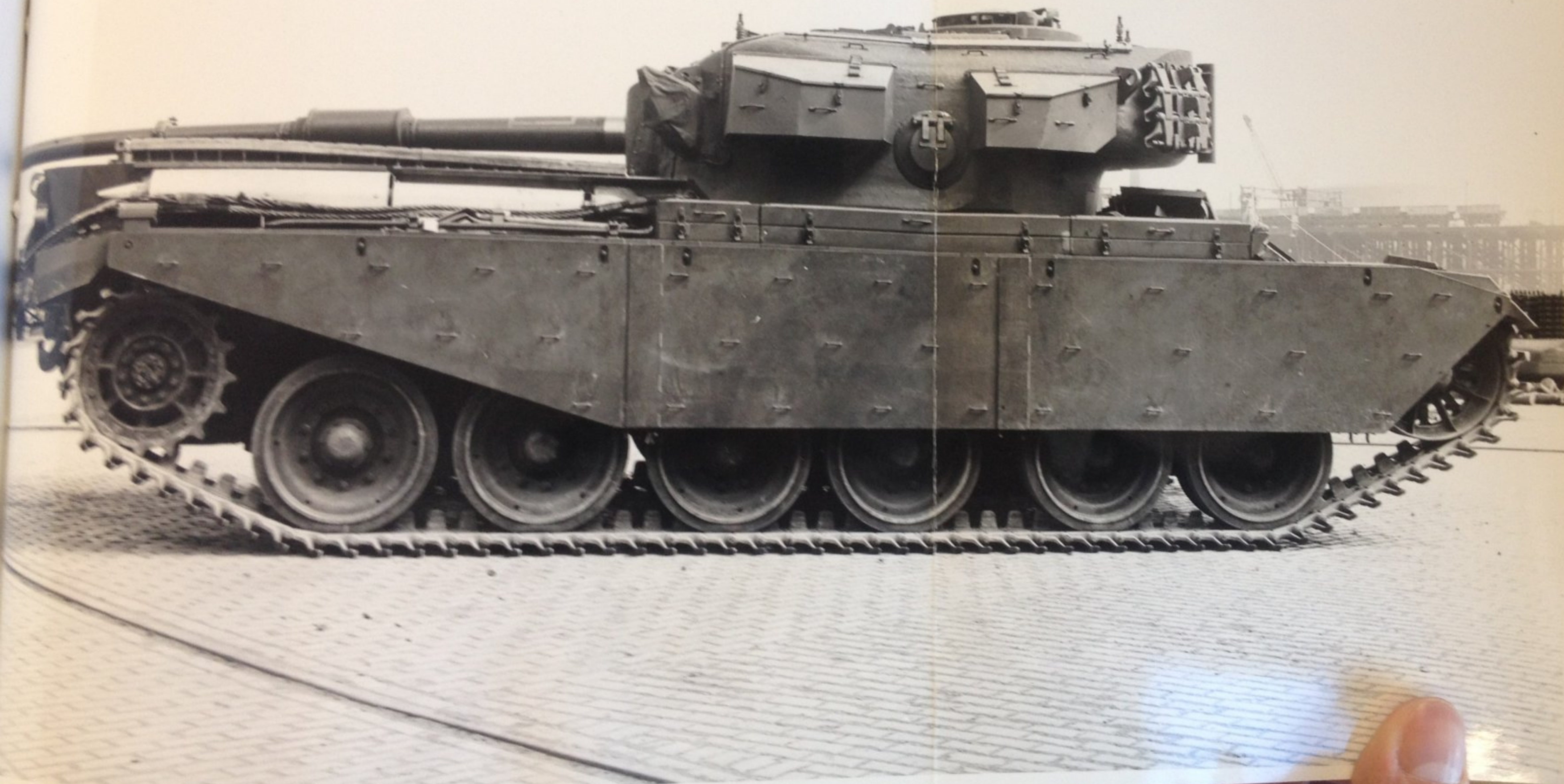
F.V. 231921.

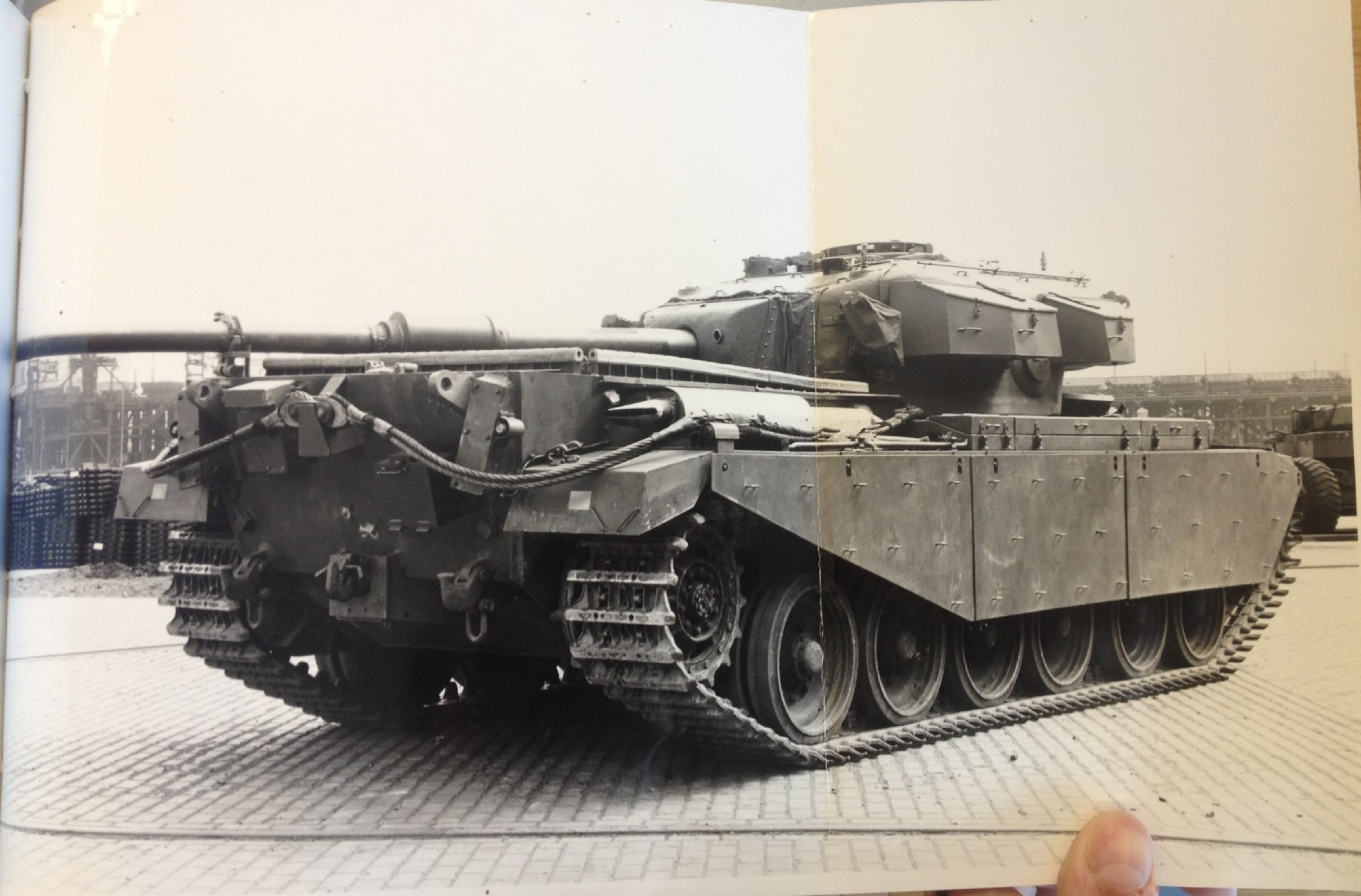
SHEET Nº 5

A B













HEMLIG
 jömlikt 4 § lagat 1937:249
 9 NOV 1962
 KUNGL. ARMÉTYGFÖRVALTNINGEN

RESTRICTED

Marks of CENTURION

Erhållet av inh. eng. milit. mörj. j. Walker den 9.11.1962
P. 6/12
P. 7/11
B. 11/1
F. B. 8/11
9/11
JW

<u>Mark</u>	<u>Main armament</u>	<u>Subsidiary armament</u>	<u>Miscellaneous</u>
3	20-pr	7.92 Besa	
5	20-pr	.30 Browning	Mark 3 hull ✓
5/1	20-pr	.30 Browning	Up-armoured Mark 5
5/2	105-mm	.30 Browning	Up-gunned Mark 5
6	105-mm	.30 Browning	Up-armoured and up-gunned Mark 5
6/1	105-mm	.30 Browning	Mark 6 with IR
6/2	105-mm	.30 Browning	Mark 6 with RMG
7	20-pr	.30 Browning	Hull redesigned to give increase in fuel capacity and number of ready rounds.
7/1	20-pr	.30 Browning	Up-armoured Mark 7
7/2	105-mm	.30 Browning	Up-gunned Mark 7
8	20-pr	.30 Browning	Mark 7 hull with new type mantlet and contra rotating cupola.
8/1	20-pr	.30 Browning	Up-armoured Mark 8
8/2	105-mm	.30 Browning	Up-gunned Mark 8
9	105-mm	.30 Browning	Up-armoured and up-gunned Mark 7
9/1	105-mm	.30 Browning	Mark 9 with IR
9/2	105-mm	.30 Browning	Mark 9 with RMG
10	105-mm	.30 Browning	Up-armoured and up-gunned Mark 8
10/1	105-mm	.30 Browning	Mark 10 with IR
10/2	105-mm	.30 Browning	Mark 10 with RMG
11	105-mm	.30 Browning	Mark 6 with IR and RMG
12	105-mm	.30 Browning	Mark 9 with IR and RMG
13	105-mm	.30 Browning	Mark 10 with IR and RMG

Note: IR = Infra Red
 RMG = Ranging Machine Gun

KUNGL. ARMÉTYGFÖRVALTNINGEN
 9 NOV. 1962
 Nr FA H. 1160:4

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