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### AD NUMBER

### AD395258

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ARRADCOM ltr 16 Aug 1979 ; ARRADCOM ltr 16 Aug 1979

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CONFIDENTIAL Apr 54 SECRET TECHNICAL INFORMATION OFFICE, CHIEF OF ORDNANCE. REPORT\_ 3-1-3M2 April 1954 DA-36-034-HMC-3785(X) FEB 5 1969 () DEVELOPMENT 0F N 120-10 GUN TANK, 15 T57 / 63 Comil army 1 01 In 1948-1950, when the development of the T43 120-mm gun tank was being planned and the project for the T43 was in its first stages, 231 5 C Aseveral attempts were made to incorporate automatic ammunition-han-J dling equipment in the new tank's turret. In each instance, the space limitations imposed by the over-all design of the turret made this impossible. However, the Army Equipment Development Guide, issued in December 1950, emphasized the need for incorporating power S in. 1.02165 22 ammunition-handling equipment and guns of the shortest recoil attain-able in the design of new tanks. Although not applied to the T43, these new requirements encouraged the Ordnance Corps to expedite the development of what promised to be a solution of the ammunition-han-27.111 516.00 1-1-1 dling problem. For some months, studies relating to the design of an oscillat-For some months, studies relating to the design of an oscillat-ing turret had been conducted in connection with plans for the T69 experimental 90-mm gun tank and the project for developing the T43 120-mm gun tank. Work on this problem was now accelerated. As ten-tatively completed, the design for the T43 called for the upper part of the turret, the gun, and the ammunition-handling equipment to be built as a unit and this unit to be mounted on trunnions on the lower part of the turret. Both parts of the turret were to be traversed together, but only the upper part was to be capable of elevation and depression. The ammunition-handling equipment was to be suspended from or attached to the turret top. The design also called for the use of fixed rounds, to be fed into the gun from a magazine suspended directly behind it. directly behind it. Because so much had been learned in the attempts to modify the T43 tank's turret for handling fixed 120-mm rounds, little time was required for formulating the military characteristics of the turret for a new 120-mm gun tank to incorporate power ammunition-handling equipment. A project for developing this type of turret was approved in March 1951, and a second project, for development of a 120-mm tank to mount such a turret, was opened in March 1952; the tank to be so developed was designated the T57 120-mm gun tank. It was to be essen-tially a T43El chassis and hull mounting a turret of the oscillating DOWNGRADED AT 12 YEAR INTERVALS 1401 454 NOT AUTOMATICALLY DECLASSIFIED - 1 -DOD DIR 5200.10 Copy \_\_\_\_\_ of \_\_\_\_\_ copies DDC AVAILABILITY NOTICE: KD-DO Qualified requesters may obtain Regraded SHORET by autho sopies of this report from DDC. by CONFIDENTIAL 02

120-MM GUN TANK, T57

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120-MM GUN TANK, T57

type and a new 120-mm tank gun to fire fixed ammunition. Except for the turret and gun, the principal characteristics of the T57 tank were to be generally similar to those of the T43EL.

In connection with the initiation of work on the T57 tank, a project for the development of the T179 120-mm gun, to be its main armament, was also opened. Designed to have the same ballistic characteristics as the T123El gun for the T43El tank, it is designed to take the fixed 120-mm ammunition required by the power ammunitionhandling equipment of the T57's turret. Five new armor-defeating rounds are being developed for this gun, as follows:

120-mm AP shot, T284 120-mm HEAT shell, T309 120-mm HEP shell, T308 120-mm HE shell, T275 120-mm chemical shell, T276

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Engineering tests of the T179 120-mm tank gun art scheduled for completion by December 1954. Engineering tests of the T57 120-mm gun tank are also to be completed by that time.

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120-MM GUN TANK, T57

#### TENTATIVE PRINCIPAL CHARACTERISTICS

120-mm Tank Gun, T179

Caliber Length, over-all Length of bore Travel of projectile in bore Rifling Weight of complete gun Chamber capacity Density of loading Rated maximum chamber pressure Breechblock, type Breech mechanism Firing mechanism Ammunition, type Muzzle velocity (AP shot) Maximum effective range Perforation of homogeneous armor AP shot @ 1,000 yd AP shot @ 2,000 yd HEAT shell @ 0° Rate of fire 120 mm no information 60 cal 248.3 in no information 6,280 lb 1,021 cu in 0.69 48,000 psi no information no information electric-percussion fixed 3,500 fps 2,000 yds 10.8 in 9.8 in 16 in to be determined

Cir ---

#### Combination Gun Mount, T169

Weight no information Recoil mechanism, type Number of recoil cylinders Recoil length hydrospring 4 Normal 12 in Maximum 14 in Equilibrator, type Elevating mechanism, type no information electrical and manual 15° Maximum elevation -80 Maximum depression electrical and manual 360° Traversing mechanism, type Maximum traverse, right or left

Fire Control Equipment

(to be determined)

Ammunition Stowage

(to be determined)

120-mm Gun Tank, T57

Length

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TIR 3-1-3M2

TIR 3-1-3M2 CONFIDENTIAL	120-MM GUN TANK, T57
life the sum formand	149 375 in
With gun to perm	440,373 III 307 5 in
With gun to rear Wideh	1AA in
Witti Voight	138 625 in
Height Aver-all	117 824 1b
Ground cleanance	16 125 in
Tread from center to center of tracks	115 in
length of ground contact	173.437 in
Icound pressure	12.4 nsi
Sugnengion	1100 po1
Type	torsion bar
Wheels	26 in
Tires	26 x 6 in
Tacks	
Type	steel and rubber
Width	28 in
Number of shoes (both tracks)	164
rmor	
Hull	
Туре	cast homogeneous
Front	
Upper	equivalent to 5 in @ 60°
Lower	equivalent to 4.5 in @
	450
Side	-
Upper	equivalent to 3 in @ 0°
Lower	equivalent to 3 in @ 0°
Rear	1.5 to 1 in <b>Q</b> 30° to 60°
Тор	l in
Floor	0.5 to 1.5 in
Turret	
Туре	cast homogeneous
Front	equivalent to 5 in @ 60°
Side	5.375 to 2.75 in @ 20°
	to 400
Rear	1.5 in @ 40°
Roof	1.5 in
Gun shield	10 to 4 in <b>e</b> 45°
rmament	
Main	120-mm tank gun, T179
Secondary	¥28
Cal .30 machine gun, coaxial (2)	M37
Cal .50 machine gun, on turret	M2 HB
communications	an and the diam 1
Radios	as selected by Signal
	Corps
Interphones (5)	as selected by Signal
	Corps
ngine	the second second and
Naka and model	all-cooleu gasollue Continentel AV-1700-7
Make and mouth	CONTINUENT VIET (AA-T (AA-T
Cylinders	10
Number 1	14 5 75 Ju
Number	
Number Bore Biston stroks	5.75 IN 5 75 in
Number Bore Piston stroke	5.75 in 1.701 75 cm in

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120-MM GUN TANK, T57

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Arrangement Drive from crankshaft Induction system Ignition timing Horsepower Gross Net Torque Gross Net Electrical system Number of batteries Transmission Туре Range selector control box Type Linkage to transmission Torque converter Gear shift and steering mechanism Internal External **Oil** system Capacity Pumps Туре Number Drive Filter, type Coolant Fuel capacity Brakes Service brake, type Parking brake, type Crew Maximum speed on level Maximum grade climbing ability Maximum trench crossing ability Height of obstacles that can be crossed Fording depth Turning radius Performance Turning radius Cruising range

V-type direct natural aspiration automatic advance 810 @ 2,800 rpm 690 @ 2,800 rpm

TIR 3-1-3M2

1,600 lb-ft @ 2,300 rpm 1,330 lb-ft @ 2,100 rpm

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CD cross-drive

mechanical mechanical single-stage polyphase

hydraulic mechanical

72 qt

gear 5 2 input and 3 output shafts air maze, double air 230 gal

wet, multiple disk lock on service brake 5

22 mph 60% 90 in 27 in 48 in pivot 80 mi

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