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SECURITY INFORMATION

280 REC GUN

~~RESTRICTED DATA~~
ATOMIC ENERGY ACT — 1946

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REVIEWED AND NOT DECLASSIFIED

By Japlant
For the U.S. Army, Research
and Development Administration

DOE

DATE AUG 13 1980

R.C. Carpenter 8-13-80



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COST DATA

<u>ITEM</u>	<u>PRICE</u>
280mm gun complete w/spares	\$ 1,000,000
280mm tube	196,000
Transporter	363,000
Atomic Rd. (Complete)	[REDACTED]
Non-nuclear components of Atomic Rds.	18,000
HE Rd.	688

Development Costs to the Army

Gun	3,018,000
HE Shells	2,834,000
Atomic Shells	576,000

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DEPLOYMENT AND READINESS SCHEDULE

European Area

CINCEUR has asked for 6 Bns in his pre D-day forces.

CINCSOUTH has informally expressed interest.

The Chief of Staff has approved the deployment of 2 Bns to EUCOM during July and August.

Tentative plans are for a total of 5 Bns to be deployed to EUCOM during first half of FY 54.

Deployments to CINCSOUTH are under study in G-3.

FECOM

CINCFE has asked for 1 Bn.

Deployments to Korea are under study in G-3.

ZI

<u>Organization</u>	<u>Location</u>	<u>Estimated Readiness Date</u>			
		<u>FY '54</u>			
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
867th FA BN	Ft Sill	X			
868	Ft Bragg	X			
264	Ft Sill	X			
265	Ft Bragg	X			
59	Ft Sill		X		
216	Ft Sill		X		
663	Ft Bragg				X
692	Ft Sill				X



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STATUS OF GUNS AND SHELLS

I 280 Gun

PRODUCTION

	<u>Total</u>	<u>Received</u>	<u>Accepted by Ord.</u>
280mm gun, w/carriage due in May	60	56 4	19
Transporters, prs. Extrs Tubes	66 40	66 0	30

ISSUES

	<u>Quantity</u>
4 Bns, Fort Sill	10
3 Bns, Fort Bragg	7
APF Bd No. 1 Ft. Bragg	1
	<u>18</u>

IN ORDNANCE HANDS

38

II HE SHELL

PRODUCTION SCHEDULE

	<u>Quantity</u>
As of 30 April '53	654
As of 31 Dec '53	10,854
Total Requirement, Jan '55	97,400



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WEAPON CHARACTERISTICS

280mm Gun

Width: 10 ft.
Height: 12 ft.
Length: 85 ft.
Weight: 85 tons
Emplaced Weight: 48 tons
Maximum Speed: 35 mph.
Transportability: Can be transported on several types of landing craft (LSM, LSU, LCT, some LST's)
Can use division bridge
Can negotiate right angle turn at intersection of 228 ft. streets
Range: Atomic Rd: 26,500 yards (by the end of CY 54 32,000)
HE Rd: 32,000 yards (development continues on 8" sabot rd., 45,000 yds)
Estimated Tube Life: ~~800 to 1000~~ ^{600 to 800} rounds
Accuracy: 1/4% in range
1/2 mil in deflection
Rate of Fire: 1 round in 2 minutes
Fuse: 3 Mech. time, first to fire
Safing: Positive safing for 3000 yards of trajectory

Atomic Shell, MK 9

Weight: 800 lbs.
Yield: 
Mod 1 will: 



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PRO's and CON's of the 280mm Gun

CON



The 280mm gun lacks mobility.



PRO

Agreed. When F84's can adequately and safely complete atomic missions they will be used. Weather, safety, and air superiority may preclude air delivery being used.

Special routes and engineer assistance in route preparation will generally be required. Most large military targets are on natural routes of advance rather than inaccessible terrain. The gun can be transported in standard amphibious vehicles, can cross beaches, and can use the standard division bridge.

It is not necessary to have a nuclear component at each gun. Normally these components will be centralized in each Army area. When targets are anticipated the material can be sent to the gun battalions by jeep or helicopter.



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These guns will be a prime target and be quickly destroyed by the enemy.

It is agreed that our 280 atomic capability would rank right after our air atomic capability as a priority target. Undoubtedly some of these guns will be destroyed but they are much more easily camouflaged and much more resistant to damage than aircraft. Further they will not be destroyed while carrying fissionable material as will happen to some of our aircraft.

Guided missiles and rockets have an all weather capability and can do the job more cheaply.

Their all weather capability remains to be demonstrated. Likewise their reliability and accuracy are not fully developed.

The 280mm gun's primary role is, as a conventional artillery piece, to fulfill the requirement for long range artillery.



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ARMY ORDNANCE CORPS
23 September 1952

FACT SHEET
Army's New
Artillery Piece

I. Mononolature:

Gun, 280mm, T131
Carriage, 280mm Gun, T72
Transporter, 280mm Gun, T10

II. Significant Features of the Weapon Which Represent
Important Advances in Army Ordnance Materiel:

1. This 280mm gun is the Army's largest-caliber artillery piece having complete mobility.
2. It is an artillery piece for firing both conventional and atomic shells.
3. It can deliver an atomic shell on target in all kinds of weather, day or night, unlike an air-delivered atomic bomb.
4. It can fire with accuracy comparable to conventional artillery in the shorter ranges and is considered to be much more accurate at long ranges - four times more accurate at long ranges than any mobile artillery pieces developed prior to World War II.
5. It is carried suspended between two engine cabs, front and rear, which can transport their load on highways at a speed of about 35 miles per hour.
6. It is equipped with telephones to permit communication between front and rear drivers while on the move, with the leading transporter driver having control of throttle and brakes for both units, although both can be operated independently.
7. Although the complete unit ready for traveling weighs about 85 tons, it is not much larger than the heaviest field artillery piece now in service, and can cross bridges capable of carrying any standard piece of equipment in an Army Division.
8. It can travel cross-country as well as on the highways and can fit into a landing ship designed for amphibious operations.
9. It can be emplaced and put into action with greater speed than any other heavy field artillery pieces now in use.



FACT SHEET (Continued)

10. The gun is so balanced in the vertical by a hydropneumatic equilibrator system that one man can elevate or depress it by exerting a pressure of not more than 30 pounds on a hand-wheel in case of failure of the power unit normally provided.
11. The entire carriage is balanced on a turntable equipped with a large steel ball that fits a socket in the carriage, plus three jacks with wheels which ride a track around the circumference of the turntable. When jacked up in the rear, the carriage can be rotated horizontally through a complete circle. A gear train operated by a handwheel on which no more than 10 pounds of pressure need be exerted traverses the weapon through a smaller arc. The jacks also make it possible to level the gun on uneven terrain.
12. The projectile and powder charge are loaded into the weapon's breech by means of a hydraulic power rammer though this operation may also be performed by hand.
13. The gun can give a kind of accurate and devastating close support to ground troops never before available to them in the history of warfare.

III. Characteristics of Gun and Carriage.

1. Range - about 20 miles.
2. Ammunition - High Explosive and other conventional types in addition to atomic shell.
3. Elevation - 0 to 55 degrees.
4. Traverse - 360 degrees.
5. Length of carriage (without transporters) - 38.5 feet.
Length overall (including transporters) - 84 ft., 2 inches.
6. Weight - Approximately 85 tons - complete unit.

IV. Characteristics of the T-10 Transporter (Comprising the two end-units).

1. Each unit is powered by a six-cylinder Ordnance-Continental air-cooled gasoline engine of 375 gross horsepower.
2. These six-wheeled 4x4 units (dual wheels in the rear) which pick up and carry the gun between them, can operate completely independent of each other, but when the carriage and mount assembly is attached, the forward unit has control of the throttle and brakes for both units.

FACT SHEET (Continued)

3. The "A" or front tractor unit has its cab forward in the manner of conventional trucks, while the "B" or rear tractor has its cab at the back of the unit.
4. The payload of the T-10 Transporter is approximately 50 tons. (The largest Western highway trucks have a payload of less than half that amount.)
5. Large carrying capacity in proportion to weight has been achieved through extensive utilization of high tensile, high carbon steels and aluminum. These metals were used not only to accomplish weight reduction but to conserve steel.
6. Although the unit complete with transporters is 84 feet, 2 inches long (the longest conventional truck-trailer used on even Western highways is 60 feet), the transporters can make right angle turns with their load at city street corners where the streets are only 28 feet wide.
7. The unit as a whole can be moved forward, backward or sideways since either transporter can pull while the other pushes, or they can turn at right angles to the center section and proceed parallel to one another.

V. Additional Facts of Interest.

1. Size of parts vary from screws weighing one ounce to the top carriage weighing 16,000 lbs.
2. Nearly 2200 separate blueprints were required for the gun assembly alone, with accuracy of machining, even on the largest components, held to one-thousandth of an inch on critical dimensions.
3. The principal types of metal used in the carriage include several grades of carbon, high tensile, alloy and stainless steels plus aluminum, magnesium, bronze, copper, and brass.
4. History of Development:

The design of a heavy field artillery weapon which would overcome certain deficiencies that were encountered in World War II weapons was initiated by the Chief of Army Ordnance in November 1944.

A decision as to desired military characteristics was reached after a feasibility study of several months by artillery, ballistic and Ordnance experts in coordination with the Ordnance Sub-Office, Franklin Institute, Philadelphia, Pa.



FACT SHEET (Continued)

Technical supervision for preparation of the design and for manufacture of the carriage was officially assigned to Army Ordnance Watertown Arsenal, Watertown, Mass., in March 1947 and design preparations were immediately begun. Army Ordnance Watervliet Arsenal, Watervliet, New York, was at the same time assigned a like responsibility for the gun tube and breech. Direction and coordination of the over-all project remained the responsibility of the Office Chief of Army Ordnance, with the actual designing operations at Franklin Institute jointly supervised by OCO and Arsenal representatives.

Manufacture of pilot model was begun in 1948.

In compliance with instructions from the Chief of Staff, U. S. Army, design of appropriate changes to accommodate an atomic charge was ordered in November 1949 by the Office of the Chief of Army Ordnance. Preliminary designs prepared accordingly by Office Chief of Ordnance were then turned over to Watervliet Arsenal for final detail, drafting and manufacture.

The first complete assembly with atomic firing capabilities was ready for testing in the spring of 1951.

5. Principal agencies contributing to production of the Unit:

a. Prime contractors:

Franklin Institute, Philadelphia, Pa.
Primary layout and engineering

Draw Corporation, Pittsburgh, Pa.
Manufacture of Gun Carriage

R. Hoe & Co., New York, N. Y.
Manufacture of Gun Recoil Mechanism

Kenworth Motor Truck Corp., Seattle, Wash.
Manufacture of Gun Transporters

Baldwin-Lima-Hamilton Corp., Eddystone, Pa.
Manufacture of Gun Carriage

Treadwell Construction Co., Midland, Pa.
Manufacture of Gun Carriage

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280mm GUN TEST DATA

MUZZLE VELOCITY PLUS METRO

ERROR OF VERIFYING ROUND

	DIRECTION (Epd = 2.4 yds)	RANGE (Epr = 59 yds)	HEIGHT (Eph = 36 ft)
Test 1, Ft.Sill phase	L 24	-41	-113
Test 2, Ft. Sill phase	R 22	/126	-121
Test 3, Ft Sill phase	R 11	/35	- 63
Test 1, NPG phase	0	/17	-167



SUMMARY OF RESULTS

MINIMUM AND MAXIMUM ERROR OF VERIFYING ROUNDS

METHOD	DIRECTION (Epd=2.4yds)	RANGE (Epr=59yds)	HEIGHT (Eph=36ft)
HIGH BURST REG	L 12	- 14	/ 20
	R 22	/125	-104
ONE SPOTTING ROUND ADJUSTMENT	R 11	/ 18	/ 32
	L 24	- 58	/ 58
MUZZLE VELOCITY PLUS METRO	R 11	/ 35	- 63
	R 22	/126	-121
SILENT ADJUSTMENT	0	- 9	/ 92
	R 44	/173	/ 4

Added: 25 May 53 1st Round fired at 0544 hours.
Using predicted fire procedure (met / MV), for the 1st Round of
the registration the error was (In terms of ground zero):

ERROR	$\frac{Dir}{R}$ 28 yds	$\frac{Rn}{R}$ 70 yds	$\frac{Ht}{R}$ 13 yds
Value of 1 PE	2.4 yds	59 yds	13 yds

/s/ B.E.Spiwy
Col, Arty.

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FACT SHEET (Continued)

b. Army Ordnance installations:

Watertown Arsenal, Watertown, Mass.
Project supervision plus manufacture of carriage
and recoil mechanism.

Watervliet Arsenal, Watervliet, N. Y.
Production and machining of gun tube.

Frankford Arsenal, Philadelphia, Pa.
Adaptation of Fire Control Instruments.

Detroit Arsenal, Detroit, Mich.
Design and development of Transporters.

Picatinny Arsenal, Dover, N. J.
Development of ammunition.

Aberdeen Proving Ground, Md.
Design criteria and development testing.

