AD-A179 092 REQUIRED OPERATIONAL CAPABILITY (ROC) NO INS 21132 FOR THE PRECISION GUNNERY TRAINING SYSTEM (PGTS)(U) MARINE CORPS SUPPLY ACTIVITY PHILADELPHIA PA* 07 NOV 86 1/1

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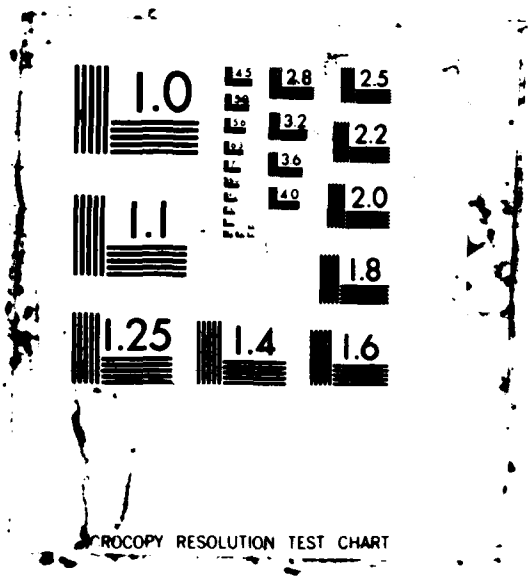
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DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380-0001

IN REPLY REFER TO
3900
29-11-04
7 NOV 1986

From: Commandant of the Marine Corps

Subj: REQUIRED OPERATIONAL CAPABILITY (ROC) NO. INS 211.3.2 FOR THE PRECISION GUNNERY TRAINING SYSTEM (PGTS)

Ref: (a) MCO 3900.4C

Encl: (1) ROC No. INS 211.3.2

1. In accordance with the procedures set forth in the reference, ROC No. INS 211.3.2 for the Precision Gunnery Training System (PGTS) is hereby established and promulgated.

2. The Commanding General, Marine Corps Development and Education Command (Director, Development Center), Quantico, Virginia 22134-5001 is the Marine Corps point of contact for any questions pertaining to this ROC and any development efforts pertaining thereto.

F. X. CHAMBERS, JR.
Colonel U. S. Marine Corps
Acting Deputy Chief of Staff for RD&S

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REQUIRED OPERATIONAL CAPABILITY (ROC NO. INS 211.3 2)

FOR A

PRECISION GUNNERY TRAINING SYSTEM (PGTS)

1. Statement of the Requirement. The Marine Corps requires a multiple weapons system trainer capable of providing precision gunnery training without the need for dedicated ranges, extensive logistical support, or the routine expenditure of live ammunition. The trainer must simulate fire from Dragon and TOW, as well as product-improved versions of those weapons and foreseeable follow-on weapons systems, to include MULE. The system must realistically simulate battlefield conditions such as stationary or moving targets, obscurants, distractions, and the launch effects of the weapon it simulates. It must be capable of training a Marine to the level of proficiency that corresponds to the hit probability of the weapon it simulates. Initial operational capability (IOC) for the host system with the TOW trainee station of 1st quarter FY88 is desired. IOC for the Dragon trainee station of the 1st quarter FY89 is desired. Full operational capability is desired in 1st quarter FY89 for the TOW version and in 1st quarter FY90 for the Dragon version.

2. Threat and Operational Deficiency

a. Threat. N/A.

b. Operational Deficiency. Present training devices do not accurately or effectively simulate all the actions required of, or influences on, the gunner. Present devices cannot be used in restricted areas such as aboard ship or buildings. Also, present trainers are not reliable. Lack of an adequate training system seriously degrades Marine Corps combat capability.

c. Training Deficiency

(1) The nature of the deficiency and associated operational requirements are described in Marine Corps Science and Technology Objectives and the Marine Corps Simulator Training Needs Study of January 1983.

(2) Precision gunnery training for the TOW and Dragon is presently constrained by lack of realistic simulators and adequate ranges, the cost of live ammunition, and environmental and geopolitical considerations. The Marine Corps Reserve has limited capability for live-fire training except during annual active duty for training.

(3) Current Dragon and TOW training systems are not mutually compatible, nor are they adaptable for product improvements or follow-on weapons.

3. Operational and Organizational Concepts

a. Operational Concept. PGTS shall be employed for institutional as well as unit training. Gunners will be trained under a variety of simulated battlefield conditions and against realistic battlefield threats with the need for live fire or dedicated ranges. Unit level training will take place in unit squadbays or classrooms. Forward deployed units will be able to train while aboard ship. Real-time gunner performance evaluation and feedback shall be provided to both the gunner and the instructor.

b. Organizational Concepts. The PGTS shall be organic to and be maintained by Marine Corps training and audiovisual support centers (TAVSC's) for use by active and reserve units.

4. Design and Performance Characteristics

a. Required Characteristics. The PGTS will:

(1) Be adaptable to either heavy or medium antiarmor weapons by simple changes which can be accomplished by an operator/instructor, and will be equally adaptable to accommodate follow-on systems.

(2) Simulate stationary and moving targets (at all reasonable speeds) of all realistic types and sizes, and at all aspect angles from minimum to maximum range of the simulated weapon.

(3) Simulate return fire from target vehicle(s) and other enemy weapons, including mortars, artillery, and small arms.

(4) Provide gunner performance evaluation and feedback to both gunner and instructor.

(5) Permit simulated firing in all practical gunner positions for the selected weapon.

(6) Permit training of gunners wearing NBC protective equipment and clothing.

(7) Be suitable for use in restricted areas (e.g., shipboard and buildings).

b. Other Characteristics. The PGTS shall, as practical and cost effective:

(1) Allow selection of number and types of target vehicles.

(2) Be usable against real as well as simulated targets.

(3) Provide realism of launch effects, tracking, and target movement under varied visibility conditions (including darkness and obscurants). (Ear phones are permissible.)

(4) Adjust for different levels of gunner proficiency.

(5) Provide ease of operator/instructor training.

(6) Use battery and AC power.

(7) Provide ease of transportability (size and weight).

(8) Maximize reliability, availability, maintainability, and durability (to include go/no-go self-diagnosis capability).

(9) Maximize economy of alteration to accommodate product-improved and follow-on weapons.

5. Inter/Intraoperability and Standardization

a. PGTS will be compatible with both current and foreseeable future heavy and medium antiarmor weapons.

b. PGTS will be compatible with MULE and with other precision direct-fire weapons systems.

c. Several allied countries now possess TOW and Dragon; their interest is anticipated.

6. Related Efforts. The Army has an approved requirement document for a TOW and Dragon training system and has expressed official interest in satisfying that requirement with PGTS.

7. Technical Feasibility and Energy/Environmental Impacts

a. The technical feasibility of providing a system to meet these requirements has been investigated and does exist.

b. PGTS will have no adverse energy/environmental impact.

8. Life Cycle Cost Forecasts. Attached as annex A to this document.

9. Manpower Requirements. There will be no additional Marine Corps manpower requirements associated with the system. PGTS will operate by current gunnery instructors in the institutional environment and by small unit leaders in the unit environment. It will be maintained through the TAVSC's by contract maintenance.

10. Training Requirements. Training for instructors will require no more than four hours.

11. Amphibious/Strategic Lift Impact

a. No significant lift fingerprint is anticipated.

b. Strategic transport is not envisioned.

Major System: Precision Gunnery Training System

Date: 07-29-1986

LIFE CYCLE COST FORECAST

FUNDING PROFILE
In Thousands of FY87 Constant Budget Dollars
(FYDP Dollars in Parentheses)
(1 Oct 85 Escalators)

10 YEAR LIFE CYCLE

Major System	PRIOR YEARS	CURRENT YEAR	BUDGET YEAR	FY88	FY89	FY90	FY91	FY92	TO COMPL'N	TOTAL PROGRAM
RDT&E	132	113	1,249	832	0	0	0	0	10	2,337
FYDP Dollars		(109)	(1,249)	(864)	(0)	(0)	(0)	(0)		
PMC	0	0	0	3,743	5,505	0	0	0	262	9,510
FYDP Dollars		(0)	(0)	(3,915)	(6,014)	(0)	(0)	(0)		
QTYS FUNDED										
Dragon Training System	0	0	0	0	50	0	0	0	0	50
TOW Training System	0	0	0	34	0	0	0	0	0	34
Support										
Support PMC	0	0	0	185	195	185	185	185	925	1,650
FYDP Dollars		(0)	(0)	(193)	(202)	(211)	(220)	(230)		
MILCON	0	0	0	0	0	0	0	0	0	0
FYDP Dollars		(0)	(0)	(0)	(0)	(0)	(0)	(0)		
O&MMC	0	0	0	87	218	218	218	218	6,975	7,935
FYDP Dollars		(0)	(0)	(90)	(230)	(236)	(242)	(249)		
O&MMCR	0	0	0	35	35	35	35	35	394	569
FYDP Dollars		(0)	(0)	(36)	(37)	(39)	(40)	(41)		
MPMC	0	0	0	2,000	2,000	2,000	2,000	2,000	10,109	20,109
FYDP Dollars		(0)	(0)	(2,007)	(2,015)	(2,022)	(2,029)	(2,037)		
RPMC	0	0	0	145	145	145	145	145	732	1,457
FYDP Dollars		(0)	(0)	(146)	(147)	(148)	(149)	(150)		
NAVY PROC	0	0	0	0	0	0	0	0	0	0
TOTAL PROGRAM	132	113	1,249	7,028	8,088	2,583	2,583	2,583	19,407	43,767
FYDP Dollars		(109)	(1,249)	(7,252)	(8,645)	(2,656)	(2,681)	(2,787)		

This cost estimate was prepared by Major D.B. Franke, Plans Div., Dev. Ctr., MCDEC (AV 278-3235)

Major System: Precision Gunnery Training System Date: 07-23-1986

LIFE CYCLE COST ESTIMATE
(In Thousands of FY87 Constant Budget Dollars)
(1 Oct 85 Escalators)

10 YEAR LIFE CYCLE

PHASE/CATEGORY		SUBCATEGORY	CATEGORY	PHASE
I.	RDT&E PHASE			2,337
II.	INVESTMENT PHASE			9,594
1.	SYSTEM PRODUCTION/PROCUREMENT		9,594	
A.	Major End Item (Contractor)	9,248		
B.	Initial Provisioning/Spares, Repair Parts	210		
C.	Government Furnished/Added Equipment	52		
D.	Other Direct System Costs	84		
2.	SUPPORT EQUIPMENT PROCUREMENT		0	
A.	Ammunition	0		
B.	Weapons and Tracked Combat Vehicles	0		
C.	Guided Missiles	0		
D.	Comm-Elec Equipment	0		
E.	Support Vehicles	0		
F.	Engineer and Other Equipment	0		
3.	MILITARY CONSTRUCTION		0	
III.	OPERATIONS AND SUPPORT PHASE			31,837
1.	OPERATIONS		28,140	
A.	Operator Personnel/Training	28,020		
B.	Material Consumption	0		
C.	Energy Consumption	120		
2.	MAINTENANCE		9,791	
A.	Organizational Maintenance	98		
1)	Personnel/Training	89		
2)	Maintenance Material	9		
3)	Repair Material	0		
4)	Other	0		
B.	Intermediate Maintenance	7,844		
1)	Personnel/Training	0		
2)	Maintenance Material	0		
3)	Repair Material	0		
4)	Other	7,844		
C.	Depot Repair	0		
D.	Depot Overhaul	0		
E.	Unprogrammed Losses	1,850		
F.	Software Maintenance	0		
3.	INDIRECT SUPT, BASE OPS & MAINT, OTHER O/H COSTS		1,906	
A.	Base Operations	446		
B.	Other Overhead Costs	1,459		
4.	SUPPORT EQUIPMENT O&S		0	
TOTAL LIFE CYCLE COSTS				43,767

Intermediate Maintenance Other is the cost for contracted maintenance of the PGTS

O&S PHASE—Reserves				2,357
1. OPERATIONS			1,361	
A. Operator Personnel/Training		1,353		
B. Material Consumption		0		
C. Energy Consumption		8		
2. MAINTENANCE			867	
A. Organizational Maintenance		7		
1) Personnel/Training	6			
2) Maintenance Material	1			
3) Repair Material	0			
4) Other	0			
B. Intermediate Maintenance		530		
1) Personnel/Training	0			
2) Maintenance Material	0			
3) Repair Material	0			
4) Other	530			
C. Depot Repair		0		
D. Depot Overhaul		0		
E. Unprogrammed Losses		330		
F. Software Maintenance		0		
3. INDIRECT SUPT, BASE OPS & MAINT, OTHER O/H COSTS			129	
A. Base Operations		30		
B. Other Overhead Costs		99		
4. SUPPORT EQUIPMENT O&S			0	

END

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