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6. AUTHOR(S) U.S. Army Training Support Center ATTN: ATIC-DMO Fort Eustis, VA 23604-5166				
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11. SUPPLEMENTARY NOTES TRADOC approved the CTDR on 12 Mar 90. Contract was awarded to Paramax, Huntsville, Alabama on 23 Aug 93.				
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13. ABSTRACT (Maximum 200 words) The Army has a requirement to furnish lightweight moving targets for our present and future Multipurpose Machine Gun Ranges, MK-19 Ranges, Anti-armor Ranges, Portable Remote Target System (RETS) Ranges and augment Multipurpose Range Complexes (MPRC).				
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DEPARTMENT OF THE ARMY
U. S. ARMY TRAINING SUPPORT CENTER
FORT EUSTIS, VIRGINIA 23604-5166

REPLY TO
ATTENTION OF

ATIC-DMO (350)

14 MAR 1990

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Commercial Training Device Requirement (CTDR) for
Lightweight Moving Target System (LMTS)

1. Reference Army Regulation 71-9, 20 February 1987, Materiel
Objectives and Requirements.

2. Subject CTDR has been approved on 12 Mar 90 by HQ TRADOC.
Implementing instructions applicable to this device are:

- a. System Designation: IPR.
- b. Materiel Developer: AMC.
- c. Combat Developer: TRADOC.
- d. Trainer: TRADOC.
- e. Logistician: USALEA.
- f. Operational Tester: TRADOC.
- g. TRADOC Proponent: U.S. Army Infantry School
Fort Benning, GA
- h. CARDS Reference Number: 0218R.

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4. Point of contact for this action is Mr. Hal Hansen, AUTOVON
927-4218/5843.

FOR THE COMMANDER:

Encl

Thalia B. Church
THALIA B. CHURCH
Captain, AG
Adjutant General

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CTDR 2

ATIC-DMO

SUBJECT: Commercial Training Device Requirement (CTDR) for
Lightweight Moving Target System (LMTS)

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(CONT)

**COMMERCIAL TRAINING DEVICE REQUIREMENT
FOR
LIGHTWEIGHT MOVING TARGET SYSTEM (LMTS)**

1. Title:

- a. Lightweight Moving Target System (LMTS)
- b. Cards # 0218R

2. Category:

- a. Armywide:
- b. Over \$15,000.

3. Currently on hand Armywide is an Armor Moving Target Carrier (AMTC) system. The AMTCs are type classified standard and are available on all MultiPurpose Range Complexes (MPRC).

4. Justification:

a. Installations have various types of nonstandard moving target systems. Examples of some of the nonstandard movers are: obsolete M-93 and M-94 Target Towing Machines, modified stationary M151 Jeep engine and drive train coupled with jerrybuilt cable drums and target carrier mounted on steel rails, and modified golf carts.

b. The Army has a requirement to furnish lightweight moving targets for our present and future MultiPurpose Machine Gun Ranges, MK-19 Ranges, Anti-armor Ranges, Portable Remote Target System (RETS) Ranges and augment MPRCs. Currently, the Army has no lightweight type moving target system available for installation on the above listed ranges. Some installations are being forced to install the Army's standard AMTC system in its place. The AMTC is not a cost effective replacement for the LMTS. The AMTC has a very expensive power requirement. It operates on 440/480VAC, three phase commercial power.

c. The training functional improvement is that the weapon system gunners will have a moving target to engage. More significant is the cost savings derived from the LMTS verses the Army's AMTC system. The installation, operation, and maintenance are the cost drivers.

d. All weapon system gunner engagement tasks, conditions, and standards listed in ARTEP 7-8, Mission Training Plans (MTP), can be conducted against the LMTS.

e. Currently, soldiers receive preliminary anti-armor weapons and gunnery training followed by a series of dry fire, subcaliber, and full caliber gunnery exercises employing operational equipment. Sustainment training will include dry fire and subcaliber gunnery exercises (individual and crew) followed by live fire qualification course and battle drills.

f. The LMTS is a cost effective target carrier system that will satisfy institutional, individual, crew, marksmanship, and heavy force modernization gunnery requirements.

5. Characteristics:

a. The LMTS must be capable of using Integrated Thermal Signature Target (ITST), Armor Integrated Thermal Signature Target (AITST), and locally fabricated targets up to full-size flank Light Armor/Tank Targets weighing up to 150 pounds and full-size 3-D high fidelity replicas. The carrier will not have a target lifting mechanism mounted on it. The target will be removeable and placed in an upright position. Provisions should be made on the carrier to house the following RETS equipment and other ancillary targetry items: transceiver with cables, visual light hit indicator, hostile fire simulator, target kill simulator, laser target interface device, hit sensors, target thermal modules with harness, and battery packs with cables.

b. LMTS's target carrier must be able to operate on generally level ground with grades up to five percent. If mounted on a dual track rail system, the minimum track length will be 300 meters, and maximum length of 500 meters.

c. LMTS shall operate by generating its own power (vehicle with combustion engine and charging system) or commercial power or stand-alone generator power, not to exceed 220/240VAC.

d. LMTS will be controlled by a Portable (stand-alone) RETS (PRETS) transceiver (radio frequency link-synthesizer programmable frequencies) or by an Enhanced Remoted Target System (ERETS) personal computer linked with a transceiver.

e. LMTS will be able to move left or right and stop by command along the (300 to 500 meters) carrier path. It will have a speed range from 0-40 kph. Speeds will be increased/decreased by the PRETS transceiver or a transceiver linked to the ERETS personal computer (in 1 kph increments).

f. The LMTS will be protected by berms in live fire scenarios.

6. Distribution/basis of issue shall be as follows:

- a. MultiPurpose MG Range: 1 each
- b. Anti-armor Tracking and Live Fire Range: 4 each
- c. MK-19 MultiPurpose Range: 2 each
- d. Portable Ranges: 2 each
- e. Range Plan Projections:

LMTS Requirement:	FY92	FY93	FY94	FY95
MultiPurpose MG Ranges	5ea	1ea	3ea	
Anti-armor Ranges	8ea	4ea	4ea	4ea
MK-19 Ranges	4ea		2ea	
Portable Ranges		2ea	2ea	2ea
	<u>17ea</u>	<u>7ea</u>	<u>11ea</u>	<u>6ea</u>

7. Source:

- a. SAAB Systems Inc.
2254-A Northwest Parkway
Marietta, GA 30067
404/955-7050
- b. ATA America Training Aids
750 Clemson Rd
Columbia, SC 29223
803/788-9244
- c. ABA
PO Box 500
Pinellas Park, FL 34290-5000
813/935-4083
- d. Tiesenn, EUROPE
- e. Unisys
1011 Church St.
Huntsville, AL
205/535-2500

8. Cost:

- a. Unit cost: The cost estimate for a LMTS that operates on a dual track with 300 meters of track is approximately \$32,000 (there are other systems that do not require a track).
- b. Quantity: Total number of LMTS to be procured is 41 units.

c. Total Cost: Estimated procurement cost:

FY92	FY93	FY94	FY95
\$544,000	\$224,000	\$352,000	\$192,000
Total: \$1,312,000			

9. Date required:

a. Date required: 2QFY91

b. If the LMTSS are not available for installation on newly constructed ranges, a very costly substitute (AMTC) will have to be used (contracts and construction design plans will have to be modified to add new power requirements).

10. Support organization:

a. The installation Directorate of Engineering and Housing will be responsible for the installation of the LMTS and the Directorate of Plans, Training, and Maintenance will account for, operate, and maintain the LMTS in conjunction with the Directorate of Logistics.

b. Unit level targetry personnel will install and remove video display units daily, conduct visual inspections, daily readiness checks, fault isolation using system self test, replacement of fuses, bulbs, etc., on the following components: downrange sensing unit, transmitter, and target lifting mechanism, video display unit and control unit.

c. Direct support will be nontable of organizational equipment based shops and/or TASC shops and will repair and/or replace inoperative parts.

d. Major components repair will be accomplished by Contractor Logistics Support contract.

11. Impact:

a. Minor construction costs:

(1) Portable installation cost: Minor construction for a protective berm should not exceed \$85,000 (1 ea).

(2) Fixed (hardwired) installation cost: minor construction for protective berm, trenching, and cabling should not exceed \$95,000 (1 ea).

(3) Military Construction Army (MCA) costs are dependent on review of each range being equipped.

(4) Estimated construction cost:

FY92	FY93	FY94	FY95
\$1,615,000	\$645,000	\$1,025,000	\$550,000

b. Maintenance personnel requirements:

(1) Maintenance time requirements for one LMTS per year is estimated to be 120 man-hours (includes normal operating and preventive maintenance). DS/GS man-hour cost for labor is \$19.00 an hour (120 hr x \$19.00 = \$2280 per one LMTS per year). Personnel cost for 41 LMTS for one year is \$93,480.

(2) There is no requirement for a dedicated operator. The LMTS will be a downrange moving target system as part of the range's overall targetry. Each range will be controlled by either a person operating the RETS portable range transmitter or the standard RETS Range Control Station.

(3) Maintenance cost:

FY92	FY93	FY94	FY95
\$38,750	\$54,710	\$79,790	\$93,470

(4) The LMTS will be incorporated into the operations and supply accountability for the entire range complex.

c. The LMTS will replace the RETS's Armor Moving Target Carrier (AMTC) programmed for the ranges listed in paragraph 4b above.

d. There will be no special transportation requirements for the LMTS.

12. Spare parts:

a. Drive unit: \$20,000 (motor \$6,000, electronics \$6,000, drive train \$5,000, frame \$2,000) one spare for every five LMTS.

b. Carrier: \$7,000 one spare for every five LMTS.

c. Track assembly: \$5,000 one spare for every five LMTS.

d. Spare parts cost:

FY92	FY93	FY94	FY95
\$96,000	\$32,000	\$64,000	\$32,000

13. Special tools: There will be no special tool requirement.

14. Funding summary: Funded as a trade-off for the AMTC within the RETS program.

	FY92	FY93	FY94	FY95
a. Investment OPA:	17ea	7ea	11ea	6ea
	\$544,000	\$224,000	\$352,000	\$192,000
b. Maintenance:	\$38,750	\$54,710	\$79,790	\$93,470
c. MCA (Minor):	\$1,615,000	\$645,000	\$1,025,000	\$550,000
d. Spare Parts:	15ea	5ea	10ea	5ea
	\$96,000	\$32,000	\$64,000	\$32,000
e. Total cost:	FY92	FY93	FY94	FY95
	<u>\$2,293,750</u>	<u>\$955,710</u>	<u>\$1,520,790</u>	<u>\$867,470</u>
f. Grand Total:	\$5,637,720			

15. POC: Mr. Vince Hartmann, Devices Br, Systems Div, DOTD,
 USAIS, AV 835-1416/5606.

RET1HT29, RETS #1

**ANNEX B
COMMERCIAL TRAINING DEVICE REQUIREMENT
FOR
LIGHTWEIGHT MOVING TARGET SYSTEM**

DISTRIBUTION PLAN

TYPE RANGE	PROJECT NUMBER	FORM NUMBER	LOCATION	QUANTITY
MG TRANS RG	473	9408	FT BRAGG	1
M60/SAW	22222		FT RICHARDSON	1
M60/SAW	22221		FT WAINWRIGHT	1
MULTIPURPOSE MG RG	0344800		FT RILEY	1
MULTIPURPOSE MG RG	480028		NGB BOWIE, TX	1
MULTIPURPOSE MG RG	010079		NGB OZARK, AL	1
MULTIPURPOSE MG RG	9151360	15136	CP GREAVES, KOREA	1
MULTIPURPOSE MG RG	280019		CP SHELBY, MS	1
MULTIPURPOSE MG RG	59100	5910	FT SILL, OK	1
RANGE 6 UPGRADE	269680		TENNENLOKE, USAREUR	1
ANTIARMOR RG	9151370	15137	CP CASEY, KOREA	4
MULTIPURPOSE MG RG	124400		FT CARSON	1
M60/SAW RG	9189560	18956	FT MC COY	1
M60/M-2	491	5705	FT RUCKER	1
RG UPGRADE #16	137160		WILDFLECKEN, USAREUR	1
RG UPGRADE #12	137180		WILDFLECKEN, USAREUR	1
MULTIPURPOSE MG RG	9214400		FT LEWIS	1
ANTITANK RG	19054		PTA, WESTCOM	4
MULTIPURPOSE MG RG	9190420	19042	PTS, WESTCOM	1
MK 19	SB11000		SCHOFIELD BKS, WESTCOM	2
MULTIPURPOSE RANGE	248000		FT DRUM	1
MK 19	213490		FT LEWIS	2
MULTIPURPOSE MG RG	220058		NGB EDWARDS, MA	1
ANTIARMOR RG	200	14429	FT DRUM	1
MULTIPURPOSE MG RG	248	16209	FT DRUM	1
MK 19	1240	14915	CP CASEY, KOREA	2
ANTITANK	431F		FT BENNING	4
MULTIPURPOSE MG RG	69360	6936	FT JACKSON	2