

GENERAL DYNAMICS
Land Systems Division

8 August 1984

To: Duane Foglesong

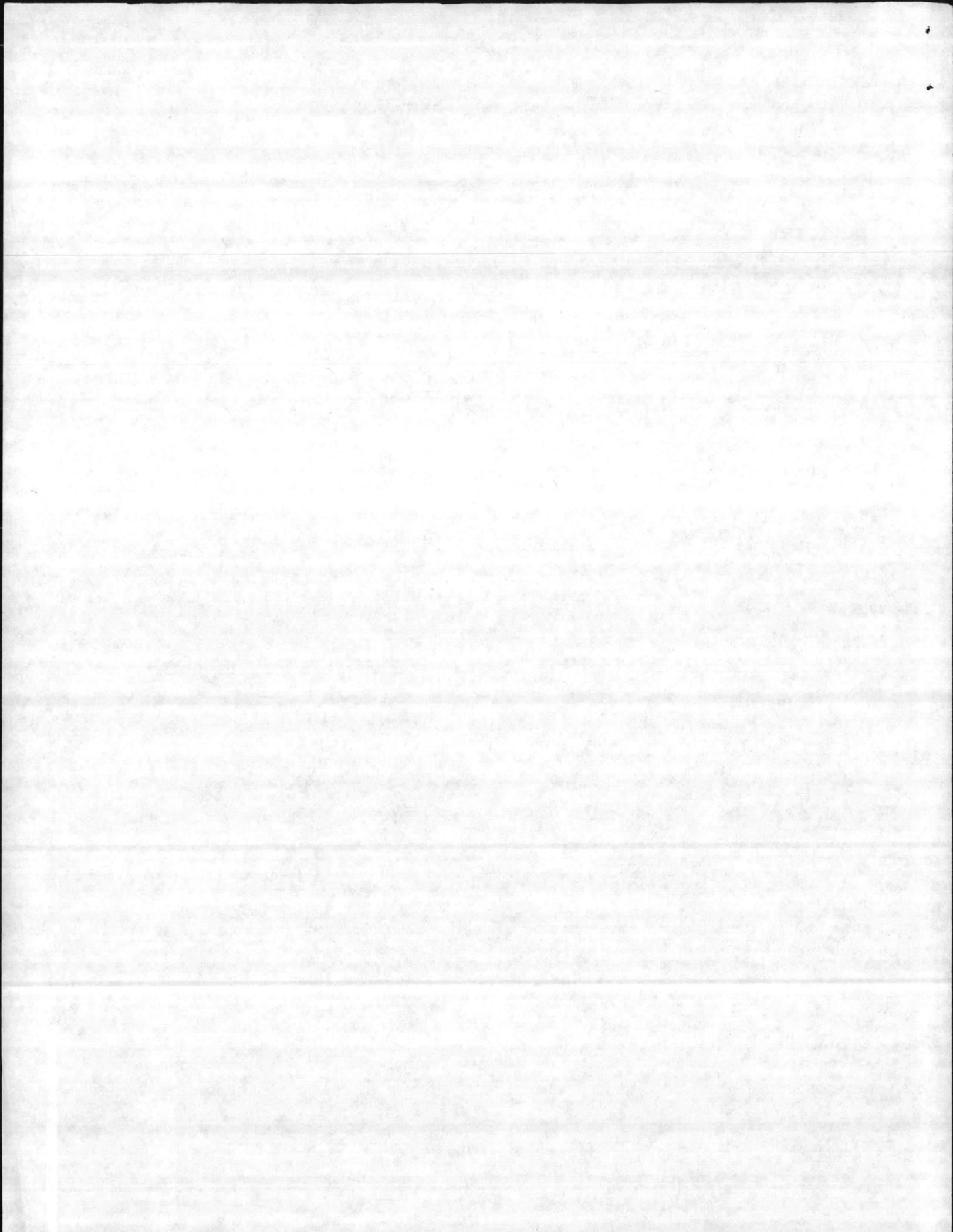
xc: D. Brown, F. Bryan,
B. DeFillipi, D. DeMello,
P. Erickson, R. Fey,
N. Hammes, R. Hill

Please prepare a memo for my signature to Site Mgrs. with MEl's explaining/warning of problem.

J. J. McCuen

SUSPENSE: 10 AUGUST 1984

[Handwritten scribbles and a curved line are present at the bottom of the page.]



RECEIVED

AUG 3 1984

R. G. HILL
DIRECTOR ILS

Inter-Office Memo

GENERAL DYNAMICS

Land Systems Division

P.O. Box 1901, Warren, Michigan 48090

Foglesong
McCuen
TJM/rk:84-154
2 August 1984
we can
inform
to our
Site mgmt
who need
)+

To: S. Millimet

cc: W. C. Beamer, R. Brayer, J. J. Eccles, R. R. Fryc,
N. Hammes, ~~W. C. Beamer~~, C. Pattie, G. Salvador,
J. W. Thomas

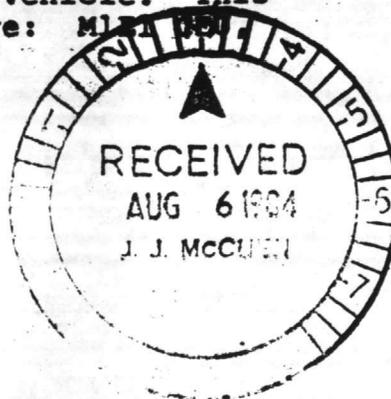
From: T. J. Mangliers

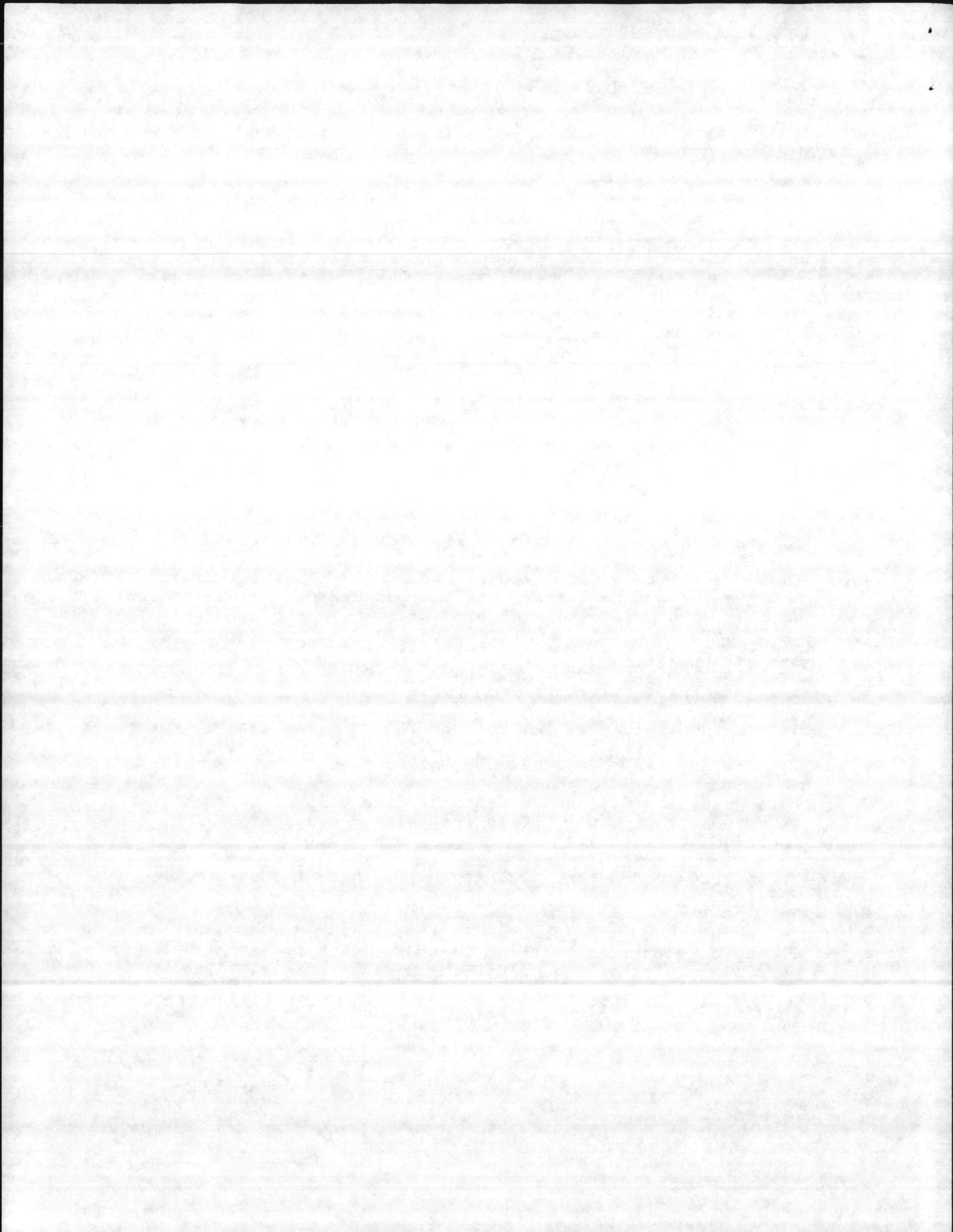
Subject: M1E1 CEU Potential Safety Hazard

Reference: 1. CDC letter, Subject: M1/M1E1 CEU
Interchangeability, dated 12 July 1984

2. IOM from S. Millimet to T. Mangliers,
SM/84-312

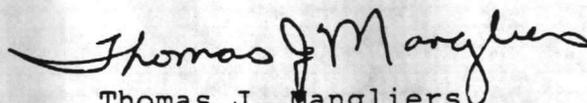
1. A problem may arise if an M1 CEU, 12279575, is installed in an M1E1 vehicle in place of a M1E1 CEU, 12279642.
2. In the event this situation occurs and an attempt is made to move the gun or turret with the gunners/commanders control handles, the following will happen:
 - a. If the vehicle is in "NORMAL" or "MANUAL" mode, the hydraulics will not engage, due to this situation, and the gun and/or turret will not move.
 - b. If the vehicle is in "EMERGENCY" mode, the gun and turret will move uncontrollably as long as the operator engages the gunners/commanders control handles.
3. This situation will not damage the fire control system. (i.e. when the proper CEU is installed the system will function correctly).
4. It is recommended that a safety bulletin be issued to the user.
5. One solution to this problem is to changekeying on the J1 and J2 connector of the M1E1 CEU so that it is not possible to install an M1 CEU in an M1E1 vehicle. This action would affect the following hardware: M1E1 CEU 1W201 and 1W202 harnesses.

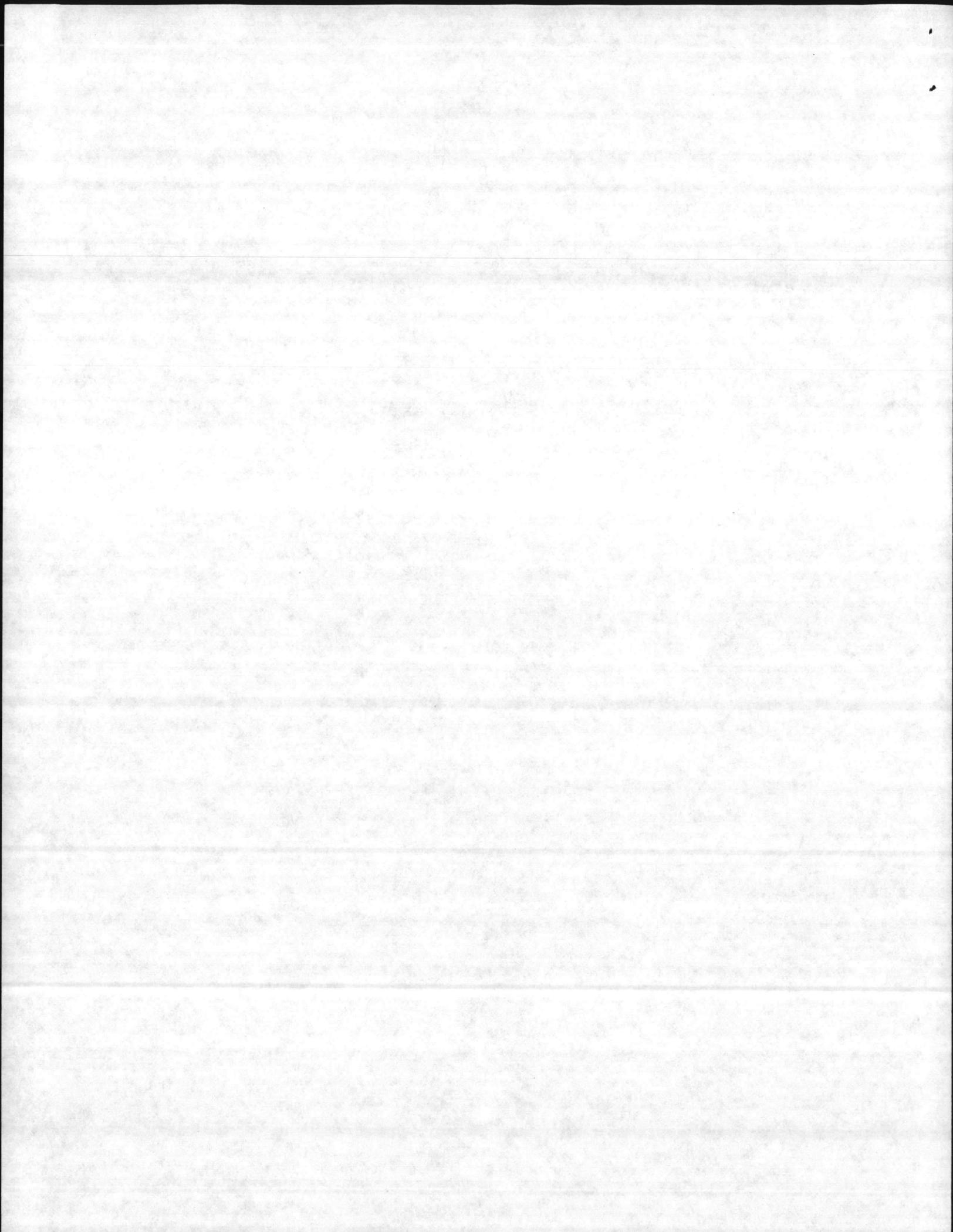




2 August 1984

6. Another solution is to increase the number of pins in the backshell of the J1 and J2 connector on the M1E1 CEU. This would make it impossible to install an M1 CEU in an M1E1 vehicle. The following hardware would have to be redesigned: M1E1 CEU, 1W201 and 1W202 harnesses.
7. A third solution is the one presented by CDC (refer to reference 1). This solution would involve major changes to the M1E1 CEU, the 1W201 and 1W202 harnesses and the TNB.
8. It is recommended to change keying of the J1 and J2 connector of the M1E1 CEU as described in paragraph 5. This approach represents the fewest hardware and TDP changes. One should keep in mind that connectors are keyed to solve this precise problem.
9. Your concurrence and written direction is needed before any action can take place.


Thomas J. Mangliers



GENERAL DYNAMICS

Land Systems Division

P.O. Box 1743, Warren, Michigan 48090

Inter-Office Memo

SM/84-312

31 July 1984

To: T. J. Mangliers

xc: W. C. Beamer, R. Brayer, J. J. Eccles,
N. Hammes, R. G. Hill, C. Pattie,
G. Salvador, J. W. Thomas

Subject: M1E1 CEU potential safety issue.

Reference: CDC Letter, Subject: M1/M1E1 CEU interchangeable
(copy attached), dated 12 July 1984.

Reference letter states that a safety problem may arise because of the possibility of installing an M1 ECU in an M1E1 tank. The letter further states that such action would cause improper operation of the M1E1 fire control system.

The technical memo attached to reference describes the consequence of the incorrect installation, but it is difficult for a lay person to comprehend. Request you describe what occurs when an M1 CEU is placed in an M1E1 in terms of the incorrect performance i.e., incorrect ranges (too little or too much), a malfunction causing a potential safety issue etc.

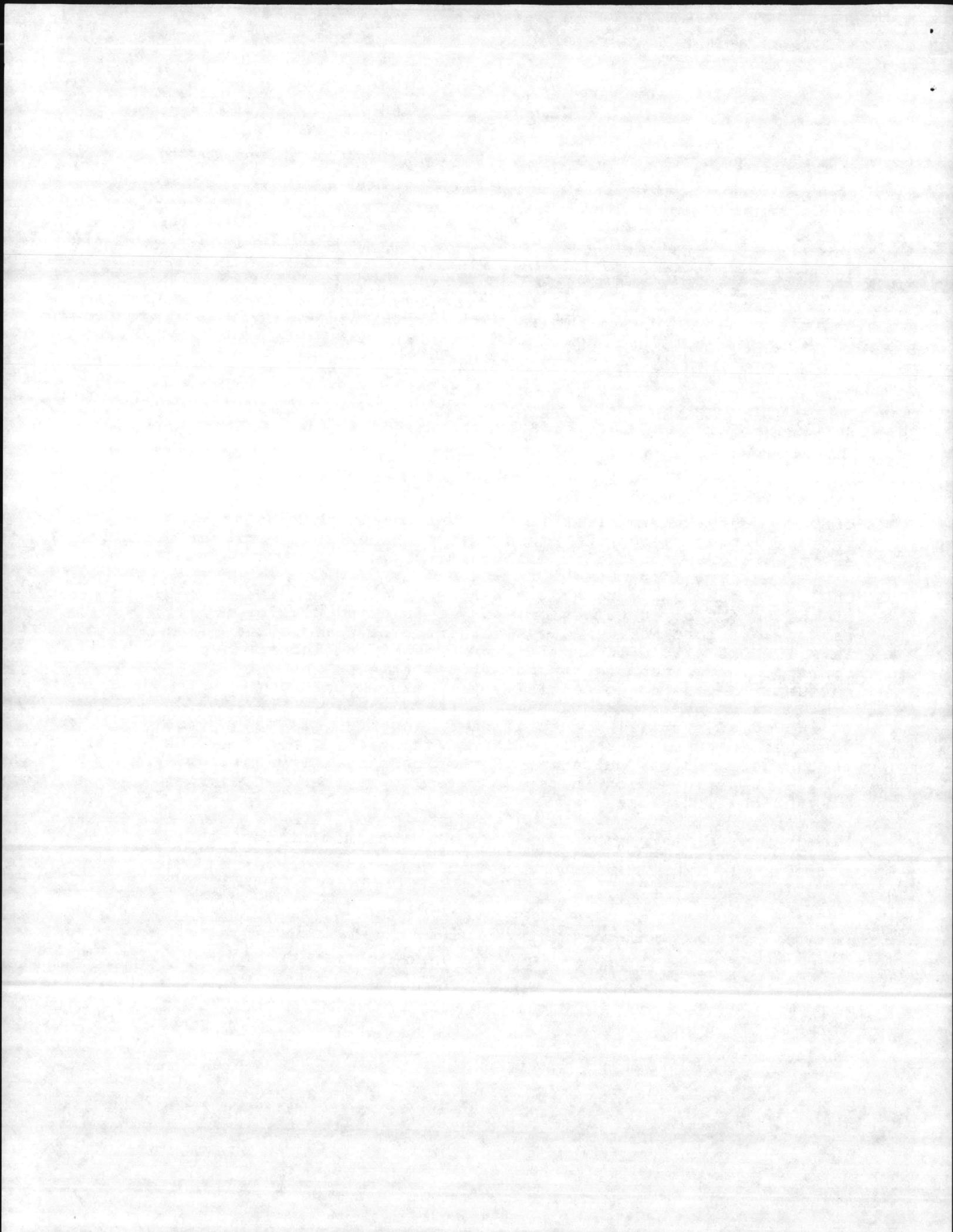
If indeed a potential safety issue is involved please provide your recommendations for immediate correction or notification to the user (safety bulletin, TM warning etc). In addition what corrective action in the longer term is recommended to prevent the potential occurrence?

Please provide a response by 9 August with information copies to those indicated above.


S. MILLIMET

SM/ms

Enclosure





COMPUTING DEVICES COMPANY

a division of Control Data Canada Ltd

PO Box 8508
Ottawa, Canada
K1G 3M9

(613) 596-7000
Telex 053-4139

TWX-610-563-1632

Handwritten signatures and scribbles

xc: W. C. Beamer
J. J. Eccles ✓
T. J. Mangliers
D. Salvador

VIA COURIER

File: J340-5-795

12 July 1984

General Dynamics Land Systems Division
P.O. Box 1852
Warren, Michigan
U.S.A. 48090

Action letter

Attention: Mr. T. Palazzolo
Subcontract Administrator

Subject : Subcontract DEM 805001 (0178)
120mm Gun FSED
M1/IM1E1 CEU Interchangeability

Gentlemen:

The attached internal ComDev Memo is in response to discussions held between GDLS Engineering and ComDev Engineering.

The safety problem arises because it is possible physically to install an M1 CEU into an M1E1 Tank which consequently causes improper operation of the M1E1 fire control system.

Copies of this letter and the attachment have been sent directly to Mr. D. Salvador and Mr. T. Mangliers of GDLS.

Yours truly,

Handwritten signature of D.K. Ritchie

D.K. Ritchie
Contract Management

DKR:kc
Enclosure

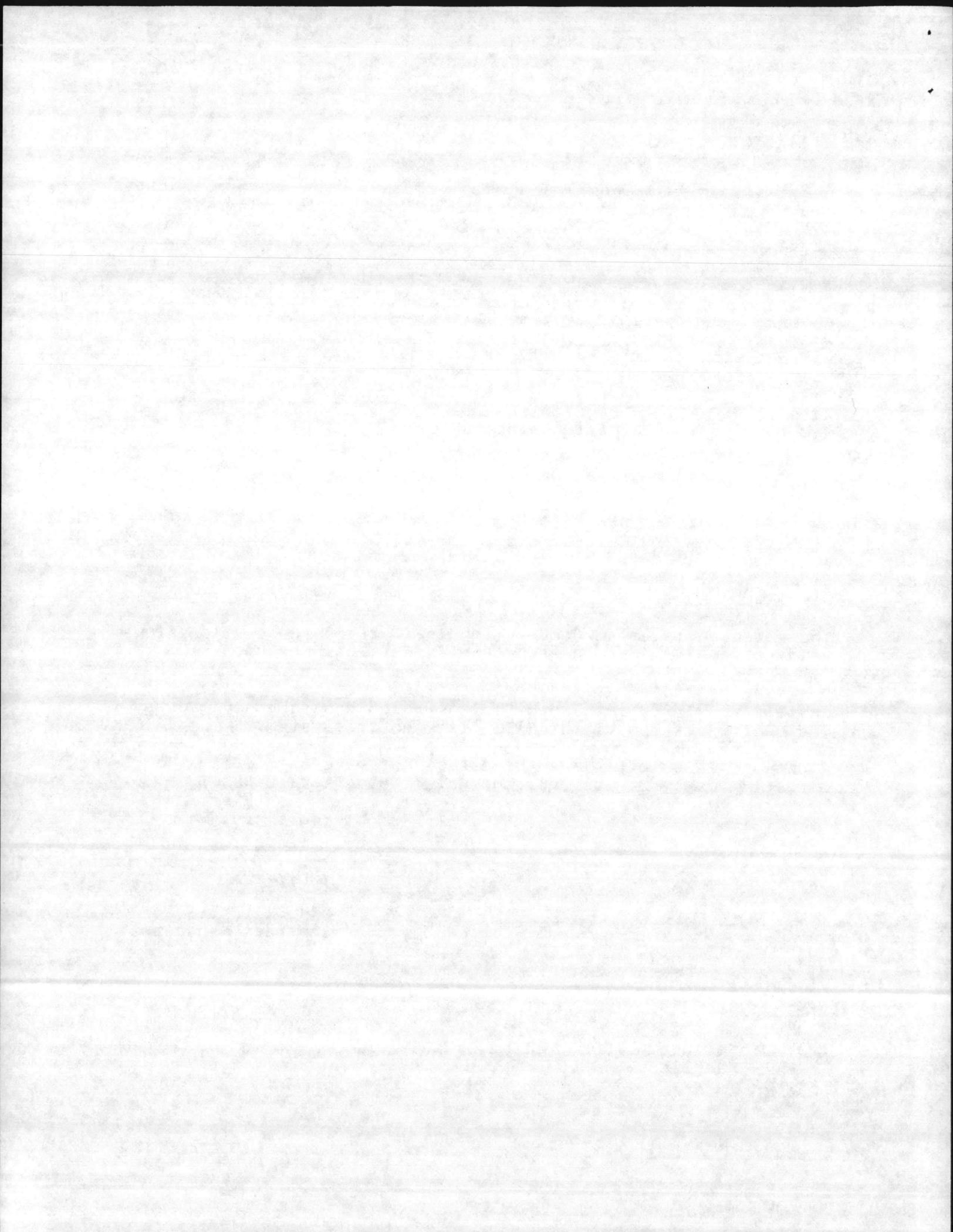
cc: D. Salvador+, GDLS
T. Mangliers+, GDLS

RECEIVED

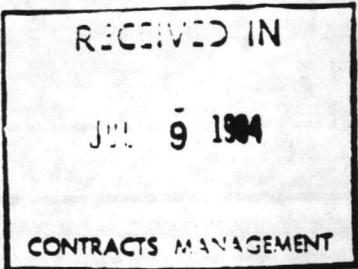
RECEIVED

JUL 13 1984

J. J. ECCLES



MEMO



COMPUTING DEVICES COMPANY
a division of Control Data Canada, Ltd.

DATE: 5 July 84
TO: D. Ritchie LOCATION: 11P
FROM: E. Gracka LOCATION: 31L EXT
SUBJECT: MI/IM1E1 CEU Interchangeability
INFO: E. W. Trischuk, P. L. Mason

Please forward this to G.D.L.S. Contracts Management, insuring that D^ono Salvador and Tom Mangliers receive copies.

ComDev recognizes the safety problems associated with the installation of MI CEU's into IM1E1 tanks as well as the need for 105 mm ballistics for IM1E1. Consequently, we propose the following solution to the above stated problems.

MI/IM1E1 Interchangeability

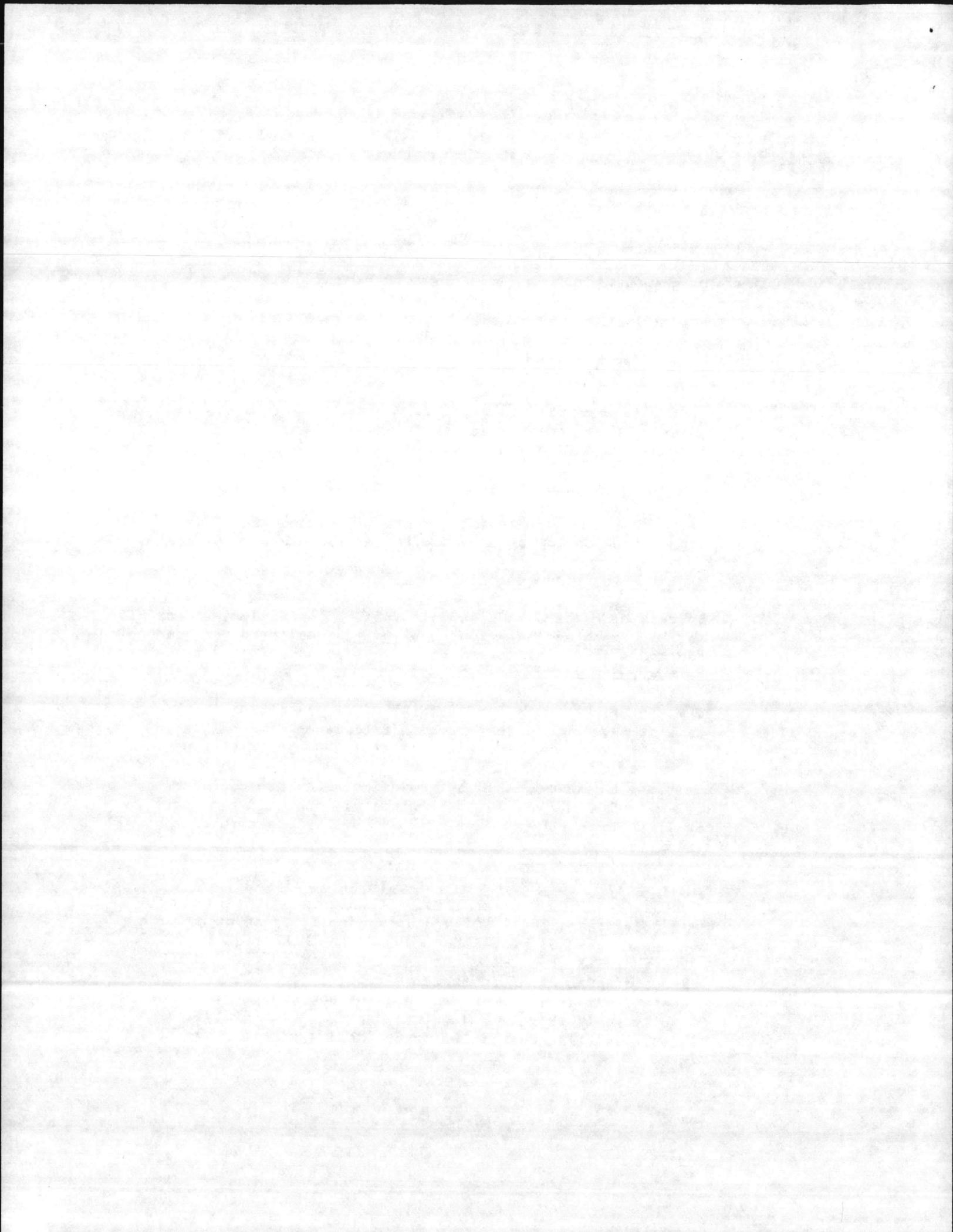
By retaining the J1, J2, J3 pin definitions as defined for MI, on IM1E1, and adding a fourth 61-pin connector to accommodate new functions for IM1E1, previously experienced safety hazards can be averted.

There remains a need for an IM1E1 CEU to recognize in which tank it resides, so that it will calculate 105mm ballistics in an MI tank, and 120/105mm ballistics in an IM1E1 tank.

This may be accomplished by grounding both the AMSEL HEP/ (J1-W) and AMSEL APER/ (J1-X) lines via the wiring harness in an IM1E1 tank and introducing 105mm ballistics into the IM1E1 CEU.

Thus if an IM1E1 CEU were installed in an MI tank, it would "read" the AMSEL HEP/ and AMSEL APER/ inputs in sequence as not being logic level "0" and determine it is in an MI tank and hence use 105 mm ballistics. In an IM1E1 tank (with J1-W and J1-X grounded), the IM1E1 CEU would "read" AMSEL HEP/ and AMSEL APER/ in sequence both as logic level "0" and determine it is in an IM1E1 tank. On power up, the C.C.P. display would show 12063 (indicating 120mm ballistics as default) with access to 105 mm ballistics via an AMMO SUB entry.

.../2



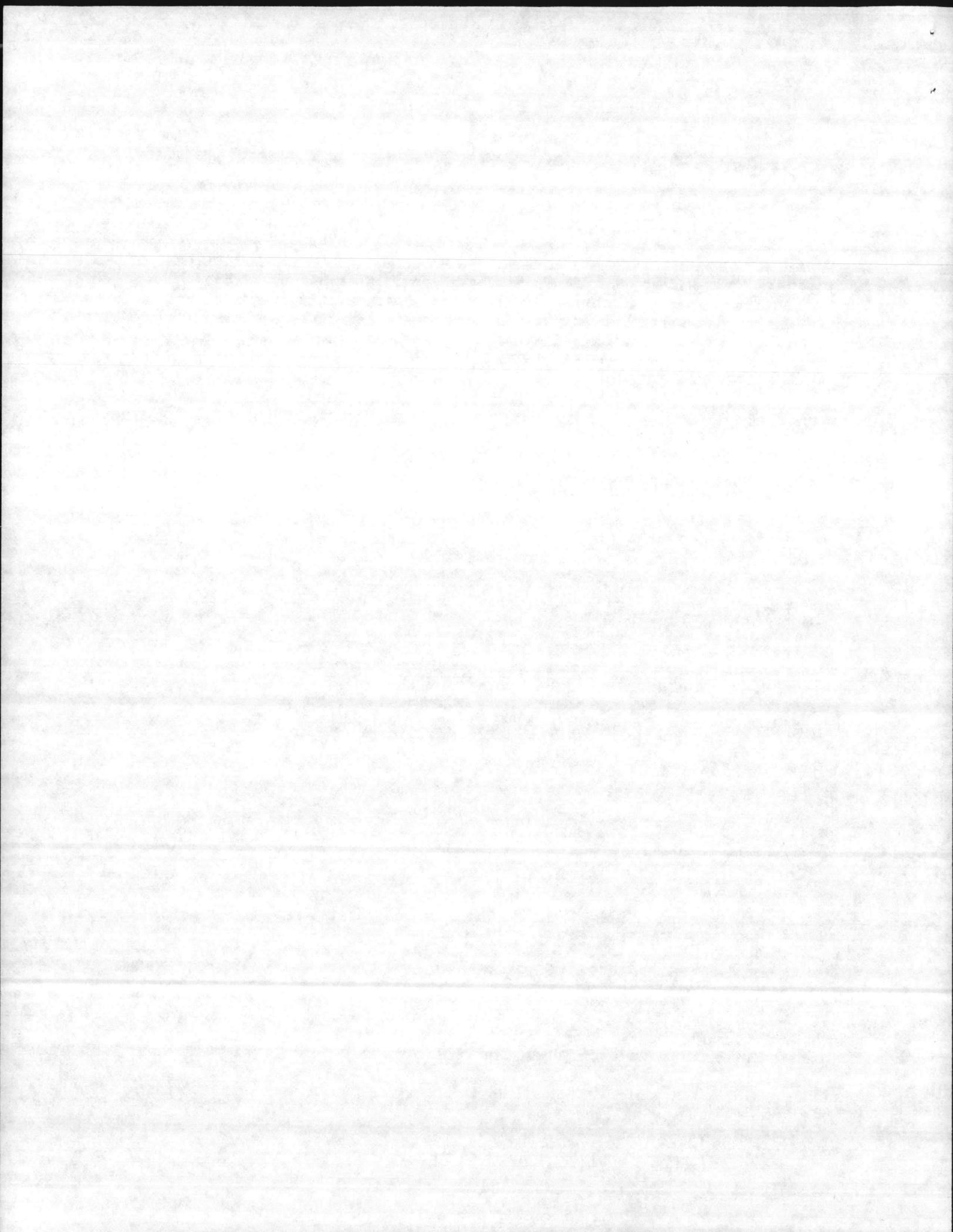
Page 2

Memo to - D. Ritchie
From - E. Cracka
Date - July 5/84

With an MI CEU installed in an IMIEI tank, no hardware safety problems would exist (by applying voltages to the outputs of IMIEI sensors), however software problems would as shown in Fig. 1. Please provide comments to the above suggestions.

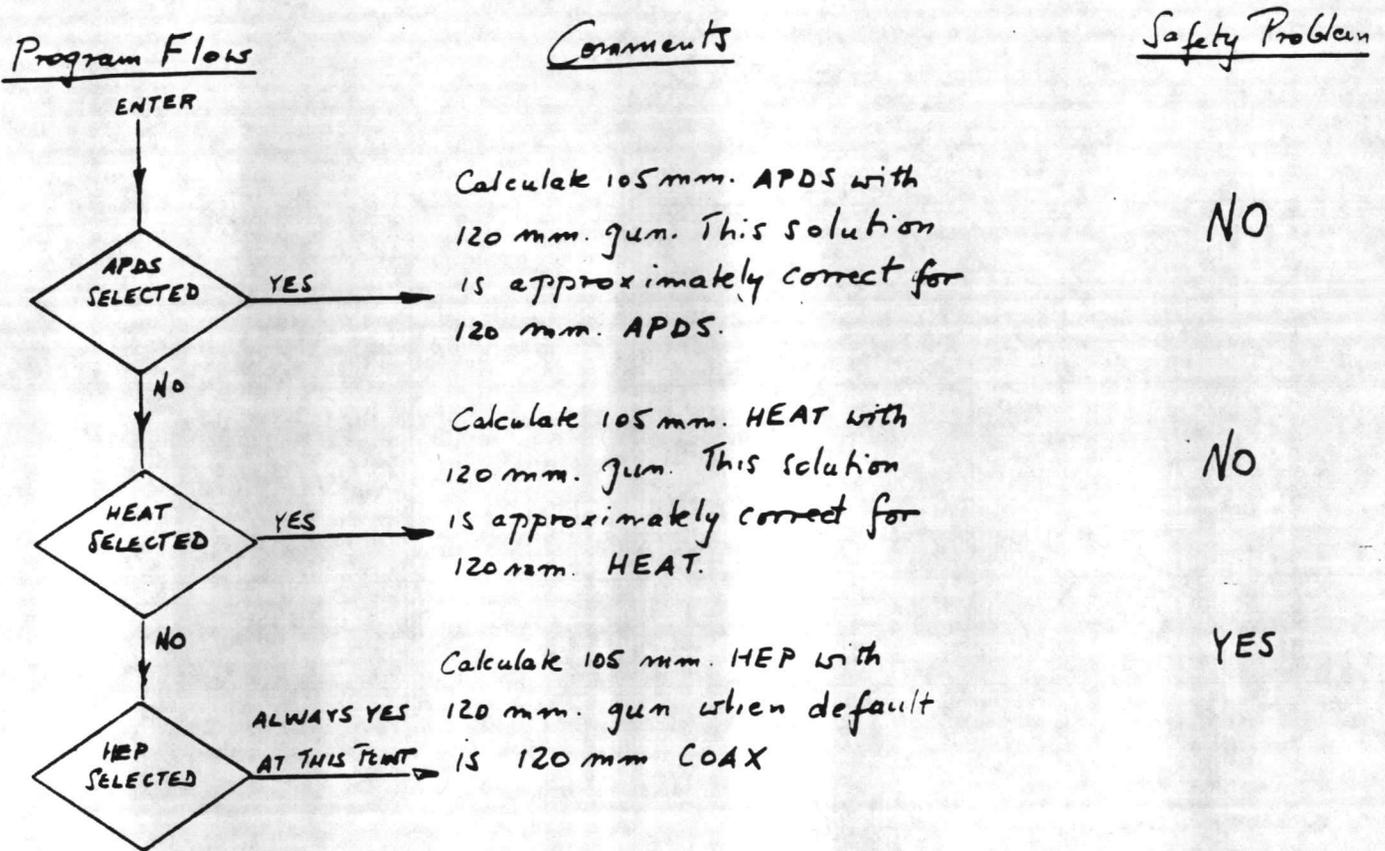
E. Cracka

E. Cracka



IMIEI Tank with MI CEU Installed

1. 120 mm Gun Installed



2. 105 mm. Gun Installed

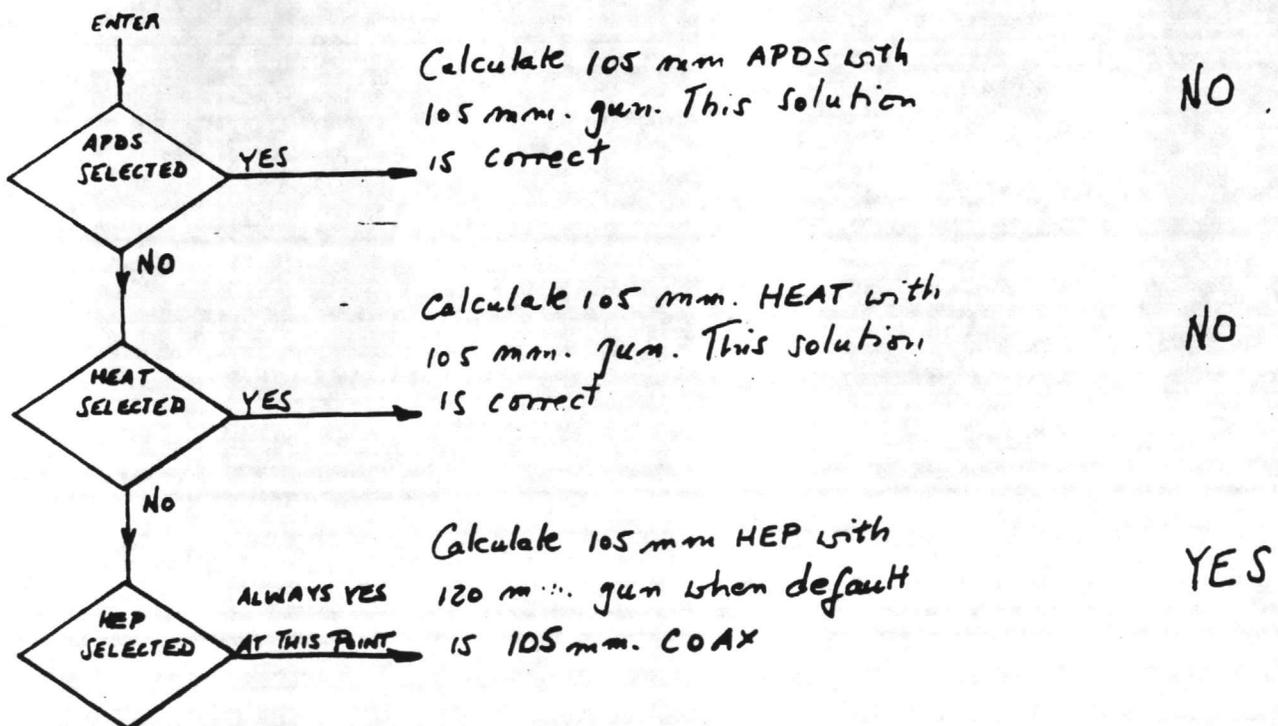
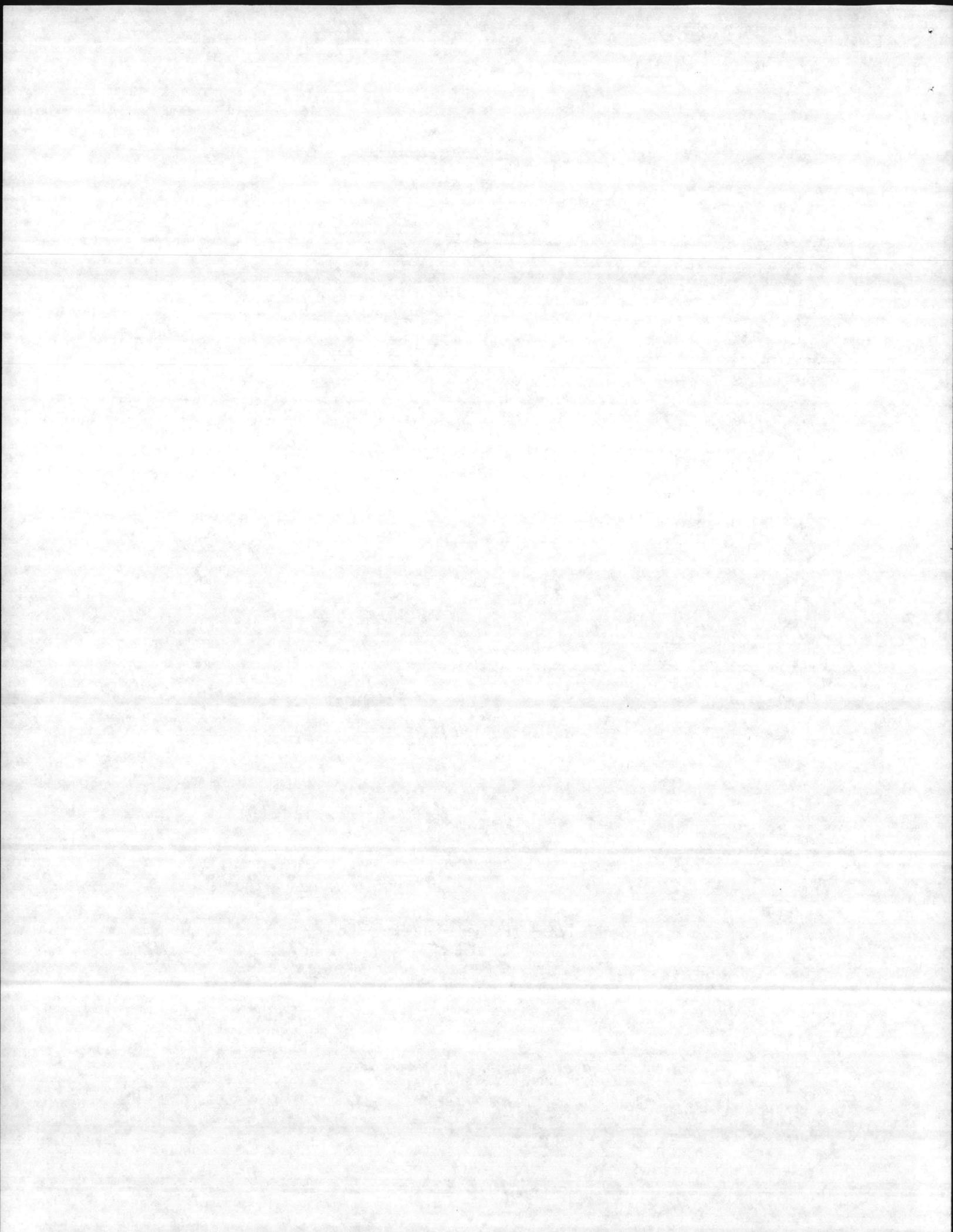


FIG.1



GENERAL DYNAMICS

Land Systems Division

P.O. Box 527, Warren, Michigan 48090

Inter-Office Memo

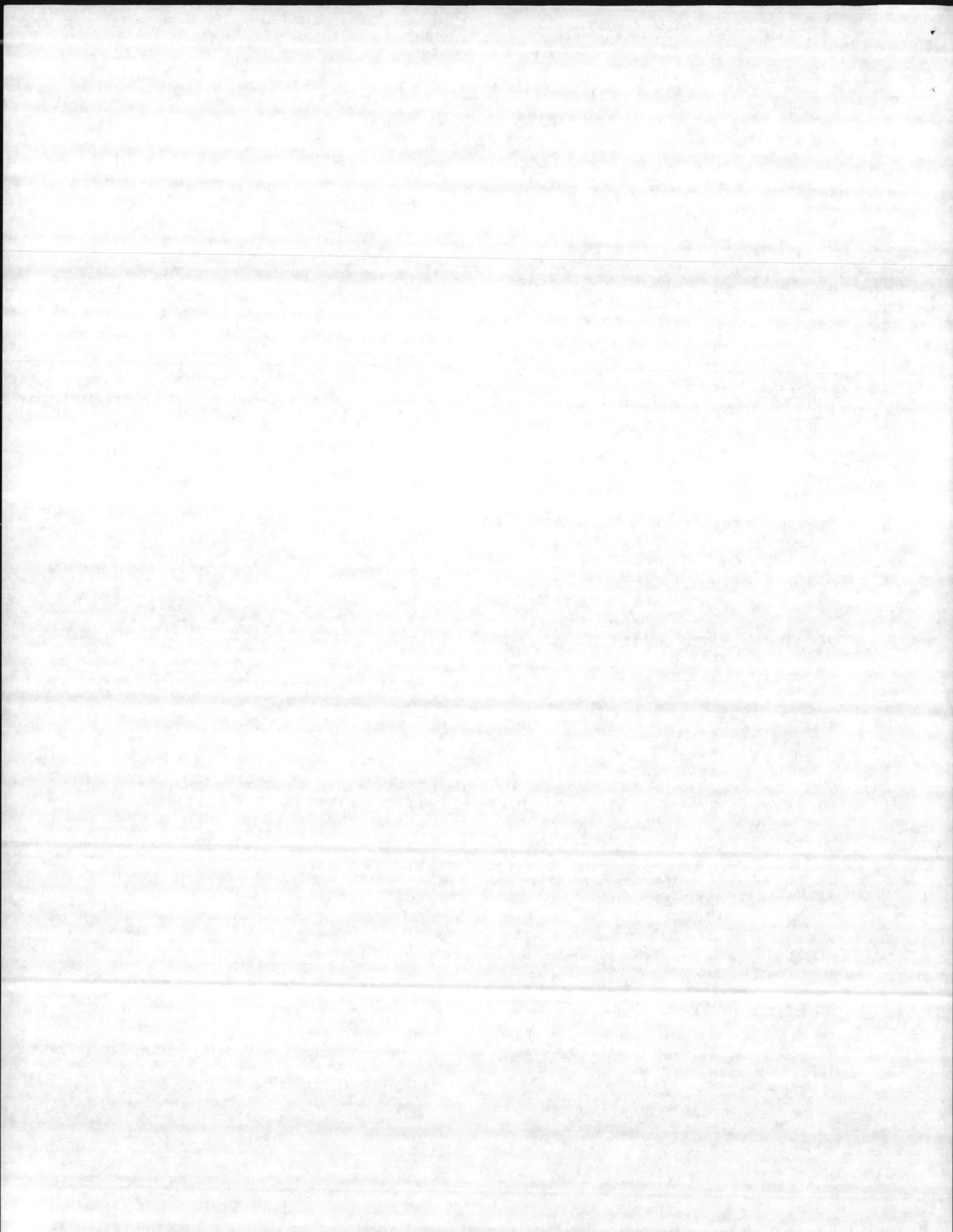
FB/dr:84-36
13 August 1984

To: Site Supervisors

xc: R. G. Hill, T. Mangliers, J. J. McCuen, C. Pattie

Subject: Interchangeability of M1 and M1E1 CEUs.

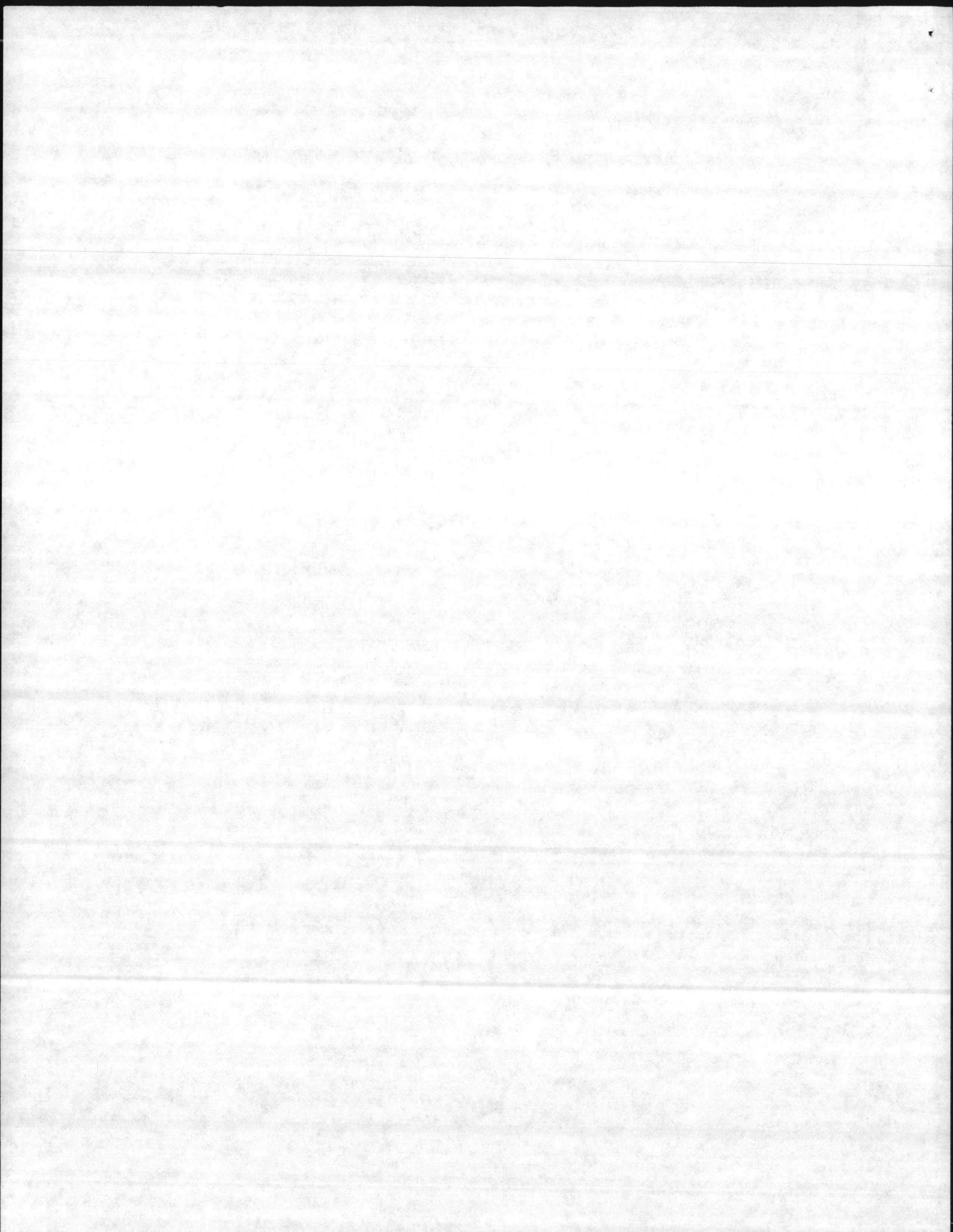
1. Correspondence has been received from Computing Devices Company addressing a potential safety hazard if a M1 CEU, P/N 12279579, is installed in a M1E1.
2. In the event this situation occurs and an attempt is made to move the gun or turret with the gunner's/commander's control handles, the following will happen:
 - a. If the vehicle is in "NORMAL" or "MANUAL" mode, the hydraulics will not engage and the gun and/or turret will not move.
 - b. If the vehicle is in "EMERGENCY" mode, the gun and turret will move uncontrollably as long as the operator engages the gunner's/commander's control handles.
3. Before installing any CEU, ensure that the correct CEU is being installed by checking the part number. The part number for the M1 CEU is 12279579, and the M1E1 CEU part number is 12279642.
4. GDLS and CDC engineering are looking at several designs to eliminate the interchangeability of these CEUs.



5. For sites that are scheduled to receive MIEIs in the future, a copy of this memo should be filed.
6. GDLS and government personnel are to be informed about this potential safety problem.

F. Bryan
Acting Chief - CONUS
Field Operations

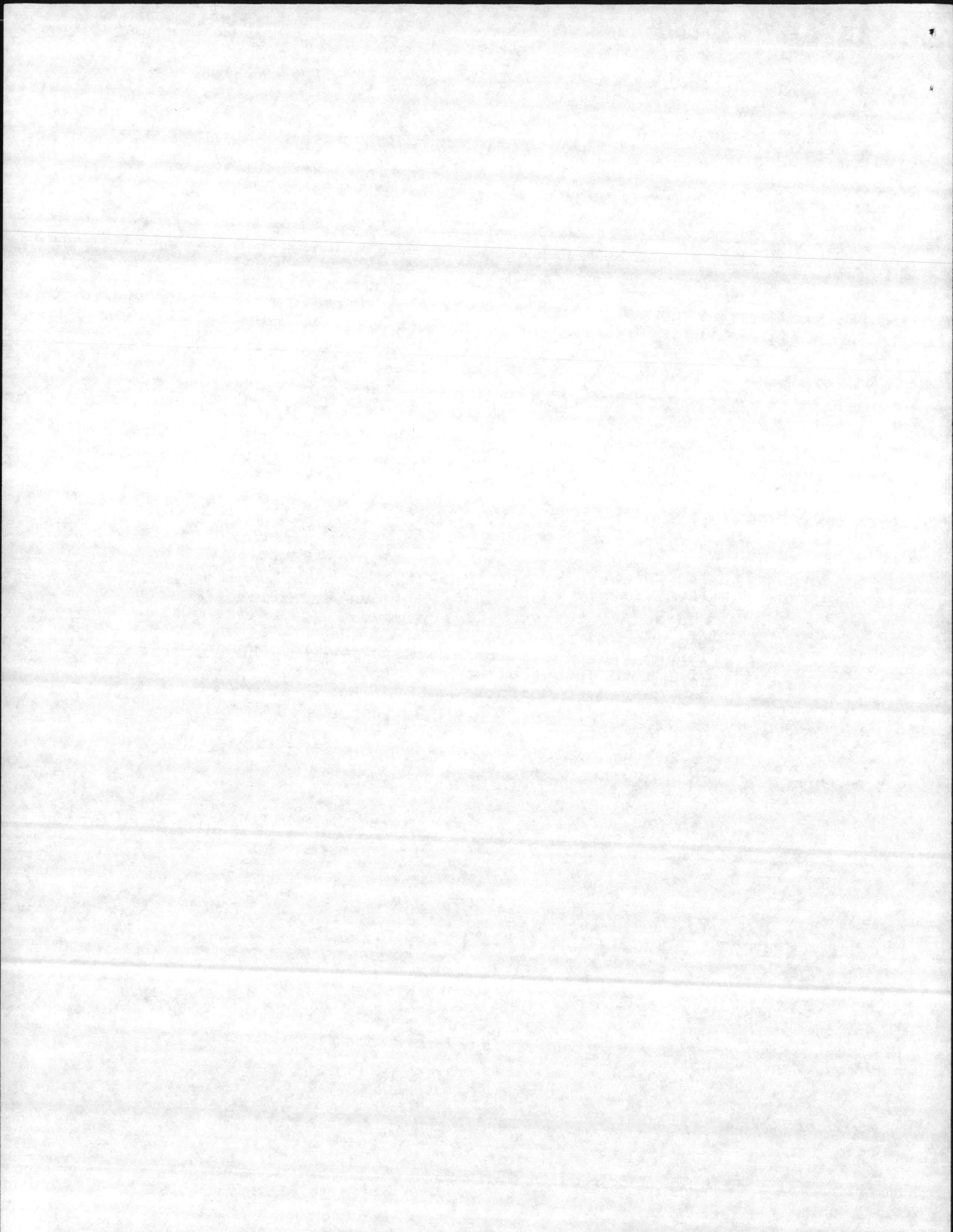
Concurrence: J. J. McCuen
Manager - Field Activities
Coordination Center



**THE FOLLOWING
DOCUMENT IMAGE(S)
WERE POOR QUALITY IN THE
ORIGINAL PAPER FORMAT**

(2 pages)

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08



(4) ~~Two~~ GDS and site ~~designs~~ ^{designs} ~~are~~ ^{are} being set ~~up~~ ^{up} ~~to~~ ^{to} eliminate the ~~intentional~~ ^{intentional} ~~of~~ ^{of} these sites

(5) ~~Two~~ GDS ~~for~~ ^{for} sites that are scheduled ~~to~~ ^{to} be ~~filled~~ ^{filled} ~~in~~ ⁱⁿ the ~~near~~ ^{near} future. ~~Designs~~ ^{Designs} ~~for~~ ^{for} these sites should be ~~filled~~ ^{filled}.

Site ~~designs~~ ^{designs} ~~for~~ ^{for} these sites are to be ~~improved~~ ^{improved} ~~to~~ ^{to} address potential ~~problems~~ ^{problems}.

CC: ~~John~~ ^{John} ~~Mc~~ ^{Mc} ~~Cuen~~ ^{Cuen}

19

19

19

19