

行政院所屬各機關因公出國報告書

(出國類別：考察)

S-70C 教練儀零備件及維修技術研討報告

服務機關：國防部中山科學研究(一所)

出國人 職 稱：荐聘技士
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麥中明

行政院研考會/省(市)研考會 編號欄
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報告日期：91.03.20

CSIPW-91F-E0003

國外公差報告

中山科學研究院

國外公差心得報告

批		示		
中山科學研究院 副院長 宋大偉 0704 1250		12		
公年度	九〇	所屬單位 各級主管	政戰部	企劃處
單位	一所模擬組 一所模擬組		已 完 成 資 料 審 查	請將資料上傳行政院研考會網站，並請將報告裝訂四份送貴單位專責人員後轉送本處。電子檔送交本處「公差出國報告信箱」副本送專責人員。
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國外進修(公差)人員返國報告主官(管)審查意見表

本院目前負責海軍 S-70C 神鷹教練儀委修案，於執行維護期間，為達成 90%以上妥善率，零備件之充份供應，為不可或缺之重要因素，然而由於部份零備件停產及其它因素影響，S-70C 神鷹教練儀生產廠商 (CAE 公司) 未能充份配合提供相關零備件，以利本組執行維修工作，然而經由此次本組同仁實地當面協商及研討，不僅獲得 CAE 及其他模擬器製造公司同意協調配合，使採購合約得以順利進行，並縮短零備件獲得期程， CentraTech 公司更充分協助，使本組獲得已停產之零備件，確保飛行操作訓練儀及偵潛訓練儀維持妥善，解決零備件籌補之困擾，達成 S-70C 教練儀教訓任務。

未來 S-70C 神鷹教練儀若執行 M1&M2 構型更新，經由此次與原廠洽商達成之共識，將可充分協助海軍執行構型更新工作，並可降低成本，以為國家節省大量公帑，發揮教練儀最高之效益。

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依本院 85.11.25 (85) 蓮菁字 15378 號令，返國報告上呈時應附主官評審意見

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報告名稱:

S-70C教練儀零備件及維修技術研討報告

主辦機關:

國防部中山科學研究院

聯絡人/電話:

/

出國人員:

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報告日期: 民國 91 年 03 月 20 日

分類號/目: G0/綜合(各類工程) G0/綜合(各類工程)

關鍵詞: 海軍S-70C神鷹教練儀維護

內容摘要: 一、本院承修海軍S-70C神鷹教練儀，妥善率雖均達90%以上，但因多項需使用之零備件均已停產，造成零備件取得及技術支援獲得困難，可能導致維修之風險。二、由於部份零組件已停產，且目前尚未覓得合適之代用件。國外同型模擬機有數十部，亦會遭遇相同問題，應有廠商可提供解決方案以更新老舊系統。三、本次差旅目的即在與原廠CAE公司及原廠次承商AMI及CENTRATECH公司洽談合作機會，以確保後續零備件及技術支援之獲得；另順道赴刺針飛彈模擬器原廠CSC公司，討論技術支援及相關零備件獲得，以利本組即將於明年元月開始執行陸軍刺針飛彈模擬器維護工作。

本文電子檔已上傳至出國報告資訊網

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壹.出國目的及緣由

本院承修海軍S-70C神鷹教練儀，妥善率雖均達95%以上，但因多項零備件已停產，造成零備件取得困難，導致維修之風險增加。由於部份零組件已停產，且目前尚未覓得合適之代用件，然國外同型模擬機亦有多部仍在運作，亦會遭遇相同問題，應有廠商可提供解決方案。

本次差旅目的即在與原廠CAE公司及零件供應商CENTRATECH公司洽談合作機會，以確保後續零備件及技術支援之獲得；另順道赴刺針飛彈與復仇者飛彈模擬器原廠CSC公司及F-5E模擬器儀錶製造廠AMI公司，討論技術支援及相關零備件獲得，以利本組維修F-5E教練儀及陸軍刺針飛彈與復仇者飛彈模擬器。

本次任務及工作目標，主要內容為：

1. 赴S-70C教練儀製造廠CAE公司，討論支援S-70C教練儀維修及零備件供應，以有效掌握S-70C教練儀相關零備件，並爭取S-70C教練儀性能提昇案之合作機會。
2. 赴相關零備件製造原廠AMI Instruments, Inc. 及 CentraTech Corporation，協調S-70C教練儀及F-5E模擬器零備件籌補，並討論代用零備件提供及技術支援之作法。
3. 赴CSC公司研討刺針飛彈及復仇者飛彈模擬器維修之技術支援及相關零備件供應，以降低維修風險。

本次任務之所有行程與成員的工作分工說明如下：

單位	級職	姓名	任務分配及說明	備考
一所模擬組	薦聘技士	張榮輝	1. 負責與原廠討論有關支援教練儀維修、零備件供應，及配合性能提昇之技術支援與系統更新等相關事項。 2. 負責與零備件製造廠洽談零備件籌補，及系統性能提昇之介面匹配問題。 3. 負責與刺針飛彈模擬器製造商研討維	領隊

單位	級職	姓名	任務分配及說明	備考
一所模擬組	薦聘技士	麥中明	<ol style="list-style-type: none"> 1. 負責 S-70C 神鷹教練儀維修及系統更新相關資訊蒐集。 2. 負責蒐集停產零備件之代用件及技術資料蒐集，以確保獲得相關之零備件。 3. 負責刺針飛彈模擬器維修之技術支援及相關零備件資訊蒐集。 	

貳.公差心得

一.CAE 公司參訪記要

本次公差依規畫於 90.12.04 到達紐澤西州紐華客機場，抵達時已夜幕低垂，故當日未作任何活動，覓妥住宿地點並稍做明日行程準備後即休息。90.12.05 一早即啟程前往紐華客機場搭機轉赴佛州奧蘭多，由於 911 事件後搭乘美國航空國內線，安檢要求均須提前兩小時 check-in，軍警實槍荷彈，安檢人員仔細搜身，且外國人幾乎都要經過兩次搜身(含登機前)，安檢可謂極為嚴格，抵達佛州已下午，覓妥住宿地點並稍做明日行程準備後即休息。90.12.06 一早即驅車前往位於坦帕市(Tampa)的 CAE 公司，到達該公司時約上午九時，由該公司行銷部經理 Mr. Jack Kwok 接待。

本次參訪之 CAE 公司為世界知名之模擬器設計整合及製造公司，海軍神鷹教練儀(S-70C)之原製造廠商為 Reflectone 公司，於 2001 年為 CAE 公司所併購，是神鷹教練儀製造合約之主合約商，主要負責其中飛行訓練儀設計製造及全系統之整合工作，基本上應提供後續零備件及技術支援，但因併購後人員、業務之更替，及業務上的衝突(神鷹教練儀維修案原由該公司承接)，故該公司對於本院提出零備件之採購需求及故障件送修期一直未能積極回應，增加零備件採購及線上維修之困擾，然而該公司正承製我國空軍 C-130 運輸機模擬器，此行主要目的即在於與該公司重新建立連繫管道及就零備件採購、故障件維修及技術支援等進行討論。

該公司參與此次會議的除了 Mr. Jack Kwok 外，尚有工程部經理 Mr. Ron Schneider，Mr. Art McKinnon，及產品支援經理 Mr. Frank O'Brien 等，討論的議題主要為：

- 零備件採購現況
- 故障件維修現況

➤ 神鷹教練儀性能提昇

有關零備件採購的問題，CAE 表示該公司依照功能性分為三個部門：Simulator Operations (SO)負責模擬器的研發製造，目前承製我空軍 C-130 運輸機模擬器，Training Center (TC)負責模擬訓練，Training Services (TS)則負責模擬器的後勤維修及零備件供應。由於 TS 亦想爭取神鷹教練儀之維修，但因此案已由本院承修，故對本院所提出送修件修期及零備件需求未積極回應，針對此點 Mr. Jack Kwok 表示將與 TS 專案經理 Mr. Frank O'Brien 協調，使我方獲得積極而善意的回應。

關於神鷹教練儀性能提昇案，海軍已採購新構型之 S-70C 直昇機，稱為 M-2 構型(原使用者為 M-1)，故計畫將教練儀性能提昇，並同時容納 M-1 及 M-2 兩種構型，以符合訓練需求。CAE 公司對此表示高度興趣，但構想及計畫需等到我方提出需求時才能提供，希望本院建議海軍儘早提出需求，該公司在收到需求後將儘速提供承製建議書。

我方另提出希望透過該公司協調其次合約商 Norden 公司(偵潛訓練儀之製造商)提供有關停產零配件以及相關之線路圖，供我方工程人員執行維修時參考，該公司表示相關文件該提供者均已提供，而次合約商所擁有之線路圖等資料則因此案已結束，而無法再要求，可能須我方透過其他管道取得。

二. CentraTech 公司參訪記要

CentraTech 公司不僅協助本院維修海軍 S-70C 神鷹教練儀並為相關零備件供應商之一，經與該公司專案經理 Mr. Mark Lauson 等人討論議題主要有下列幾點：

- 1) 神鷹教練儀之飛行訓練儀及偵潛訓練儀部份停產件零備件是否能提供替代件？

- 2) 協助尋找 OH-58D 座艙程序訓練器之停產零備件及刺針飛彈、復仇者飛彈模擬器商用零備件。

針對以上議題，CentraTech 公司表示因神鷹教練儀之偵潛訓練儀係依據美軍 SH-60F CV HELO 訓練儀而設計製造，距原設計製造之時間已超過十年以上，當初設計時所考慮之條件係以產品壽限為主，故設計時所使用之電子元件大部份為軍用規格，且部份元件早已停產，組件(Assembly)之獲得極為不易，惟可協助儘量蒐集相關元件(Component)及部份組件，俾於故障時能有效支援維修工作，並達成以下結論：

- 1) 該公司將針對停產裝備尋找可用之勘用件或功能更強之替代件。
- 2) 對於我方要求之刺針飛彈及復仇者飛彈模擬器之商用零備件支援，將儘速協助取得相關必要資訊。另因該公司經美國國務院許可已與本組簽署技術支援協議書(TAA)，模擬器相關零配件可經由該公司較易獲得。

三.CSC (Computer Sciences Corporation) 公司參訪記要

90.12.10 一早即驅車前往位於奧克拉荷馬州杭特斯維爾之 CSC 公司，抵達時約上午九時，由該公司產品發展暨支援經理 Mr. John E. Zeiler 接待。

CSC 公司為美國重要的軍火製造商，主要供應航太科技、武器系統及各項資訊技術，位於杭特斯維爾的是該公司的資訊系統部門，該部門主要提供訓模器技術及大型資訊系統研發。該公司配合武器之銷售已設計許多套刺針及復仇者飛彈模擬器，並也提供我國陸軍使用，考量維修支援之時效及維修經費，陸軍已委由本院執行往後之維護工作，故此次拜訪該公司

之目的，希能建立雙方之聯繫管道並取得該公司(原廠)之諒解，俾與該公司就後續零備件提供及技術支援進行討論。

該公司參與此會議的除了 Mr. John E. Zeiler，還有合約部經理 Mr. Marc Snyder 等相關人員，討論的議題主要為：

- 軟體維修授權許可
- 零備件供應

針對軟體維修授權許可，該公司與美國政府有合約，且依據美國政府法規，該公司在未經核可下，不得私自授權或提供軟體維修密碼，提供他人執行維修偵錯，我方必須經由政府管道，方可取得，本院已將此需求提請陸軍協助。

有關零備件(如附件一)供應問題，該公司曾依據維護經驗，提供相關資料予美國政府，我方若欲獲得該資料，亦需經由正式管道提出申請，目前該公司同意可經由已簽署 TAA 之 CentraTech 公司，獲得所需零配件及資訊。

在討論期間，Mr. John E. Zeiler 不斷提到為何在保固結束後，陸軍就委由我方進行維護工作，而非由該公司繼續執行，我方告知此乃基於我國國軍政策，因中科院為國防部之科技單位，有義務且被要求執行三軍模擬器委修任務，除維修能力外，最主要在於及時支援，以維持高妥善率，且我們此行之目的即在於讓該公司瞭解我方立場，避免產生不必要之誤會，並建立與該公司良好之合作關係，對談間 Mr. John E. Zeiler 方稍釋懷而與我方續談如何進行未來合作情事。使雙方能建立良好之連繫管道，為日後刺針及復仇者飛彈模擬器維護及技術支援、零備件獲得打下良好基礎，雙方會議產生 Meeting minutes(詳如附件二)，該公司並向美國政府正式申請技術支援(TAA)(詳如附件三)。

四. L3 Comm (AMI) 公司參訪記要

90.12.10 於 CSC(Computer Sciences Corporation)公司會議一結束，即趕赴機場搭機前往位於阿拉巴馬州之布羅肯亞諾(Broken Arrow)，然因天氣因素及轉機之延誤，抵達目的地已是翌日凌晨，租車尋得旅館後，當日上午八時赴 AMI 公司，由該公司行銷經理 Mr. Graham L. Coe 接待。

AMI 公司為著名設計、製作模擬器仿真儀錶及控制盒公司之一，本組自 AFS 模擬器即使用該公司之仿真儀錶，且陸續執行 AFS 維修、六套 UTD 模擬器設計生產與 F-5E 模擬器設計製作，均採用該公司產品，與該公司有良好的合作關係，然而於 89 年採購 F-5E 模擬器之維修零備件時，由於合約條款內容，無法達成協議，致影響該批模擬儀錶獲得，故此行之目的即是協調、澄清雙方對合約之歧見，並設法解決達成協議，以期明年度維修專案及新建案相關零配件能順利獲得。

該公司參與會議的除了 Mr. Graham L. Coe，還有客服部經理 Mr. Steve Rayl、專案經理 Ms. Deborah Johnston、合約部經理 Ms. Billie J. Holt 及資深設計工程師 Mr. Leon L. Lu，討論的議題主要為：

➤ F-5E 模擬器儀錶零配件合約內容相關情事

雙方針對合約條款逐項研討，並同時與我國駐美採購組人員舉行電話會議，雙方達成共識及協議：

1. AMI 將原合約內容，依修改意見重新 Update 後於 90.12.14(週五)前，電傳至駐美採購組(DPD)。詳如附件四
2. DPD 將綜整及呈奉核准後，再請 AMI 報價及進行議價相關事宜。

參.效益分析

分析此行與四家廠商相關人員協商討論，主要效益可分為下列幾點：

- 一. CAE 公司願意儘量協調配合並提供零備件與加速送修件之修期，如此將可確保零備件之獲得及妥善率之達成。
- 二. 瞭解國外廠商於系統更新上之設計理念，以往模擬器因為需即時模擬，所採用的處理器通常是速度快但系統相容性低的產品，但現今因為科技的快速發展，各廠商已漸漸放棄自行發展硬體，而採用市場現貨之商用件(Commercial Off-The-Shelf, COTS)，如此在後續維修上商源較不會受限，且汰換時有較多的選擇，而當本組研製新型模擬器時，亦應順應此潮流，儘可能採用 COTS 產品。
- 三. 與 CSC 公司建立了雙方連繫管道，為日後刺針及復仇者飛彈模擬器之維護及技術支援與零備件供應，打下良好基礎，CSC 公司並提供向美國國務院正式申請技術支援協議(TAA)文件予我方簽署(詳如附件三)。
- 四. 與 AMI 公司達成模擬儀錶採購合約之協議，對於 F-5E 模擬器之維修，及未來新建案之期程獲得關鍵性之助益。

肆.國外工作日程表

本次差旅的期間為90年12月04日至90年12月13日共計10天，差
 旅行程如下：

日期	星期	公差地點	工作項目	備考
90.12.04	二	紐約	台北搭機啟程，赴美國飛行途中	夜宿紐約
90.12.05	三	奧蘭多	3. 行程中 4. 資料整理。	夜宿奧蘭多
90.12.06	四	坦伯	CAE公司 1. 討論教練儀維修及零備件供應。 2. 洽談技術支援及性能提昇技術合作議題。	夜宿坦伯
90.12.07	五	坦伯	CentraTech公司 1. 討論零備件供應及技術合作議題。 2. 蒐集系統性能提昇與裝置間之介面匹配之資訊。	夜宿坦伯
90.12.08	六	奧蘭多	資料蒐集	夜宿奧蘭多
90.12.09	日	杭特斯維爾	由奧蘭多前往杭特斯維爾	夜宿杭特斯維爾
90.12.10	一	布羅肯亞諾	1. CSC 公司討論零備件供應及替代零備件供應及相關維修之技術支援議題。 2. 會後搭機前往 AMI 公司。	夜宿淘沙
90.12.11	二	洛杉磯	1. AMI 公司討論零備件供應、替代件供應及蒐集系統性能提昇與裝置間之介面匹配之資訊。 2. 行程中(會後前往洛杉磯轉機)。	夜宿洛杉磯

日期	星期	公差地點	工作項目	備考
90.12.12	三		搭機返國行程中	
90.12.13	四		返抵台北	

伍.社交活動

無

陸.建議事項

- 一、由於美國 911 事件，使模擬儀錶需求大增，而成賣方市場，此次與 AMI 公司討論儀錶購案合約，廠商姿態擺得相當高，深感我國欲發展模擬科技仍需發展週邊之零組件，以配合整體需求與航太工業之發展。
- 二、各軍種陸續將有各型模擬器需求，國外大廠無不極力爭取承製，本組應藉發展模擬器之經驗，協助各軍種執行接收測試工作，不僅確保所採購模擬器之品質，未來各軍種考量後續維護成本與有效及時支援，以維持高妥善率，均會考量委由本院執行，本組則不僅經由與原設計公司接觸之機會，以建立未來合作關係，確保後續零備件供應，並可藉技術交流，增進本院模擬器研發設計能量，以服務三軍，滿足模訓需求，為國家節省大量公帑。

復仇者飛彈系統訓練模擬器備份料件統計表

日期: 90/11/29

項次	分系統	品名	廠家資料	件號	應再採購數量	目前庫存量	可修件/耗材	備考
1	座艙系統	射手控制面板(GUNNER CONTROL)	NRC	13481719	1	1	可修件	
2	座艙系統	前視紅外線監視器(FORWARD LOOKING INFRARED RECEIVER, FLIR)	NRC		1	1	可修件	
3	座艙系統	控制握把	TECHNICAL SYSTEMS	12292346	2	0	可修件	
4	座艙系統	40 吋電視(RGB)	MITSUBISHI	AM-420IR	0	1	可修件	
5	座艙系統	通信控制面板 INTERCOMMUNICATION SET 24VDC	MARANATHA	C-2298/VRC	1	0	可修件	軍用件
6	教官台	音頻放大器 P. A. AMPLIFIER	Radio shack	MPA-31	0	1	可修件	
7	周邊系統 (座艙)	SMART-UPS 2000M-1 120V/12V	AMERICAN POWER CONVERSION	AP2000MPE-1	0	1	可修件	
8	座艙系統	音頻放大器 AMPLIFIER AUDIO FREQUENCY 24VDC	MARANATHA	AM-1780/VRC 料號: NSN-5820-00-892-3342	1	1	可修件	軍用件
9	周邊系統 (教官台)	SMART-UPS 2200 120V/12V	AMERICAN POWER CONVERSION	AP2000MPE-1	0	1	可修件	
10	座艙系統	光學瞄準具	NRC	13481690	1	1	可修件	
11	座艙系統	LUCAS CONTROL SYSTEMS ELECTRONIC CLINOMETER	NRC					
12	座艙系統	控制顯示器(CONTROL DISPLAY TERMINAL CONTROLS AND INDICATORS(CDT))	WPI TERMIFLEX . INC	MODEL:HT/2000 PART NO.:99-2313-0274	1	1	可修件	
13	座艙系統	雷情遙控終端機	RAYTHEON	13385850-2001			可修件	

14	教官台	小螢幕 FLIR AC 120V 60HZ 0.35A	DOTRONIX	9VM1030	1	1	可修件	
15	座艙系統	P261 MICRISTEP DRIVE	API CONTROLS DIVISION	P261-DO	1	1	可修件	
16	座艙系統	扭力管(TORQUE TUBE)	NRC	13481588	1	1	可修件	
17	座艙系統	POWER DISTRIBUTION UNIT(PDU)電源 總成	NRC	13481691	1	1		
18	周邊系統 (教官台)	雷射印表機 LASER WRITER 16/600 PS 100-120VAC 50-60HZ 8.2A	APPLE COMPUTER	M2680			可修件	
19	座艙系統	射手座椅	NRC		0	1	可修件	
20	周邊系統	ETHERNET TRANSCEIVER(教官台)			0	1		
21	座艙系統	揚聲器			0	2	耗材	
22	周邊系統	CVC 頭盔			0	1	耗材	軍用件
23	座艙系統	SGI ONYX	SGI		0	6		
24		電源供應器				1		
25	教官台	SGI INDIGO 2	SGI		0	1		
26	座艙系統	SGI ONYX	SGI		0	1		
27	教官台	教官台擴音小喇叭			0	1		
	周邊系統	CVC 頭盔耳機			0	6		軍用件
	周邊系統	CVC 頭盔接頭			0	3		軍用件
	教官台	學生台散熱風扇 115VAC 50-60HZ 36W 1650RPM	DAHTON	4C688	2	2		
	座艙系統	電視機 RGB 纜線			0	1		
		WX-1 纜線			0	1		
		WX-2 纜線			0	1		
		WX-21 纜線			0	1		
		WX-35 纜線			0	1		

附件二

Minutes of the Meeting on 10 December 2001 Between CSC and ASRD/CSIST

Members Present:

CSC Mr. John Zeiler
Mr. Alfred Modrall
Mr. Marc Snyder

ASRD/CSIST Mr. James Chang
Mr. Michael Mai

1. ASRD opened with the desire of their company to team with CSC for long term support of the Dual Mount Stinger Trainer and Avenger ICOFT Trainer located in Taiwan. The ROC DOD had requested ASRD develop this capability and to do so would require the help of CSC, as CSC was the developer, manufacturer and current maintainer of the systems.
2. ASRD requested a suggested spares list for each system, the root passwords for the software and asked as to the availability of any maintenance manuals for the systems.
3. CSC responded that, once a Technical Assistance Agreement (TAA) was approved by the US State Department, CSC could then only provide the following:
 1. Manufacture spare components
 2. Provide maintenance training to ASRD personnel

The requests for spares lists and software passwords would have to come through official FMS case channels and could only be provided by the US Government.

4. Both CSC and ASRD agreed to prepare the initial documentation required by the U.S. Department of State/Office of Defense Trade Controls (ODTC) for submission of a Technical Assistance Agreement. A request for ITAR Compliance Representation will be prepared by CSC for signature by ASRD as the first step in the process.

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4156

附件三 1/2



FASCIMILE Computer Sciences Corporation

DATE: 14 December, 2001

TO: Yung Hui Chang
 Fax: 011-886-4-23746535

FROM: Marc Snyder
 Ph: (256) 885-7442 Fax: (256) 880-3011
 E-mail: msnyder6@csc.com

Number of pages including cover sheet: 3

MEMO: As we discussed in our meeting on 10 December, the attached memo and certification is forwarded for review and signature by an authorized member of the ASRD staff. Upon completion, please return the executed document to my attention.

Kind Regards,

Marc Snyder
 Marc Snyder
 Contract Manager

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 12/17 of 30
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Computer Sciences Corporation
www.csc.com

14 December, 2001

附件三 2/3

Aeronautical Systems Research Division
Chun Shan Institute of Science & Technology
Attn: Mr. Yung Hui Chang, Program Manager
P.O. Box 90008-11-21 Taichung
Taiwan, R.O.C.

Subject: Request for ITAR Compliance Representation
Maintenance of the Dual Mount Stinger (DMS) and AVENGER ICOFT Trainer
for the Republic of China Army (ROCA)

SC

Dear Mr. Chang:

Computer Sciences Corporation (CSC) has begun to prepare supporting documentation required by the U.S. Department of State/ Office of Defense Trade Controls ("ODTC") for the subject program. A mandatory requirement of this submission is certification by CSC to the U.S. Government that no party to the TAA:

1. has been convicted since June 30, 1976 of violating any of the U.S. criminal statutes enumerated in Section 120.27 of the U.S. International Traffic In Arms Regulations (ITAR);
2. is ineligible to contract with any agency of the U.S. Government;
3. is ineligible to receive a license or other approval to import defense articles, related technical data, or defense services from any agency of the U.S. Government; or
4. is ineligible to receive an export license or other approval from any agency of the U.S. Government.

In order for CSC to provide the required certification to the U.S. Government on behalf of all parties to the TAA, CSC must secure an ITAR compliance representation from your organization. To this end, provided at Attachment A hereto is the compliance representation which CSC respectfully requests be completed and signed by an authorized representative of your organization and returned to the attention of the undersigned at your earliest convenience. Upon receipt of all required compliance representations, CSC will submit the TAA to ODTC for review and approval.

Should you have any questions regarding this request or the attached representation, please contact the undersigned at 256-885-7442. Thank you in advance for your cooperation and prompt response to this request.

Respectfully,


Marc Snyder
Contract Manager

Attachment: A - ITAR Compliance Representation

Federal Sector - Defense Group
Army Programs
P.O. Box 400002
4090 South Memorial Parkway
Huntsville, Alabama 35815-1520

Representation of Compliance with Section 120.27 of U.S. International Traffic In Arms Regulations

附件三 3/2

I represent that to the best of my knowledge, neither **Aeronautical Systems Research Division, Chun Shan Institute of Science & Technology**, its chief executive, president, vice-presidents, other senior officers or officials nor any member of its board of directors has been convicted of violating any of the below enumerated U.S. criminal statutes since June 30 1976, or is ineligible to contract with or to receive a license or other approval to import defense articles, related technical data or defense services from any agency of the U.S. Government, or to receive an export license or other approval from any agency of the U.S. Government:

1. Section 38 of the Arms Export Control Act (22 U.S.C. 2778);
2. Section 11 of the Export Administration Act of 1979 (50 U.S.C. App. 2410);
3. Sections 793, 794, or 798 of Title 18, United States Code (relating to espionage involving defense or classified information);
4. Section 16 of the Trading with the Enemy Act (50 U.S.C. App. 16);
5. Section 206 of the International Emergency Economic Powers Act (relating to foreign assets controls; 50 U.S.C. 1705);
6. Section 30A of the Securities Exchange Act of 1934 (15 U.S.C. 78dd-1) or section 104 of the Foreign Corrupt Practices Act (15 U.S.C. 78dd-2);
7. Chapter 105 of Title 18, United States Code (relating to sabotage);
8. Section 4(b) of the Internal Security Act of 1950 (relating to communication of classified information; 50 U.S.C. 783(b);
9. Sections 57, 92, 101, 104, 222, 224, 225, or 226 of the Atomic Energy Act of 1954 (42 U.S.C. 2077, 2122, 2131, 2134, 2272, 2274, 2275, and 2276);
10. Section 601 of the National Security Act of 1947 (relating to intelligence identities protection; 50 U.S.C. 421);
11. Section 603(b) or (c) of the Comprehensive Anti-Apartheid Act of 1986 (22 U.S.C. 5113(b) and (c)); and
12. Section 371 of Title 18, United States Code (when it involves conspiracy to violate any of the above statutes).

IN WITNESS WHEREOF, this representation is executed effective as of the day and year indicated below:

COMPANY NAME: Aeronautical Systems Research Division, Chun Shan Institute of Science & Technology

By: *Chung Hsing Gao*

Name: Chung Hsing Gao

Title: Director of Simulation Department / ASRD / CSIST

Date: 28 / Dec / 2001

Attachment A

附件四
1/7

December 06, 2001

Defense Procurement Division
Taipei Economic and Cultural Representative
Office in the United States
5010 Wisconsin Avenue, NW
Washington, DC 20016

Attention: Mr. Chen, Der-Chang
Contracting Section

Reference: Inquiry No. XW90006C010-P00, Your note
Of 11/14/2001 regarding L-3/AMI acceptable
Terms and Conditions

Dear Sir:

Pursuant to discussions held on 27 November 01 between Dr. Gao, of CSIST, and Mr. Graham Coe, of L-3/AMI Instruments, Inc., we have made changes to clauses 8 and 12. The balance of the clauses remain the same and are not subject to further negotiation. The Terms and Conditions, as written, must be included in their entirety without change:

1. ITEMS AND PRICES

This Contract's price is Firm Fixed Price, unless indicated to the contrary elsewhere in this Contract. Seller warrants that any unit prices charged herein do not exceed the unit prices charged by Seller to other customers in substantially similar transactions.

1.1 Price is \$110,108.88 USD and is valid only until 12/31/2001 (See attached schedule).

2. DELIVERY AND ACCEPTANCE

2.1 Delivery is stated in months unless noted otherwise. L-3/AMI Instruments, Inc. will make every effort to meet customer's need dates however, for contractual reasons, the stated delivery will be from the time the purchase order, specifications, export license, proof of insurance as noted in 8.2, or the initial deposit payment described in 10 below, whichever is later, is received.

2.2 Acceptance of all equipment will occur at L-3/AMI Instruments, Inc. manufacturing facility in Broken Arrow, Oklahoma upon successful completion of Factory Inspection, in accordance with L-3/AMI Instruments, Inc. established Acceptance Test Procedures.

2.3 Final Acceptance of all equipment will occur upon successful completion of Final Inspection.

3. **QUALITY**

3.1 This procurement is subject to L-3/AMI Instruments, Inc. Standard Quality Plan, which is based on ANSI/ISO/ASQC Q9001-1994.

4. **PACKAGING AND PACKING**

4.1 Upon successful completion of Factory Inspection and receipt of the payment described in 10 below, L-3/AMI Instruments, Inc. will pack the equipment to commercial standards for shipment to Buyer.

5. **MARKING**

5.1 All packages, boxes or cases and shipping documents shall be itemized on a detailed packing list, which also includes Purchase Order Number.

9. 6. **EXPORT LICENSE**

6.1 SELLER shall obtain the required export licenses, permits, authorizations and other clearances for the Purchase Order Items. If an export license is not required, SELLER shall, upon receipt of this Purchase Order, provide proof to BUYER and BUYER's carrier with the applicable regulation relating to the non-requirement of the export license.

6.2 If SELLER is denied any export license or permit required for the performance of this Purchase Order, or otherwise fails to obtain any such license or permit within 120 days of Acceptance of this Purchase Order, BUYER by written notice to Seller may terminate this Purchase Order, in whole or in part, without penalty or cost. (BUYER understands that this order will not be started prior to the conditions of 2.1 being met).

10 7. **INSPECTION**

7.1 Seller shall provide a Certificate of Conformance that the Purchase Order Items conform with the requirements of the Purchase Order, the description and specifications, quantity and quality and are correctly packaged, packed and marked. There shall be an inspection at the destination to assure that the certificate is correct. If the Purchase Order Items are found to comply with the Purchase Order requirements, the BUYER's representative shall issue a Certificate of Acceptance. If the inspection at the destination discloses or reveals that the Purchase Order Items do not comply with the terms of this Purchase Order or the description of specification, the item(s) may be returned for repair or replacement, at SELLER's option.

7.2 BUYER has the right to send a representative to witness the inspection of the Purchase Order Items at SELLER's facility, on a non-interference basis

7.3 SELLER to provide BUYER at least a two (2) week advance notice of the scheduled inspection of the Purchase Order Items.

7.4 BUYER to furnish L-3/AMI Instruments, Inc. a copy of the BUYER's Certificate of Acceptance within thirty (30) days after L-3/AMI Instruments, Inc. Delivers the merchandise.

11. 8. **TRANSPORTATION AND INSURANCE**

8.1 All equipment will be delivered **FOB DFW**.

8.2 Risk insurance on all of the equipment naming L-3/AMI Instruments, Inc. as the insured party from Delivery, until the Purchase Price is paid in full, shall be procured by the Buyer.

12. 9. **SHIPPING INSTRUCTIONS**

9.1 Equipment to be packed to commercial standards for shipment to BUYER's Freight Forwarder at DFW.

13. 10. **PAYMENT TERMS**

10.1 Payment to L-3/AMI Instruments, Inc. shall be as follows:

- a. An initial Deposit of fifty percent (50%) of the total value of the order paid at the time order is placed. Receipt of this payment by L-3/AMI will constitute the authorization to start work.
- b. An additional payment of thirty percent (30%) of the total value of the order paid upon kit release.
- c. An additional payment of fifteen percent (15%) of the total value of the order paid not later than seven (7) days after Factory Acceptance and prior to shipment of the equipment.
- d. A final payment of five percent (5%) of the total value of the order paid not later than seven (7) days after Final Acceptance or after the equipment is first used by the buyer.

**Payment to be in U.S. Dollars, no Letter of Credit. Invoices will be submitted at completion of each of the milestones listed above.

14. 11. **DOCUMENTATION**

Upon Shipment of the Purchase Order Items, SELLER shall submit the following documentation to BUYER:

- 11.1 Certified manually signed invoice in four (4) copies fully describing the merchandise.
- 11.2 Packing list in (4) copies certified by a responsible person to confirm that everything is packed as required by this Purchase Order and indicating the number of packages and the contents of each package.
- 11.3 Sellers Certificate of Conformance
- 11.4 Sellers Certificate that six (6) copies of the invoice and six (6) copies of the packing list have been airmailed directly to the shipping agent

11.5 Seller's Certificate that an export license has been obtained or that an export license is not required.

11.6 Buyer's Certificate of Acceptance

12. WARRANTIES

L-3/AMI Instruments, Inc. makes no warranties, whether express or implied, including, but not limited to THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, except as set forth in the L-3/AMI Instruments, Inc. standard "Limited Warranty" document, as follows:

LIMITED WARRANTY

SELLER warrants that, subject to the terms of this Limited Warranty, the equipment will operate to its specifications and be free from defects due to faulty material, faulty workmanship, and faulty design; provided however, that this Limited Warranty shall not extend to ordinary wear and tear or defects resulting from misuse of the equipment by BUYER or accidents or failure of BUYER to notify SELLER within (30) days of discovery of a defect. This Limited Warranty shall take effect on the date of delivery of the equipment and remain in force for the Warranty Period.

The warranty period for the equipment's components manufactured by L-3/AMI Instruments, Inc. shall be **twenty-four (24) months**. The warranty period for the equipment's components not manufactured by L-3/AMI Instruments, Inc. shall be ninety (90) days. Components not manufactured by L-3/AMI Instruments, Inc. may include, but are not limited to, personal computers, printers, disk drives, actual aircraft avionics such as EFIS components, or radio control heads.

SELLER hereby assigns to BUYER all warranties obtained from suppliers that may extend the Warranty Period. During the Warranty Period and provided BUYER has given SELLER notice as required above, BUYER shall remove the defective part, at BUYER's expense, to SELLER's plant. SELLER shall, at its own expense, repair any such defective part or, at its option, replace the part with a similar part in comparable condition, free from defects, and shall pay transportation charges for such replaced or repaired part from the SELLER's plant to BUYER's site. BUYER shall install or cause to be installed the repaired or replaced part when it is returned to BUYER. The preceding shall be BUYER's sole and exclusive remedy and is expressly made in substitution of any all remedies otherwise provided by law. Failure of BUYER to give timely notice shall operate to bar this or any other remedy.

EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS LIMITED WARRANTY, LESSER MAKES NO PROMISES, REPRESENTATIONS, OR WARRANTIES WITH RESPECT TO EQUIPMENT OR ANY PROGRAMS, DOCUMENTATION OR OTHER MATERIAL OR SERVICES FURNISHED TO BUYER IN CONNECTION THEREWITH OR ANY COMPONENT THEREOF, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, WHICH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. SELLER DOES NOT WARRANT OR REPRESENT THAT THE EQUIPMENT IS AN EXACT DUPLICATION OF THE ACTUAL FLIGHT EXPERIENCE OR THAT IT WILL SIMULATE ALL POSSIBLE CONDITIONS. SELLER CANNOT AND DOES NOT WARRANT OR REPRESENT THAT TRAINING ON THE EQUIPMENT IS SUFFICIENT TO QUALIFY OR TRAIN A PERSON FOR ACTUAL FLIGHT OR FOR ALL FLIGHT CONDITIONS. THE TRAINING ON

THE EQUIPMENT SHOULD BE ADMINISTERED AND SUPERVISED BY A QUALIFIED FLIGHT INSTRUCTOR.

In no event shall SELLER be liable for any loss of profits, or any other indirect, incidental, special exemplary, or consequential damages arising out of or otherwise related to the use or performance of the equipment or any programs, documentation or other material or services furnished to BUYER in connection therewith or any component hereof however caused, even if SELLER has been advised of the possibility or likelihood of such damages. The full and final expression of all warranty liability of SELLER is contained herein and no evidence of any prior or contemporaneous assessment, whether oral or written, may be used to, subtract from, or modify the content of the warranty set forth herein. This Limited Warranty and the limitation upon damages and claims shall apply to the Buyer, its successors and assigns, and any other users of the equipment.

13. INFRINGEMENT

SELLER shall indemnify and save harmless BUYER from any damages suffered as a result of infringement of any patent, copyright, trademark or intellectual property for any delivered Purchase Order Item.

14. DATA RIGHTS

To the extent of its right to do so, SELLER grants to BUYER the right to use all technical data supplied, under this Purchase Order, for the purpose of equipment maintenance.

15. WAIVER OF BREACH

The failure of the BUYER, to require performance by SELLER of any provision under this Purchase Order shall in no way affect the full right of BUYER to require such performance at any time thereafter. The waiver by the BUYER or a waiver of any succeeding breach of the same or any other such provision, nor shall it constitute a waiver of the provision itself.

16. MODIFICATIONS

All modifications or amendments to this Purchase Order shall be in writing and executed by duly authorized representatives of both parties. A letter, telefax, memorandum of understanding or other communication relating to this Purchase Order which contains a proposed change or modification shall not be binding on the parties until a formal amendment to the Purchase Order has been executed in writing by the official designated representative of each party or this Purchase Order.

17. ANTI-ASSIGNMENT

SELLER shall not transfer or assign this Purchase Order to any other individual, firm, partnership, corporation, institution or governmental agency without the prior written consent of BUYER.

18. APPLICABLE LAW

Purchase Order to be governed by the Laws of the State of Oklahoma, USA.

19. TERMINATION FOR CONVENIENCE

Termination for convenience to be in accordance with Federal Acquisition Regulations clause 52.249-2, Termination for Convenience of the Government (Fixed Price). (9/96)

20. TERMINATION FOR DEFAULT

Termination for Default to be in accordance with Federal Acquisition Regulations clause 52.249-8 Default (Fixed Price Supply and Service) (4/84)

21. LIQUIDATED DAMAGES

Not Applicable, L-3/AMI Instruments, Inc. does not pay liquidated damages.

22. EXCUSABLE DELAY

Excusable Delay to be in accordance with Federal Acquisition Regulations clause 52.249-14, Excusable Delay (4/84)

23. SECURITY

SELLER shall be responsible to assure that its employees to not disclose the terms or conditions of this Purchase Order. No publicity or information regarding this Purchase Order shall be given or released without the express prior written authority of BUYER.

24. TAXATION

The prices set forth in this purchase order include all Federal, State and local taxes imposed by the United States Government or a governmental agency thereof. The prices set forth in this Purchase Order do not include any taxes levied on the Purchase Order Items by the Government of the Republic of China. Such taxes shall be the responsibility of BUYER.

25. GRATUITIES AND CONTINGENT FEE

Seller certifies by signing this Purchase Order that:

- a. Seller represents and warrants and shall request its subcontractors that no gratuities, gifts, commission, kickback, referral fees, entertainment, or other unjust benefit or personal payments, either direct or indirect, will be granted or in any way conferred by SELLER to any of the Officers and/or personnel of Buyer, except the payment given for proper business activities.
- b. SELLER represents and warrants that no person or agency other than;
 - (i) SELLER's employees working solely for, and under the supervision and control of the seller or;
 - (ii) SELLER's representative(s) or agent(s) duly registered to the Ministry of National Defense of R.O.C. has been employed or retained to solicit or obtain this contract upon agreement, promise or understanding for a contingent fee. The SELLER further represents and warrants that neither itself nor its employees and representative(s) or agent(s) has exerted or proposed to exert improper influence to solicit or obtain this Purchase Order. As used in this Article, "contingent fee" means any commission, percentage, brokerage or other fee that is contingent upon

the success that a person or concern has in securing a government Purchase Order; "improper influence" means any influence that induces or intends to induce a government employee or officer to give consideration or to act regarding a government contract on any basis other than the merits of this matter.

- c. In the event of any breach of this Article, by SELLER, BUYER shall have the option to either;
 - (i) Terminate this Purchase Order in accordance with the Termination for Default Article, or
 - (ii) Deduct from the Purchase Order Price any amount of commission, percentage, brokerage or other fee paid by Seller.

Should there be further questions regarding this transmittal, please contact the undersigned at (918) 258-0707, Ext. 268.

Respectfully,

Billie Holt
Contracts

Attachment: A/S

Cc: Mr. James Chang