OV-10 Maintenance MTT for Thailand: A Success Story

By

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INTRODUCTION

Training activities conducted under the International Military Education and Training (IMET) program are designed to encourage effective and mutually beneficial relations and to increase rapport and understanding between the United States and the foreign country that participates in this program. Additionally, the IMET program encourages the foreign country to utilize its own resources, thereby contributing to its own greater self-reliance. One way of achieving this is by using the IMET program to increase required operational and maintenance skills, as well as having the country create its own indigenous training capability.

Within the boundaries of the IMET program, a Security Assistance Organization (SAO) has many avenues in which to carry out a particular IMET program. The three most common ways are: CONUS training, overseas training, and Mobile Training Teams (MTTs).

As with any other aspect of a particular IMET program, the decision to use an MTT should be based upon consideration of all of the advantages and disadvantages inherent in it at a particular time and within a particular country. One such occasion, when the advantages outweighed the disadvantages, occurred in 1985 during the conduct of an OV-10C maintenance MTT in Thailand. In this particular situation, the best way to meet the military requirement of the Royal Thai Air Force (RTAF) was to deploy an IMET-funded MTT to a RTAF base in northern Thailand. This article provides insight into the various planning and coordinating requirements associated with the conduct of this very successful MTT.

INCEPTION

The initial request for training came in the form of an RTAF request for assistance in the areas of general maintenance and safety for the OV-10 aircraft. This request was forwarded by the Commander of RTAF Wing 41, Chiang Mai. Wing 41 is one of the two operational RTAF OV-10 aircraft bases in Thailand. The request stated that discussions with base maintenance personnel indicated that while flight line technicians were generally competent at the "3" and "5" skill levels in the major aircraft systems, they lacked proficiency in the areas of quality assurance and safety. Upon receiving this request, and studying the various training options, the idea of an MTT was discussed. Since it was noted that the training would be of short duration, and that a large number of students needed to be reached, the idea of an MTT was further explored. It was also noted that the training should be accomplished on the RTAF OV-10C model aircraft, a model which the USAF does not have in its own inventory. Having carefully reviewed the request against the approval criteria found in DOD 5105.38-M, the *Security Assistance Management Manual* (SAMM), a request for Price and Availability (P&A) data was forwarded to HQ USAF/PRIM. An additional consideration that must be incorporated into a decision when trying to decide the best means to conduct training for the host country is their particular defense budget and training allocation procedures. In this particular case, the RTAF had already formulated and approved its fiscal year training budget, and maintenance training for Wing 41 had not been programmed. Since Thailand pays all travel (transocean and between training locations), they keep a tight reign on the yearly budget.

The original P&A data provided by HQ USAF/PRIM and FMTAG/OL A included two maintenance individuals who would train at Wing 41 for three weeks. This did not constitute an agreement for training. The request had to be discussed and approved by the Defense Security Assistance Agency (DSAA) at the 1984/85 Pacific Command (PACOM) Tri-Service Training Workshop. The MTT was approved at the workshop, but due to training lead time, etc., was programmed into the FY85 IMET Program. This additional time would allow for ample time to better define the training requirements, thus ensuring a better chance for a completely successful MTT. [**Editor's note**: IMET-funding is not normally provided for MTTs. The following guidance on this subject is extracted from Chapter 10, paragraph E.2.a., of the SAMM: "MTT requests under IMET should clearly demonstrate that MTTs are the best training option and IMET is the only funding option. Every attempt should be made to provide MTTs through FMS rather than IMET."]

COORDINATION

One way to ensure that an MTT has a good chance for a successful outing is through proper coordination and planning. Coordination must occur between not only the SAO and the host country, but the technical experts as well. In the PACOM area, the place to look for such help is HQ Pacific Air Force (PACAF).

On 25 May 1984 at the RTAF Aeronautical Engineering Directorate (AED), a meeting was held to discuss the initial objectives and requirements of the OV-10C maintenance MTT. Group Captain Boonchan Pantawong, Director of Technical Training Division, AED, discussed OV-10C maintenance to include an overview of the current RTAF requirements for a procedure called "Hot Section Inspection." (Note: OV-10 aircraft are rotated through this inspection to maintain the highest possible operational readiness status.) He additionally identified areas of RTAF emphasis regarding engine overhaul, repair and replacement of engines, and Aircraft Condition Evaluation (ACE). Other information reviewed by the group included: aircraft propeller hub scarring, early engine removal for intermediate and depot maintenance, and the aircraft egress system. Additional discussions continued concerning the engines used by the RTAF OV-10C aircraft. Discussions such as these laid the ground work for identifying specific training requirements. It was decided at this meeting that the initial MTT training requirements could best be identified by compiling OV-10 aircraft maintenance requirements as viewed from the following four sources: (1) Wing 41, Chiang Mai; (2) Technical Division, AED; (3) Maintenance Division, AED; and (4) the Aircraft Condition Evaluation Team. The maintenance requirements from these four sources, as well as statistical data provided by the RTAF (i.e., current aircraft condition of each aircraft at Wing 41), combined with the pre-MTT survey, would best identify the actual training requirements for the MTT.

During 4-6 June 1984, MTT planning meetings were conducted at Wing 41, Chiang Mai. The objective of these meetings was to help determine training requirements by reviewing the maintenance site and talking with Wing 41 maintenance personnel. The meetings were pre-arranged to occur simultaneously with a HQ PACAF security assistance visit to Thailand. This timely visit allowed the PACAF representatives to attend the meetings, offer technical advice, pose questions [originally asked by the 22 Tactical Air Support Squadron (TASS), the organization that would eventually conduct the training], and to carry information back to the 22 TASS. The meetings were held with a representative from JUSMAGTHAI, two from HQ PACAF, and three RTAF officers (two from AED, and one from DP). They met with the Wing Commander, the Deputy Wing Commander, the Chief of Staff, the Chief of Maintenance, and Deputy Chief of Maintenance of Wing 41, as well as the Commander and Chief of Maintenance for Squadron 411, Wing 41.

Upon arrival, a working group meeting was convened to examine the tentative objectives of the MTT, identify areas requiring clarification, and determine who would address selected areas. While one PACAF representative briefed questions posed by the 22 TASS, the other immediately began initiating an inventory of all Technical Orders (TOs) of Wing 41. As a starting point, the RTAF was briefed as to the typical kinds of problems that the USAF has with their similar OV-10 aircraft. Those areas included flight control, rigging, propeller, landing gear, and egress. The rest of the meeting involved an overview of the Wing 41 OV-10 maintenance procedures. It was observed that the RTAF conducts the Hot Section Inspection (HSI) in accordance with the "Dash 6" (-6) checklist (the standard checklist used to check aircraft), and that the engine control rigging is performed by the RTAF engine personnel in a satisfactory manner. Many of the RTAF maintenance problems identified were associated with general aircraft maintenance, rather than any specific component. The RTAF did state that there were some limitations regarding airframe repair at the intermediate maintenance level, but went on to say that this would not be a topic of instruction for this MTT. It was also noted that the aircraft/engine control rigging was being performed satisfactorily by the Wing 41 personnel.

The RTAF felt that their TO library was current enough to work with. It was noted by inspection that the Wing had only 75% of their TOs up to date. The other 25% were general maintenance TOs which were immediately requisitioned. One problem with the TOs was that they had to be requisitioned from the Navy due to a difference in aircraft models. Additionally, the 22 TASS was tasked to identify and provide all TOs that would be necessary to complete the MTT maintenance effort. An important factor noted at Wing 41 concerning engine repair for the RTAF was that all engine troubleshooting was usually performed on installed engines, as Wing 41 does not possess an engine test cell. At the time of the meetings, only the following engine test cell equipment was available at Wing 41: fuel flow and torque tester, pressure tester, and jet cal analyzer.

During the general discussion at the meetings, the RTAF advised that they desired personnel assigned to Wing 71 (Surat Thani) and the Field Maintenance Division (Bangkok) to participate in this training program. The RTAF was advised that the specific student load for the MTT could not be identified at that time because the actual curriculum had not yet been definitized. Up until this time the RTAF had been planning on approximately 30 students to be trained.

At the conclusion of these meetings, it was decided that the MTT should consist of three members as opposed to only two as originally programmed to the Defense Security Assistance Agency (DSAA). The third member, as well as the final curriculum, would be determined by the 22 TASS. Further, the 22 TASS was tasked to provide a curriculum strawman (to include sug - gested student training load) prior to the pre-MTT survey that would take place in January 1985.

RTAF STATISTICAL DATA

As the 22 TASS was preparing to design the curriculum, they found the information from the MTT planning meeting most valuable. Another valuable item was the statistical data that was provided by the RTAF concerning the aircraft that would be the focal point of the MTT. By reviewing this data, the experienced OV-10 maintenance technicians helped pinpoint what training was necessary and how to correct the problems encountered by the Wing 41 maintenance personnel. The RTAF provided a Status Summary High Usage Rate of LRU (Line Replaceable Unit) for an eight-month period (to include the NSN, name, and quantity used) and a comprehensive Maintenance Problems/Pilot Report of Discrepancy (PROD) and Corrective Action Report for the same eight-month period. (These were listed by aircraft number and date on which the PROD occurred.) Additionally an OV-10C aircraft status list was provided. This included the status of each aircraft by number, elapsed airframe hours, left and right hand engine numbers and elapsed hours, and a remarks section. The RTAF also included RTAF Form 57/20 (a maintenance history for a particular aircraft), as well as a maintenance history for materials needing replacement.

This provided an outline of when a particular item required change for a particular aircraft. All of the data was then forwarded to the 22 TASS as soon as it was received by JUSMAG. These materials were used to help develop and define the curriculum, as well as to decide on the AFSC of the third MTT member.

The RTAF also provided JUSMAG information on all prospective MTT students. Since the original information requested training for Wing 41, only information on students from Wing 41 was provided. Of the 59 maintenance technicians from the 411th squadron maintenance section (organizational level), Wing 41, it was found that 80% of them were highly experienced regarding the general aircraft and its systems. Thirty-six of the 59 each had over 10 years of maintenance experience. Only 12 of the 59 had less than five years experience. Despite this high degree of experience, they generally seemed to be lacking in the additional skills regarding indepth engine maintenance. Of all the technicians mentioned, very few had ever received USAF conducted formal or on-the-job training (OJT). Only one Wing 41 maintenance officer had been CONUS trained (OJT only), and three Wing NCOs had received OJT with a USAF OV-10 unit previously assigned to Nakorn Panom, Thailand, in the early/mid 1970s.

In the early stages of planning, the RTAF recommended an English Comprehension Level (ECL) requirement of at least 60 for each student who would take part in the training. A visit to Wing 41 by JUSMAG to administer the American Language Course Placement Test (ALCPT) revealed that the average ALCPT score was only about 30. Of the 59 students tested, the following ALCPT score categories were identified: 61-70 = 5 personnel; 51-60 = 2 personnel; 41-50 = 7 personnel; 31-40 = 14 personnel; 30 and below = 31 personnel. With scores like these, the RTAF Language Center (Don Muang) was requested to send a fulltime language instructor TDY to Wing 41 to conduct intensive language training prior to the start of the MTT. This was accomplished. (Note: JUSMAG had recommended a prerequisite ECL of 65 and the use of course translators.)

COURSE DEVELOPMENT

On 28 September 1984 the 22 TASS provided the strawman course based on the information provided during the previous two MTT planning meetings and the statistical information provided by the RTAF. They advised that the RTAF needed "indepth engine troubleshooting training, to include related electrical, instrument systems, and functions." The TASS indicated that they would use a modular method of training providing both classroom and hands-on training (OJT). They included the following major topics in their strawman: module 1, rigging; module 2, propeller; module 3, test equipment; and module 4, operations. They also advised that each class should not exceed six students, nine classes in all, 54 students total. In early October this information was passed to the RTAF, and they were requested to provide concurrence or suggest any changes to the training program. After reviewing the data closely, the RTAF forwarded a request to add training on three additional pieces of test equipment and additional training on flight control systems. With that change incorporated, the strawman was complete.

In January 1985, with the strawman in rough draft, two members of the 22 TASS came to perform the pre-MTT survey. Their specific objectives were to survey and assess the general quality of O/I level maintenance performed by RTAF Wing 41 on the OV-10 aircraft, determine specific training requirements, facility support, and necessary training aids. In addition to Wing 41, the survey team visited the Engine Test Cell at Don Muang. The survey was completed in two weeks time and the members returned to the 22 TASS to complete preparation of the curriculum, training aids, and all other materials required to provide the RTAF with the best possible MTT.

In the months between the pre-survey (January) and the actual MTT in-place date (June) much additional coordination took place. After the curriculum was completed by the 22 TASS, copies of the instructor and student materials were forwarded to JUSMAG to be translated into the

Thai language. This would allow the MTT instructors to teach with overhead transparencies in both Thai and English languages. Student guides were translated as well. The 22 TASS felt that the dual language materials would be an easy lead-in to the TOs which were also furnished and used mainly during the on-the-job portion of training. (Note: All RTAF TOs are published in English.) In addition to the translated materials, RTAF/AED identified and provided two fulltime translators/instructors to help in the conduct of the MTT. Wing 41 also provided a translator/ instructor for the training duration.

Since it was decided that nine classes would be conducted by the MTT, the decision was made that one of the nine classes held at Wing 41 would be composed of Wing 71 technicians, while another class would be held for the Field Maintenance Center (Don Muang).

On 30 May, JUSMAG visited Wing 41 for a final review before the MTT was to leave Hawaii to begin training. There were small items that were identified on this final trip that could have caused delays in training. It was noted that there was no "Y" cord or adapter and hose for the pitot static tester available at Wing 41. The instruction manual/TO for the pitot static tester was not available either. While the RTAF continued to search for these items, JUSMAG requested the MTT hand-carry them to Thailand. Except for these small items, Wing 41 had all the students in place and ready for training, and the classroom, training aids, and shop areas were in order. The translated materials were completed and all training support equipment and TOs were available for training. All in all, Wing 41 was prepared to accept the MTT and begin training.

In addition, Wing 41 had also made arrangements for an OV-10 to fly to Bangkok to pick up the 1350 pounds of excess baggage which the team had brought with them. Meanwhile the MTT travelled to the training site via JUSMAG C-12 aircraft with the JUSMAG and PACAF representatives. Word was received that the students who would be attending the training from Don Muang and Wing 71 were also prepared.

TRAINING

With only one day required for Wing 41 orientation and set-up and the opening ceremony, the team began to teach. As stated earlier, the course was modular by design and allowed the maximum use of the three MTT instructors. The course was eight days in duration, four days in the classroom and four days of OJT in the engine testing area, aircraft parking ramp, or the aircraft testing area. With the split time, one instructor could be teaching one class in the classroom while the other instructors could be teaching another in the OJT areas.

According to regulations, the MTT was only required to submit an initial report and a final report. The 22 TASS wished to be apprised weekly as to the progress of the team, therefore a weekly report was flown down from Wing 41 to JUSMAG, where it was turned into message form and forwarded to the 22 TASS.

Within the first week of training two pieces of test equipment, the deadweight tester and the pilot status tester, required calibration. All calibration for the RTAF is done at the Precision Measuring Equipment Laboratory (PMEL), Bang Sue (Bangkok). This meant an untimely delay in some of the training. During the second week of training even more test equipment malfunctioned. This time the jet cal analyzer and the fuel flow tester, as well as the deadweight tester needed cali - bration. By the third week of training, it seemed that all required test equipment was back in working order, and training was continuing as planned. The MTT worked diligently to ensure that all students received the training as outlined in the curriculum, and rearranged the schedule while working overtime to do so.

By the middle of the sixth week of training, problems with the test equipment resurfaced. The fuel flow and torque tester was reading incorrect pressure and two jet cal analyzers were found

to be reading differently. In order to save valuable training time, rather than sending the equipment to Bangkok, two RTAF PMEL personnel were flown up to Wing 41 to calibrate the equipment on the spot. Once the equipment was calibrated, no additional problems of this nature arose throughout the rest of the training period.

In addition to the outlined course curriculum, the MTT provided additional technical assistance to Wing 41. They showed Wing 41 maintenance personnel "new" USAF methods of maintenance that would help save aircraft down time. These items ranged from correct positioning of (propeller) blade angles to proper aircrew-maintenance interface procedures. The team found themselves doing everything possible to ensure that the students were learning. They took time to simplify electrical wiring diagrams and constructed a harness assembly for the RTAF that would help them test "thermocouples." When the MTT members were not knowledgeable on a pro - cedure, they would contact the 22 TASS for assistance. As an example, when unsure about blade positioning, they requested a message be sent to the manufacturer for the correct answer.

In other areas of OV-10 maintenance, the MTT did all they could. They provided new information to the RTAF, such as: inspection of circuit breakers, changes to the Functional Check Flight (FCF) checklist, and current requirements for inspection of ejection seats. In addition, they constantly stressed the need for flightline safety and organization while performing maintenance. The entire team offered their help to any section of Wing 41 which either requested or required it. The MTT had their hands full all of the time, as there were more than ample aircraft on which to perform maintenance. A review of the weekly reports revealed that no less than 15 aircraft required MTT training related maintenance in the span of eight weeks of training.

CONCLUSION

On 8 August 1985 a graduation was held for all Wing 41 students who completed training--42 in all. When the students from Wing 71 and Don Muang completed their training they immediately returned to their respective units. The graduation also served as the closing ceremony for the MTT. The Commander of Wing 41 presided over the graduation, while the senior USAF representative from the JUSMAG awarded the certificates. This was requested by the RTAF, who felt it only proper that the certificates from a USAF MTT, sponsored by security assistance, and funded under the IMETP, be given by a USAF officer. They also felt, in their gracious manner that it would mean a lot to the students should they receive their certificates from an American. Eighteen months and many long hours of planning and coordination had come down to a single graduation ceremony. It was at that time evident that the MTT had accomplished all that it had set out to do. The RTAF had their training--training that would allow them to use the most current maintenance procedures which should in turn benefit not only the RTAF, but increase the quality of defense for the Thai nation.

The United States also benefitted from this training. Since it was an IMET-funded MTT, one way of measuring benefit to the U.S. could be through close examination of the objectives of the IMET program and results in light of each. The *skills* needed to effectively maintain the OV-10C aircraft increased significantly. In addition to teaching new methods, the MTT helped foster the development of a training course paralleling the one taught by the MTT. The RTAF is currently in the process of creating its own *indigenous training capability* based on the course materials and training aids left at Wing 41. With the experience and management skills shown by the team members, they not only increased maintenance skills, but helped improve the *management of maintenance* at Wing 41 as well. One of the most important objectives of the IMET program is to promote the *rapport and understanding* between the United States and Thailand. While this IMET objective may be best achieved during CONUS training of foreign students, there is no doubt that the MTT accomplished this as well. Each member of the MTT team was treated with the utmost respect, as well as being extremely well liked by each member of RTAF Wing 41, from the Wing Commander (O-7) to the E-1 on the flightline. At times, the MTT members found themselves

answering as many questions about America as they did about aircraft engines. (As stated earlier, not many military from "up country" Thailand have the opportunity to travel to the U.S. for training.) Each member who received a certificate proudly wore the organizational patch of the 22 TASS on his uniform, for that was the unit from which they had received "USAF training."

To the extent possible, during the conduct of an IMET program, principal emphasis should be placed on individuals likely to occupy key positions within a foreign country's armed forces. While we are not sure as to how many, if any, of these students are likely to occupy key positions in the Thai military, you can rest assured that each one of them, as well as the rest of Wing 41's personnel, has a more positive outlook and understanding regarding the USAF and the U.S. as a whole as a result of the quality of personnel and training provided by this MTT.

EPILOGUE

Despite what seemed at times to be numerous setbacks, the MTT members completed their mission on time, and in the process, achieved 100% of their original course objectives. In addition to the sixty-day MTT at Wing 41, the team took the time to visit Wing 71 (the other operational OV-10 RTAF base), reviewing the overall maintenance operation and the Wing's TO library, as well as all of their test equipment.

On 15 August 1985, the MTT, consisting of MSgt Dennis Miller, USAF, SSgt John Hopp, USAF, and SSgt Jack Lyden, USAF, returned to their original duty station, Wheeler AFB, Hawaii, after what was certainly a totally successful MTT effort.

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