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Process Improvements in the 60 CRS AGE Flight

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in the
60 CRS AGE Flight

IT 395

Technology Design Project

Anthony Schumacher

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Executive Summary

Since January 2002, I have faced the challenge of using the knowledge obtained through the Southern Illinois University Industrial Technology program to streamline procedures and improve processes in the 60th CRS AGE Flight. All of the work done on this project was to help improve the many programs in the bench stock/tool room area of the flight. The bench stock/tool room area ensures that the AGE Flight can accomplish the mission of supporting aircraft by ensuring that AGE mechanics have all the resources necessary to complete their mission. The original goal of this project was to transition the flight from an aging process of tool control to Air Mobility Command's TRM 3.1 tool control system. At the onset of the project, we were told that we could depend on unlimited customer service and the proper resources for an uncomplicated transition to the new tool control system. In the first couple of months we quickly learned that the promised support for the new program did not exist, and in fact we encountered many delays while searching for solutions to the dilemmas we faced. While attempting to implement TRM 3.1 we created interim tool control procedures to comply with regulations, and then began implementation of new tool control software called Tool Accountability System (TAS).

It became necessary to shift the focus of the project in April and to expand its parameters to allow me to fulfill the guidelines set forth in the class syllabus. It was decided that I would manage and make improvements to the many other processes handled by the bench stock/tool room personnel. One of these processes was to help transition hardware/shop stock suppliers from Curtis Inc. to Fastenal Inc. The details involved working out a fixed budget, replacing hardware storage bins used by the old supplier, and labeling and restocking the over 1200 individual items provided through the new supplier. Over the last six months I have also had the responsibility of making improvements to our inventory control processes in the AGE Flight; we began to update our methods to comply with new regulations, create tools to ease the process of ordering parts for our mechanics, and assist in managing our supply system account. It was also necessary to reorganize the system that our flight uses to maintain, track and administer calibration requirements to ensure that all requirements were being met in a timely

manner. Overall, this project has been an excellent learning experience that allowed me to apply many principles learned in the Industrial Technology program.

60 CRS AGE Flight

Aerospace Ground Equipment (AGE) flights throughout the Air Force are the backbone of quality, effectiveness, and reliability on the flightline. The 60 CRS AGE flight is responsible for maintaining, servicing, repairing, and dispatching support equipment to aircraft. This support equipment allows aircraft mechanics and flight crews to perform maintenance, operational checks, and safety checks on the ground without having aircraft engines running; thereby saving time, fuel and money for the Air Force. The support equipment maintained by the AGE shop includes: diesel generator sets, gas turbine compressors, heating and air conditioning units, maintenance stands, jacks and a variety of other powered and non-powered equipment. In addition to primary maintenance duties, AGE flights are responsible for maintaining and dispatching support equipment wherever it is possible for a plane to land. This means that people from the 60 CRS AGE Flight can be mobilized at a moment's notice.

The 60 CRS AGE flight consists of approximately 60 active duty airmen, 50 reservists, and 20 civilians who are responsible for maintaining over 650 pieces of equipment for daily use on the flightline. The AGE flight's organizational structure is comprised of three main sections: production control, servicing/dispatch, and maintenance/repair. Production control's primary responsibility is scheduling all 650 pieces of support equipment for inspection, ordering and receiving parts, and running the tool room/bench stock area. The servicing and dispatch section maintains crews 24 hours a day who are responsible for the servicing (fuel, oil, etc) and delivery of support equipment. The maintenance and repair section performs scheduled inspections and major maintenance on all support equipment. In addition to these primary duties, positions exist for hazardous waste, safety, maintaining technical data, corrosion control, mobility, special tool issue, and vehicle control. The seamless integration of these three work centers provides quality, dependable equipment to support the air power needed for our nation's defense. The slogan of the Aerospace Ground Equipment career field says it all: 'There is no air power without ground power."

Although the AGE flight does an excellent job of achieving its mission, this project has challenged me to use the knowledge attained in the Industrial Technology program to streamline procedures and improve processes within the AGE Flight. The improvements explained throughout this paper are currently being implemented in the bench stock/tool room, which is in the production control section of the flight.

The production control section of the 60 CRS AGE Flight is the backbone of all production in the shop. The section consists of only eight personnel, but the important function each person performs ensures that the AGE shop can continue to provide serviceable and reliable equipment to the flightline by providing the maintenance personnel in the AGE shop with the necessary resources. The production control section consists of three separate offices with completely different functions interwoven into the flight to support production. These sections include: the production control office, scheduling/supply, and the bench stock/tool room. The production control office employs three personnel responsible for tracking support equipment accounts, facilities management, and purchase requests and acquisitions. The scheduling/supply office consists of two personnel responsible for scheduling all 650 pieces of support equipment for maintenance and inspection, plus ordering, processing and tracking the parts necessary to maintain and repair AGE support equipment. The bench stock/tool room area is responsible for the control of special tools; ordering shop stock (e.g. nuts, and bolts) and maintaining a bench stock (small supply of parts most often used for inspection and repairs) and employs three personnel.

The bench stock/tool room area has a very expansive mission for the small amount of personnel working in the section. The personnel are responsible for operating and maintaining the following activities: control of special tools, bench stock inventory control, local purchase hardware/shop stock, hazardous waste issue/tracking and calibration of all AGE related assets. Each of these activities is governed by the rules contained in AFI 21-101, Aerospace Equipment Maintenance Management, and AMCI 21-101, Maintenance Management Policy. These two documents provide specific instructions for the Aerospace Ground Equipment Flight, production control, and specific

aspects of the bench stock/tool room area.   Although these documents regulate the processes to be maintained in the AGE flight, they leave ample room to implement custom systems built around each flights needs.

Tool Control

One of the most time consuming aspects of the bench stock/tool room area is tool control.   The AGE flight tool room has the responsibility of maintaining, tracking, and issuing toolboxes, specialized equipment and over 7,000 special tools.   The tool room maintains 18 consolidated tool kits (CTK's) for issue to each mechanic on a daily basis. These CTK's contain almost 500 separate tools commonly used in everyday maintenance, inspection and repair of AGE support equipment.   Also maintained in the tool room area are more than 500 special tools, tool kits with numerous parts, locally manufactured special tools, and equipment needed for major repair actions.   As per the maintenance standards set in AFI 21-101 and AMCI 21-101, tool control is the number one priority of the bench stock/tool room area.   It is the responsibility of the bench stock/tool room personnel to ensure that all tools are specifically labeled and identified as belonging not only to the 60 CRS AGE Flight, but also to the associated toolbox.   This aids in the tracking, inspection, and accountability of tools.

One difficulty in the bench stock/tool room area is that it is manned only during the day shift, which runs from 0700-1600 Monday thru Friday.   Due to the fact that the AGE Shop has a 24-hour mission, it is essential to maintain proper control of tools on each off-shift.   Tool control is maintained on the off-shifts by transferring tool room accountability at each shift change to maintenance personnel on the upcoming shift.   The personnel that are beginning the shift inventory the bench stock/tool room area to ensure all tools are present.   For those tools that are not present, they check to make sure they are accountable on a hand receipt either to personnel, or to another shop.

At the onset of this project, the 60 CRS AGE Flight was using the chit system as its primary tool control practice-a method considered obsolete in modern day industry. This system involved supplying each mechanic with 15 metal tags on a ring to be used

separately to account for each tool they had signed out of the tool room. Mechanics were in charge of their own chits throughout the day to use for borrowing tools. The problem this system posed was that each chit in effect was a tool unto itself. Having only a one-inch diameter, the brass tag with a number stamped on it could easily get lost. The lost chit became a more common occurrence than an actual lost tool. Maintenance personnel would often miscount their chits and leave for the day, unaware they still had tools checked out of the tool room. While accounting for tools at the end of each shift, the personnel checking accountability only made sure each missing tool had a chit in its place. To remedy this problem, tool room personnel currently have to check each chit at the end of each day to ensure they belong only to personnel still at work.

It was recently brought to the attention of the tool room personnel that due to the nature of chits being a controlled item, it was against regulations for them to be in the possession of mechanics while working on equipment on the shop floor. In an effort to comply with regulations, it became necessary to transfer the responsibility of chits from each mechanic to a central location inside the tool room to help prevent loss. It became necessary to create an interim system of tool control still utilizing the chit system to account for which mechanic was using which tools. The system we implemented involved tool room personnel controlling the mechanic's chits, thereby removing the mechanics from the equation. This was in effect, more difficult because the tool room personnel now had to be able to identify each mechanic by his or her chit number to ensure proper accountability. It also added a new detail to be performed at the end of each day: counting all 75+ chit rings to ensure every mechanic leaving had returned all tools in their possession.

On 15 August 2001, our tool room received notification from Air Mobility Command Logistics to begin the implementation of a new tool room accountability system called Tool Room Manager (TRM) 3.1. TRM is a Windows-based graphical user interface program used to inventory, track and account for all tools in the tool room. It utilizes a barcode system to track each individual tool, display current accountability of tools, and to assign tools to mechanics. The goal of the new system was to standardize

the method by which all maintenance facilities within Air Mobility Command account for tools. The TRM system was scheduled as an interim system and would be implemented to streamline all maintenance facility tool rooms, eliminate the need for chit type devices for tool accountability, and ensure that all maintenance facilities use the same program for expeditionary and training purposes. Appendix 1 contains the original memorandum containing the directive received by Air Mobility Command Logistics.

The implementation of this new system began on 2 January 2002 when our tool room received a new 1.5ghz computer. The computer was then sent to the 60th Logistics Group Lognet for the proper network programming and TRM setup. At the same time, work requests were submitted for the installation of a new LAN connection at the front counter in bench stock. It also became my responsibility to modify a cabinet located under the tool room counter to house the computer and other peripherals needed to run the system. It then became necessary to find an alternative location to mount the monitor and keyboard due to the lack of space at the front counter where tools are exchanged. Considerable research determined that it would be impossible to mount a full size monitor to the wall due to its weight; so I proceeded by researching flat panel monitors and wall brackets. When we found the type of monitors and brackets that would fit our needs, a purchase request was filed citing the AMC directive to implement the system as the basis for the purchase.

In an effort to familiarize the toolroom personnel with the new software and network program, we printed a hard copy of the TRM Training Guide developed by the Defense Information Systems Agency from AMC's Logistics Website. I used training guide to familiarize myself with the capabilities of TRM 3.1 and the procedures necessary to administer the new system. It became apparent that the efficiency of the system depended on the use of a barcode printer and a scanning device used to read the barcodes assigned to both the mechanics and the tools. I placed a formal inquiry to the 60 LG Lognet office inquiring about the location of our barcode printer and scanner, which had not arrived with the new computer on 16 January 2002.

It was now time to begin inputting tools and personnel into the database, which created a new problem. Prior to the order to implement the TRM system, there was only need for one computer in the bench stock/tool room area, and therefore only one LAN connection was available. I spoke to the Lognet office once again about the work order concerning a new LAN connection, and they informed me they would not be able to install the new LAN connection for a few weeks due to their backlog of work. It became necessary to improvise, so the computer containing the TRM program was temporarily moved to the Production Control office and it was necessary to use the Facility Manager's Desk and peripherals to begin entering data into the system. I printed hard copies of our current tool room special tools inventory to begin entering the numerous tools needing to be entered into the system. It took approximately 7 working days to input the first 90% of information into the system. This included data for over 130 active duty, reserve and civilian AGE shop personnel, and all tools formally assigned to the tool room special tool kits. Other commonly used tools issued to mechanics still had to be added including, hazardous material items, rags, and work cards (maintenance checklists). Because I was unable to identify the items yet to be added to the inventory from the Production Control office on the opposite end of the shop, it became necessary to check on the LAN connection that I needed to input them from the tool room area.

It was now 30 January 2002, the day before the suspense for implementation according to Appendix 1 the AMC Standardization to Tool Room Manager Instruction. I phoned Steve White, the coordinator for the TRM systems here at Travis, requesting information on an extension of the implementation deadline and the status of our LAN line. He informed me that the Lognet Office would be sending personnel down to install our LAN connection sometime during the first week of February. He also passed along the information that AMC Logistics had yet to purchase the proper barcode printers and scanners needed to fully implement the system, and that they were in the process of allocating funding for the required equipment.

The 60th Communications Squadron arrived during the first week of February to begin installing the new LAN lines for our shop and to complete some other communications upgrade work. Mr. Alfred Long our systems coordinator for the AGE Flight was notified that in order to add any more LAN connections to our current network configuration, it would be necessary to purchase a new router, because we had no more switches available for use. After discussing the urgency of our situation with Mr. Long, a new purchase and work request was filed for the purchase and installation of a new router. At this time, I briefed my flight chief and supervisor that implementation would be on hold until the required systems were purchased and installed. The following week, the computer containing the TRM Program was again moved to the production control office to facilitate the input of more information into the TRM database.

At about this time we began to notice flaws in the TRM system. According to the operating parameters contained in the TRM Training Guide, the TRM program was supposed to be accessible even while the network was down. While attempting to logon to the Tool Room Manager program, we received errors that our database could not be found, and once into the system we were unable to add or modify the definitions of tools. Using the Lognet online helpdesk, I filed a work request to look into our problems with the TRM program. Lognet immediately responded by dispatching the technician responsible for the network programming and database interface to update our current access protocols. After about 10 minutes of reviewing our pre-programmed protocols, changes were made to allow us immediate access to our tool room database. I was also notified at that time that the point of TRM being networked to a central database inside the Logistics Group was so that Air Mobility Command could review the status of our tools and check on the condition of consolidated tool kits (CTK's) that were deployed. I was also informed that it would only be necessary for an automatic update to take place once a day to ensure the information AMC received was correct, and this would most likely take place on off-shifts.

On 22 February 2002, we came to another halt once all the tool's data we could load from a decentralized location were inputted. Appendix 2 contains an email that was

sent to Mr. White on that day again requesting information on the status of the two items needed to make the system operational. I again inquired about the original directive received from HQ AMC Logistics asking if the date for full implementation would be extended due to the fact that we had not received all the equipment needed for full operation. The following week, I was contacted by my squadron communications focal point, the Lognet Chief and Mr. White. As also noted by Mr. White in Appendix 2, they assured me that personnel at the highest levels of the Logistics Group here at Travis were aware of the situation preventing the implementation of our new tool room accountability system. They asked me to be patient and not to request any more information, and said that information would be forwarded as soon as it got to them. I again informed both my section supervisor and flight chief that our TRM system was on hold indefinitely, and began working on other aspects of this project.

During the second week of April of 2002, many problems occurred with our current tool accountability system using chits. An abundance of lost chits were reported, mechanics left the shop without returning tools, and tools were left overnight on the maintenance floor. Due to these errors, supervisors from all sections called a meeting to find ways to resolve the situation and came up with an interim chit system to use until our transition to TRM. While researching ideas, the superintendent of the inspection/repair section pointed out a regulation in AFI 21-101 describing chits as a controlled item and noting that they could not be in a mechanic's possession while performing maintenance on equipment. Due to the fact that mechanics were not allowed to control their chits while working on equipment, it became obvious that the key box containing chits would have to be removed from the maintenance floor and placed in the bench stock/tool room area. It was now up to tool room personnel to invent a system removing mechanics from the chit equation. We considered many ideas that would make the current system much simpler including making a board with all the mechanics' names and assigning a chit to each tool, but this unfortunately would require many man-hours to setup. The simplest interim solution was decided upon because of the current plan for implementation of the TRM system.

The plan was to mount the key box containing over 70 rings of chits to an accessible place in the tool room area. When a mechanic requested a tool, it would be the responsibility of the tool room personnel to remove a chit from the mechanic's assigned chit ring and put it in place of the tool being issued. Although it seems very simple, many problems became apparent at an early stage. It would now be the responsibility of the bench stock/tool room personnel to count each separate ring of chits at the end of each day to ensure that every mechanic had handed in all tools before they left for the day. At the time of transfer each chit ring contained 15 chits. It was agreed to remove five chits from each ring and limit the mechanics' total chits to 10, for it was now the responsibility of the tool room personnel to know who had which tools. We quickly learned that if the tools and items that were available in multiple quantities were dropped off on the counter and left by the mechanics, we had no idea whose chit to return to the ring. We then made it policy for the mechanics to stay in the toolroom so we could identify who was returning which tool. Due to the amount of work this new system added to the daily details of the toolroom personnel, we decided we would again make a push to continue with the implementation of the TRM system.

On 30 April 2002, I sent another email requesting the status of our barcode printer and scanner to Mr. White at the Lognet office. The email sent to Mr. White again questioned the status of our barcode equipment and asked if we were going to receive an extension or a waiver extending the deadline of implementation of the TRM system contained in Appendix 1. In the email, I stated that the new push for implementation was due to the upcoming Logistics Standardization and Evaluation Program (LSEP) visit scheduled for August. At the same time, I contacted the AGE Flight computer systems manager to check on the status of our new router with the idea that we might be able to implement the TRM system by entering tools and personnel manually. After about a week of investigation, he informed me that the purchase request had gotten lost at the Communications Squadron and that it would be necessary for him to do more research to find the work request. The following week, Mr. Long contacted me and informed me that he had found the purchase request and that it had been overlooked, so he personally resubmitted it to ensure that we could continue to make progress on the implementation

of the TRM system. About the same time, the Communications Squadron arrived to troubleshoot and see if we had any unused lines that could be temporarily used to facilitate the TRM system. To our disappointment, all connections to the current router configuration were in use.

During the third week of May, I received a call from Tsgt Burroughs, the NCOIC of Lognet and he informed me that it was necessary for our tool room to manually implement the TRM system. He informed me that I would be receiving an email informing me that those tool rooms throughout the Logistics Group who were using tool room accountability systems more current than TRM would receive waivers allowing them to continue use of their current system until AMC arrived at a final decision on a standard tool room program for use by all tool rooms. The following week we received a used router to add to the AGE Flight's network temporarily until we received our new router. The Communications Squadron also ensured that our LAN line was active and would allow us to access the network from the counter location in the bench stock/tool room area.

Upon our first attempt to access the computer containing the TRM system with our new LAN connection, we immediately ran into problems. During the weeks preceding the receipt of the router, the Logistics Group LAN was absorbed into the Travis LAN. What this meant was that all computers that were not actively running during the process of migration would have to be added to the Travis LAN after obtaining approval from AMC. Upon discussion of our situation with Mr. Long, he dispatched Ssgt Adam, another AGE Flight systems administrator, who was able to set up an interim solution. Ssgt Adam created a new logon for the toolroom that allowed access to the TRM computer only and not the network. Over the next 2 days, I was able to complete entering the hazardous waste items, rags and work cards into the TRM system as tools.

At this time I began to explore further the operating parameters of the TRM program. The first thing I noticed was that to manually (without barcodes) implement the

TRM system, I had to invent an easier system to identify tools incorporating their current identification. Due to the fact that toolboxes were currently loaded into the AMC information system called GO81, they already had identifiers for each toolbox and discrepancies could be noted in the electronic forms of each one. One example is special tools kit #1. Its identification in the GO81 system is QGTFZ1. The QG identifier tells the user that the piece of equipment belongs to the AGE Flight in the Logistics Group. TFZ indicates that it is a special tools kit, and the number one signifies which special tools kit.

Using the current setup from the initial input of tools each tool was entered into the TRM database to match the special tools inventory. For example: TFZ1-019 – 38" barrel chain, would be accessed manually in the system as TFZ1-019 when searching for this tool. To save time it became necessary to shorten the inputs of system operators in order to expedite the issuing of tools, it also became necessary to identify tools by a small, systematic set of numbers universally recognized by the toolroom personnel. TFZ1-019, the 38" barrel chain would now be referred to as 1019 – 38" barrel chain; and because each tool has its associated toolbox and item number etched on it, it would be easy to identify. This also alleviated the need to enter an alphanumeric code when searching for a tool; previously you had to enter at least TFZ1 into the search box and then scroll down until you found item 019 – 38" barrel chain. Now you could search by the four-digit code of 1019 and find the proper tool almost immediately. We found that this system would only work correctly for tools assigned to special tool kits or TFZs. In order to keep from having to create random numbers for hazardous material items, work cards and rags, an alphanumeric code was necessary. Hazardous material items were labeled with at 4 digit alphanumeric code with the first digit being an "H". Work cards (maintenance checklists) were labeled according to their identification number and began with a "W"-for instance work card 19 would be input "W019". The system for rags worked out the be a four digit code incorporating each mechanics chit number and starting with an "R" to ensure that our system could track which mechanics had rags out. If the mechanic's chit number was 21 then the code for rags would be "R021".

I was able to update the tool information in two days and continued to master the operating procedures of the system. As I delved deeper into the system, more limitations became evident. It was discovered that when displaying the current "Tools Out" inventory on the screen, the tool identifiers, date, and time of checkout would be displayed, but not the mechanic who currently had the tool. As another source of information for current tool location, we decided to print out the "Tool Status, Signed Out" report. Clicking on the menu brought you to a new application called Borlan's® RunSmith™, which allowed a typed report to be displayed that was immediately generated from the TRM database, showing which tools were signed out sorted by customer name, customer number, the time of issue, and which tool room technician issued the tools to the mechanic. We decided that it would become necessary to print this report during each shift change to account for each tool still missing from the special tool kits located in the toolroom, but then discovered another problem. When the reports printed, if the customer listed at the bottom of the page had several tools signed out, the last two tools on that page were cut off. When we investigated the options available in the RunSmith™ program, we found we were unable to manipulate the print settings to allow for all the information to appear. We also became aware of the same error while printing a full tool inventory. The only report which printed all information correctly was the authorized customer report.

It was now fully apparent why other tool rooms here at Travis insisted on continuing to use their current computerized tool room accountability systems. TRM was by far one of the most restrictive and limiting tool control programs in use. We also came to the conclusion that manual input of the tools would be no more efficient than the chit system currently contained and in use in the bench stock area. Upon discussion of our current situation with the Production Control NCOIC and my supervisor, it was decided that I should check with the tool rooms currently using computerized systems to see if they had any experience with the TRM system or any extra peripherals for a barcode system that we could use until ours arrived.

When we began to research systems that other tool rooms across Travis were using we found that many had transitioned away from TRM due to it many limitations and of those tool rooms that were currently using the TRM system used it only on a limited basis, and they quite often circumvented the system to expedite the issue and return of tools. The 60 EMS shop, for example did extensive work to rearrange their toolroom to become somewhat more compatible with the TRM system, but they informed me of some of their problems, and how they often skipped use of the TRM system to issue out some tools.

Tool Accountability System (TAS)

After visiting other squadrons' tool rooms and inquiring whether they had any extra equipment to lend to us, we decided to check with the Propulsion Flight in our squadron because we knew they had recently updated their tool control system. The 60 CRS Propulsion Flight did, in fact, have some extra equipment that was supposed to be compatible with TRM 3.1, but they informed us that they were unable to get it to work properly and therefore had transitioned to a new system called Tool Accountability System (TAS). Tsgt Santis, the NCOIC of the Propulsion Flight toolroom also took the time to show us the Tool Accountability System (TAS) system in action and gave us some important information authorizing its use. The information that was given to us by Tsgt Santis, Appendix 3, was an official correspondence from the Headquarters, US Air Force at the Pentagon directing all Major Commands (MAJCOMs) that TAS had been selected as the standard tool and equipment management system for Air Force tool rooms due to its overall value and its ability to serve the needs of its users.

I immediately forwarded the information I had received to my supervisors and flight chief to see what they thought of upgrading to a new system. I made sure to explain the many weak points of the TRM 3.1 while negotiating to upgrade from TRM to the TAS system. I then decided that the best way to illustrate the numerous features of the system was with a full demonstration of TAS being used in a maintenance operation. I arranged a meeting for my immediate supervisor and myself to see TAS in action during the propulsion flight shift change. We found that TAS had incorporated all the

best qualities of TRM 3.1 and went above and beyond by making the system more user friendly and able to manage quickly tool databases while still issuing and returning tools.

One of the greatest features of TAS was the tool identification code or worldwide identification code (WWID). The WWID, was set so that the first two letters of the 9 digit code represented the first two letter of the wing's personnel assignment (PAS) code, followed by one digit for squadron identifier (e.g. A=AGS, C=CRS, E=EMS, M=MXS), a letter to represent the shop or flight (e.g. A =AGE, F=Fuels, P=Propulsion, T=TMDE) and allowed the last five letters to be at the units discretion. The current regulations in AFI 21-101 and AMCI 21-101 require each tool to be stamped, marked or etched with an equipment identification number or EID. The EID was already being used in the G0-81 system to track the consolidated tool kit (CTK) that the tool belonged to and to facilitate the ability to write discrepancies against a CTK. This new system actually would allow our flight to keep the last five digits of the current EID and incorporate it into the WWID number for each tool preventing us from having to rename/remark each tool and keep units from having the same identification codes.

The TAS system, had many features not found in TRM 3.1, which enhanced the functionality portion of the program. Although TRM 3.1 did have a menu to allow you to keep track of a tool or item requiring calibration, the user had to manually reset the calibration date each time a calibration was done. TAS allowed for each tool to have an inspection date, for the user to identify the type of inspection, and would ask for a recurring date when the tool was finished with the inspection. It also kept track of which mechanic did the inspection, and would not allow the tool to be issued if the inspection was due. TRM, on the other hand, only contained a feature to remind you of calibration. No other type of inspections on CTKs or special tools could be noted, and a tool could still be issued if a calibration requirement was overdue.

TAS also contained many tool control features to help the customer. Along with a barcode specific to each customer, it allowed each customer to set a password that was also printed in barcode format. The Propulsion Flight demonstrated the importance of

having the customer's password barcode on the customer identification card; it would prevent personnel from manually signing tools out to customers without using their customer identification card. Customers could easily check the status of which tools they had signed out by approaching the window, and a status would be displayed or printed with all applicable information on tool transactions. Another important accountability feature incorporated into TAS was that the person who signed the tool out, no matter what rank or if they were a systems administrator, could not sign the tool back in themselves, for it required another person to verify the transaction.

Here is just a short list of features contained in TAS that are not available with TRM 3.1:

- Develop mobility plans and manage and control the implementations of mobility operations
- Assign inventory to locations
- Produce hand receipts when issuing tools
- Produce shortfall and inventory pick lists for mobility
- Assign a World-Wide unique ID for every tool/ piece of equipment
- Lockout tools that are damaged or overdue calibration
- Restrict tool use
- Support unlimited transaction and inspection history
- Track Precious Metals and Hazardous Materials
- Track assets on loan or TDY
- Support automated transfer of assets in use on the flightline

After extensive discussion with my supervisors and flight chief we came to the decision that we would implement TAS as our new tool control software. In order for me to begin the process of implementation, it was necessary to download the program to our tool control computer. This was difficult because it was still not formally connected to the LAN due to yet another migration from Travis LAN to AMC's AMC-2K domain. Due to the reconfiguration of LANs and our previous in-house solution to log on only to the hard drive of the tool control computer, the tool control terminal was again missed during migration. The easiest solution to this problem was to call Lognet at the 60th

Logistics Group, but upon the issue of the work request, we were told that they would not help us, and were again told to manually implement TRM 3.1.

I immediately typed and sent a formal email to my flight chief, Production Control NCOIC, and supervisors explaining the situation and informing them that the Lognet office at the 60th Logistics Group was using the original implementation memo dated 15 August 2001 (appendix 1) for guidance. In the email, I also asked for any ideas on how to continue implementing the TAS system and suggestions for my course of action, to ensure we were using the system legally. The AGE Flight Chief requested that I type a memo (appendix 4) describing our situation to the Maintenance Supervision section of our squadron, explain our rationale for using the new system and attach the memo from HQ USAF/ILM (appendix 3) to show that we were implementing a tool control system according to the newly discovered information. I then typed and sent a memo to be forwarded to the maintenance supervisor to obtain authorization to deviate from the original directive to implement TRM 3.1.

Once the memo was sent, it was then necessary to begin the ordering of parts needed to fully implement the TAS tool control system. The last page of appendix 3 contained a list of the parts needed to implement TAS as a fully functional tool control system. After discussing the issue of funds with my immediate supervisor and the production control NCOIC, we determined that due to the limited availability of funds, our purchase requests would be for 2 barcode scanners, 2 cables, barcode labels, and printing ribbons. We spoke with Tsgt Santis the Propulsion Flight toolroom supervisor, who graciously agreed to lend our toolroom their barcode printer so that we could implement the system until funds became available to purchase one for ourselves. To obtain the actual TAS software, we coordinated with the AGE Flight Computer Systems Administrator to download the software from the proper website and burn the installation and training files to a CD so that they could be used to begin the installation.

Transition of Hardware/Shop Stock Providers

In February of this year, reports had surfaced of problems with billing from Travis AFB's main hardware and general shop stock provider CURTIS. Apparently the contract the base had for each toolroom to order on a fixed monthly budget was not able to provide tool rooms with the amount of hardware and shop stock (e.g. nuts, bolts, wire, hoses) needed for maintenance. Upon further investigation sometime in mid 2001, it was determined that the contract with Curtis was designed to bill each toolroom for the price of all items ordered at a 40% discount due to the size and scope of the contract with the base. In the months leading up to the middle of 2001, Curtis slowly began to increase the purchase price of parts until all tool rooms on base were paying 100% of the actual purchase price of materials. This meant that Curtis Inc. was making a sizable profit from the contract they had here on base.

The solution to the price increases that was pursued by the Contracting Squadron and the Office of Special Investigations was to begin taking bids for a new hardware/shop stock provider. After reviewing bids, services, and overall customer service, the Contracting Squadron chose Fastenal Inc. as the new hardware supplier for Travis AFB. The service representative from Fastenal, Troy Fuller, was extraordinary from day one, sitting down with my supervisor, production superintendent, and me to get a feel for the type of services our shop required and to help establish a $2000 per month fixed budget. One of the immediate issues that was addressed with the changing of hardware suppliers was the replacement of hardware/shop stock bins used by Curtis. Our Fastenal representative immediately worked out a system to begin the purchase of new bins over the next two months to allow our shop to have the funds to order the needed hardware and shop stock.

It then became my responsibility to begin to work out a system where we could change out the over 1200 different groups of items without rendering them unusable by the mechanics. Our solution was a simple one; we had decided to order a case of 1000 zip lock bags to help solve the problem. We then began to remove each kind of item

from its bin, place it in the plastic bag and then return the item in the plastic bag to its original bin. Once the new bins arrived we then would remove the tag from the outside of the bin with the description of the nut or bolt and place it in the bag with the items and swap the items from one bin to another. When the new Fastenal bins arrived, we removed the bins still full of hardware from the bench stock area and begin to transfer each group of hardware one at a time to the new ones, placing the tag with the hardware label in the new location.

Another part of the hardware transfer involved items contained in the drawer bins. As we began to receive our drawer style storage bins, we reviewed the items contained in shop stock, their use, and quantities needed for mechanics. We ordered nine bins each with four drawers and 16 compartments in each drawer. This allowed for the storage of over 500 items in shop stock. It also became necessary to order full kits of insulated electrical connectors, o-rings, and snap rings. Three stands were also ordered for placement of the nine drawer style bins and were assembled and placed in their proper sections in the bench stock area. After bolting the bins together and securing each to its respective stand, we noticed that it became necessary to secure the stack of bins to ensure that the storage bins would not fall over when more than one drawer was open. The final process for hardware and shop stock transfer was the ordering and transfer of 2 racks to hold hose and electrical wiring.

Inventory Control

Inventory control throughout the Air Force maintenance community is governed by AFI 21-101 Aerospace Equipment Maintenance Management, and in Air Mobility Command, AMCI 21-101 Maintenance Management Policy. These two directives outline the framework necessary for establishing a bench stock program and are supplemented by local policy set by the Supply Squadron. They allow for work center supervisors to determine the contents of their bench stock, establish levels to provide for 60 days of usage to maintain environmentally sensitive items, precious metals, and track and control the use of hazardous materials. The purpose of the bench stock area is to have the necessary parts on hand to expedite maintenance and inspection, helping to

ensure that work is complied with in a timely manner while alleviating a backlog of maintenance awaiting parts and relieving dependence on the supply system.

At this time, our bench stock area contains over 430 supply system items, 1200 different forms of shop stock, and many locally manufactured and operating stock items. It has been my duty as the primary bench stock monitor to order replenishment stock on a weekly basis, audit our supply listing to mission essential items, track use and order hazardous materials, maintain the precious metals program, and find ways to improve our system to meet the needs of the AGE Flight mechanics.

One problem with bench stock items that plagues most maintenance facilities throughout the Air Force is the mechanic's knowledge of what is contained in the bench stock area. One solution invented prior to my transfer to the bench stock/tool room area was to create a shadow board to help assist mechanics in finding needed parts. Although a shadow board is an optional item according to AFI 21-101 and AMCI 21-101, many maintenance facilities throughout the Air Force use them to help mechanics locate parts contained in the bench stock area. A shadow board is usually some form of a display case which houses parts and indicates actual bin locations. Upon auditing systems t came to the attention of my supervisor and myself for the Logistics Standardization Evaluation Program (LSEP) that it was not proper to have actual parts attached to the board for, in effect, we were wasting resources by having one of each part hanging on the board. This system was costing the Air Force money needed to purchase serviceable parts and was identified as wasteful by the Fraud, Waste and Abuse Program.

When we began to discuss options of how to work out a solution to our current dilemma, we decided that it might be best to remove the serviceable parts from the shadow board, dispose of the unserviceable parts and replace all the items with pictures of each item and bin location. We came to the conclusion that the first step would be to begin taking pictures of all 430 items we had on bench stock. Over the next 3 weeks it became necessary to coordinate with my supervisor to allow me to work slightly altered hours so I could take the pictures, set up a filing database, and add the descriptions to it.

The schedule we came up with was for me to work 1AM-7PM on Monday and Wednesday of those three weeks to allow me time to work solely on the database without being disturbed by other normal duty-hour activities.

While I was beginning to take pictures of each item, my supervisor and I were discussing a situation about mechanics on the maintenance floor sometimes ordering and waiting for parts from supply that we already had available in our bench stock. An idea came to light to create parts reference books from the same database, and station them by the maintenance computers in both the Servicing/Dispatch and Inspection/Repair sections. The Self Help Parts Book I developed contained a picture, description, national stock number (NSN), and bin location of every part in one section and a listing of all parts alphabetized by their NSN in another. Once these books were developed, it allowed mechanics preparing to order a part, to reference quickly whether the part they were ordering was already on bench stock and allowed them to view the part without having to go to the bench stock area to ensure it was the one they were looking for.

Once the books were developed and stored on the floor for use, we again began to work on the shadow boards. We started by removing all serviceable parts from the board and returning them to their respective bins for use. Most of the items that were attached to the board used some kind of clamp and a screw was used to hold the clamp in place. Some items, however, were held to the board by drilling a hole into them and nailing the item, thereby rendering the part unserviceable. Those items had to be thrown away. We also noticed that there was no specific system for the way that items were arranged on the board; they were just placed where there was space and holes remained from the use of screws and nails. We decided that it would be hard to hide the erratic pattern of holes on the board with pictures and descriptions and that it was necessary to fill the wholes with wood putty and resurface the entire back of the shadow board.

Our next problem occurred when we attempted to begin printing new pictures and descriptions for the new shadow board. During the making of the two parts books, we used two black and two color ink cartridges for the printer. Due to the current shortage of

funds, the purchase manager bought imitation ink cartridges to use with our printer. We quickly found when we replaced our third black cartridge that these ink cartridges, although a bargain, would not work with our printer. This put our plans for finishing the shadow boards on hold until the proper ink cartridges could be purchased.

TMDE Database

Another responsibility of the personnel working in the bench stock/tool room area is to monitor all AGE items that require calibration to ensure their inspections are complied with. Our Test Measurement and Diagnostics Equipment (TMDE) database, a program that was created using Microsoft Access, allows tool room personnel to track calibration requirements for various pieces of AGE equipment and special tools. Our shop has over 150 pieces of equipment and special tools that require periodic inspection/calibration by the Precision Measurement Equipment Laboratory (PMEL).

Some of the most important calibration items that require periodic inspection are gauges on our hydraulic aircraft jacks. These gauges are used by aircraft mechanics to measure in tons the amount of weight lifted by each jack while raising an aircraft off the ground, allowing aircraft mechanics to perform maintenance. It is important that the inspection criteria be met for these gauges to ensure they read accurately and to prevent the overload of a jack, causing possible injury to personnel or damage to both the equipment and the aircraft. Some other tool room items that require calibration are torque wrenches and multimeters; they ensure that tolerances for fixing equipment are correct to prevent damage to AGE equipment and possible injury to the operator of the equipment. All tools that require calibration are controlled by the tool room personnel to ensure they are handled properly and accounted for in order to meet inspection criteria. Each tool or gauge is initially sent to PMEL to determine inspection requirement, receives an identification tag, and gets an initial calibration. Upon return from PMEL the item is entered into the TMDE database according to what is printed on the calibration sticker so that it can be tracked for further inspections and maintenance.

Our TMDE database is an Access program used to track next due inspection, last inspection, current location, and other calibration requirements. On a weekly basis we use the TMDE database to generate a Due Calibration Report; that shows items due for calibration in the next 14 days. PMEL allows our flight to turn in items up to six days in advance of their inspection due date. If and inspection is missed on a piece of equipment and becomes overdue, PMEL sends a letter to the Logistics Group informing them of the discrepancy.

In January of this year, my supervisor and I began to notice extensive discrepancies in the TMDE database when we began to receive overdue notices on jack gauges. Due to the scope of the problem, it was necessary to validate the information contained on the jack gauges' calibration sticker to ensure the data in the database was correct. At the time, the easiest way to do this was to compare the data in the listing that was sent quarterly from the PMEL Flight to the data in our TMDE database. We became aware of many differences in the data, and when we asked PMEL for further clarification they informed us that the correct calibration date would be on the sticker attached to the item. This required us to have our AGE Servicing/Dispatch section to pull over 25 pieces of equipment from the flightline for verification. Upon verification, we became aware that 95% of the mistakes were with the database that the PMEL Flight maintained and not with our TMDE database.

While reviewing the gauges on the equipment for the correct data, my supervisor also noticed that some of these gauges were due inspection before the aircraft jack's next inspection date. We decided that in order to keep from having to pull the aircraft jacks from the flightline only to facilitate a gauge swap, it would be necessary to ensure the gauge was not due for calibration when the jack came in for periodic inspections. Through a stroke of genius, my supervisor came up with a program called Gauge Verification (GV) that would establish an additional inspection to be done during the periodic inspection by the bench stock/tool room personnel. The GV inspection would be due at the same time as the semi-annual and annual inspections and would allow the tool room personnel to ensure that gauges were swapped so the aircraft jack would not have to

be needlessly pulled from the flightline before the next inspection. All the gauge verification inspection required was that the tool room personnel annotate the proper inspection dates in the GV inspection folder under the unit name. If a gauge was due inspection before the jack's next periodic inspection, the tool room personnel would tell the mechanic to swap the gauge before completing the periodic inspection.

This system killed two birds with one stone; it limited the amount of times the equipment would be decommissioned for inspection/maintenance and ensured that the tool room personnel always had the correct information on each gauge, its current location, and inspection due date in the gauge verification folder. It did not, however, fix the problem of receiving overdue notices from the PMEL Flight. After doing more research, we concluded that the information in the PMEL tracking system and the information on the gauges differed. According to the PMEL scheduling office, the correct date of calibration was the date annotated on the calibration sticker attached to each PMEL item. Another source of the overdue notices stemmed from items that were on equipment that was deployed or TDY. To help ensure we did not receive any more erroneous overdue notices, we began to compare the PMEL equipment listing to our TMDE database quarterly. It also became necessary to establish a line of communication with PMEL through email notification of equipment TDY to ensure we would not keep receiving overdue letters for equipment.

Conclusion

Over the last six months, I have been able to personally apply principles learned from attending the courses contained in SIU's Industrial Technology program to develop more efficient processes in the bench stock/tool room area of the Aerospace Ground Equipment Flight. While managing the TRM software implementation I have learned many lessons about the Air Force process of acquisition and purchasing and how ineffective it is. I have also learned that when a new system is discovered and verified, the communication process to implement the system can be complicated due to the decentralization of the many commands throughout the Air Force. The TAS system is definitely a more sound, flexible and compatible system for use in tool room areas

throughout the maintenance communities of the Air Force, but due to many communication problems, some sections continue to use and insist on the implementation of inferior technology.

I have also had the pleasure of helping to guide the AGE Flight here at Travis through the transition of hardware/shop stock providers from Curtis Inc. to Fastenal Inc by being able to help manage the monthly purchase account through ordering and budgeting for needed tools and requirements to make the AGE Flight operate successfully. It has also been my responsibility to help manage the inventory contained in the bench stock area, and help save the Air Force money by returning parts to service. By creating methods to assist mechanics with ordering parts, there has been decreasing maintenance items awaiting parts and increasing production. Through a joint effort we were able to solve many problems with our TMDE database by scrutinizing both our database and the PMEL listing to ensure that all calibration items would arrive for inspection by PMEL on time. Through the creation of a new inspection program, tool room personnel are now able to limit the amount of times equipment must be removed from service to facilitate the calibration of a jack gauge.

----- Original Message-----
From: Munie Mary GS-5 AMC/LGXR
Sent: Wednesday, August 15, 2001 7:05 AM
To: 22ARW/LG//; 60AMW TSS; 305AMW; DMS 319ARW; 92 ARW Traffic Service
Station; MacDill DMS 6 AMW; 436 AW/CC; 43AW/LG; 437 AW/CC Commander;
317AG/CC; AGS; 375 LG/TSS; 19ARG/CC/; 723AMS//LG//; 727AMS/LG;
726AMS/LG; 728AMS/LG; 730AMC/LG; 729AMS/LG; 732AMS/LG; 733 AMS/LG;
735AMS/LG; 62AW/CC; 89AW/CC DMS
Cc: 21AF.LG; 715AMOG/LG; 721AMOG/LG; AMWC-DMS; AMC/LGX; 15 AF/LG
Organizational Account; 615 AMOG/CC; 621 AMOG/CC; HQ USAF/ILM; PACAF/LG;
HQ USAFE RAMSTEIN; HQ AETC RANDOLPH/LG; AFSPC/LG; HQ ACC/LG; HQ
AFMC/LG; AFRC/LG; ANG/LG
Subject: (U) STANDARDIZATION TO TOOLROOM MANAGER SYSTEM (TRM)
Importance: Low

UNCLAS
THIS MESSAGE IS APPROVED FOR RELEASE BY BRIGADIER GENERAL
PETER J. HENNESSEY, DIRECTOR OF LOGISTICS, HQ AMC/LG, DSN: 779-3300.
FROM: HQ AMC//LG
THIS MESSAGE IS INTENDED FOR:
"TO" ADDRESSEES:
6ARW MACDILL AFB FL//LG//
22ARW MCCONNELL AFB KS//LG//
62AW MCCHORD AFB WA//LG//
60AMW TRAVIS AFB CA//LG//
89AW ANDREWS AFB MD//LG//
92ARW FAIRCHILD AFB WA//LG//
305AMW MCGUIRE AFB NJ//LG//
319ARW GRAND FORKS AFB ND//LG//
436AW DOVER AFB DE//LG//
437AW CHARLESTON AFB SC//LG//
43AW POPE AFB NC//LG//
317AG DYESS AFB TX//LG//
436AG LITTLE ROCK AFB AR//LG//
19ARG ROBINS AFB GA//LG//
375AW SCOTT AFB IL//LG//
723AMS RAMSTEIN AB GE//LG//
725AMS ROTA NAS SP//LG//
726AMS RHEIN MAIN AB GE//LG//
727AMS MILDENHALL UK//LG//
728AMS INCIRLIK AB TU//LG//
729AMS LAJES FIELD AZORES//LG//
730AMS YOKOTA AB JA//LG//
731AMS OSAN AB KOR//LG//
732AMS ELMENDORF AFB AK//LG//
733AMS KADENA AB JA//LG//

734AMS ANDERSEN AFB GU//LG//
735AMS HICKAM AFB HI//LG//

****
"CC" ADDRESSES:
HQ USAF WASHINGTON DC//ILM//
HQ PACAF HICKAM AFB HI//LG//
HQ USAFE RAMSTEIN AB GE//LG//
AFRC ROBINS AFB GA//LG//
HQ ANG ANDREWS AFB DC//LG//
HQ AETC RANDOLPH AFB TX//LG//
HQ AFSPC PETERSON AFB CO//LG//
HQ ACC LANGLEY AFB VA//LG//
HQ AFMC WRIGHT PATTERSON AFB OH//LG//
15AF TRAVIS AFB CA//LG//
21AF MCGUIRE AFB NJ//LG//
715AMOG HICKAM AFB HI//LG//
721AMOG RAMSTEIN AB GE//LG//
615AMOG TRAVIS AFB CA//LG//
621AMOG MCGUIRE AFB NJ///LG//
AMWC MCGUIRE AFB NJ//CC//
DMC OKLAHOMA CITY OK//WE4//
SUBJECT: STANDARDIZATION TO TOOLROOM MANAGER SYSTEM (TRM).
1. THIS MESSAGE IMPLEMENTS A STANDARD TRM SYSTEM THROUGHOUT
AMC. A RECENT SURVEY REVEALED AMC UNITS WERE USING SIX (6)
DIFFERENT SOFTWARE PRODUCTS FOR TOOL ACCOUNTABILITY. UNITS AT
18 AMC BASES OR EN ROUTE LOCATIONS WERE USING AMC'S TRM
SYSTEM, WHILE UNITS AT NINE (9) BASES OR EN
ROUTE LOCATIONS HAD TRANSITIONED TO OTHER PRODUCTS. OUR
OBJECTIVE IS TO STANDARDIZE THE METHOD BY WHICH WE ACCOUNT
FOR TOOLS ACROSS THE COMMAND-THIS IS A MISSION REQUIREMENT FOR
EXPEDITIONARY AND TRAINING REASONS.
2. THE AMC SOLUTION IS AN INTERIM ONE UNTIL AIR STAFF AND THE
MAJCOMS IDENTIFY THE PATH AHEAD FOR THE ENTIRE AF MAINTENANCE
COMMUNITY IN TERMS OF A STANDARDIZED TOOL ACCOUNTING
METHOD. AIR STAFF IS CURRENTLY LEADING AN EFFORT TO REFINE
TOOLROOM SYSTEM REQUIREMENTS, AND FOLLOWING THAT WILL
DETERMINE THE PRODUCT BEST SUITED TO MEET THOSE REQUIREMENTS.
HQ USAF WILL REQUIRE ALL AF UNITS TO USE THIS PRODUCT.
3. EACH AMC CONUS AND OCONUS UNIT, INCLUDING EN ROUTES, WILL
IMPLEMENT AND USE VERSION 3.1 OF THE AMC/LG STANDARD TOOLROOM
MANAGEMENT (TRM) APPLICATION BY 31 JAN 02. YOU CAN DOWNLOAD
TRM FROM THE AMC/LG HOMEPAGE AT HTTPS://AMCLG.SCOTT.AF.MIL , IN
THE "LOGISTICS INITIATIVES" AREA. HELP FILES ARE AVAILABLE INSIDE
THE PROGRAM AND INSIDE THE USER MANUAL. HQ AMC/LGMM IS
CURRENTLY WORKING TRM TRAINING DEVELOPMENT AND FURTHER

GUIDANCE WILL BE FORTHCOMING. YOU MAY ALSO OBTAIN SUPPORT FROM TECHNICAL EXPERTS AT DOVER AFB (MR. DAVID JONES, DSN 445-2192, EMAIL: DAVID.JONES@DOVER.AF.MIL AND ELMENDORF AFB (MR. PAUL INGELS, DSN 317-552-4721, EMAIL: PAUL.INGELS@ELMENDORF.AF.MIL . THESE LEAD TECHNICIANS WILL HAVE DIRECT SUPPORT FROM DISA FOR IMPORTING AND SETTING UP YOUR SYSTEM. WE ARE PREPARED TO PROVIDE ON SITE SUPPORT TO FACILITATE YOUR TRANSITION. PLEASE COORDINATE THIS WITH AMC/LGX POCS LISTED BELOW.
4. WE RECOGNIZE THAT CUSTOMER SUPPORT FOR TRM DID NOT ALWAYS MEET UNITS' EXPECTATIONS. WE WILL DO OUR ABSOLUTE BEST TO IMPROVE THAT ASPECT TO ENSURE TRM IS USABLE UNTIL THE NEW STANDARD AF PRODUCT IS SELECTED. WE ARE ESTIMATING THIS WILL HAPPEN WITHIN THE NEXT YEAR.
5. PLEASE SEND YOUR PLAN FOR TRANSITIONING TO TRM TO HQ AMC/LGX NOT LATER THAN 15 SEP 01. YOUR PLAN SHOULD INCLUDE ANY HEADQUARTERS SUPPORT YOU REQUIRE AND AN IMPLEMENTATION TIMELINE. UNITS ALREADY USING TRM SHOULD CALL TO CONFIRM.
6. THIS IS A COORDINATED AMC/LGX/LGM MESSAGE. MY POCS FOR AMC TRM PROGRAM MANAGEMENT ARE MR. STEVE HYATT, EMAIL: STEPHEN.HYATT@SCOTT.AF.MIL OR MR. CHARLES DALLEY, EMAIL: CHARLES.DALLEY@SCOTT.AF.MIL, HQ AMC/LGXI, DSN 779-2633. AMC POLICY/PROCEDURES POC IS MSGT TED BUSHWAY, EMAIL: THEODORE.BUSHWAY@SCOTT.AF.MIL, HQ AMC/LGMMM, DSN 779-2034.
7. WE APPRECIATE YOUR SUPPORT IN THESE EFFORTS TO IMPROVE COMBAT READINESS AND EASE THE TRAINING BURDEN BY STANDARDIZING THIS FUNCTION.
//SIGNED//
PETER J. HENNESSEY, BRIG GEN, USAF
DIRECTOR OF LOGISTICS

UNCLAS

-----Original Message-----
From: White Stephen D Contractor   60 LSS/LGLOP
Sent: Friday, February 22, 2002 3:28 PM
To: Schumacher Anthony SrA 60 CRS/LGMG
Cc: Ed (E-mail); TSgt 60 LSS/LGLOL Burroughs Lloyd (E-mail); James
       Gary SSgt 60 CRS/LGMXA
Subject: RE:

The status of the bar-coding equipment has not changed. We are still
awaiting AMC/LGXI to purchase the equipment, and AMC/LGXI has not given
us a date when we should expect this equipment. As soon as we receive
the equipment, we will be contacting you to set up a time when the
equipment will be installed. The 60LG Commander is involved with
resolving this matter. Please remain vigilant while we continue to
resolve the situation.

Steve White
Travis Lognet
4-4898

-----Original Message-----
From: Schumacher Anthony SrA 60 CRS/LGMG
Sent: Friday, February 22, 2002 2:34 PM
To: White Stephen D Contractor   60 LSS/LGLOP
Cc: Burroughs Lloyd TSgt 60 LSS/LGLOL; Meek Nicholas TSgt 60
CRS/LGMG;
Cook Clemmon SSgt 60 CRS/LGMG; James Gary SSgt 60 CRS/LGMXA
Subject:
Importance: High

Mr. White,

I am writing you again inquiring about the barcode scanner and printer
we are waiting on to fully implement our TRM System. According to the
attached document, which is an official Directive from AMC Logistics
Office, I was to fully implement the TRM system by 31Jan02. I was
impressed with the speed we received the program and the excellent
technical support we received in inputting information and maintaining
the system, from the Lognet office; but not having the proper tools to
fully implement the system makes the work we have invested so far
worthless.   I have sent a formal request through the Lognet Helpdesk
and the answer I received was that we are waiting on someone at HQ AMC.
I think it is very important we pursue this equipment for our shop
still uses the outdated chit system to issue tools from our tool room.
I also feel we need to keep requesting information because we have yet
to receive an amendment to the directive stating our date for
implementation and use has yet to be extended.

When I agreed to the challenge of implementing this system, I told my
supervisors I would comply with the AMC Directive. I have since then
continued to provide them with excuses to why I cannot complete the
project. Please do all you can to procure the equipment necessary to
implement the TRM system. I understand that the problem is at the AMC
level, and believe that the oversight on purchasing equipment should be

pursued and a solution found so we can upgrade our current systems.
Please contact me with any and all information as soon as possible to
prevent me from elevating this issue any further.

Thank you,

Anthony Schumacher, SrA, USAF
60 CRS Benchstock/Toolroom Technician
4-5446

<< File: Standardization to TRM - Original DMS Msg.doc >>

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

15 May 2002

MEMORANDUM FOR SEE DISTRIBUTION

FROM: HQ USAF/ILM
1030 Air Force Pentagon
Washington, DC 20330-1030

SUBJECT: Institutionalizing a Standard Tool Control System

At the Air Force Munitions and Maintenance Advisory Group (AFMAG) Meeting, 21-23 Aug 01, we briefed our efforts to standardize tool control systems and the management of support sections across Air Force aircraft and munitions maintenance. Subsequently, we formed the Air Force Support Sections Integrated Product Team (IPT), and solicited MAJCOM participation to help select a standard tool control system and to define support section requirements.

In Oct 01, MAJCOM representatives met at Kelly AFB, TX to evaluate the capabilities of two government-owned tool control software applications, Tool Accountability System (TAS) and Tool Room Manager (TRM), and to recommend one as the standard tool and equipment management system for the Air Force aircraft and munitions maintenance community. MAJCOM representatives agreed that TAS provided the best overall value and would best meet Air Force needs for automated tool control and accountability. The purpose of this letter is to announce the selection of TAS as the standard tool and equipment management system in all sections that issue and receipt for tools and/or equipment in support of aircraft and munitions maintenance.

The decision to standardize the automated tool control system will enhance the interoperability and expeditionary capability of Air Force units. Presently TAS is used worldwide at more than 400 tool rooms and has received positive feedback for supportability and ease of use. This software is provided at no cost to the users. Additional hardware and equipment is available at minimal unit cost (Atch 1). MAJCOMS, except for ICBM units, will transition to TAS within one year of approval of certificate to operate. Expect an Interim Message Change (IMC) to AFI 21-101 mandating the use of TAS as the standard tool control system. We are willing to initially exclude ICBM units from complying with the Air Force standardization initiative. We will work with AFSPC to update AFI 21-114 to reflect our standardized tool accountability initiative.

To implement TAS, units will use a standard nine-digit worldwide (WW) identification (ID) code. The first two letters of the WW ID will be the first two letters of their wing's personnel assignment system (PAS) code. Units will etch, stamp, or mark controlled tools, equipment, and CTKs with the WW ID code and enter this data into the TAS database.

TAS is available and can be downloaded from the following website: https://www.afmc-mil.wpafb.af.mil/HQ-AFMC/LG/LSO/LOA/apple/tas/index.htm. If assistance is needed, contact the TAS support desk at 1-888-869-7818.

My action officer is Guillermina V. Chavez, AF/ILMM, DSN 223-4481, guillermina.chavez@pentagon.af.mil.

ELIZABETH A. HARRELL, Brig Gen, USAF
Director of Maintenance
DCS/Installations & Logistics

Attachment:
TAS AIT Hardware and Equipment List

DISTRIBUTION LIST

HQ ACC/LG
HQ AETC/LG
HQ AFMC/LG/DO
HQ AFRC/LG
HQ AFSOC/LG
HQ AFSPC/LG
HQ AMC/LG
NGB/LG
HQ PACAF/LG
HQ USAFE/LG

CLIN/Part #	Tool Accountability System (TAS) Sample Equipment List Basic equipment to make a startup site	Qty	U/I	Unit Price	Total Price
CLIN 2002DA 3 yr warranty	Non-contact, handheld, bar code scanner/imager, ultra high density. P302FZY-1000 bar code scanner; 25-41312-01 interface cable; 72-39417-02 product ref guide. *This is a basic bar code scanner, model 302. It has a cable that connects to the computer and the keyboard. This cable must be ordered separately (see P/N 25-38699-01 below). This CLIN comes with P/N 25-41312-01 that is not used with TAS.*	1	EA	$ 295.00	$ 295.00
P/N 25-38699 01 1yr warranty	Scanner to Computer Cable for P302 scanner (order one for each CLIN 2002DA ordered) **(Note 1)** *This is the cable needed for the model 302 bar code scanner (CLIN 2002DA).*	1	EA	$ 63.00	$ 63.00
CLIN 2003DA 3 yr warranty	Zebra Z-4000 Bar Code Label Printer w/cable *This printer prints TAS bar code labels.*	1	EA	$ 1,258.00	$ 1,258.00
P/N 85585 30 Day warranty	2" X 1.25" Z-Ultimate Label (10 roll minimum); 4,270 labels per roll; label usage is 2 rolls of labels per each ribbon **(Notes 1 & 2)** *Labels required for the Z-4000 bar code label printer.*	1	EA	$ 48.00	$ 48.00
P/N 5095BK1104 5 30 Day warranty	2.36" X 17,800' Resin Ribbon (6 roll minimum) **(Notes 1 & 2)** *Ribbons required for the Z-4000 bar code label printer.*	1	RL	$ 25.00	$ 25.00

Total for basic: ███████
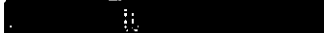
DEPARTMENT OF THE AIR FORCE
60TH COMPONENT REPAIR SQUADRON (AMC)

17 Jul 02

MEMORANDUM FOR 60 CRS/LGM

FROM: 60 CRS/LGMGP
591 Hangar Ave.
Travis AFB CA 94535

SUBJECT: Automated Toolroom System

1. The 60 CRS AGE Flight would like to obtain authorization for and assistance with the implementation of Tool Accountability System (TAS) for use in the Benchstock/Toolroom area.

2. On 19 September 2001, the AGE Flight was informed of the decision by Air Mobility Command Logistics to begin the implementation of a common toolroom control program called TRM. The original message from the Director of Logistics at Headquarters AMC addresses the fact that units were to begin the implementation of an interim tool control solution called TRM 3.1. We were told that implementation was to begin as soon as our new computer systems arrived that could support this program, and that all additional peripheral equipment would be funded and provided by HQ AMC.

3. Our toolroom at the AGE Flight began implementation of the TRM system in early January. We soon realized that without the proper peripherals (i.e. bar-code printer, bar-code scanner), the TRM system would not be an effective tool for use in our toolroom. We began to make inquiries as to the status of arrival of the peripherals and encountered many problems. Upon contacting the Lognet office at the 60 LG, we were informed that we should be patient and that we would be contacted as soon as they had any details on the status of the needed equipment. We quickly realized that according to the original directive, the date of full implementation and use of the system was 31 January 2002. We then began to request information as to whether Logistics at HQ AMC was going to extend the deadline of the current directive due to the fact we had yet to receive the proper equipment needed to fully implement the TRM 3.1 system. We were again informed we should be patient and that our toolroom would receive information as soon as it came from Logistics at HQ AMC.

4. Between February and May, our toolroom continued to wait for information while the implementation of TRM 3.1 was indefinitely on hold. While auditing our systems in preparation for the upcoming LSEP inspection, we realized we were still not in compliance with the directive sent from HQ AMC Logistics and decided to make further inquiries as to the status of the TRM system. The instruction we received from Lognet at the 60 LG was to manually implement the system, in order to show compliance with this directive. Over the following weeks, our toolroom began experimenting with ways to make the TRM system work by manual input, but we began to notice many limitations with the system that made use very difficult and time-consuming without the proper bar-coding equipment. Here is a short list of some of the TRM 3.1 limitations:

   - The program is very time consuming without the bar-code printer and scanner
   - Manual input required inventing an interim system of tool identification not related to the current tool identifiers used by CTK's required by AFI 21-101 and AMCI 21-101
   - Displaying the "Tools Out Status" screen only shows the tool identifier, date and time of checkout and not the mechanic with the tool currently signed out.

- The "Tools Out Status Report" is opened under another program called "Borland's RunSmith", which allows for viewing of all pertinent information including the mechanic with the tool signed out, but when attempting to print this report, the program omits information contained in the bottom 5 lines of the page.
- When trying to adjust the printing parameters in the print setup of Borland's RunSmith, we were unable to adjust the information to print all information on the page.
- When printing or displaying a "Tool Inventory" all NSN's and tool identifiers were drastically truncated making this important information useless and requiring us to use old databases to ensure we had accurate representation and access to order new tools.

5. Implementation of TRM 3.1 is impractical. After extensive research, our toolroom with the help of the 60 CRS Propulsion Flight has discovered that the current plan of the Air Force is to move to a new system called Tool Accountability System or TAS. Attached to this email is a letter from HQ USAF/ILM at the Pentagon dated 15 May 2002, authorizing use of this system. This system is currently in use at the Propulsion Flight, and has vastly improved the process of issue and return of tools for both the mechanics and the toolroom personnel. Our request to transition to this new tool controls system stems from the fact that although promised in the original directive, customer service for TRM 3.1 is virtually nonexistent. Also, manual implementation of this system would be a step backward from our current system of using chits; it would cause mechanics to have to wait longer while issuing and returning tools.

6. Request support to implement the TAS system due to its capabilities and the fact that it would improve processes in the 60 CRS AGE Flight toolroom area. The AGE Flight Chief is well aware of our new initiative, as a matter of fact he is the one asking to do everything we can to implement TAS, but we need authorization to deviate from the previous instruction dated 15 August 2001. Any further information concerning the implementation of the new tool accountability system, or suggestions on a course of action to take would be greatly appreciated.

ANTHONY SCHUMACHER, SrA, USAF
AGE Journeyman/Toolroom Tech, 60 CRS AGE Flight

NICHOLAS L. MEEK, Tsgt, USAF
60 CRS AGE Flight Production Control NCOIC
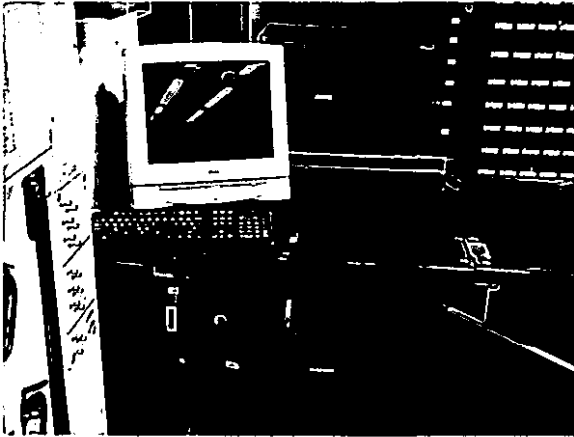
The new tool control system computer was installed beneath the service counter. With a full size monitor, the system limits the available space to serve customers.

Completed installation of the new hardware bins, shelves, and racks allows for storage of over 1200 individual shop stock items.
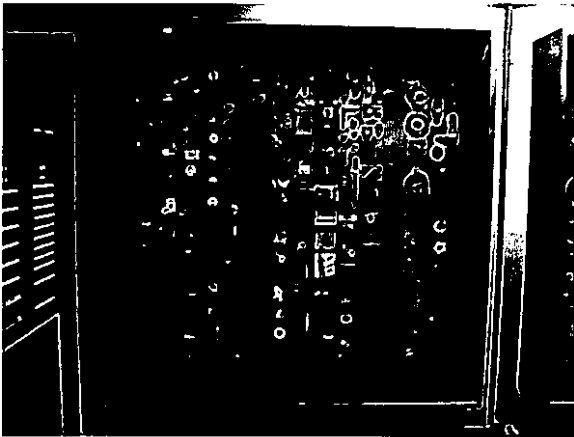
The shadow board with serviceable parts attached is shown here. All parts were removed from the board and will be replaced with digital pictures.
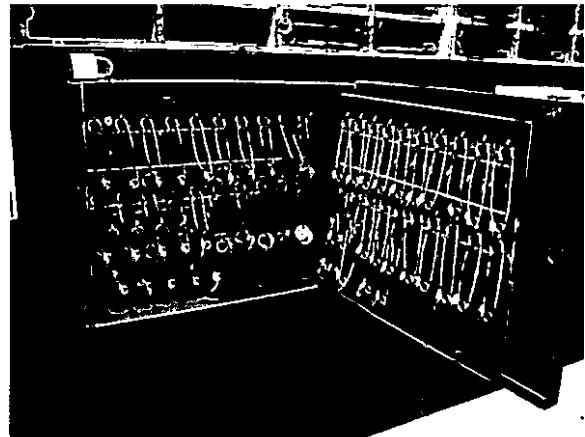
The new chit control system ensures chits remain in the toolroom area. Upon completion of the new tool control system this will it will serve only as a back up.
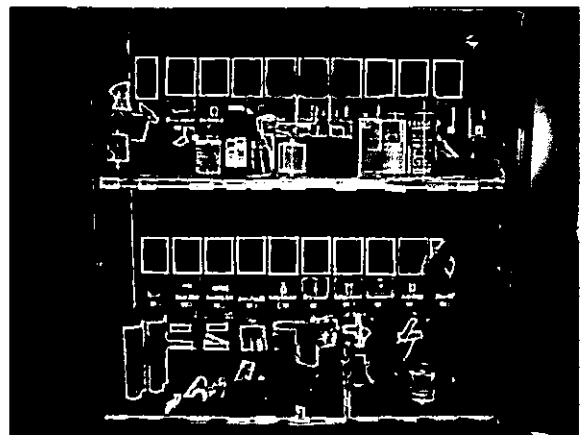
TFZ-1, a special tools kit
Utilizes wall space for tool
Storage. The toolroom has
Seven special tools kits.
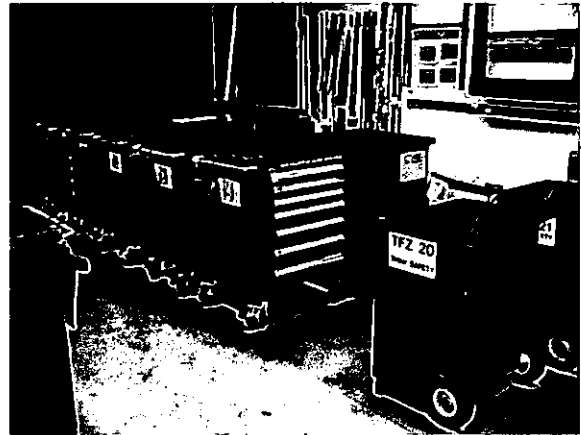
18 consolidated tool kits
(Ctks)are available for issue
to mechanics throughout
the day.

Each consolidated tool kit
contains over 350 tools
commonly used by AGE
mechanics to fix
equipment.

The hazardous material
lockers contain over 30
items, issued to mechanics
for servicing equipment.
The bench stock personnel
are responsible for
tracking the use of these
items

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