BY ORDER OF THE COMMANDER
AIR FORCE MATERIEL COMMAND

AIR FORCE MATERIEL COMMAND
MANUAL 23-101, VOLUME 5

17 NOVEMBER 2016
Certified Current, 15 December 2021

Materiel Management

EQUIPMENT SPECIALIST DATA AND REPORTS (D200A, D200N)

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OPR: HQ AFMC/A4RM

Certified by: HQ AFMC/A4R
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Pages: 105

This publication implements Air Force Instruction (AFI) 23-101, *Air Force Materiel Management*. It prescribes guidance and procedural instructions for computing XD2, XB3, and XF3 secondary item requirements. It applies to Secondary Item Requirements System (SIRS)(D200A) and Central Secondary Item Stratification (CSID)(D200N) users. This publication does not apply to Air Force Reserve and Air National Guard (ANG). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using an AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 form the field through the appropriate functional chain of command. This publication may be supplemented at any level, but must be routed to the OPR for coordination prior to certification and approval. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. Submit requests for waivers using AF Form 679, *Air Force Publication Compliance Item Waiver Request/Approval*, through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Publication OPR for non-tiered compliance items. Requests for waivers must be approved by the publication OPR prior to implementation. Ensure that all records created as a result of processes prescribed in this publication are maintained In Accordance With (IAW) Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This publication has been substantially revised and must be completely reviewed. The previous manual has been restructured into six separate volumes. Volume 5 incorporates the previous version as follows: **chapter 16**, 17, 18, 19, and 12 respectively. Some of the more significant changes include: estimated factors; Equipment Specialist (ES) reviews of estimated rates/factors and file maintenance actions; TCO and/or lead ES approvals for file maintained estimated condemnation factors/rates; Management of Items Subject To Repair Condemnations (MISTR CNDMN); Depot Condemnations Total; for Expendability, Recoverability, Reparability Category (ERRC) change factor tools; ES application file maintenance; and life limited item requirements.

Chapter 1

USAGE

1.1. Introduction. This chapter describes the procedures to be used by the Equipment Specialist (ES) for the validation of usage.

1.1.1. For each item, Secondary Item Requirements System (SIRS) divides the actual usage by the past installed programs to compute the factors. Each factor times the future installed programs, determines the portion of the item's gross recurring requirements attributable to that factor. Gross requirements minus assets equals net requirements. The ES ensures that the usage, applications and programs (**Chapter 3**), and factors (**Chapter 2**) are correct.

1.1.2. Failure, replacement, condemnation, and other reliability rates or factors are computed by SIRS for each item on the basis of past usage and past program data accumulated over a set time period referred to as the base period. The base period starts from the oldest Program Begin Date (PBD) on the item's application record in the Applications, Programs, Indentures (API) system, D200F (see **paragraph 3.30**) and ends at the asset cutoff date of the SIRS computation. The base period for any item can be a maximum of 12 quarters (qtrs). If the oldest PBD is less than 36 months from the asset cutoff date, then the base period for that item will be less than 36 months. The most recent 8 qtrs of the base period are used to compute most Rates And Percents (RAP), and can be file maintained. All 12 qtrs are only used in the computation of the Predictive Logistics (PRELOG) and exponential smoothing rates (see **paragraph 2.27**). SIRS retains a maximum of 12 qtrs of history for each usage type. After 12 qtrs of history data, SIRS drops the oldest qtr of history and adds the "current" or most recent past qtr of usage history received from interfacing systems. A maximum of 12 qtrs of usage, past installed programs, and computed factors for the base period are displayed on the Factors/Usage Printout (see **paragraph 1.13**). The usage for the Subgroup Master (SGM) totaled for the most recent 8 qtrs of the base period, are displayed under base period on the first page of the Subgroup Master Computation Worksheet (SMCW) requirements product (see Volume 3) and on page 2 of the online display screen SMCW (see Volume 3, paragraph 1.4.4.), SIRS DIS CW SMCW. SIRS gets the base condemnations, base NRTS, base Reparable This Station (RTS) from D002A (if available) and depot reparable generations and depot condemnations from D035A by Current Stock Number (CSN), and Stock Record Account Number (SRAN). For recoverable items, SIRS gets Management of Items Subject To Repair (MISTR) condemnations and MISTR Repairs from the Depot Maintenance Consolidated Operational Database (Q302) for organic repair and the Commercial Asset Visibility Air Force (CAV AF) system for contractor repair.

1.1.3. Usage for consumable items.

1.1.3.1. Base-level usage and condemnations for Expendability, Recoverability, Reparability Category (ERRC) "P" items are received from D002A and D035A into SIRS just like for recoverable items. Depot usage for ERRC "P" items is reported from D035K through D035A into SIRS. Both base and depot usage for ERRC "N" items are received from D035A into SIRS. For base level usage, excluding ERRC "P" items', the demands represent requisitions because consumables do not undergo the same repair actions as recoverables. Consumable items must have both base and depot level

reporting for both usage and assets because SIRS is a worldwide computation, computing retail as well as wholesale recurring requirements and stock levels.

1.1.3.2. Management of cancellations of ERRC "N" and "P" demands.

1.1.3.2.1. D035A will "net" or subtract out the cancellations from the demand requisitions for the current report qtr using the requisition/cancellation date to determine the current reporting qtr.

1.1.3.2.2. For cancellations that are received that had an original requisition date previous to the current qtr, D035A will pass that cancellation to D200A in a file that will include the date of the qtr in which the original requisition date falls. Cancellations occurring against different requisition dates within one previous qtr will be summarized to one cancellation quantity for that qtr. All cancellations against original requisition dates 3 years old or older will be ignored.

1.1.3.2.3. D200A will take the cancellations for older qtrs and will net the appropriate qtr. If the cancellation quantity is more than the actual value in D200A, a notice will be output to both the Inventory Management Specialist (IMS)/Materiel Manager (MM) and ES.

1.1.3.2.4. D200A will produce a listing stating the actual values that were reduced by qtr and quantity. Two types of listings will be produced, one for the IMS/MM and one for the ES. The listings will be in IMS/MM or ES sequence and one per complex.

1.1.3.2.5. D200A will not adjust File-Maintained (F/M) values. Only the reported "actual" values will be adjusted.

1.1.4. Item past usage data are summarized by SGM stock number for the computation of factors. The usage data of any CSN, not including the SGM that is coded obsolete, will be used in the computation of the factors. If the SGM is coded obsolete, no factors are computed for the item.

1.1.5. Usage by CSN and SRAN received from D002A and D035A can be viewed on the SIRS DIS DTI SUD screens (see **paragraph 1.2**). A batch SRAN USAGE report is pushed to each IMS/MM and ES from each Initial computation displaying this data. The report for the IMS/MM is sorted by division, IMS code, SGM, CSN, and SRAN. The report for the ES is sorted by division, ES code, SGM, CSN, and SRAN. These reports can also be pulled using the Output Products Equipment Specialist Selection Screen (EPSS) (see **paragraph 5.4**). The IMS/MM can also pull this report using the Output Products (PSS) Item Manager Selection screen (see AFMCMAN 23-101, Volume 4, *IMS/PMS/MM Data and Reports (D200A, D200N)*, paragraph 12.5.), and the OPRs can use the Output Products OPR Reports Selection screen (see Volume 2, paragraph 4.2.).

1.1.6. This actual usage by CSN and SGM and any F/M usage are displayed on the Display UH Usage History screen, SIRS DIS FUD UH (see **paragraph 1.3.2**). The SIRS DIS FUD TSUH screen displays the 12 qtrs of usage data (actual and F/M) totaled for the SGM (see **paragraph 1.3.3**). Most usage is F/M on the File Maintenance USGD Usage Data screen, SIRS FM SND USGD, (see **paragraph 1.12**). MISTR repaired quantities are file maintained using the SIRS FM SND MRPR screen (see AFMCMAN 23-101, Volume 4, paragraph 8.4.).

1.2. Display Usage by CSN and SRAN.

1.2.1. Use the Display SUD SRAN Usage Data screens, left and right, SIRS DIS DTI SUD to view the asset data from D002A and/or D035A by SRAN and by CSN or by SGM. The format of the SRAN is XX9999 (two alphas and four numerics).

1.2.2. Type the SGM or just the National Item Identification Number (NIIN) for the SGM to view the data for the SGM. To type the NIIN, you must tab past the Federal Stock Class (FSC). Do not put spaces in the FSC field. If a SGM is typed in the CSN field, SIRS will display the SGM data. Totals by SRAN are displayed when the SRAN has more than one CSN. The totals for the SGM are displayed at the bottom.

1.2.3. Type the CSN or just the NIIN for the CSN in the CSN field to view the asset data by SRAN for the CSN. SIRS will also display the associated SGM in the SGM field. The totals for the CSN are displayed at the bottom.

1.2.4. To display the right page, click on the Right button or type RIGH at the command line. To display the left page, click on the Left button or type LEFT at the command line. To scroll forward, click on the Forward (FORW) button or type FORW at the command line. To scroll backward, click on the Back button or type BACK at the command line. To go to the beginning of the list, click on the Top button or type TOP at the command line. To go the end of the list, click on the Bottom (BOTT) button or type BOTT at the command line.

1.2.5. To display historical usage data, change the AS OF date to another valid date on the SUD display screen. **Note:** The AS OF date identifies the asset cutoff date of the computation cycle in the format DD MMM YY. To view historical data on a display screen, the user must enter a valid asset cutoff date or click the AS OF button and select the appropriate cutoff date from the dropdown list.

1.2.6. Use the Display MUH MAJCOM Usage History screen, left and right, SIRS DIS DTI MUH to view the usage, by weapon system and Major Command (MAJCOM) from D002A by SRAN, MAJCOM (see **Table 1.1** for codes), weapon system, and SGM. The data can be viewed with the following options:

1.2.6.1. By MAJCOM, weapon system, and SGM. This option will provide the usage data that occurred for the selected SGM, but only for the MAJCOM and weapon system requested. In this option, all fields must be entered, including the type of usage desired. Click on the BASE NRTS, BASE CNDMN, BASE RPR (RTS) buttons to select the type of usage.

Table 1.1. MAJCOM Codes Loaded in D200.

	MAJCOM Code	MAJCOM
1	ACC	Air Combat Command
2	AET	Air Education and Training Command
3	AFA	Air Force Academy
4	AFE	U. S. Air Forces Europe
5	AFR	Air Force Reserve Command
6	AMC	Air Mobility Command
7	ANG	Air National Guard
8	MTC	Air Force Materiel Command
9	OSI	Office of Special Investigations
10	OTH	Unknown
11	PAF	Pacific Air Forces
12	SOC	Air Force Special Operations Command
13	SPC	Air Force Space Command
14	GBS	Air Force Global Strike Command

1.2.6.2. By MAJCOM and weapon system. This option will provide the usage data for all of the SGM stock numbers that apply to the MAJCOM and weapon system requested. In this option, the SGM field is left blank.

1.2.6.3. By MAJCOM and SGM. This option will provide the usage data that occurred for all weapon systems for the selected MAJCOM and SGM. In this option, the weapon system field is left blank.

1.2.6.4. By SGM. This option will provide the usage data for the selected type of usage that occurred on the selected SGM, listing all of the MAJCOMs and weapon systems where the usage data occurred. In this option, the MAJCOM and weapon system fields are left blank.

1.2.6.5. The type of usage must be entered on each request. The 3-position MAJCOM, 7-position weapon system, and SGM are entered depending on which of the above options are desired. Non-aircraft may also be entered in the weapon system field. When entering the weapon system, the application must be spaced properly. The screen provides a total of all of the SRANs for each of the last 4 qtrs, plus a 4-qtr total at the bottom of the screen. The MAJCOM's percent of usage, over the last 4 qtrs, is shown for the selected SGM and weapon system. Also, an 8-qtr total is shown, even though only the last 4 qtrs are visible. The 4-qtr Mean Time Between Demands (MTBD) is shown which is determined by dividing the 4-qtr total hours by the 4-qtr total usage. The 8-qtr MTBD is not shown; however, it can be derived by dividing the 8-qtr total hours by the 8-qtr total usage.

1.3. Display Usage Screens.

1.3.1. The Display FUD Factors/Usage Selection screen, SIRS DIS FUD MENU, shows the many screens which display usage, MISTR repair, and factor data. There are seven screens that display the data on the Factors/Usage Printout. These seven screens are linked and can be accessed from any of the seven screens by using the paging commands, or using the page number buttons at the bottom of each screen. The seven screens and their applicable page

numbers are: FBD (1), RAP (2), FRAP (3), UH (4), TSUH (5), PF (6), and FAD (7). The Usage History (UH) and Total SGM Usage History (TSUH) screens are described below. The other five screens are described in **Chapter 2**.

1.3.2. Display UH Usage History Screen. The Display UH Usage History screen, SIRS DIS FUD UH, displays the past 12 qtrs of base period usage data, which includes base RTS, base NRTS, base condemnations, base reparable generations, depot reparable generations, MISTR repairs, MISTR condemnations, and total depot condemnations, by CSN and by SGM. The UH screen has a Left and Right screen and vertically scrolls between Top and Bottom. The Left screen displays the latest 8 qtrs (qtrs 1-8) of usage history. The Right screen displays the oldest 4 qtrs (qtrs 9-12) of usage data. The screen shows both the actual (ACT) data received from interfacing systems and F/M data. There may be multiple screens depending on how many types of usage the item has. Enter the SGM or CSN and press enter. If an SGM or a CSN is entered in the SGM field, SIRS displays the data for the SGM and for all CSNs in the family. If a CSN is entered in the CSN field, SIRS displays the data for that CSN only and displays the SGM in the SGM field. Enter a valid AS OF date to view historical data, otherwise the AS OF date defaults to the current cycle. After the selected data is displayed, click on the Notepad button or type "X" in the Notepad field on the mainframe screen. The element Notepad text is displayed in the order in which the elements appear on the screen. This is page 4 of the seven screens that show the data displayed on the Factors/Usage Printout.

1.3.3. Display TSUH Total SGM Usage History Screens. The Display TSUH Total SGM Usage History screens, SIRS DIS FUD TSUH, display the past 12 qtrs of base period usage data totaled for the SGM. If a CSN is typed in the SGM field, SIRS will display the SGM and the SGM data. The screen also displays the past installed program for Organizational and Intermediate Maintenance (OIM), Programmed Depot Maintenance (PDM), Engine Overhaul (EOH), and MISTR. The TSUH has a Left and Right screen. The Left screen displays the latest 8 qtrs (qtrs 1-8) of usage history and past installed programs. The Right screen displays the oldest 4 qtrs (qtrs 9-12) of usage history and past installed programs. This data is displayed only if the data is greater than zero. Enter a valid AS OF date to view historical data, otherwise the AS OF date defaults to the current cycle. To see the Notepad for usage data, transfer to the UH screen. This is page 5 of the seven screens that show the data displayed on the Factors/Usage Printout. This screen also displays the QTR LAST DMND or the last qtr a demand was received for this item, which is helpful to the ES to determine how active the item has been.

1.4. Base Reparable Generations (BASE REPGEN). When a user at the field activity finds a part unserviceable, removes the part and turns it in for possible repair, this places a demand on supply for a serviceable to replace the reparable. These base reparable generations (rep gens) are for OIM types only and are the sum of the base condemnations, base NRTS, and base RTS as computed within the base period. Base rep gens cannot be file maintained by the ES. The reported base rep gen data are used to determine the computed TOIMDR 12-month and 24-month moving averages.

1.5. Base Reparable This Station (BASE RTS). A base RTS is a base rep gen that the OIM shop at the base was able to repair and turn into a Logistics Readiness Squadron (LRS) as a serviceable asset, for which an accompanying demand was placed upon supply for a recurring

requirement. (An item that is bench checked serviceable-no repair, is not counted as a base RTS.)

1.5.1. Base RTS are reported to SIRS from D002A and D035A. The reported base RTS data are used in determining the base condemnation percent. RTS may be removed from usage only when the Source, Maintenance and Recoverability (SMR) code excludes all base repairs (an "L" or "Z" in the 4th position), the RTS are sporadic (1 or 2 qtrs in 2 years) or there are no more than two RTS per qtr. **Exception:** Items with documentation to show a change in maintenance concept such as Repair Enterprise for the 21st Century (RE21) items or for which the ES has documentation from the bases reporting the RTS that the RTS data is in error.

1.6. Base Not Reparable This Station (BASE NRTS). A base NRTS is a base rep gen that the OIM shop at the base was not able to repair and was shipped to the depot for possible repair. The OIM shop placed a demand on supply to replace the reparable sent to the depot. Base NRTS are reported to SIRS from D002A and D035A. The reported base NRTS data are used to determine the base NRTS percent.

1.6.1. Quality Deficiency Reports (QDRs). QDRs do not report as usage to SIRS, so when there are significant numbers of them on an item, usage is significantly understated. If the QDR is quickly resolved and is not expected to recur, this does not cause a significant problem, but if the situation persists, support problems can occur due to understated requirements. QDRs are authorized as input of base NRTS when the following criteria are met:

1.6.1.1. The number of QDRs must be significant. As a general guideline, more than three should have occurred in the 2 most recent qtrs.

1.6.1.2. A true QDR has not been documented, or there is no projected date when the QDR will be resolved and thus usage should decline.

1.6.1.3. All QDRs that are input must be backed up with transaction histories that prove that the QDR took place.

1.6.1.4. ES must document the use of QDRs on the Factors/Usage Printout.

1.6.1.5. QDRs are only authorized for the current and 1st forecast factors in order to prevent buying pipeline requirements only to see the problem "go away." The F-16 directorate at OO-ALC (508th Fighter Sustainment Group) is authorized to extend the effect of QDRs beyond the first forecast for selected items (through the second or third forecast as necessary).

1.6.1.6. **Exception** to the above: Returns of Supply Condition Code (SCC) Q assets that the ES actually knows were returns of assets under warranty for repair during the warranty period will be included in the NRTS.

1.6.2. RTS may be moved to NRTS if items with documentation showing a change in maintenance concept such as RE21 items or for which the ES has documentation from the base(s) reporting the RTS, stating that the RTS data is in error and should have been reported as a NRTS.

1.7. Base Condemnations. A base condemnation (BASE CNDMN) is a base reparable generation that the OIM shop condemned and placed a demand to an LRS to replace the condemnation. Either the item cannot be repaired at any facility or the estimated cost of repair exceeds the maximum repair allowance for the item. Base condemnations should not include items sent to disposal for reasons other than "beyond economical repair." Reported base condemnations that are not from normal wear and tear must be removed by the ES as past usage in SIRS because they are non-recurring and therefore should not be projected as future requirements. The IMS/MM will be notified when non-recurring condemnations are removed. Base condemnations are reported to SIRS through D002A and D035A. The reported base condemnation data are used to determine the base condemnation percent.

1.8. Depot Reparable Generations (DEPOT REPGEN). Depot rep gens are the total unserviceable assets generating from the Depot Level Maintenance (DLM) programs at all the depot repair facilities (including contractors and other Department of Defense (DoD) Services' facilities) which are subsequently turned in to supply for accountability. The DLM programs are the PDM, EOH, and Next Higher Assembly (NHA) MISTR programs. Depot rep gens are reported to SIRS through D002A and D035A. The reported depot rep gen data are used to compute the three Non Job Routed (NJR) replacement percents (PDM, EOH, and NHA MISTR) (see **paragraph 2.16**).

1.8.1. To be considered a depot rep gen of the NJR replacement type, the depot activity finds the part unserviceable, removes the part, and turns it in for possible repair. (The depot activity does not determine if the part should be condemned under the NJR concept.) A demand is placed on supply for a serviceable to replace the reparable (see **paragraph 2.16**).

1.8.2. To be considered a depot rep gen of the Job Routed (JR) condemnation type, the depot activity finds the part unserviceable and removes the part for possible repair. The same depot activity tries to repair the item and if it is repaired, that part is replaced in the same spot. If the depot activity cannot repair the item, it is condemned and a demand is placed on supply to replace the condemnation. Under the JR concept, a depot repair is not reported to SIRS since it did not place a demand on supply. However, a JR condemnation does place a demand on supply, so it is reported as a depot rep gen (see **paragraph 2.17**).

1.9. MISTR Repairs (MISTR REPAIR). The depot MISTR repairs are the reparables (located at the depot) that have been made serviceable during the MISTR repair process of the item. To be considered a MISTR repair, the reparable is the result of a base NRTS, a Requirements Data Exchange (RDE) unserviceable return or an NJR replacement. The reparable is stored at or sent to a depot or contractor facility until it can be scheduled for repair. When the reparable is scheduled for repair, it is sent through a MISTR repair line (for that item) and made serviceable. If the reparable cannot be made serviceable in the MISTR repair process, it is a MISTR condemnation. MISTR repairs do not include items that were repaired during JR repair of higher applications. The MISTR repair data are used to compute the MISTR condemnation percent.

1.10. MISTR Condemnations (MISTR CNDMN). The MISTR condemnations are the reparables (located at the depot) that have been condemned during the MISTR repair process of the item by the depot (organic or contractor). To be considered a MISTR condemnation, the reparable is the result of a base NRTS, RDE unserviceable return, or NJR replacement. The reparable is stored at or sent to a depot or contractor facility until it can be scheduled for repair. When the reparable is scheduled for repair, it is sent through a MISTR repair line for that item

and condemned. If the reparable can be made serviceable in the MISTR repair process, it is a MISTR repair. MISTR condemnations do not include items that were condemned during JR repair of higher applications. The reported MISTR condemnation data are used in determining the MISTR condemnation percent. MISTR condemnations should never exceed the depot condemnation total**.** If the reported MISTR condemnations exceed the depot condemnations total, then one or both of these data elements are incorrect. MISTR condemnations are reported throughQ302 (organic) and CAV AF system (contractor). Because G004L is a production report, it may include reporting of condemned assets prior to their receipt in supply which will create a disconnect with the Depot Condemnations Total below. When this happens, the D035K Transaction Register will be used to determine the correct quantity for the qtr based upon the condemnation turn in from the organic MISTR shop.

1.11. Depot Condemnations Total. These are the total condemnations from depot level repair. Therefore, this quantity cannot be less than the quantity of MISTR condemnations. To be considered a JR condemnation from the PDM, EOH, and NHA MISTR repair lines of higher applications, the depot activity tries to repair the AF-managed component part and cannot repair the item, so it is condemned. D035A reports the Depot Condemnations Total to SIRS and is used to compute the three JR condemnation percents. When organic reporting is questioned, the D035K Transaction Register is to be used to determine the correct quantity for the qtr based upon the actual receipt of the condemned asset in supply to keep actions cohesive with the IMS/MM asset reconciliation balances.

1.12. File Maintenance USGD Usage Data Screen. Use the SIRS FM SND USGD screen to file maintain the most recent 8 qtrs of base period usage data for the data elements in **Table 1.2**.

Table 1.2. File Maintenance USGD Usage Data Screen Data Elements.

	Data Elements
1	BASE CNDMN
2	BASE NRTS
3	BASE RTS
4	MISTR CNDMN
5	DEP CNDMN
6	DEP RPR GEN

1.12.1. The base condemnations, base NRTS, and base RTS are summed to get the base rep gens. Base rep gens cannot be directly file maintained. The difference between the MISTR condemnations and the depot condemnations total are the JR condemnations. The MISTR condemnations should never exceed the depot condemnations total.

1.12.2. Enter the CSN or NIIN of the CSN. Point and click on the usage data element to be file maintained and an "X" will appear, or if using the mainframe, place an "X" to select the data element or multiple data elements to be file maintained. Press enter. The past 8 qtrs of base period usage for the selected data element will appear. The actual reported data from D002A/D035A appears on the ACTL line. Any previously F/M quantities for this cycle appear on the F/M line. Use the Tab key to move from left to right through the 8 qtrs of base

period. Enter the quantity on the F/M line. Press enter. The data element specific Notepad will appear. Type the documentation and press enter. The message "update successful" appears indicating that the SIRS database has been changed. When multiple data elements have been selected, SIRS processes the selections from left to right and top to bottom. If the enter key is pressed without a file maintenance action, SIRS displays the next selection. The "X" or "check mark" in the selection field is removed once the selected file maintenance data is displayed on the screen. When the updates are complete, the corresponding SGM level usage data is adjusted. The total field on this screen is the sum of the 8 qtrs of F/M data, or actual data, if no F/M data exists for that qtr. The user can transfer to the Notepad by clicking on the Notepad button or in the mainframe by entering "X" in the Notepad field.

1.12.3. The screens displaying the RAP and the factor data, SIRS FM SND FACD, will not be updated to display the recomputed RAP that result from the file maintenance of usage data until either a "For Real" (FRIR screen, see Volume 3, paragraph 2.2.) item recomputation is initiated, or the Final or Summary computation is run. Also, when the Factor Indicator Code (FIC) is changed, the previously used rate and percent values remain on the FACD screen until either a "For Real" item recomputation is done, or the Final or Summary computation is run. However, the Source Reference Codes (SRCs) will change immediately for each of the RAP when the FIC is changed.

1.13. The Factors/Usage Printout. This report is "pushed" to the ES and to the IMS/MM for items requiring review or action from the Initial, Final, and Summary computations. The hard copy product can be requested by ES code using the SIRS OP EPSS screen (see **paragraph 5.4**), or by IMS code using the SIRS OP PSS screen (see Volume 4, paragraph 12.5.), or by an Air Force Center (AFSC) Sustainment OPR using the SIRS OP OPSS screen (see Volume 2, paragraph 4.2.) and by using the Select SGM "What If" screen (see Volume 3, paragraph 2.3.). The report consists of seven sections. When the report is requested for a "What If" recomputation, the word "SIMULATION" appears below the title of the report. When the ES has completed the review of the Factors/Usage Printout, then he/she is to sign and date it and forward a copy to the IMS/MM.

1.13.1. The first section contains basic management type information.

1.13.1.1. CUR. The print date.

1.13.1.2. AS OF. In the format DDMMYY, this is the day, month and year of the asset cutoff date of the computation that the product was produced from. When using an online screen, this data can be changed to display factor/usage data for a previous cycle. A 2-position cycle indicator is displayed to the right of the AS OF field. The first position identifies the computation cycle ("I" for Initial, "F" for Final, and "S" for Summary). The second position represents the number of times that item was recomputed during that computation cycle. A zero means the item was not recomputed.

1.13.1.3. PRGM BEG. This is the oldest PBD on the item's application records. It is displayed in the format YYMM, where mm is 03, 06, 09, or 12.

1.13.1.4. SGM is the 15-position Interchangeability and Substitutability (I&S) SGM or bachelor stock number.

1.13.1.5. PART NUMBER and CAGE (Contractor And Government Entity) code for this item.

1.13.1.6. ITEM NAME is the nomenclature assigned to the SGM from D043 or by the IMS/MM, see **Volume 4**, paragraph 1.7.).

1.13.1.7. ALC (site) is a 2-position code representing a specific location.

1.13.1.8. ES is the 3-position ES code. The left-most position contains the division designator code.

1.13.1.9. IMS is the 3-position IMS code. The left-most position contains the division designator code.

1.13.1.10. PMS is the Production Management Specialist (PMS) code for this item. **Note:** A Materiel Manager (MM) performs the functions of a PMS and is included in the responsibilities/actions whenever PMS is referenced in this volume.

1.13.1.11. ERRC is the 1-position code, "T," "N," or "P," applicable to the I&S SGM/bachelor stock number (see AFMCMAN 23-101, Volume 4, paragraph 1.14.5.).

1.13.1.12. PMIC is the Precious Metal Indicator Code that is passed to SIRS from the Requirements Item Identification Data (RIID) system (D200E) (see AFMCMAN 23-101, Volume 3, *Computational Results (D200A, D200N)*, paragraph 1.3.25.).

1.13.1.13. MIEC is the 3-position Mission Item Essentiality Code (see **paragraph 3.27**).

1.13.1.14. ACT CD is the 1-position Item Activity Code (IAC) that tells which cycles to review the item (see AFMCMAN 23-101, Volume 4, paragraph 1.5.).

1.13.1.15. NEW is a 1-position New Item Code ("N" = new, and blank = not new (see AFMCMAN 23-101, Volume 4, paragraph 1.14.9.).

1.13.1.16. CAT is the 1-position Item Category Code (ICC) (see AFMCMAN 23-101, Volume 4, paragraph 1.6.).

1.13.1.17. FEEMS IND is the 1-position code where "X" = an item managed under the Field Engine Exchangeable Management System (FEEMS); see AFMCMAN 23-101, Volume 2, *System Level Data and OPR Reports (D200A, D200N)*, paragraph 1.10**.**

1.13.1.18. ITEM PRGM SEL is the 4-position Item Program Select Code (IPSC) (see **paragraph 3.3.9**).

1.13.1.19. FACTOR IND is the 3-position FIC that allows the ES to select the type of method used to compute the rate and/or percent to be used in the SIRS computation (see **paragraph 2.26**).

1.13.1.20. BASE RTS EXCL is the base RTS exclusion indicator file maintained by the ES. When the base RTS exclusion indicator reflects an "X," SIRS will ignore any base RTS and base condemnations in the computation of OIM RAP. When the RTS exclusion indicator is used, a base NRTS percent of 100% will result, and the base rep gens used in the computation of the TOIMDR will be reduced by the quantity of base RTS and base condemnations (see **paragraph 2.25**).

1.13.1.21. SFTY LVL EXCL is file maintained by the IMS, and if equal to "X," SIRS will not do a safety level computation for the item (see AFMCMAN 23-101, Volume 4, paragraph 1.10.).

1.13.1.22. BASE RPR CYCLE DAYS is the 2-position base repair cycle days followed by the 1-position SRC (see AFMCMAN 23-101, Volume 4, paragraph 3.7.).

1.13.1.23. DEP RPR CYCLE DEPOT is the 3-position depot repair cycle days (see AFMCMAN 23-101, Volume 4, paragraph 3.8.).

1.13.1.24. UNIT PRICE FCST is the Forecasted Unit Price (FUP) (see AFMCMAN 23-101, Volume 4, paragraph 1.11.2.).

1.13.1.25. UNIT REPAIR COST is the unit repair cost and the 1-position SRC (see AFMCMAN 23-101, Volume 4, Table 8.1., Item 10).

1.13.1.26. UNIT REPAIR MANHOURS indicates the approximate time it takes to repair the item at the depot facility. This is passed for Q302 (see AFMCMAN 23-101, Volume 2, paragraph 1.11.).

1.13.1.27. SOR is a 2-position code identifying the Source Of Repair. Displayed below the SOR is the related percent of repair performed by that SOR (see AFMCMAN 23-101, Volume 4, Table 8.1., item 11). There can be seven different SORs: CT (contract repaired), OC (OC-ALC repaired), OO (OO-ALC repaired), SA (SA-ALC repaired), WR (WR-ALC repaired), DM (DMISA repaired), and OT (Other used for AFMC Form 206, *Temporary Work Request*, repaired, Interim Contractor Support (ICS) repaired, and Reliability Improvement Warranty (RIW) repaired.).

1.13.1.28. ICS/RIW is the code which identifies items that are being managed under ICS with a value of "C," or the RIW program with a value of "W" (see AFMCMAN 23-101, Volume 4, paragraph 1.4.).

1.13.1.29. EXPIR DATE in the format YYMM is the expiration date for the ICS/RIW code (see AFMCMAN 23-101, Volume 4, paragraph 1.4.2.).

1.13.1.30. CONDITION X ASSET. If the item has any SCC X assets, the numbers are displayed on this line (see AFMCMAN 23-101, Volume 4, paragraph 6.5.14.).

1.13.2. The second section (Rates and Percents) contains rates and percent values that were calculated using various techniques as well as the forecast factors that were chosen for use in the computation.

1.13.2.1. RATES AND PERCENTS. Displayed are MTBDs, 3 rates and 13 percentages (factors) for the SGM for the following time periods. The rates and percentages are described in **paragraph 2.6.** through **2.17**.

1.13.2.2. LAST USED. This column displays the current factors that were used in the previous quarterly Summary SIRS computation.

1.13.2.3. 24 MTHS. The factors displayed in this column are computed by SIRS using the most current 24 months of usage.

1.13.2.4. 12 MTHS. The factors displayed in this column are computed by SIRS using the most current 12 months of usage.

1.13.2.5. PRELOG. The factors displayed in this column are computed by SIRS using Predictive Logistics (see **Chapter 4**).

1.13.2.6. EXPON. The factors displayed in this column are computed by SIRS using exponential smoothing (see **paragraph 2.27**).

1.13.2.7. FCST DT. The forecast date (YYYYMM) is assigned by SIRS when either the ES file maintains a factor, or when the 1st forecast factor is automatically shifted into the current factor during the 30 September shifting process. SIRS uses the forecast date to determine how many qtrs to use in the interpolation between the current and 1st forecast factors (see **paragraph 2.5**).

1.13.2.8. FORECAST CUR, 1ST, 2ND, 3RD, 4TH, 5TH. These columns display the current Fiscal Year (FY) factors and five forecasted FYs of factors.

1.13.3. The third section (Past Usage History - Current Stock Number Level) shows past actual and F/M usage data at the CSN level. This section does not appear on a simulation report since usage data is F/M at SGM level for "What If" recomputations.

1.13.3.1. CURRENT NSN/PART NUMBER. The usage for this interchangeable or current stock number is displayed along with the part number.

1.13.3.2. OBS CODE. When the interchangeable stock number is obsolete, "D" is displayed. SIRS uses the obsolete item's usage to compute factors for the SGM.

1.13.3.3. TYPE USAGE. Up to 12 qtrs of past actual and/or F/M usage are displayed by qtr. The oldest qtr is displayed first. 8 QTR TOTAL is the total of the most recent past 8 qtrs, adding together the F/M data if it exists or else the actual data for that qtr. Any usage printed that precedes the oldest PBD is not used in the computation of the factors and indicates either an erroneous PBD, invalid usage, or an ES decision not to use premature failure data. The top line shows the actual (ACT) usage reported by interfacing systems. The lower line displays any F/M usage. The months and year shown on the product represent the ending month of the qtr and the associated calendar year. The types of usage are described in **paragraph 1.4.** thru **1.11**.

1.13.4. The fourth section (Past Usage History - SGM Level) displays past usage data summarized to the SGM level.

1.13.4.1. TYPE USAGE. Up to 12 qtrs of summarized usage are displayed by qtr. The oldest qtr is displayed first. The months and year shown on the product represent the ending month of the qtr and the associated calendar year.

1.13.4.2. 8 QTR TOT USE. The total past usage for the most recent 8 qtrs for all CSNs in the family. SIRS adds together the F/M data if it exists or else the actual data for that qtr.

1.13.4.3. QUARTER OF LAST DEMAND. Format is YYMM where 'MM' is 03, 06, 09, 12; the ending month of the qtr. Represents the most recent qtr in which a demand was reported. Will not update unless the ES has file maintained at least one application with a PBD earlier than the asset cutoff date.

1.13.5. The fifth section (Total Item Past Installed program - Subgroup Master Total) shows quarterly totals for the four basic types of programs. OIM, PDM, ENG OH, and NHA MISTR programs (see **Chapter 3**). Up to 12 qtrs of past installed programs for the SGM are displayed by qtr. The oldest qtr is displayed first. 8 QTR TOTAL is the total of the most

recent past 8 qtrs. The months and year shown on the product represent the ending month of the qtr and the associated calendar year.

1.13.6. The sixth section (Past Factors) displays past computed factors by qtr and Moving Average History (MAH) for the TOIMDR, base NRTS percent, base condemnation percent, MISTR condemnation percent, and the DLM factors (JR condemnation percents, NJR replacement percents and NJR program percents for PDM, EOH and MISTR). These factors are developed from historical data, disregarding manually entered factors. A maximum of 8 qtrs of data are displayed. When a ninth qtr factor is developed, the oldest quarterly factor is dropped. Zeroes are displayed when zero factors are computed. The qtr factor is computed with a minimum of 1 qtr of usage and item past installed program. The MAH factors are computed with a minimum of 4 qtrs of usage data. (No moving averages are computed when there are less than 4 qtrs of usage data.) The factors displayed can only be changed by file maintenance of the usage data in the base period or by changing the application data resulting in a change to the item's past installed program. These factors are displayed to assist the ES in analyzing past trends and forecasting future factors.

1.13.7. The seventh and last section displays the time phased item application data (System Applications). Each application for the SGM is listed (APPLICATION DESIGNATOR) with the associated program select code (PGM SEL), application essentiality code (APPL MIEC), program development code (DEV CD), program begin date (PRGM BEGIN DATE), Quantity Per Application (QPA), and application percent (APPL %). All file maintenance of application data is performed in D200F/API (see **paragraph 3.26**).

1.14. Spares Requirement Review Board (SRRB) Output Products.

1.14.1. MUD Output Product. The SIRS OP MUD may be used to produce hard copies of the SRRB MAJCOM usage data that is reported via the 7SC transaction. There are two types of products that can be printed. These products must be requested separately, one at a time. The printing instructions are as follows:

1.14.1.1. MAJCOM USAGE HISTORY. This product provides the past 8 qtrs usage data history that has been reported, by usage type, by SRAN and organization and Project Funds Management Record (PFMR) codes. It also shows the usage hours for each of the qtrs in the base period. To print this product, the MAJCOM, Mission Design Series (MDS), and SGM must be entered, and the type of usage and "MAJCOM Usage History" must be selected. After you have entered these data elements, press enter and a job number will appear at the bottom of the screen to let you know you have successfully launched the print request.

1.14.1.2. MAJCOM BREAKOUT PERCENTAGE. This product provides the 8 qtrs of usage data history that has been reported, by MAJCOM and usage type, to show the percentage of usage for each of the MAJCOMs. To print this product, follow the same procedure as above, except the MAJCOM must be blank and the MAJCOM BREAKOUT PERCENTAGE must be selected.

Chapter 2

FACTORS

2.1. Introduction. This chapter describes the procedures to be used by the ES for the validation and the development of factors.

2.1.1. For each SGM stock number, SIRS divides the actual usage by the past installed programs to compute the factors. Each factor times the future installed program determines the portion of the item's gross recurring requirements attributable to that factor. Gross requirements minus assets equals net requirements. The ES ensures that the usage (**Chapter 1**), applications and programs (**Chapter 3**), and factors (**Chapter 2**) are correct.

2.1.2. SIRS computes failure, replacement, condemnation, and other reliability rates, or factors, on the basis of past usage and past program data accumulated over a set time period referred to as the base period. The base period starts from the oldest PBD on the item's program selection record in D200F (see **paragraph 3.30**) and ends at the asset cutoff date of the SIRS computation. The base period can be a maximum of 12 qtrs. The most recent 8 qtrs are used to compute most RAP. The oldest 4 QTRs of the 12-qtr base period are only used in the computation of the PRELOG and exponential smoothing rates (see **paragraph 2.27**).

2.1.3. SIRS provides the capability for five methods or types of RAP for computing requirements. The methods are the 8-qtr average (24 months), 4-qtr average (12 months), PRELOG (see **Chapter 4**), exponential smoothing, and estimates. The results of these methods can be viewed on the Display RAP Rates And Percents screen. The ES selects which method to use to compute the requirements by file maintaining the FIC). The FIC is a 3-position code, with each position of the code affecting the RAP (see **paragraph 2.26**).

2.1.4. Factors and the FIC are file maintained on the SIRS FM SND FACD screen (see **paragraph 2.24**). Twelve qtrs of usage, past installed programs, and computed factors are displayed on the Factors/Usage Printout (see **paragraph 1.13**). Factors for the current year and 5 forecast years for the SGM are displayed on the first page of the SGM Computation Worksheet (see AFMCMAN 23-101**, Volume 3,** paragraph 1.3.).

2.1.5. Factors are displayed on the online screens, the SGM Computation Worksheet, and on the Factors/Usage Printout with an SRC of "C" for 8 qtrs, "F" for 4 qtrs, "P" for PRELOG, "X" for exponential smoothing, and "E" for estimated. The SRC is determined by the FIC that is input by the ES. Factors are displayed for 11 time periods: last used, 24 months, 12 months, PRELOG, exponential smoothing, current, 1st forecast, 2nd forecast, 3rd forecast, 4th forecast, and 5th forecast.

2.2. Types of Factors.

2.2.1. There are 16 types of factors consisting of three OIM rates, three OIM percentages and ten DLM percentages. Rates specify how many per a given program. A rate is a 5-position field with a decimal between the first and second left most positions (1.2345 or 0.0250). Percents specify how many per 100s. A percent is a 3-position field with a maximum value of 1.00. MTBD is computed by SIRS and is displayed along with the factors (see **paragraph 2.10**).

2.2.2. SIRS computes factors for each SGM stock number. **Exceptions:** Military contingency items (Deferred Disposal Code [DDC] "M"), items with a "no compute" code equal to "N," "P," "B," "R," or "X," obsolete items, and items with no programs. SIRS will not compute OIM factors if the first position of the IPSC is zero. SIRS will not compute DLM factors if the last three positions of the IPSC are zeroes. Past installed programs are used to compute all the factors; **Exceptions:** Base NRTS percent, base processed percent, base condemnation percent, and MISTR condemnation percent. **Note:** SIRS will compute factors for Insurance (INS) and Numeric Stockage Objective (NSO) items and will output a message to the IMS/MM and ES on the Review Lists if the factors indicate the item should be coded active. The factors computed are not used in the INS/NSO items computation (see AFMCMAN 23-101, Volume 3, **Chapter 5**).

2.2.3. File maintained factors are called estimated factors. Estimated factors are used to project requirements that cannot be predicted using past history. Estimated factors will not be input for the purpose of retaining excess on-hand or on-order assets that otherwise would be considered for disposal or termination.

2.2.3.1. Prior to file maintaining any estimated factors, the ES will thoroughly document and retain the methodology used in calculating them and the reasons for using them. The ES must obtain adequate support and documentation from contractors, engineering, program managers, and/or management for estimated factors, rates, and percent being used and ensure they are based on verifiable and current data.

2.2.3.2. At least annually, the ES must review the estimated factors, rates, and percents file maintained to ensure actual usage is indicative of what had been projected. The ES must make necessary adjustment based on this periodic review.

2.2.3.3. For forced attrition or forced generation and replacement of items, the ES and the Program Office must follow procedures in AFI 63-131, *Modification Program Management*, when they would result in a change in the form, fit, function or interface of the item and/or AFMCI 23-121, *AFMC Improved Item Replacement Program (IIRP) and Demand Reduction Initiative (DRI) Guidance and Procedures,* when they would not result in a change in the form, fit, function or interface of the item. The Program Office must provide the IMS/MM and ES with the documentation showing that the modification, IIRP or DRI has been approved; percent of the active fleet that must be involved in the modification, IIRP or DRI program; quantity of items being replaced; and how many spares were approved. The item management team must track: forced attrition/generation and replacement programs and retain documentation showing how many total assets needed replacement; how many assets have been replaced; and how long it will take to complete the replacement process.

2.2.3.4. During initial establishment of an item record, SIRS puts zeroes in all fields of each factor and puts blanks in the corresponding SRCs. The ES/engineer will determine the estimated factors for newly provisioned items and the ES will file maintain them. Estimated factors can be file maintained only if an appropriate FIC code has been input. The ES cannot file maintain OIM depot demand rate, OIM base repair rate, base processed percent, or MTBDs, which are always computed by SIRS.

2.2.3.5. To account for anticipated cost changes between CSAG-M and CSAG-S cost authorities, reference AFMCMAN 23-101, Volume 4, paragraph 8.2.7.1.

2.2.3.6. The ES will maintain supporting documentation of the applicable Configuration Control Board (CCB) when estimates are required for Technical Order (T.O.) changes or Time Compliance Technical Order (TCTO) forecasting. Documentation will outline the approved plan, affected spares and implementation schedule. The ES will update the documentation at least once each year.

2.2.3.7. Events that affect organizational and intermediate requirements must include an SRRB template (reference AFI 23-120, *Air Force Spares Requirements Review Board*). If the applicable NSN does not fall under the criteria of the SRRB process or is provided in Jun, Dec or Sep cycles, the justification for the estimated factors must be supported by a documentation trail that is clearly dated, retained, and referenced in the Notepad. Items that fall under criteria should have a SRRB template created the following Mar SRRB cycle.

2.2.3.8. Estimated factors cannot be implemented to front-load spares ahead of program need dates that would cause inventory levels to exceed two years of operating stocks (excluding war reserves) IAW the bona fide need in Public Law (Title 10 United States Code Sections 2210 and 2213).

2.2.4. The ES ensures that the current and forecast factors are accurate so buy quantities and repair requirements are realistic and the readiness posture may be assessed properly. Forecast rates depend on events that SIRS cannot foresee. Modifications, changes in base/depot repair capability, age of an item, and other events can cause alterations in the type and quantities of base/DLM actions. The ES should forecast using total maintenance knowledge of the item when trends are revealed or events affecting reliability are foreseen. A higher rate in the forecast fields over the current rate indicates a reduced service life and conversely, a lower rate in the forecast fields over the current rate indicates an increased service life. A reduced service life results in more projected base generations and an increased service life results in less projected base generations.

2.2.4.1. For items changing from one ERRC to another, usage is to be left as reported; **Exception:** data corrections. Estimated factors are required to reflect the expected usage after the change occurs. Change in ERRC alone does not fundamentally change the reliability of the item and special care will be taken to ensure only the expected usage change is reflected in the estimates. The forecast is to be reflected in the future forecast when the transition is expected to occur. Due to the complexity of forecasting the change, ESs will use modeling tools to obtain the expected estimates, file maintain the model results into D200A with appropriate Notepad documentation, and retain a hardcopy of the model results in the item file. In the rare instances when modeling tools cannot be used, the ES will provide a clear and concise justification in the Notepad. See D200A Secondary Items Requirements System (SIRS) web site for additional information regarding the modeling tools.

2.3. Factors for Consumable Items.

2.3.1. Projecting generations or requirements that normally result in depot level repair projections is prohibited for consumable items. If a consumable items has projections for OIM reparable generations, NJR reparable generations, or EOH NJR requirements the ES must review the applicable factors and usage for problems.

2.3.2. SIRS can compute legitimate condemnation rates greater than 100% for consumable items. Rates greater than 100% cannot be file maintained. Any condemnation rate greater than 100% should be the "exception rather than the rule." The ES will research and try to determine why a rate greater than 100% is being calculated. The ES will document the research accomplished and its results.

2.4. Shifting of Factors and Resetting to Computing. Once a year, during the September initial cycle, forecast factors are shifted to agree with the intended FY for which the factors were established. (SIRS shifts the programs during the March cycle.) The OIM depot demand rates, OIM base repair rates, and base processed percents are not shifted but are computed after the other factors are shifted. The 1st forecast factors are shifted to the current factors, the 2nd forecast factors are shifted to the 1st forecast factors, the 3rd forecast factors are shifted to the 2nd forecast factors, the 4th forecast factors are shifted to the 3rd forecast factors, and the 5th forecast factors are shifted to the 4th forecast factors and also remain as the 5th forecast factors. After the shifting of factors, the current factors are set to "computing," unless the FIC is "M," in which the 1st through 5th forecast factors are not changed.

2.5. Factor Interpolation. SIRS will interpolate (or pro-rate) the factors when there are different values from the current to the 1st forecast, or from one forecast year to another forecast year. Interpolated results for all values are carried out to six decimal places. The interpolation can be turned off by file maintaining the interpolation factor on the SND FACD screen (see **paragraph 2.24**)

2.5.1. The forecast date (YYYYMM) is assigned by SIRS as the 4-position year and the last month of the qtr (03, 06, 09, or 12) when the ES manually inputs an estimated factor. The forecast date is also assigned as YYYY09 when the 1st forecast is shifted into the current during the 30 September shifting process. The forecast date is displayed on the FRAP screen (see **paragraph 2.21**) and on the Factors/Usage Printout (see **paragraph 1.13.2.7**). SIRS uses the forecast date to determine how many qtrs to use in the interpolation between the current and 1st forecast. If there is no forecast date, the qtr of the computational cycle is used instead. The number of qtrs used to interpolate between the current and 1st is 2 qtrs for 31 March, 1 qtr for 30 June, 4 qtrs for 30 September, and 3 qtrs for 31 December.

2.5.2. Four qtrs are always used in the interpolation between the 1st to 2nd years, 2nd to 3rd years, 3rd to 4th years and 4th to 5th years.

2.5.3. The interpolation indicator, either "Y" or "N," instructs the system to perform linear interpolation when developing the quarterly values used in between the annual forecasted RAP. The interpolation indicator can be file maintained, by the ES, on the SIRS FM SND FACD screen. An interpolation indicator of "Y," which is the system default, will instruct the system to interpolate the RAP as described above. An interpolation indicator of "N," will instruct the system not to interpolate within the FY, and will cause each FY forecast to be used in every qtr throughout the FY.

2.6. Base NRTS Percent. The base NRTS percent is the ratio of reparables returned to the depot (organic or contractor) in relation to the total base reparable generations. The percent is computed as the base period base NRTS divided by the base reparable generations (which are equal to the base period base RTS plus base NRTS plus base condemnations). Base NRTS percents can be file maintained by the ES (SRC = "E"). A base NRTS percent of zero percent indicates that the item is 100 percent base processed at the OIM level. A base NRTS percent of

100 indicates that the item is 100 percent depot processed. This factor only applies to items with an OIM program. The base NRTS percent is used to compute the base processed percent and the OIM depot demand rate. When the base NRTS percent is 100 percent, SIRS automatically internally assigns the default days in the base processing days, and automatically internally puts zeroes in the base repair cycle days as long as the fields have not been file maintained. When the base RTS exclusion indicator is turned on (or has a value of "X"), the system will compute a base NRTS percent of 100.

2.7. Base Condemnation Percent. The base condemnation percent is used to compute the portion of repairs at base level (or the base processed quantity) that will be condemned, or the base condemnation quantity. It is equal to the base period reported base condemnations divided by the sum of the base condemnations plus base RTS. This factor applies only to items with an OIM program. Items that only have DLM programs, have zero base condemnation percents. Air Force Secondary Inventory Control Activity (SICA) Nonconsumable Item Materiel Support Code (NIMSC) 5 items have zero base condemnation percents. Base condemnation percents can be file maintained by the ES (SRC = "E") if an appropriate code allowing the file maintenance is input to the 1st position of the FIC. The base condemnation percent is used to compute projected base condemnations and to compute the OIM depot demand rate. When the base RTS exclusion indicator is turned on (or has a value of "X") SIRS will compute a base condemnation percent of zero.

2.8. MISTR Condemnation Percent. The MISTR condemnation percent is the ratio of reparables condemned in relation to the total attempted repairs during depot level (organic and contractor) repair of the item. (It does not include condemnations of the item during the repair of the engine or aircraft). SIRS computes the current MISTR condemnation percent from the base period MISTR condemnations divided by the sum of the base period MISTR condemnations plus the MISTR repairs. MISTR condemnation percents can be file maintained by the ES (SRC = "E") if an appropriate code allowing the file maintenance is input to the 2nd position of the FIC.

2.9. Total OIM Demand Rate. The TOIMDR is the rate at which OIM activities place a recurring demand to an LRS for like serviceable items as replacements for removed unserviceable items in relation to an OIM program. This factor indicates the rate of total OIM demands that are expected to occur during operational use of the aircraft or system. It also provides the number of base RTS, plus base NRTS, plus base condemnations (or the base rep gens), that have occurred or are projected to occur. TOIMDR can only be computed for items with an OIM program (first position of the IPSC = 1, 3, 5, 7 or 8). The SRC is determined by the FIC that is input by the ES. The following SRCs apply; "C" for 8-qtr factor, "F" for 4-qtr factor, "P" for PRELOG factor, "X" for exponential smoothing factor, and "E" for estimated factor. SIRS computes the 8-qtr and 4-qtr factors by dividing the base reparable generations (from 12 to 24 months) by the item's past installed OIM program for the base period. The current and five forecast TOIMDRs are applied to the item's OIM future program to compute the future OIM operating requirements. The TOIMDR is used to compute the OIM depot demand rate and the OIM base repair rate.

2.10. Mean Time Between Demands. The MTBD is the ratio of the total operating time to the number of demands upon the supply system for the item. MTBD is computed by dividing the item's past installed OIM program by the base reparable generations. Then, MTBD is expressed as hours, months, events or ammunition expenditures, depending on the first position of the item's program select code. If the item's OIM program is flying hours (type 1), then a MTBD of

300 means that a demand is placed upon supply for every 300 hours of that item's installed operation. It does not mean that the item has a service life of 300 hours. The MTBD can be computed using the TOIMDR. If the first position of the item's program select code = 1, then the MTBD in hours equals 100 divided by the TOIMDR. If the first position of the item's program select code = 3, then the MTBD in months equals 1 divided by the TOIMDR. If the first position of the item's program select code = 5 or 7, then the MTBD in events equals 1 divided by the TOIMDR. If the first position of the item's program select code = 8, then the MTBD in ammunition expenditures equals 1000 divided by the TOIMDR.

2.11. OIM Depot Demand Rate. The OIM depot demand rate equals [(base processed percent times base condemnation percent) plus the base NRTS percent] times TOIMDR. It is the rate per OIM program at which an LRS places demands upon the depot to replace base NRTS and base condemnations. It is always computed by SIRS and cannot be file maintained. No SRC for this rate is displayed on products. This rate is used to compute the OIM Base Order and Shipping Time (O&ST) requirement (part of the OIM base stock level) and the fixed OIM depot stock level.

2.12. OIM Base Repair Rate. The TOIMDR minus the OIM depot demand rate equals the OIM base repair rate. It is the rate per OIM program at which base level repair is done to replace base RTS. It is always computed by SIRS and cannot be file maintained. No SRC for this rate is displayed on products. This rate is used to compute the OIM base repair cycle requirements (part of the OIM base stock level).

2.13. Base Processed Percent. The base processed percent equals 100 percent minus the base NRTS percent. It is the ratio of reparables that were repaired and/or condemned (base processed quantity) in relation to the total base rep gens. Base processed percent is always computed by SIRS and cannot be file maintained. No SRC for this data is displayed on products. After the base processed quantity is computed, the difference between the OIM operating requirement and the base processed quantity becomes the OIM reparable generations (NRTS) or generations into the depot segment of the requirements computation. The base processed percent is also used to calculate the OIM depot demand rate. If the base NRTS percent is 100, or if the base RTS exclusion indicator reflects an "X," the base processed percent will be zero.

2.14. Depot Level Maintenance Factors. SIRS computes DLM factors (NJR program percents, JR condemnation percents and NJR replacement percents) and uses them to compute item requirements to support depot repair programs. These programs are PDM, EOH, and NHA MISTR. If there is an appropriate code allowing file maintenance input to the 3rd position of the FIC, the ES can file maintain any of these DLM factors. Job routing and non job routing refer to the repair concept specified by the ES in the work specification or in the overhaul T.O.). Job Routed (JR) repair means that if a recoverable component is found to be unserviceable during the overhaul of the major end item (aircraft, engine or NHA), then remove the unserviceable item, repair and reinstall the item on the same end item. The repairs are charged to the total cost to the major end item job. Maintenance requisitions from supply only those items that could not be repaired (that were condemned). Non job routing means that an unserviceable item will not be repaired at the same time the major end item is repaired, but will be removed and replaced with a serviceable item from supply.

2.15. Non Job Routed Program Percents. The PDM, EOH, and NHA MISTR NJR program percents are the percentages to be used in dividing the overhaul programs of PDM, engine overhaul, and NHA MISTR into a JR program and NJR program. These factors reflect the repair guidance (JR and NJR) rather than a rate of demand. SIRS divides the applicable DLM (PDM, EOH, or NHA MISTR) past NJR item program by the applicable total DLM past item installed program to get the applicable NJR program percent. Then, SIRS multiplies that NJR program percent times the applicable DLM (PDM, EOH, or NHA MISTR) future installed program to compute the future NJR DLM program. The future NJR DLM program is subtracted from the total future DLM program to get the future JR DLM program. When an item has more than one application program, each with a different factor, a future weighted factor should be computed by the ES.

2.16. Non Job Routed Replacement Percents. The PDM, EOH, and NHA MISTR NJR replacement percents are the past NJR replacements divided by the past NJR item installed DLM program. SIRS computes NJR replacements by subtracting JR condemnations from depot reparable generations. Depot reparable generations are the total unserviceable assets generating at a depot level maintenance repair facility and consist of JR condemnations and NJR replacements. Depot reparable generations are reported through D035A and displayed on the Factors Printout. When more than one DLM type applies (PDM, EOH, NHA MISTR), the computed factor is an average; that is, the same factor will apply to NJR replacement percents for the DLM types indicated by the IPSC. NJR replacement percents are multiplied times the future NJR DLM programs to compute the future NJR requirements. When an item has more than one application program, each with a different factor, a future weighted factor must be computed by the ES. Compute the correct NJR replacement percent for each application. Then multiply the future NJR item program for that application times that correct NJR replacement percent for that application to equal the future NJR requirement. Do this for each application. Then add together all the future NJR requirements and divide by the total item programs (for all applications) to get the weighted average to file maintain as the NJR replacement percent.

2.17. Job Routed Condemnation Percents. The PDM, EOH, and NHA MISTR JR condemnations percents are used to compute the quantity of condemnations that should occur for a lower assembly component during the performance of the JR DLM overhaul program of an aircraft, engine, or NHA. The JR condemnation percent is computed by dividing the past JR condemnations by the past JR item installed program. JR condemnations are computed as the depot condemnations total minus the MISTR condemnations. The JR condemnation percents are multiplied times the future JR DLM program to compute the future JR requirements. When an item has more than one application program, each with a different factor, a future weighted factor must be computed by the ES.

2.18. Display Factors/Usage Menu. The FUD screen shows the many screens which display usage, MISTR repair, and factor data. There are seven screens that display the data on the Factors/Usage Printout. These seven screens are linked and can be accessed from any of the seven screens by pointing and clicking the page number at the bottom of each screen. The seven screens and their applicable page numbers are: FBD (1), RAP (2), FRAP (3), UH (4), TSUH (5), PF (6), and FAD (7). The Usage History (UH) and Total SGM Usage History (TSUH) screens are described in **paragraph 1.3**. The other 5 screens are described below.

2.19. Display Factors Basic Data Screen (Table 2 1). The FBD screen shows basic management data for the SGM. Enter either the SGM or the part number and CAGE Code. If a CSN is entered, SIRS will display the corresponding SGM. After the data has been displayed, click on Notepad. The general Notepad will display first, if it exists. The element Notepad text is displayed in the order in which the elements appear on the screen. The FBD is the first of seven screens that display the data on the Factors/Usage Printout. Transfer to the other screens by using the page buttons.

Table 2.1. Data Elements of the Display FBD Factor Basic Data Screen.

	Screen Data Element	Data Element Explanation
1	AS OF	In the format DD MMM YY, this is the day, month and year of the asset cutoff date of the computation that the product was produced from. Enter a valid AS OF date to display data for a previous cycle or click the AS OF button and select the appropriate cutoff date from the dropdown list; else SIRS will display data for the current cycle. A 2-position cycle indicator is displayed to the right of the AS OF field. The first position identifies the computation cycle ("I" for Initial, "F" for Final, and "S" for Summary). The second position represents the number of times that item was recomputed during that computation cycle. A zero means the item was not recomputed.
2	PRGM BEG	The oldest PBD of any application for the item.
3	SGM	The 15-position I&S SGM or bachelor stock number.
4	PART NUMBER and CAGE	Part number and CAGE code for this item.
5	ALC (site)	The 2-position code representing a specific location.
6	ES	The 3-position ES code. The left-most position is the division designator code.
7	IMS	The 3-position IMS code. The left-most position is the division designator code.
8	PMS	The 3-position PMS code for this item.
9	ITEM NAME	The nomenclature assigned to the SGM (see AFMCMAN 23-101, Volume 4, paragraph 1.7.).
10	ACT CD	The 1-position Item Activity Code that tells which cycles to review the item (see AFMCMAN 23-101, Volume 4, paragraph 1.5.).
11	ERRC	The 1-position code, "T," "N," or "P" applicable to the I&S SGM/bachelor stock number (see AFMCMAN 23-101, Volume 4, paragraph 1.14.5.).
12	PMIC	The precious metal indicator code (see AFMCMAN 23-101, Volume 3, paragraph 1.3.25.).
13	NEW	A 1-position New Item Code ("N" = new and blank = not new)

		(see AFMCMAN 23-101, Volume 4, paragraph 1.14.9.).
14	CAT	The 1-position Item Category Code (see AFMCMAN 23-101, Volume 4, paragraph 1.6.).
15	BRC	The 2-position base repair cycle days followed by the 1-position SRC (see AFMCMAN 23-101, Volume 4, paragraph 3.7.).
16	DRC	The 3-position depot repair cycle days (see AFMCMAN 23-101, Volume 4, paragraph 3.8.).
17	PRGM SEL	The 4-position IPSC (see **paragraph 3.3.9.** and AFMCMAN 23-101, Volume 3, paragraph 1.3.2.).
18	MIEC	The 3-position Mission Item Essentiality Code (see **paragraph 3.27.**).
19	ICS/RIW	The code that identifies items that are being managed under ICS with a value of "C," or the RIW program with a value of "W" (see AFMCMAN 23-101, Volume 4, paragraph 1.4.1.).
20	EXPIR DATE	The expiration date, in the format YYMM, for the ICS/RIW code (see AFMCMAN 23-101, Volume 4, paragraph 1.4.2.).
21	BASE RTS EXCL	The base RTS exclusion indicator file maintained by the ES. When the base RTS exclusion indicator reflects an "X," SIRS will ignore any base RTS and base condemnations in the computation of OIM RAP (see **paragraph 2.25.**).
22	FEEMS IND	The 1-position code where "X" = an item managed under the Field Engine Exchangeable Management System (see AFMCMAN 23-101, Volume 2, paragraph 1.10.1.).
23	SFTY LVL EXCL	The safety level exclusion code file maintained by the IMS/MM. If equal to "X," SIRS will not do a safety level computation for the item (see AFMCMAN 23-101, Volume 4, paragraph 1.10.).
24	FACTOR IND	The 3-position FIC that allows the ES to select the type of method used to compute the rate and/or percent to be used in the SIRS computation (see **paragraph 2.26.**).
25	SOR	SOR is a 2-position code identifying the Source Of Repair (SOR). Below the SOR is displayed the related % of repair performed by that SOR (see AFMCMAN 23-101, Volume 4, Table 8.1., item 11). There can be seven different SORs: CT (contract repaired), OC (OC-ALC repaired), OO (OO-ALC repaired), SA (SA-ALC repaired), WR (WR-ALC repaired), DM (DMISA repaired), and OT (Other - used for AFMC Form 206, *Temporary Work Request,* repaired, ICS repaired, RIW repaired.).
26	UNIT PRICE FCST	The Forecasted Unit Price (FUP) (see AFMCMAN 23-101, Volume 4, paragraph 1.11.2.).
27	UNIT REPAIR COST	This is the unit repair cost and the 1-position SRC (see AFMCMAN 23-101, Volume 4, Table 8.1., Item 10).
28	UNIT REPAIR MANHOURS	Indicates the approximate time it takes to repair the item at the depot facility and is passed from Q302 (see AFMCMAN 23-

		101, Volume 2, paragraph 1.11.).
29	CONDITION X ASSETS	If the item has any SCC X assets, the numbers are displayed on this line (see AFMCMAN 23-101, Volume 4, paragraph 6.5.14.).

2.20. Display RAP Screen. The RAP screen shows the 16 rates and percents used in the SIRS computation, plus the MTBD. The last used, 24-month, 12-month, PRELOG, and exponential smoothing computed values for each of the 17 data elements are displayed. Enter a valid AS OF date or click the AS OF button and select the appropriate cutoff date from the dropdown list to display data for a previous cycle; else SIRS will display data for the current cycle. A 2-position cycle indicator is displayed to the right of the AS OF field. The first position identifies the computation cycle ("I" for Initial, "F" for Final, and "S" for Summary). The second position represents the number of times that item was recomputed during that computation cycle. A zero means the item was not recomputed. Enter the SGM and press Enter. If a CSN is entered, SIRS will display the corresponding SGM. The RAP is the second of seven screens that display the data on the Factors/Usage Printout. Transfer to the other screens by using the page buttons.

2.21. Display Forecast RAP Screen. The FRAP screen shows the current, 1st, 2nd, 3rd, 4th, and 5th forecasted values for the 16 rates/percents and MTBD used in the SIRS computation, along with the FCST DT (forecast date). Enter a valid AS OF date or click the AS OF button and select the appropriate cutoff date from the dropdown list to display data for a previous cycle; else SIRS will display data for the current cycle. A 2-position cycle indicator is displayed to the right of the AS OF field. The first position identifies the computation cycle ("I" for Initial, "F" for Final, and "S" for Summary). The second position represents the number of times that item was recomputed during that computation cycle. A zero means the item was not recomputed. Enter the SGM and press Enter. If a CSN is entered, SIRS will display the corresponding SGM. After the data has been displayed, click on the Notepad. The element Notepad text is displayed in the order in which the elements appear on the screen. The FRAP is the third of seven screens that display the data on the Factors/Usage Printout. Transfer to the other screens by using the page buttons.

2.22. Display Past Factors Screens. The PF screens display the factors that were computed for the past 2 years (8 quarterly cycles as of the Summary computation).

2.22.1. Both the MAH and the individual qtr values are displayed on two vertical pages (Top and Bottom). Enter a valid AS OF date or click the AS OF button and select the appropriate cutoff date from the dropdown list on page 1 to display data for a previous cycle, else SIRS will display data for the current cycle. A 2-position cycle indicator is displayed to the right of the AS OF field. The first position identifies the computation cycle ("I" for Initial, "F" for Final, and "S" for Summary). The second position represents the number of times that item was recomputed during that computation cycle. A zero means the item was not recomputed.

2.22.2. Enter the SGM and press Enter. If a CSN is entered, SIRS will display the corresponding SGM. Use the buttons (Top, Bottom, Back, and Forward) to view additional data. The first page of the two PF screens is the sixth of seven screens that display the data on the Factors/Usage Printout. Transfer to the other screens by using the page buttons.

2.23. Display Factors Application Data Screen. The FAD screen shows the data that was input to the API system by the ES. The application data reflected is the application designator, program select code (PRGM SEL), mission item essentiality code (APPL MIEC), development code (DEV CD), program begin date (PRGM BEGIN DATE), Quantity Per Application (QPA), and the application percent (APPL %). Enter a valid AS OF date or click the AS OF button and select the appropriate cutoff date from the dropdown list to display data for a previous cycle, else SIRS will display data for the current cycle. A 2-position cycle indicator is displayed to the right of the AS OF field. The first position identifies the computation cycle ("I" for Initial, "F" for Final, and "S" for Summary). The second position represents the number of times that item was recomputed during that computation cycle. A zero means the item was not recomputed. Enter the SGM and press Enter. If a CSN is entered, SIRS will display the corresponding SGM. The FAD screen is the seventh of seven screens that display the data on the Factors/Usage Printout. Transfer to the other screens by using the page buttons.

2.24. File Maintenance of Factor Data. Use the SIRS FM SND FACD screen to change the FIC, estimated or forecast RAP, and initiate or delete the base RTS indicator code for the current cycle. Enter the SGM and press Enter. If a CSN is entered, SIRS will display the corresponding SGM.

2.24.1. The RAP may be estimated or forecasted for the current and five forecasts, only if the FIC allows file maintenance for the applicable rate or percent. Then, all six fields of the desired data element (current and the five forecast fields) must be entered, as entered data does not straight-line into the following field. After the FIC has been file maintained enter the estimated or forecasted rate to be file maintained, press Enter, and the generic factors documentation Notepad will appear. Type documentation or press Enter and the data element specific Notepad for the rate or percent will appear. After entering the reason for changing the rate or percent on the data element specific Notepad, press Enter and the message "Update Successful" will appear indicating that the desired rate or percent has been changed on the SIRS data base. If already existing documentation on either the generic or data element specific data element Notepads is considered adequate, press Enter and no further Notepad entries are required. When entries are made to the TOIMDR, ensure that the entire field is filled, including the decimal point. Enter "Y" in any current through fifth forecast factor to revert that field to the value indicated by the corresponding FIC. The user can transfer to the Notepad by clicking on the Notepad button.

2.24.2. The screens displaying the RAP and the factor data SIRS FM SND FACD will not be updated to display the recomputed RAP that result from the file maintenance of usage data until either a "For Real" (FRIR screen) item recomputation is initiated, or the Final computation or Summary computation is run. Also, when the FIC is changed, the previously used rate and percent values remain on the FACD screen until either a "For Real" item recomputation is done, or the Final computation or Summary computation is run. However, the SRCs will change immediately for each of the RAP when the FIC is changed.

2.24.3. In the mainframe screen, entering "Ys" in the FIC or the RTS exclusion indicator will cause SIRS to revert back to the default values and eliminate the accompanying Notepad records in the current cycle.

2.25. Base RTS Exclusion Indicator. The ES may not input a RTS exclusion indicator due to the negative impact it has on Readiness Based Leveling (RBL). The ES must contact the base to get the incorrect reporting stopped, particularly if this item is not supposed to be repaired or condemned at base level. When there is an "X" for this code, SIRS ignores all RTS and base condemnations that are reported or file maintained in the usage history base period. Also, SIRS will set the base NRTS percent to 100 and the base condemnation percent to zero. SIRS will display an error message if the user attempts to file maintain the base RTS and/or base condemnation percent. Use of this indicator could also reduce the TOIMDR as the base RTS and base condemnations will not be used as a part of the base reparable generations in the computation of the TOIMDR. When the RTS exclusion indicator is turned "off" by entering a blank (or removing the "X"), SIRS computes values for all forecast years.

2.26. Factor Indicator Code. The three positions of the FIC are file maintained using the FACTOR IND button in the upper middle of the screen. To change the FIC using GUI, click on the FACTOR IND button and a new menu bar will appear with OIM Factors, MISTR CNDMN, DLM Factors, and a Revert to Original button. Click on the down arrow on the right side of any of the three positions of the FIC, and a menu will appear with a short definition of each code. Point and click to the desired code and the code will immediately appear in the FIC. Clicking the Revert to Original button will cause SIRS to revert back to the default values.

2.26.1. The FIC allows the ES to determine the method (past 8-qtr average, past 4-qtr average, PRELOG, exponential smoothing, or estimated) of factor computation to use in the requirements computation.

2.26.2. The FIC is a 3-digit alpha code to handle all possible combinations for the following three distinct areas of factors. The first digit is the OIM factor code. It corresponds to the OIM RAP (the TOIMDR, OIM base repair rate, OIM depot demand rate, base NRTS percent, base processed percent, and base condemnation percent). The second digit is the MISTR condemnation percent. The third digit is for the DLM RAP.

2.26.3. FIC Characteristics. The PRELOG method capability is available for the TOIMDR only. Therefore, the codes "E," "F," "G," "H," "I," and "J" can be used in only the first position of the FIC, and are not applicable for the second and third positions. An appropriate code in the applicable FIC must be present before an estimated or forecasted rate or percent can be input.

2.26.4. If an element in any year is file maintained, the field is updated and the SRCs of all following element/forecast year combinations are updated to "E." If a FIC is file maintained to override estimates, the corresponding fields (all forecast years) on the screen are changed IAW the FIC. If the FIC is file maintained at the same time as the corresponding element and the selected FIC does not allow for estimated values, an error message is displayed. When the computer assigns an FIC of "P," and the corresponding element file maintained does not exceed the 8 qtr MAH value, SIRS defaults to the 8 qtr MAH value.

2.26.5. The SIRS assigns FICs when a FIC is required for new items. The SIRS defaults for the FICs are:

2.26.5.1. MMM: One to three qtrs of usage history.

2.26.5.2. AAA: Four or more qtrs of usage history and INS or NSO items.

2.26.6. A FIC of "Q" may be selected when a "Best Fit Forecast" is desired. The use of "Q" will cause the system to select the best fit from the 8-qtr average, 4-qtr average, or exponential smoothing that have been computed by the system, and are displayed on the RAP screen. The PRELOG values will not be considered in determining the Best Fit Forecast. If the Best Fit Forecast is desired for all data elements, then file maintain an FIC of "QQQ."

2.27. Exponential Smoothing. This is a mathematical technique for forecasting RAP that uses five different weighted formulas, and then chooses the most accurate exponential smoothing factor to be displayed for the ES, using the Mean Absolute Deviation (MAD). It weights recent history more heavily in the calculation of forecast factors. To use exponential smoothing RAP, either an "I," "J," "K," or "L" must be file maintained as the first position of the FIC. Factors affected by the exponential smoothing forecast method are TOIMDR, base NRTS percent, base condemnation percent, NJR program percent, NJR replacement percent, JR condemnation percent, and MISTR condemnation percent.

2.27.1. The exponential smoothing equation is as follows:

2.27.1.1. $F_n = a \cdot X + b \cdot F_o$ where:

2.27.1.2. F_n = Current qtr's forecast (F=forecast, n=new). "F" and "$_n$" do not have separate values. Together as F_n they are a term for the forecast value for this qtr, the new forecast.

2.27.1.3. F_o = Last qtr's forecast (F=forecast, o=old). Like F_n, F_o is a term for the old forecast value. F_o is last qtr's F_n.

2.27.1.4. X = Most recent qtr's value being forecasted.

2.27.1.5. A = Smoothing coefficient for the current qtr where 0.0 a 1.0. It is the weight we want to put on the current qtr's data value in computing the forecast value for this qtr.

2.27.1.6. B = Smoothing coefficient for the past qtr's forecast, where b = 1.0 – a. It is the weight we want to put on last qtr's forecast, F_o.

2.27.1.7. For exponential smoothing forecasting, normally only the current F_n value would be retained for the next qtr's computation cycle. (This qtr's F_n becomes next qtr's F_o.) The technique would only use the X value for this qtr. However, SIRS creates a problem for the exponential smoothing forecasting technique in that the historical data can be file maintained. That means the user can file maintain the older "X" values. SIRS develops exponential forecasts from all the available history data.

2.27.2. For the following scenario, assume the following historical data would need to be forecasted in the Mar 09 cycle.

2.27.3. Then, assume last qtr's F_n value was 1.8101. The 1.8101 will become the F_o value for Mar 09. The new forecast for Mar 09 would be:

2.27.3.1. $F_n = a \cdot X + b \cdot F_o$ where:

2.27.3.2. $F_n = 0.4 \cdot 1.6000 + 0.6 \cdot 1.8101 = 1.7261$

2.27.3.3. We would then use 1.7261 in the computation. However, let's say during the file maintenance window, the ES finds the 1.8000 value for Dec 08 should have been

2.1000. That means the F_o value is wrong. If SIRS only used the F_o (last qtr's F_n) and the current qtr's Quarterly Data (X) value, it would compute the wrong answer. Therefore, in SIRS, the exponential smoothing technique uses all the historical data that is available to compute its forecasted value (up to 12 qtrs). In this way, it picks up all corrected historical data values.

2.27.4. In SIRS, exponential smoothing starts off with the oldest 8-qtr moving average value available. If the 8-qtr moving average is not available, then F_{n-8} is set equal to the oldest 4 qtr MAH value.

2.27.4.1. F_{n-8} then becomes the F_o for the next forecast, F_{n-7}. For computing F_{n-7}, SIRS starts with the oldest quarterly data available and uses the exponential smoothing technique to compute its forecast value of 1.1950. F_{n-7} then becomes the F_o for the F_{n-6} forecast value. This continues in this manner up to the current forecast value of F_n.

2.27.5. SIRS uses up to 12 qtrs of historical data to compute the exponential smoothing forecast. Also, there must be at least 4 qtrs of data available. If fewer than 4 qtrs are available, the forecast value is not computed. The exponential smoothing forecast is developed for five different sets of smoothing coefficients. The five coefficients for "A" are file maintainable on the Standard Data Table by the AFMC OPR. Once the five F_n values are developed, the best F_n value will be selected using the MAD which is calculated for each of the five smoothing coefficient forecasts. The F_n value with the lowest MAD value is the best forecast to use.

2.27.5.1. Abs Error (Absolute Error) = the absolute value of (Quarterly Data – Exp Smth).

2.27.5.2. MAD = (Absolute Error)/(Base Period) MAD = (2.3427/8) = 0.2928

2.27.5.3. A MAD is calculated for each of the five smoothing forecasts. The F_n value with the lowest MAD is chosen for this qtr's forecast. It is then straight-lined into the current and five forecast factors.

Table 2.2. Factor Indicator Code Explanations.

CODE	POS	EXPLANATION
A	1	Uses an 8-qtr average for the OIM RAP and overrides any estimated values.
B	1	Uses estimated values, if present. If estimated values not present, uses the 8-qtr average for OIM RAP.
C	1	Uses 4-qtr average for the OIM RAP and overrides any estimated values.
D	1	Uses estimated values, if present. If estimated values not present, uses the 4-qtr average for OIM RAP.
E	1	Uses PRELOG (or 8-qtr average if no PRELOG results available) for the TOIMDR only. Uses an 8-qtr average for all of the remaining OIM RAP.
F	1	Uses estimates, if present, or PRELOG for the TOIMDR only. Uses estimated values for all of the remaining OIM RAP, if present. If estimated values not present, uses an 8-qtr average for all of the remaining OIM RAP.
G	1	Uses PRELOG (or 4-qtr average if no PRELOG results available) for the TOIMDR only. Uses a 4-qtr average for all of the remaining OIM RAP.
H	1	Uses estimates, if present or PRELOG for the TOIMDR only. Uses estimated values for all of the remaining OIM RAP, if present. If estimated values not present, uses a 4-qtr average for all of the remaining OIM RAP.
I	1	Uses PRELOG (or exponential smoothing if no PRELOG results available) for the TOIMDR only. Uses an exponential smoothing for all of the remaining OIM RAP.
J	1	Uses estimates, if present, or PRELOG for the TOIMDR only. Uses estimated values for all of the remaining OIM RAP, if present. If estimated values not present, uses an exponential smoothing for all of the remaining OIM RAP.
K	1	Uses exponential smoothing for the OIM RAP and overrides any estimated values.
L	1	Uses estimated RAP, if present. If estimated RAP are not present, the exponential smoothing RAP are used for the OIM RAP.
A	2	Uses an 8-qtr average for the MISTR condemnation % and overrides any estimated values.
B	2	Uses estimated values, if present. If estimated values not present, uses the 8-qtr average for the MISTR condemnation %.
C	2	Uses 4-qtr average for the MISTR condemnation % and overrides any estimated values.
D	2	Uses estimated values, if present. If estimated values not present, uses the 4-qtr average for MISTR condemnation %.
K	2	Uses exponential smoothing for the MISTR condemnation % and

		overrides any estimated values.
L	2	Uses estimated rates, if present. If estimated rates not present, uses exponential smoothing for MISTR condemnation %.
A	3	Uses an 8-qtr average for the DLM and overrides any estimated values.
B	3	Uses estimated values, if present. If estimated values not present, uses the 8-qtr average for the DLM RAP.
C	3	Uses 4-qtr average for the DLM RAP and overrides any estimated values.
D	3	Uses estimated values, if present. If estimated values not present, uses the 4-qtr average for the DLM RAP.
K	3	Uses exponential smoothing for the DLM RAP and overrides any estimated values.
L	3	Uses estimated rates, if present. If estimated rates not present, uses exponential smoothing for DLM RAP.
M	1, 2, 3	Uses estimated rates only.
P	1, 2, 3	Computer assigned. Uses estimates only when the 8-qtr average is less than the estimate. Cannot be input by the ES, but can be changed.
Q	1, 2, 3	"Best Fit." When the ES inputs this to FIC, then the computer selects the best fit factors from the computed 24-month, 12-month, and exponential smoothing.

Chapter 3

PROGRAMS AND APPLICATION DATA

3.1. Introduction. This chapter explains the procedures for developing programs for SIRS items, along with the associated application data. The commanders of the 638 Supply Chain Management Group (SCMG), 748 SCMG, 848 SCMG, and 948 SCMG will appoint by an official letter those individuals having responsibility for input of programs into API D200F for the MDS, Type Model Series (TMS), and application Program Element Codes (PECs) managed by their organizations. The appointed individuals will ensure the API programs are checked and corrected if necessary and retain a folder with documentation supporting the programs for audit purposes. These procedures are primarily used by ESs and the AFMC SIRS and API OPR (AFSC/LGPS). These procedures may be used by the SIRS IMS/MMs, equipment item managers, SIRS and API OPRs at Hill AFB, Tinker AFB, and Robins AFB, Program Office, engine managers and managers of weapon system modification (MOD) programs.

3.2. Basic Process. SIRS computes future requirements by multiplying the item's installed future projected program times a factor. The factor is computed by taking the past actual usage of the item divided by the item's installed past actual program. The item's installed programs can be viewed in SIRS on the Output Products IPD Item Program Product Selection screens. Item application data can be viewed in SIRS on the Display SMCW SGM Comp Worksheet Rqmts screen (page 13) (AFMCMAN 23-101, Volume 3) and on the Display FAD Factors Application Data screen. Item application data is also displayed on the last page of the Factors/Usage Printout and on page 10 of the Display SMCW SGM Comp Worksheet Rqmts Printout (see AFMCMAN 23-101, Volume 3). This data cannot be file maintained in SIRS. The item application data and the application programs are file maintained in the API system. API, like SIRS, runs at Hill AFB. API builds the item installed programs and application data for SIRS during the "API snapshot" process which is done just before each SIRS computation. File maintenance procedures for item application data and application programs are described in **paragraph 3.18.** through **3.30**. For more details, see AFMCI 23-109, *Applications, Programs and Indenture*. SIRS computes the item installed NHA MISTR programs using the application data from API (see **paragraph 3.13**). SIRS does not receive the API indentures data. SIRS uses the API application data to build its own indenture data within SIRS, because SIRS does not need all of the indenture data in API, just the data for items for which SIRS does computations. API products that are useful for checking data needed by SIRS are described in **paragraph 3.33**. The trend analysis screens for program data are described in AFMCMAN 23-101, Volume 2, paragraph 6.2.

3.3. Definitions.

3.3.1. Recoverable Item. This is an entity of hardware that is installed in another piece of equipment and can be removed or replaced for repair or servicing. Once installed, the item loses its individual identity and is a "component" of the major end item. The term recoverable applies to items that are economically feasible to repair. Also called a recoverable "consumption" item, meaning that requirements are computed based upon consumption history (the amount consumed) of the item. These items are assigned an ERRC code of XD2 or "T."

3.3.2. Consumable Item. These items are also called expense items because they are either uneconomical to repair or are consumed in use. Once installed, the item loses its individual identity and is a "component" of the major end item. These items are assigned ERRC codes XB3 or "N" when condemned at base level, or XF3 or "P" when condemned at the field level.

3.3.3. SIRS Items. Consumable and recoverable items (as defined above) that are stock numbered and are managed by the Air Force as Primary Inventory Control Activity (PICA) or SICA are referred to as SIRS items in this chapter. SIRS computes their requirements.

3.3.4. Equipment Item. Equipment items are "replacement" items that are neither consumed in use nor do they lose their individual identity while in use. Equipment items are assigned an ERRC code of ND2 or "S" (depot recoverable equipment), or NF2 or "U" (field recoverable equipment). Requirements for equipment items are computed in the D200C system and passed to API (see **paragraph 3.12**).

3.3.4.1. End Item. An entity of hardware that is usually not installed in another piece of equipment, and if it is installed it does not lose its individual identity.

3.3.5. NHA. This is a piece of hardware that is usually installed in another piece of equipment. Repairing this item tends to create a repair program for the items installed in this NHA.

3.3.6. Programs. These are operations and maintenance activities that create the need for repair parts. Programs are inventory positions or levels of activities expressed in terms of hours, months, units, overhauls or recoveries as appropriate for the operation involved, at particular points in time. Past programs are statements of actual inventory or accomplishments during a specific past period. Projected programs are estimates of planned inventory or accomplishments during a future period.

3.3.7. Item Installed Program. The program performed or to be performed by the item while installed in an application (major end item or NHA). The item installed program is a measurement of an item's exposure to wear and tear.

3.3.8. Item Program Selection. This documents when the item first began use and how the use has changed. The ES file maintains each item's application records on the Program Selection (PS) screen in API with the Application Program Select Code (APSC) and at least one PBD along with a QPA and application percent.

3.3.9. Item Program Select Code. SIRS develops the 4-position IPSC from the APSC provided by API (see **paragraph 3.26**). The IPSC is an aggregate of all the APSCs that are reflected for the items' applications. The 1st position of the IPSC indicates the OIM that is being used. The 2nd position indicates if a DLM program or maintenance at a depot is being done on the aircraft, missile or trainer; "X" for yes, and "0" for no. (D200A/F refers to this as PDM whether or not there is an official PDM program.) The 3rd position indicates if an EOH program is applicable; "X" for yes, "0" for no. The 3rd position is only used if the application is a TMS. The 4th position indicates if a NHA MISTR program is applicable; "X" for yes, "0" for no. The 4th position is used for all applications that are PECs or NIINs if those PECs or NIINs are going through a DLM repair. There are times when a PEC is used for PDM or EOH, as appropriate. Therefore, an IPSC equal to "0000" indicates that

this application is a "reference" application for this item. Either no program is available for this application or the item does not need any program for this application.

3.4. Responsibilities.

3.4.1. The ES will file maintain all needed applications into API for each SIRS item. SIRS items will have at least one application file maintained to identify the "major end item," the weapon system, support system, communication-electronic network or equipment on which the item is used. In addition, each SIRS item will be linked by its program selection record in API to all applications (major end items and NHAs) that require the use of this component for continued operation. The ES will file maintain each item's program selection record containing each application with the APSC, MIEC, the application's PBDs, QPAs, and application percents. The ES will time phase the PBD and application percent when an item is being phased in or out of an application. The ES will also ensure the application percent for items no longer used on an application are changed to zero. If there are no program select records for an item, SIRS will put an "R" in the compute code, and will not compute requirements for the item. The application data on the item's program selection record are used to compute the item's installed programs (see **paragraph 3.16**). The APSC can be "00" when no usage from the application remains in the 8-qtr history and the program(s) is not needed to compute requirements for the item. For items with budget program code equal to 15, the application data are used in SIRS to develop the aircraft availability indenture structure and this indenture structure is used to determine the base safety level and depot safety level for the item. The item's application data are passed to other computer systems. The ES identifies the applications for the SIRS items using the API Component Item Review product and TO publications. The ES determines the type(s) of item program(s) to be developed. The ES ensures that the applications the ES selects have programs in API. The ES will notify the Resource Control Officer (RCO), the Technical Control Officer (TCO), D200C IMS, local SIRS OPR, engine manager, and/or Program Office when application programs are needed, missing, or incorrect.

3.4.2. The AFMC API OPR (AFSC/LGPS) maintains current and accurate data on the API Standard Program Designator (SPD) table for all aircraft, drones and unclassified missiles and their engines needed by SIRS items, which have an ownership code of "N." (The MOD application designators are maintained automatically by API.) Updates to the trainer applications are done by the programs OPR at Hill AFB. Updates to the engine applications are done by the engine managers at Tinker AFB. Updates to the drone data are done by the drone managers at the Hill AFB, Tinker AFB, or Robins AFB. Using data provided by the site API Programs OPRs, the AFMC API OPR maintains the PEC tables used internally in SIRS and provides PEC to weapon system conversion lists to the AFMC OPRs of other computer systems (H036C, etc.). The AFMC API OPR also maintains the Budget Program - System Management Code table in API, and the various MDS tables in SIRS.

3.4.3. Each site will assign a person(s) as the site API Programs OPR. The site API Programs OPR maintains the data on the API SPD table for all PECs, stock number applications, and any aircraft, drones, unclassified missiles and their engines needed by SIRS items, for which their site has responsibility. Each site API Programs OPR maintains a list of PECs used by their site and their definitions (what weapon systems the PECs are used for). The site API Programs OPR informs the AFMC API OPR of each add and delete of a PEC, and any change in definition of a PEC. The site API Programs OPR ensure that all types of

past and future programs are available and provided to the proper divisions for use by the ES. These programs include all PDM and EOH programs, all program data for trainers, and all program data for PECs. These programs do not include the type "9" MISTR programs developed by SIRS. The site API Programs OPR will perform at least an annual review of application PECs and associated program data to evaluate (a) the continued need for the application PEC and associated program data, (b) the adequacy of documentation explaining the rationale for the use of the application PEC, and (c) the accuracy of the program data. The site API Programs OPR may task other people the site has assigned to the PECs to do the review and report back to the site API Programs OPR. For the programs that their site has the responsibility to file maintain, the site API Programs OPR must ensure that these programs are reduced or deleted IAW the force structure reductions (see **paragraph 3.5.2**).

3.4.4. The Program Office notifies all personnel that the end item has transferred out of the initial provisioning stage (demand development period). They are responsible for providing the AFSC/Air Force Life Cycle Management Center (AFLCMC) site Programs OPRs and/or ESs, the programs for all end items, including drones, trainers, and equipment. They provide the ESs the information about which National Stock Numbers (NSNs) are related to the end item. The MOD manager provides the ESs with the list of NSNs that are affected by a MOD install and/or removal, along with the 15-position MOD application used in D363, Maintenance Planning and Execution System, and inputs the MOD schedules to D363 (see **paragraph 3.14**).

3.4.5. D200C equipment item managers are responsible for the NSN applications programs for equipment items (ERRC "S" and "U") which API gets semiannually from the D200C system. They need to ensure that the programs overlaid for their NSNs into API are correct so that the requirements for the components of their items are correctly computed. These programs can be file maintained in API (see **paragraph 3.12**).

3.4.6. SIRS IMS/MMs need to understand enough about applications, programs, and factors to be able to prevent the use of erroneous data, by notifying the ES to research data and/or file maintain correct data. For items with equipment item applications, the SIRS IMS/MM will check with the D200C equipment IMS/MM to ensure that the D200C data in API is correct.

3.4.7. The program expiration date is the last date that the Air Force will use the weapon system. This 4-position date is in the format YYMM, where YY is the last 2 positions of the year and 'MM' = 03, 06, 09 or 12. Program data can remain in SIRS for 3 years (12 qtrs) after the weapon system is no longer used by the Air Force. Exception: When non-Air Force program data is file maintained in SIRS for other DoD agencies/services with a program service code other than "A." After 3 years, the past program data will be deleted from API. All AFSC/AFLCMC-managed program data (such as PDM and EOHs) for these applications, as well as for related applications such as PECs and trainers, will be updated in API in accordance with these program expiration dates. A PDM program for an aircraft should not extend past the program expiration date for that aircraft (unless the PDM is being done in order to sell the aircraft to another county). The program for a trainer, solely used to support a weapon system that has become obsolete, will be deleted.

3.4.8. Foreign Military Sales (FMS) Applications. Items can remain in SIRS to support an application no longer used by the Air Force when the Program Office or the local API or

SIRS OPR informs the AFMC API OPR (AFSC/LGPS) that the application is being used by other DoD agencies and/or foreign governments. The AFMC API OPR (AFSC/LGPS) changes the application on the SPD screen to include FMS as part of the SPD subtype (see **paragraph 3.21**). This application remains in API as long as there are FMS or other Services' requirements. The ES ensures that the items that use this application have an APSC equal to zero.

3.5. SIRS Programs, Products, and Display Screens.

3.5.1. Hard copy products are "pushed" to the IMS/MMs and ESs after each SIRS computation for stock numbers that require action or review. It is possible to get any of these products for any stock number from the Output Products SIRS Secondary Item Requirements menu SIRS OP MENU. On the SIRS menu, select Item Program Data (IPD). On the Output Products IPD Item Program Data Product Selection Screen, type in the NSN or 9-position NIIN for the item, and select "F," "P," or "W" for item programs. Select "P" to see the 12 qtrs of past programs. Select "F" to see the 38 future qtrs and retention period. Select "W" to see the future war data. It is possible to limit the product by selecting an application/SPD, a program type, and/or a Service code. Press enter. The screen will display a message XXXXXX job number has been requested. Your product will be automatically printed at the default printer designated in the UVFK screen, found by entering Main FOE DIS UDV UVFK. The data is displayed by SPD and program type. At the end are displayed TOTAL FOR SGM, the totals for the item by program type. Type 1 program is displayed in hundreds of hours, rounded.

3.5.2. SIRS displays the item installed programs on the Item Program Data (IPD) screen. From the Display SND Stock Number Data screen, SIRS DIS SND MENU, select IPD. On the Display IPD Item Program Data Product Selection Screen, type in the NSN or 9-position NIIN for the SGM, and select "F," "P," or "W" for item programs. Select "F" to see the 38 future qtrs and retention period. Select "P" to see the 12 qtrs of past programs. Select "W" to see the future war data. It is possible to limit the product by selecting a SPD, a program type, and/or a Service code. The data is displayed by application/SPD and program type. TOTAL FOR SGM, the totals for the item by program type are displayed at the end. Type 1 program is displayed in hundreds of hours, rounded. The following data (see **Table 3.1**) is displayed as a result of inputting data on the Display IPD Item Program Data Product Selection Screen.

Table 3.1. Data Elements - Item Program Data Product Selection Screen Results.

	Data Element	Data Element Description
1	SGM	The SGM stock number.
2	ALC (site)	The 2-position code for the site responsible for file maintenance of the program.
3	IMS	The 3-position code identifying the IMS responsible for maintaining the data for this item.
4	ES	This three-position code identifies the ES responsible for maintaining this item's application data.
5	Std Prog Desig	The application or SPD
6	Prog Type	The type program code for the application displayed.
7	Serv	The Service code for the application displayed. This should be "A" for Air Force.
8	Prgm Dev	The program development code for the application displayed. This should be blank.
9	Mar-Jun-Sep-Dec	The program quantities are displayed for each qtr. The war data screens look like the peace program screens, but only display the 4 qtrs of the "war year" or Extended Year (EY).
10	Retention	The retention quantity.
11	Pgm Begin Date	This is the PBD for this application. It is only displayed with past program data.

3.6. Type Program Code. This 1-position code is used in API to identify the type of program that can drive the need for repair parts. Type program codes "1," "3," "5," "7," and "8" are called OIM programs. Type program codes "4," "6," and "9" are called DLM programs.

3.6.1. Program type "1" represents the operating hours of the application. For aircraft, type "1" programs are the flying hours. Flying hours for aircraft do not usually include ground warm up time and taxiing time.

3.6.2. Program type "2" is the average number of aircraft squadrons for a Mission Design (MD). This type of data is received on the unclassified Programmed Authorizations (PA) file.

3.6.3. Program type codes "E," "3," "S," and "T," represent four types of inventory in API. Program type E = primary unaveraged inventory. Program type "3" represents primary averaged inventory or equipment months. It is usually calculated by API. It is the average number of the end item inventory for a given month times 3. The past inventory is developed by adding together the actual inventory for each month of the qtr. The projected inventory is the average inventory for the qtr, calculated by adding together the end of qtr inventory for the previous qtr to the end of qtr inventory for the current qtr, dividing this sum by 2, and then multiplying the result by 3. Program type "S" = total unaveraged inventory. Program type "T" = total averaged inventory. Total averaged inventory is used by API to calculate MOD programs for aircraft and missiles (see **paragraph 3.14.4.4**).

3.6.4. Program type "4" represents DLM or maintenance done at a depot on an aircraft, missile or trainer. (D200A/F refers to this as PDM.) PDM application programs are the DLM programs performed on aircraft, missile and trainer applications (see **paragraph 3.11**).

3.6.4.1. For ERRC "S" and "U" items being used as test equipment/support equipment at a depot, that do not go through DLM, but generate lower assembly reparables or lower assembly condemnations reported as depot reparable generations, use a type "4" program equaling the number of equipment/support equipment items being used at the depot or a fixed PEC type "4" program multiplied by an application percent that will very closely approximate the number of equipment/support equipment items being used at the depot. The ES must document the rational for using these programs and the methodology/calculations used to compute the program and/or application percent.

3.6.5. Program type "5" represents sorties or the number of take-offs and landings for the aircraft. Sorties are calculated by API based on the average sortie duration rate and flying hours (see **paragraph 3.8.3**).

3.6.6. Program type "6" represents number of EOHs. These are DLM programs pertaining to engines (includes aircraft engines, ground turbine, and small engines) (see **paragraph 3.11**).

3.6.7. Program type "7" represents drone recoveries. Drones are pilotless aircraft used for target practice. The recoveries are equal to launches minus expenditures (see **paragraph 3.9**).

3.6.8. Program type "8" represents ammunition expenditures or the number of rounds fired through a weapon. The type "8" program is displayed in thousands of units for future qtrs and in actual numbers for past qtrs. This is usually file maintained using a PEC (see **paragraph 3.12**) for the end item.

3.6.9. Program type "9" represents the NHA MISTR program. NHA MISTR application programs are defined as DLM programs pertaining to stock number applications and PEC codes. The application for most type "9" programs is for SIRS stock numbers. These programs are computed by SIRS for ERRC "T" applications, are not in API, and cannot be manually file maintained. The future programs for ERRC "S" and "U" applications will overlay from the Automated Budget Compilation System (ABCS) portion of D075. Both the future and past programs for ERRC "S" and "U" applications must be reviewed in D200F quarterly by the D200C equipment IMS/MMs and PMSs and corrected in D200F as necessary. Programs on PECs must be file maintained in D200F and corrected as necessary by the personnel designated by the site. (See **paragraph 3.13** and **3.14**.)

3.7. Past Actual Programs for Aircraft. Actual flying hours and inventory for aircraft are collected from base level reporting systems and consolidated by the Reliability and Maintainability Information System (REMIS), also called G099. Once a month, G099 furnishes a file to API containing flying hours, inventory, and number of sorties for aircraft. Nearly all G099 data are for aircraft, but it is possible to get records containing inventory for drones, trainers, and unclassified missiles. Any G099 record containing a possession code that is on the Possession Code Table in API causes API to not use the data on that record. Past operating hours for engines are computed by API (see **paragraph 3.11**). For the 3 months of the most recent qtr, the G099 input will replace any F/M data. Therefore, file maintenance should not be done to any month until the G099 input has been received. If a change is received from G099 to a previous qtr, the data is added to the quantity on the database. Normally, when SIRS needs input for its Initial computation, 2 months of G099 data have been received for the most recent past qtr. By the time SIRS needs input for its Final computation, the third month of that qtr has

been received from G099. Therefore, it is normal for the quantity in the qtr of the asset cutoff date to vary slightly from the Initial to the Final SIRS computation.

3.8. Projected Programs for Aircraft.

3.8.1. The Biennial Planning, Programming and Budget System (BPPBS) is the process by which the Air Force commanders develop operational plans, along with identifying the resources needed to execute these plans, in order to achieve the defense objectives established by the President and the Secretary of Defense. First is the development of the Air Force's plan for 6 years, the Program Objective Memorandum (POM). The MAJCOMs POM submissions provide justification for their flying hour programs and inventory. Every other year, the Air Force POM is submitted to the Secretary of Defense, who issues the Program Decision Memorandum which records the decisions on the issues and directs adjustments to the POM. The POM, as modified by the Program Decision Memorandum, serves as the baseline for the start of the budgeting cycle. Second, the Budget Estimate Submission (BES) is the Air Force's budget proposal for 2 FYs. It is based on the Office of the Secretary of Defense (OSD) review of the Air Force POM as updated by the Program Decision Memorandum. The BES is submitted to OSD and the Office of Management and Budget who hold hearings to gather information on the budget estimates. When the Air Force's 2-year budget request is approved, it becomes part of the President's Budget (PB) submission to Congress. Third, Congress reviews, adjusts and approves the PB. During the Congressional appropriation process, OSD holds an execution review, which may result in an Amended PB, as well as modifying plans for the next POM.

3.8.2. HQ USAF program documents are published, and the HQ USAF program database is updated for each of the three positions: the POM, the BES, the PB and, when there is one, the Amended PB. After each mass update of the database, the unclassified PA file is posted to an AF website from which the AFMC API OPR, (AFSC/LGPS) obtains a copy via an intermediary E-mail. The PA file is loaded into the API database where it completely replaces the projected flying hours and inventory for that cycle. The MAJCOMs, following the procedures in AFI 16-501, *Control and Documentation of Air Force Programs*, can submit program change requests to HQ USAF to request force structure and/or flying hour changes within the execution and budget years. If the program change request is approved, HQ USAF/A8PE or HQ USAF/A3O-AI sends an E-mail message to the MAJCOMs and to AFSC/LGPS. The changes are manually file maintained into API by the AFMC API OPR (AFSC/LGPS). The AFMC API OPR cannot update flying hours in API unless the changes have been approved by HQ USAF.

3.8.3. The PA file contains the approved peacetime flying hours, sortie duration rates, and several types of inventory, by aircraft, command and program element funding code. Each record contains 12 years of programs, by FY and qtr, starting with the last qtr of a previous FY. API consolidates the data and stores it on the database by command. The retention program quantity is computed by API as the total program from the first qtr of the 8th FY through the last qtr of the 10th FY. Primary Aircraft Inventory (PAI), Backup Aircraft Inventory (BAI), and Attrition Reserve Aircraft (AR) from the PA file are added together by API to equal Total Aircraft Inventory (TAI). TAI is used by API in the MOD computation (see **paragraph 3.15**). (Primary Aircraft Authorized (PAA) is almost always the same as PAI, and is not used by API.) PAI is stored as program type "E" on the database. Since PAI is the end of qtr inventory, API adds 2 qtrs of PAI together, divides by 2, and multiplies by 3

to get the averaged inventory months to be stored on the database as program type "3." For each aircraft, with the same command and the same program element, the sortie duration rate is divided into the number of flying hours (for that command and program element) to get number of sorties. These numbers are totaled for the same aircraft, same command, then rounded to a whole number, to get the quarterly number of sorties. For the same aircraft, all sorties by command are totaled to get the type "5" programs stored on the API database.

3.9. Programs for Unclassified Drones and Missiles. If these programs are not on the PA file, they should be obtained from the Program Office or from HQ USAF documents. If the drone or missile is undergoing a MOD for which there is a D363 schedule, the MOD designators should be file maintained as applications in API (see **paragraph 3.14**). Drone recoveries can be manually calculated as the number of launches minus the number of expenditures, and file maintained into API as program type "7." API will calculate the operating programs for the engines used on the drones, if all needed data is on the database (see **paragraph 3.9**). Otherwise, the drones' engine operating hours will be manually computed by the site program monitor and file maintained in API. If the drones' engines are also used on aircraft, these drone engine hours will have to be added to the engine hours calculated for the aircraft. To do this, submit the jobs for the projected engine computation and past engine computation. Once API has calculated the engine hours for the aircraft, then increase the hours for the engines by file maintaining the additional hours for the drones' engines.

3.10. Engine Operating Hours. API computes engine operating hours as flying hours per qtr for the aircraft/drone, times the number of engines installed on the aircraft/drone (the QPA), times the percent of the fleet that have that engine installed for that qtr (the application percent). The number is rounded to a whole number. Hours are then totaled for all aircraft/drone with that engine installed and stored on the database as the total hours per qtr for the engine. API uses the File Maintenance PS Program Selection screen for each aircraft/engine and drone/engine combination to obtain the QPA and the application percent. The engine managers can view this data online in API request an Excel file with the data. The engine manager validates that this data is complete and correct. Any corrections, additions and/or deletions are sent to the engine program monitor in 420 Supply Chain Management Squadron (SCMS) at Tinker AFB, who file maintains changes to the Program Select data into API. The AFMC API OPR can run the engine computation jobs by selecting "run past engine computation" and "run projected engine computation" on the API Output Products PRGM Programs Screen.

3.11. Programs for PDM, EOH, Trainers and Applications Using PECs. The 420 SCMS program monitor file maintains into API, all needed PDM programs, EOH programs, and all programs for trainers provided by the SPOs. Any other programs not described in **paragraph 3.8.** through **3.15** needed to compute requirements, such as ammunition programs, are developed and file maintained at the sites using PECs (**paragraph 3.21.4**). The EOH program represents the maximum occurrences the SIRS item has had (past installed program) or is projected to have (future program) with the application on the EOH line which might generate a failure of the SIRS item. The PDM program represents the maximum occurrences the SIRS item has had (past installed program) or is projected to have (future program) with the application on the aircraft, missile and trainer during PDM that might generate a failure of the SIRS item. The PDM line is also called a MOD line or a speed line. PDM is described in Technical Order (T.O.) 00-25-4-WA-1, *Depot Maintenance of Aerospace Vehicles and Training Equipment*. The PDM programs for the past qtrs are the actual induction quantities and the actual production (output) quantities

are for EOH programs. The PDM programs for the qtrs in the future are the "approved" input quantities and for the "approved" output quantities are for EOH programs. The PDM retention program is computed by dividing the aircraft months retention program by the time cycle frequency in months. The 2-year past programs of PDM and EOH are used in the development of factors. "In work" quantities will not be added to the future input quantities for PDM programs.

3.12. Programs for Equipment Items. SIRS items may be installed on "equipment" items. These items have a NSN and ERRC of ND2 (S) or NF2 (U). Programs for these equipment items are developed by the Classified Equipment Requirements Computation, D039. An unclassified version of the computed requirements is passed six times a year to the Equipment Item Process (EIP), D200C. That creates nine reports that can be reviewed on-line in D200C. Three of the reports can be file maintained on-line by the equipment items managers. The detailed records, authorizations, and assets can be updated during the "RAR" file maintenance cycles, which are usually 4-6 weeks in April-June and in October-December. After the RAR file maintenance window is closed, D200C passes the changes back to D039 to recompute the equipment requirements. The updated requirements are passed back to D200 C in mid-June and in mid-December which is also used when D200C passes the updated allocated assets/requirements to API and D075. The data from each D200C record replaces the previous data on the API database. If not updated from the D200C file, all the future program quantities for equipment items on the API database are changed to zeroes. If the equipment item is new, API adds the stock number to the SPD table, and adds the program data to the database. The type program is "3". D200F assigns the carryover indicator of "E" to the program data for these equipment items to allow the data to stay on the database during the two cycles when D200C does not provide an update. The type "3" and type "9" program data can be file maintained into API, but type "3" will also be corrected in D200C. The program data are assets by FY and qtr for a maximum of 38 qtrs, and a retention quantity. The computation group gains and the computation group losses from Item Manager Control Data and item information section of Projected Requirements and Assets (PRA) are used in the calculation of programs. To manually compute the programs, take the lesser of the worldwide requirements (minus War Reserve Materiel (WRM) and replacement) and the worldwide total assets, subtract the computation group gains and add the computation group losses. File maintain as program type "E" into API, or multiply the results by "3" for input to API as program type "3" program. The retention program will be equal to the applied and allocated assets at the end of the last qtr of the future program times 12.

3.13. NHA MISTR Programs.

3.13.1. The NHA MISTR program, program type code = "9," represents the maximum occurrences the item has had (past installed program) or is projected to have (future program) with the application on the NHA MISTR line which might generate a failure of the SIRS item. The past NHA MISTR program is equal to the actual reported depot overhaul repair or the actual reparable assets located at the depot that have been made serviceable during the MISTR repair process of this item.

3.13.2. MISTR programs for equipment items can be input to API from the D200C file (**paragraph 3.13**). This type "9" program data is developed manually and file maintained into D075 or D200F by the equipment item managers.

3.13.3. The projected NHA MISTR programs for a SIRS item with an application that is also a SIRS item are computed by SIRS during each computation, and cannot be manually file maintained. A NHA program is used as a basis for developing MISTR programs. During a SIRS computation, the computed de-accumulated MISTR Output program for a SIRS item, that is a NHA to another SIRS item, is recycled (or used) as the type "9" MISTR program for the next lower assembly's computation. The MISTR output of the NHA may or may not exactly match the future program that is passed to the lower assembly. This future program can be changed by the Aircraft Availability Model's recycling process through multiple indentures for the item. The type "9" program is multiplied times the QPA and item application percent for the item to develop the item's installed future MISTR program, regardless of the PBD. To prevent the development of this program, the ES file maintains the application percent as zero.

3.13.4. The Other War Reserve Materiel (OWRM) computation (AFMCMAN 23-101, Volume 3, **Chapter 4**) uses MISTR programs for computing both its war and peacetime segments, in addition to the other types of future programs. The OWRM computation uses the MISTR war programs which were computed during the processing of the war computation. (This is not the war portion of the OWRM computation, but a separate internal run required to develop the war MISTR program.) It also contains the recycling technique. These recycled war MISTR programs are used only in the wartime portion of the OWRM computation. These recycled war MISTR programs include the total MISTR requirement (peacetime, War Readiness Spares Kit/Base Level Self-Sufficiency Spares and OWRM MISTR requirements).

3.14. Programs Tailored to Modification Schedules.

3.14.1. Basic Process. MOD input and output schedules by MDS and MOD Number (see Data Elements of Monthly D363 Output File to API - **Table 3.3**) for Class IV and V aircraft and missile modifications are provided by D363 at each site and sent to API each month. The output schedule is used to compute an install program for use on items being installed. The input schedule is used to compute a removal program for items being removed. API uses these schedules along with TAI data provided by HQ USAF to develop MOD program factors. These factors are then applied against the past program data input from G099 and the projected program data input from HQ USAF to develop tailored MOD programs. The programs are inventory months (type "3") program for missiles and aircraft modifications and flying hours (type "1") program for aircraft modifications. For any item with an application to a MOD, the MOD program is used in the calculation of the item installed program that is then sent to SIRS.

3.14.2. File Maintenance of MOD Applications. For the item installed or removed by the MOD, the ES must change the aircraft or missile application data and add the MOD application data. When the MOD is complete, the MOD application is retained in the program selection record until the 12 qtrs of past program on the MOD application are shifted out of SIRS (see **paragraph 3.16**). The ES must file maintain the aircraft or missile application with the correct APSC to start the inventory or flying hour program in the same qtr the MOD is completed. There are some kinds of MOD programs, such as PDM, which cannot be mechanically tailored. For these cases, the ES must develop and file maintain either time phased application percentages to reflect the actual conditions during the course

of the MOD or use time phased programs with a PEC for the application. (See **paragraph 3.18**.)

3.14.3. The D363, Maintenance Planning and Execution System.

3.14.3.1. D363 operates at each site. The MOD managers keep the D363 databases updated with the schedules, by qtr, of how many aircraft (or missiles), are input to the MOD line (or PDM line) and how many aircraft are output from the MOD line. Detailed input and output schedules by command are displayed on the D363.-R07.WK-XXX Approved MOD Maintenance Program product.

3.14.3.2. The MOD managers must file maintain the K004 Indicator Code on the D363 database with a "Y" for firm (approved and funded) modifications that are class IV or V modifications, so that the MOD input and output schedules are passed to API. A class IV MOD is defined as a MOD to fix a safety problem, correct something that could cause mission failure, or improve reliability. A class V MOD is defined as a MOD to change the capability of the aircraft or missile. API and SIRS do not use class I and class II MODs (temporary or proposed modifications and modifications that change an MDS), and class III MODs which are modifications to correct something on aircraft still in production. For the class I, II and III modifications, file maintain an "N" for the K004 Indicator Code to prevent D363 from passing that data to API.

3.14.3.3. The D363 Weapon System I/D field must have the MDS, and not just the MD, file maintained. This is because both actual and projected programs are by MDS (such as C005B), and not by MD (such as C005).

3.14.3.4. The D363 file to API is built once a month, on the Friday before the last Monday of that month. D363 shifts its quarterly data during the first month of that qtr. Therefore, the shifted data is input to API on the second month of that qtr, which is used then for the Final SIRS computation. **Table 3.2** Provides descriptions of the data elements on this file.

Table 3.2. Data Elements of Monthly D363 Output File to API.

	Data Element	Element Description
1	MOD Application	The MOD application is 15 positions. It is used to identify the tailored MOD program passed to SIRS. Therefore, it will be the application file maintained on the program selection record (see **paragraph 3.26.3.**) by the ES for each SIRS item being installed or removed because of this MOD. The first 7 positions match the MDS of the aircraft or missile for which the MOD is being accomplished. Positions 1 and 2 may be blank. The 8th position of the MOD application is always the remove/install indicator assigned by the D363 system. "R" represents an input schedule and "I" represents an output schedule. The last 7 positions are the MOD number. It is possible to have the same MOD number for more than one type of aircraft.
2	Install Level Code	The install level code is either "B" (Base) or "D" (Depot). It is for information only.
3	Modification Class	The MOD class is either "IV" or "V." It is for information only.
4	Type Equipment Code	The type equipment code is either "A" (Aircraft/Drone) or "M" (Missile). It is for information only.
5	Start Date	The start date consists of a 2-position year and a 2-position "end month of the qtr" equal to 03, 06, 09, or 12. It is supposed to be the qtr the MOD started. It is for information only.
6	End Date	The end date consists of a 2-position year and a 2-position "end month of the qtr" equal to 03, 06, 09, or 12. It is supposed to be the qtr the MOD will be completed. It is for information only.
7	Quantity Programmed	The quantity programmed is a 6-position field for the total quantity of the aircraft or missile scheduled to be modified when the MOD is completed.
8	Previous Quantity Scheduled	The previous quantity scheduled is a 6-position field. It is the quantity of the aircraft or missile completed prior to the most recent past 8 qtrs. This quantity is used by API to compute the accumulated qtr inventory.
9	First FY and QTR	The first FY and qtr is 3 positions. It indicates the first and oldest FY and qtr on the D363 file.
10	System Design Code	System design code is 4 positions used by the computer to sort the input data.
11	Processing ALC (site)	Since D363 operates at each depot site, the processing site is the site from which the data came.
12	New Application Indicator Code	The new application indicator code is 1 position. If this code is "N," then this is a new MOD. If this code is "C" and the quantity programmed is zero, then this MOD has been canceled. Otherwise, when the new application code is "C" and the quantity programmed is greater than zero, then the MOD has

		been completed. D363 will pass the "canceled" indicators to API on any cycle, for one monthly cycle only. D363 will pass the "completed" indicator on each of the three monthly cycles during the qtr following the qtr during which that MOD was completed.
14	Quarterly MOD Schedule	The quarterly MOD schedule is 165 positions or 33 quantities of 5 positions each. The schedule represents, by FY and qtr, the quantity of aircraft or missiles modified in the past 8 qtrs and the planned MOD for 25 projected qtrs. These quantities are used to compute the accumulated qtr inventory.

3.14.4. API Processes D363 Data.

3.14.4.1. API matches the first 7 positions of each D363 MOD application to its SPD Table (see **paragraph 3.20**). If no match, the entire D363 record is printed on the Unmatched Application Master Report (see **paragraph 3.33.3**). Valid transactions are printed on the Tailored Application Master Report (**paragraph 3.33.3**). From the D363 valid transactions, the schedules from the three sites' D363 files with identical MOD applications (15 positions) are added together. This results in an "end of qtr" schedule total for each of the 33 qtrs for each unique MOD application. When a MOD has a canceled indicator from D363, all programmed quantities are made zero on the API database. When a MOD has a completion indicator from D363, a fleet application percent is calculated. If the MOD is an install, divide the quantity programmed by the TAI. If the MOD is a removal, use the reciprocal of the percentage of the fleet modified. For a completed MOD, the quantity for all projected qtrs and the most recent past qtr is zero. API only calculates the 7 qtrs of past data.

3.14.4.2. Accumulated Quarterly D363 Schedule. Take the previous quantity scheduled from D363 and accumulate each qtr, qtr by qtr (for 8 past qtrs and 25 projected qtrs) by adding each qtr's scheduled quantity: qtr-1 = previous modifications completed + qtr-1 schedule, qtr-2 = accumulated qtr-1 plus qtr-2 schedule and qtr-3 = accumulated qtr-2 plus qtr-3 schedule, etc.

3.14.4.3. Average Accumulated Quarterly MOD Schedule. Take the accumulated quarterly schedule and develop an averaged quarterly MOD schedule, for each qtr by dividing by 2.

3.14.4.4. Develop Averaged TAI for the MDS that matches the MOD. API receives the end of qtr TAI by qtr for each type of aircraft or missile undergoing a MOD from the HQ USAF PA file (see **paragraph 3.8.3**). Average TAI for qtr 1 = End of qtr TAI for qtr 1. Averaged TAI for qtr 2 = (end of qtr TAI for qtr 1 plus end of qtr TAI for qtr 2) divided by 2. Averaged TAI for qtr 3 = (end of qtr TAI for qtr 2 plus end of qtr TAI for qtr 3) divided by 2. This process is repeated for each qtr.

3.14.4.5. Divide the averaged accumulated quarterly MOD schedule (computed in **paragraph 3.14.4.5**) for that qtr by the averaged TAI for that qtr to get the MOD percent. This determines the percent of the fleet that is being modified for install modifications. For removal modifications this percentage is subtracted from 100. The range for both the install and removal MOD percent is 100 to zero.

3.14.4.6. The MOD percent for that qtr is multiplied times the PAI program for that qtr. For the 8 qtrs in the past, the past actual program for the aircraft is used. For the 38 qtrs in the future, the projected peace program is used. Since D363 only passes a schedule for 25 future qtrs, the MOD percent for the 25th qtr is used to calculate qtrs 26-38. For retention, the retention program times the last MOD percent is used. For the war year, the 4 qtrs of war inventory program data are used. Once the inventory program has been calculated, it is multiplied by 3 and stored on the API database as program type "3." API uses the same procedure to develop a type "1" tailored MOD program for aircraft modifications, using the flying hour program for the aircraft.

3.15. Quarterly Shifting of Programs. The projected peacetime program data is retained on the API database until all 38 qtrs and retention are zero. Then API deletes the projected program record. The past program data is retained until all 12 qtrs are zero, then API deletes the past program record. Even though the future data may be zero, the past program may be needed for the development of factors. At the start of each qtr, the AFMC API programmer runs a job to shift the Air Force program data on the API database. The oldest qtr of past program is dropped and each of the 11 qtrs of past program is shifted. The first qtr of future program, immediately after the asset cutoff date of the computation, is shifted to become the most recent qtr of past program. The other 37 qtrs of future program are shifted. The 38th qtr and the retention program are not changed. The oldest qtr of projected wartime data is dropped. Other services future programs (service code not equal to "A") are not shifted because no usage data are reported; therefore, no past programs are needed.

3.16. Computation of the Item Installed Program. The application PBD is the starting point for computing the item installed program from the application(s) program identified by the application (or SPD) and the APSC. The installed program is computed by multiplying the quarterly program for the application by the appropriate time phased QPA and application percent. The QPA is the number of that item installed on the application. The application percent is the ratio of the application inventory that has the item installed to the total application inventory. The installed program is computed qtr by qtr, for a maximum of 12 past qtrs, 38 projected qtrs and retention, and 4 qtrs of war. If the PBD is at least 3 years old, then all the past and future application programs will be used. If the PBD is within the past 3 years or in the future, only the program from that date forward will be used. The results are initially rounded to the nearest whole number. For items with more than one application, the installed programs are summarized by program type (OIM, PDM, EOH, and NHA MISTR) to get the item installed program(s). Multiple item installed programs are calculated when an item applies to more than one type of program.

3.17. Time Phased Program Data. Time phasing program data or tailoring program data can be done manually to phase in or phase out weapon system or end item programs, accommodate modifications, configuration changes, etc., for use in the calculation of requirements in SIRS. Time phasing of programs may be accomplished in two ways.

3.17.1. The first method is by time phasing the application records with multiple PBDs, QPA, and application percents. The PBD will indicate at what time a change in the QPA and/or application percent becomes effective. Therefore, the capability exists to change item program qtr by qtr for each application through the span of the computation.

3.17.2. The second method is to have a tailored application program constructed manually and file maintained using a PEC for the application. A manually developed tailored program should not be used for an item affected by a MOD when that MOD's tailored programs are developed by D363 and API. (See **paragraph 3.14**.) The ES must ensure that the program data for the item is not duplicated when a PEC-tailored program is used. The ES determines if time phased application records are to be used in addition to the tailored program. As a MOD program progresses, the ES ensures that the active time phased application records are correct and support the item during the transition period as well as after the MOD program is completed.

3.18. API File Maintenance of Programs.

3.18.1. File Maintenance of Application Program Data. File maintenance of application program data can only be done by certain users at Hill AFB, Tinker AFB, Lackland AFB, Robins AFB and Wright-Patterson AFB AFSC/LGPS. Once the program data is established, only the "owner" can then update the data. Data received from G099 and HQ USAF has an "N" ownership code and can only be changed by AFSC/LGPS. An application's programs can be on three different file maintenance screens. From the File Maintenance Main Menu, select Programs. On the File Maintenance PRGM Programs menu, select FFWD for Projected Wartime Program, FPAP for Past Actual Program or FPRP for Projected Peacetime Program. On the selected program data screen, use the Tab key or the mouse in Graphical User Interface (GUI), to enter data in the following fields.

3.18.1.1. FUNC. Enter an "A" for add, "C" for change, "D" for delete, or "V" for view.

3.18.1.2. PGMS CAL YR/QTR. Change this data and display data for an earlier year using FUNC equal to "V." Historical data cannot be file maintained. API stores the current qtr's data and the data from the end of the past 7 qtrs as historical data. Valid qtr dates are 03, 06, 09, and 12.

3.18.1.3. SPD. Must be a valid application already on the SPD table. This must be typed in the exact format. (See **paragraph 3.25.2**.)

3.18.1.4. PROGRAM TYPE. Must be "1," "3," "4," "5," "6," "7," "8," "9," "E," "S," or "T." **Table 3.3** provides explanations of the program types. (**Note:** When program type "E" exists, the user must file maintain type "E" and not type "3," and API will calculate the type "3" program. When program type "S" exists, the user must file maintain type "S" and not type "T," and API will calculate the type "T" program. Any file maintenance of program type "1" for engines (SPD type "E"), should be done after the engine computation jobs are processed by API (see **paragraph 3.10**).

Table 3.3. Program Types.

	Program Type	Explanation
1	1	Flying hours or operating hours.
2	2	Squadrons, etc.
3	3	Primary averaged inventory or equipment months.
4	4	PDM.
5	5	Sorties.
6	6	Engine overhaul.
7	7	Drone recoveries.
8	8	Ammunition expenditures.
9	9	MISTR overhauls. Not available except for equipment items with ERRC = "S" or "U."
10	E	Unaveraged end of qtr inventory (PAI).
11	S	Unaveraged TAI.
12	T	Averaged TAI.

3.18.1.5. SERVICE CODE. Must be "A," "B," "C," "D," "G," "M," or "X." Type "A" = Air Force; "B" = Army; "C" = Navy; "D" = Marines; "G" = Coast Guard; "M" = FMS; and "X" = other government agencies. (If service code is "M," only type program code "6" is valid.)

3.18.1.6. COMMAND CODE. This is a 3-position code. It can only be used with SPD type "A" and program types "1," "3," "5," and "E" and only for past actual programs and projected peacetime programs. When command level data is updated, API automatically calculates the correct program data for the service level.

3.18.1.7. OWNERSHIP CODE. Must be "F," "G," "H," "L," "N," or "P." This 1-position code identifies the program source and the site primarily responsible for file maintenance. Anybody with access to API can view the data. Only the owner of the data and the AFMC API OPR (AFSC/LGPS) can change the ownership code. "N" = HQ AFMC; "H" = Tinker AFB; "G" = Hill AFB; "L" = Robins AFB; "P" = Lackland AFB. "F" is no longer used.

3.18.1.8. ASSIGNMENT CODE. Always blank.

3.18.1.9. Press the Enter key. For function code "A," once the screen is displayed you can either file maintain the values or press Enter and the program fields will all contain zeroes. If you file maintain a value, it must be numeric. Straight lining occurs after the last entry until the next entry. If data is to be added at the service code, the command code on the screen must be blank and no program can exist at the command level, for that application, service code and program type. For function code DELETE, the screen will display the existing data with the message "DO YOU WANT TO DELETE THE DATA (Y/N)?" Type "Y" on the CMD line and the message "UPDATE SUCCESSFUL" will appear. Type "N" on the CMD line and the screen will be displayed again without the message.

3.18.1.10. Possible Messages.

3.18.1.10.1. "CAN'T FM SVC LVL RCD, CMD LVL RCD EXISTS." Type a valid command code and press Enter. Valid command codes for the selected data are displayed near the bottom of the screen. Aircraft (SPD type "A") are usually the only applications that have command level data.

3.18.1.10.2. "DATA NOT ENTERED." Cursor will be pointing to field that is missing data. Type valid data in that field and press Enter.

3.18.1.10.3. "NO DATA MEETS THE SELECTION CRITERIA." There is no program data on the database for the selected SPD and program type.

3.18.1.10.4. "SPD DOES NOT EXIST." The value typed in the SPD field is not on the SPD table. Either the value is typed incorrectly, or the SPD needs to be added to the SPD table (see **paragraph 3.20**).

3.18.2. The File Maintenance FPAP Past Actual Program screen can display 13 qtrs of data. API will calculate the type "1" programs for engines (SPD type "E") whenever the D200F programmer (AFLCMC/HIAR) selects the Past Engine & PEC Computation screen. This computation is usually run right before the API snapshot.

3.18.2.1. Under MONTHLY DATA are the current qtr and the most recent past qtr. The date by each monthly program is the calendar year and calendar month. The 3 months of the current qtr rarely contain data. Therefore, this screen usually displays the message "INCOMPLETE PAST PROGRAM DATA" which the user can ignore. Do not file maintain data into any month of the current qtr, as it will be overlaid during the quarterly shifting of program data (see **paragraph 3.15**). Any data in the current qtr is not sent to SIRS. Data can be file maintained by month into the 3 months of the most recent past qtr. Do not file maintain data into any month of the most recent past qtr until the data from G099 has been received.

3.18.2.2. Under "QUARTERLY DATA" are the past 11 qtrs that are file maintained by qtr. The date by each quarterly program is the calendar year and last calendar month of that qtr.

3.18.3. The File Maintenance FPRP Projected Peacetime Program screen displays 9.5 years of programs. The date by each quarterly program is the calendar year and the last calendar month of that qtr. RET is the retention quantity. When data is stored by the 3-position command code, the user cannot file maintain data at the service level. **Exception:** retention. Assignment code is always blank. The carryover indicator can be "P," "E," or blank. "P" means the program data will be replaced by data from the HQ USAF PA file (see **paragraph 3.8.3**) or deleted if not replaced. A blank means that API will keep this data until file maintained by the owner of the data. "E" means the program data will be replaced by data from D200C twice a year (see **paragraph 3.12**). File maintaining a carryover indicator of blank will cause SIRS to make the carryover indicator blank on the service level record and then SIRS will not replace any of the existing command records for that aircraft with the new records from the next PA file. When a new PA file is processed, if the overfly hours are still valid, those hours will have to be added again. To file maintain inventory, use program type "E" and API will calculate the type "3" program. To file maintain total aircraft, use type "S" and API will calculate the type "T" program. Program types "3" and "T" can be maintained

directly when the unaveraged program quantities (types "E" and "S") do not exist. Program type "9" can only be file maintained for equipment items (ERRC = "S" or "U"). API will calculate the type "1" programs for engines (SPD type "E") whenever the D200F programmer (AFLCMC/HIAR) selects the "Run Future Engine Computation." This computation is run after input of the HQ USAF PA file, and right before the API snapshot.

3.18.4. The File Maintenance FFWD Projected Wartime Program Screen displays 5 years by month. The date by each monthly program is the calendar year and the calendar month. SIRS only uses the data for the "war year" which is the first year of the extended year or the year after the budget year. The only wartime data usually available is type "1" for some aircraft, type "4" for some aircraft, and type "6" for some engines (see AFMCMAN 23-101, Volume 3, paragraph 4.2.2.). Any program type data can be file maintained; **Exception:** "S" and "T." API will calculate the type "1" programs for engines (SPD type "E") whenever the D200F programmer (AFLCMC/HIAR) selects the "Run Future Engine Computation."

3.19. API File Maintenance of Standard Program Designators (SPDs). From the File Maintenance Main Menu, select Programs. On the File Maintenance PRGM Programs menu, select SPD to get the File Maintenance SPD Standard Program Designator screen. The allowed functions are "A" for add, "C" for change, "D" for delete or "V" for view. For SPD type "P," there must be a "P" for PEC, entered in position 13. Anybody can view the API SPD and its associated data. Only the owner of the data or the AFMC API OPR can delete the SPD, or change the associated data elements. To add a new SPD, type the SPD using the correct format (see **Table 3.9**) and the correct SPD type and press Enter. The screen will reappear displaying that SPD and will then allow the entering of the rest of the data. When all data is entered, press Enter. The screen will reappear displaying the updated data along with the message "Update Complete." For adds, the SPD cannot already be on the SPD table and must be consistent with the SPD type code. For changes, type "C" in the FUNC field type, the application in the SPD field, and press Enter. The existing descriptive data will be displayed. Type over the existing data with the new values and press Enter. For deletes, type "D" in the FUNC field and type the application in the SPD field, and press Enter. The message "DO YOU WANT TO DELETE (Y/N)" will appear. Enter a "Y" on the CMD line and press Enter. If the screen displays the message "PROGRAM DATA EXISTS," then the SPD still has program data on the current qtr's database or on the historical database, and therefore the SPD cannot be deleted.

3.20. Standard Program Designator Types. In API, the application is referred to as the SPD. The application is a unique combination of 15 letters, spaces and numbers assigned to identify a specific major end item or NHA. On screens that display a 25-position SPD, positions 16-25 are always blank. The SPD field never contains special characters. The application must be typed on the screen exactly, including leading spaces, in order to access application and program data in API. An application may be a standard MDS for an aircraft, missile or drone; a standard TMS for an engine; a trainer designator; a PEC; a stock number; or a MOD designator. Each application must be established on the API database along with the SPD type. Applications for SPD types "C" (Communication/Electronic/Meteorological (CEM)) and "G" (Gun) and "L" (Communication/Electronic Network) and "V" (Support Equipment Vehicle) are entered under SPD type "P" for PECs. That allows the programs for these applications to be file maintained using the PEC. SPD type "X" is no longer used since auxiliary power units are stock listed. This 1-position SPD type code is defined as follows.

3.20.1. Aircraft. SPD type = "A."

3.20.1.1. Format: blank or alpha in positions 1-2 (cannot use "Q"); alpha in position 3 (cannot use "M"); numeric in positions 4-6; alpha or blank in position 7; blank in positions 8-12; alphas or blanks in 13-15. If alphas in positions 13-15, then the aircraft is used by other services or for FMS only and will probably have no programs.

3.20.1.2. Program types: "1" (flying hours); "3," "E," "S," "T" (inventory); "4" (PDM); "5" (number of sorties).

3.20.2. Engines and engine modules. SPD type = "D" (engine modules) and "E" (engines).

3.20.2.1. Format: alpha or blank in positions 1-3 (cannot use "Q" in positions 1 or 2 or "M" in position 3); numeric in positions 4-7; alpha, numeric or blanks in positions 8-10; alphas or blanks in positions 11-12; alphas or blanks in positions 13-15. If alphas in positions 13-15, the aircraft on which the engine is installed is used by other services or for FMS only and will probably have no programs.

3.20.2.2. Program Types: "1" (operating hours) and "6" (engine overhaul).

3.20.3. Unclassified missiles and re-entry vehicles. SPD type = "M."

3.20.3.1. Format: blank or alpha in positions 1-2 (cannot use "Q"); must have "M" in position 3; numeric in positions 4-6; alpha or blank in position 7; blank in positions 8-12; alphas or blanks in 13-15 (alphas mean no program for this application).

3.20.3.2. Program types: "3," "E," "S," "T" (inventory); "4" (PDM); "7" (number of recoveries).

3.20.4. PEC. SPD type = "P."

3.20.4.1. Format: numeric in positions 1-4; numeric or blank in position 5; blanks in positions 6-12; "P" in position 13; blanks in positions 14-15.

3.20.4.2. Program types: any program type.

3.20.4.3. Process. The PEC is a 4- or 5-digit number assigned to identify a specific end item when one of the SPD types listed above cannot be used. PECs are added and deleted on the API SPD table by the AFMC API OPR (AFSC/LGPS). Programs for those PECs are developed and file maintained in API at Hill AFB, Lackland AFB, Robins AFB, or Tinker AFB. The AFMC API OPR assigns ranges of the 4- and 5-position numeric PECs to each of those bases (see **Table 3.4**). The list of PECs actually being used in API is kept on a document and updated by the AFMC API OPR from information provided by the personnel requesting the PECs. This list can be viewed on the AFSC/LGPS D200A and D200F home pages under "PEC."

3.20.4.4. The 4-position numeric PECs are assigned by blocks of numbers to specify categories of equipment and to the AFB which is prime for that block of numbers. The prime AFB assigns the number to a specific application, requests that the AFMC API OPR input the PEC, and develops the past and future programs for the application. These 4-position numeric PECs and their programs are authorized for use across all the sites.

3.20.4.5. The 5-position numeric PECs are assigned by blocks of numbers to the AFB which is prime for that block of numbers. No specific categories of equipment are

identified by the AFB OPR. The prime AFB assigns the number to a specific application, requests that the AFMC API OPR input the PEC, and develops past and future programs for the application. These 5-position PECs and their programs are authorized for use only by the prime AFB.

3.20.4.6. The 6-position numeric PECs are reserved for HQ AFMC use. They are used for items in the Contractor Supported Weapon System (CSWS), formerly Reformed Supply Support Program (RSSP). They are assigned by the AFMC API OPR.

Table 3.4. Program Element Code Ranges Assigned Managing Location.

	PEC	Prime Site
1	1000 through 1599	Hill AFB
2	1600 through 1699	Robins AFB
3	1700 through 1999	Hill AFB
4	2000 through 2099	Robins AFB
5	21000 through 23999	Hill AFB
6	2200 through 2499	Hill AFB
7	25000 through 26999	Hill AFB
8	2603 and 2622	Hill AFB
9	27000 through 29999	Hill AFB
10	30000 through 34100	Previously CCSD at Lackland AFB
11	50000 through 59999	Robins AFB
12	6500 through 6599	Tinker AFB
13	7000 through 7999	Hill AFB
14	800000 through 800999	AFSC/LGPS

3.20.5. Stock Number. SPD type = "Q."

3.20.5.1. Format: numeric characters in positions 1-4; alpha or numeric characters in positions 5-7; numeric characters in positions 8-12; alpha or numeric in position 13; blank or alpha in positions 14-15. In API, the stock number is referred to by the 9-position NIIN which is the stock number minus the first 4 positions (FSC) and the last 2 positions (MMAC).

3.20.5.2. Program types: usually type "3" (inventory) for NHA with ERRC "S" or "U" and type "9" (NHA MISTR) for NHA with ERRC "T," "S," or "U." If the stock number is an end item with no higher assembly, it could have any program type.

3.20.5.3. Process. If the SIRS item needs the program from the stock number application in order to compute requirements, then the ES must file maintain the APSC accordingly (see **paragraph 3.26**). If there is no program needed to compute requirements for the item, or no program is available, the APSC for the stock number application must be referenced as 00. If the stock number that is the application has a "live" APSC (not equal to 00), the stock number should be listed in D043.

3.20.6. Drones. SPD type = "R."

3.20.6.1. Format: must have "Q" in positions 1 or 2 (if position 2 is "Q" then position 1 can be blank); alpha in position 3 (cannot use "M"); numeric in positions 4-6; alpha or

blank in position 7; blank in positions 8-12; alphas or blanks in 13-15 (but alphas mean no program for this application).

3.20.6.2. Program types: "1" (operating hours); "3," "E," "S," "T" (inventory); "4" (PDM); "5" (sorties); "7" (number of recoveries).

3.20.7. Trainers. SPD type = "T."

3.20.7.1. Format: numeric in position 1; alphas in positions 2-3; alpha or numeric in position 4; numeric in positions 5-6; alpha or blank in position 7; blanks in positions 8-15. A trainer designator must have an entry in positions 1-6. The first position identifies the type of equipment: "1" = air-crew training equipment, "2" = missile training equipment, "3" = navigation/electronic training equipment, "4" = mobile training sets and resident training equipment and "9" = miscellaneous training equipment.

3.20.7.2. Program types: "1" (operating hours); "3" (inventory); "4" (PDM).

3.20.8. MOD designator. SPD type "Z."

3.20.8.1. Format: aircraft or missile MDS in positions 1-7; "I" for install or "R" for removal in position 8; the D363 MOD number in positions 9-15 (alpha or numeric in positions 9-13; alpha or blank in positions 14-15).

3.20.8.2. Program types: "1" (operating hours); "3" (inventory).

3.20.8.3. Process. The MOD designators are automatically added and deleted from the API SPD Table. (See **paragraph 3.14**.)

3.21. SPD Subtype. Can only be blank, "F" (FMS applications), or "R" (reclamation applications).

3.22. System Essentiality Code. The SEC is a 1-position numeric field. The SEC is the first position of the 3-position application's MIEC (see **paragraph 3.27**). The purpose of the 1-position SEC is to rank how essential the application is, compared to other applications, with 1 the most essential. Currently, applications are not ranked by HQ USAF. For use in API, the SEC is defined as follows: "1" for highly critical systems (Force Activity Designator 1), "2" for strategic systems, and "3" for forward deployed tactical systems. SEC "1," "2," and "3" are used for applications that may have a war as well as a peacetime operating program. SEC "4" is for new applications and for applications that cannot be related to an aircraft. SEC "5" is for applications that only have a peacetime operating program. SEC "6" is for applications being phased out of the Air Force inventory and applications being held for reclamation projects. SEC "7" is for FMS only applications. The SEC is file maintained on the API SPD table by the "owner" of the application. Essentiality codes are used to allocate resources, by weapon system importance, at the NSN level. The essentiality criteria are used to justify and allocate funds, help in the scheduling of items for repair, and identify those items that are to be included in the WRM stocks.

3.23. Freeze/Deferred Disposal Code.

3.23.1. The freeze code in API can only be blank, "B," "C," or "P." This is the application level freeze code. A code of blank means that there is no freeze, and that any excess inventory can be disposed. Freeze code "B" is a directed freeze for common and peculiar depot assets as well as Air Force base reported excesses. Freeze code "P" is a directed freeze

for peculiar depot assets. Freeze code "C" is a directed freeze for common (more than one weapon system) depot assets.

3.23.2. The application level freeze code should be blank. Before file maintaining this code as a "B," "C," or "P," the user must follow the guidance on retention of assets and assigning an application level DDC in AFMCMAN 23-5, *Reutilization & Disposition System (D035G) For Wholesale Items,* Volume 3, Chapter 5. The application level freeze codes in API are to only be input by the AFMC API OPR.

3.23.3. From the freeze codes on the applications, API determines the freeze code for the item and updates RIID that passes it to SIRS during the RIID snapshot where it is displayed as the DDC on the SIRS BMD screen (see AFMCMAN 23-101, Volume 4, paragraph 1.3.). If an item has only one application, then the item's freeze code will be the same as the freeze code of the application. On an item with more than one application, API determines the DDC as shown in **Table 3.5**

Table 3.5. Freeze Codes/Deferred Disposal Codes.

	Application Freeze Code	Item Deferred Disposal Code
1	All blanks	Blanks
2	All Bs	B
3	One or more Cs	C
4	Ps and blanks	Blank
5	B with any other value(s)	C

3.24. Other Data on the SPD Screen.

3.24.1. The ALC (site), Ownership Code, or Air Force Manager Code. This code must be "G" (Hill AFB), "H" (Tinker AFB), "L" (Robins AFB), "N" (HQ AFMC) or "P" (Lackland AFB). (**Note:** "F" is no longer used.) This 1-position code identifies the program source and the site primarily responsible for file maintenance. Anybody with access to API can view the data. Only the owner of the associated data or the AFMC API OPR (AFSC/LGPS) can update this data or change the ownership code.

3.24.2. Division Designator System Manager Code. This 1-position field can be any combination of letters and/or numbers or blank. This should be the valid division designator of the person assigned to manage this application.

3.24.3. System Program Manager Code. This 2-position field can be any combination of letters and/or numbers or blanks. This should be the valid system manager code of the person assigned to manage this application.

3.24.4. SPD ES Code. This 2-position field can be any combination of letters and/or numbers or blanks. This should be the valid ES code of the person assigned to manage this application.

3.24.5. SPD Name. Can be blank or alphanumeric.

3.25. API File Maintenance of Application Data.

3.25.1. On the File Maintenance FM File Maintenance Menu (see AFMCMAN 23-101, Volume 1, *General D200A/N Information*), select AI Applications/Indentures. On the AI menu, select IND Indentures to add a new application, or PS Program Selection to add or change the associated data for the application. The application or program selection data consists of the application (**paragraph 3.19**), APSC (**paragraph 3.26**), MIEC (**paragraph 3.27**), program development code (**paragraph 3.28**), PBD (**paragraph 3.29**), application percent (**paragraph 3.30**), and QPA (**paragraph 3.30**). The override replacement percent (OVRD REPL %) is also on the Program Selection screen and should always be zero, as it is not used. All the applications for each item and the above associated data are used by API to compute the item installed programs. The Program Selection screen data is also used by API to compute the engine operating hours by using the aircraft (SPD) on which the engine is installed (TMS), the PBD, the percent of the fleet on which the engine is installed (the application percent) and the number of engines per aircraft (QPA).

3.25.2. Format of the application. When entering an application in the SPD/NIIN/TMS fields, follow the exact format of the application including spaces. Positions 16-25 are always blank.

3.25.2.1. For an aircraft, drone, missile or engine designator or MOD, enter the alpha prefix in positions 1-3. Leave position 1 blank for a double alpha prefix or 1 and 2 blank for a single alpha prefix and enter the remainder of the designation in succeeding positions. The first numeric position of this type of application always goes in position 4. There must be entries in positions 3-7. The 15-position MOD application consists of three components. Positions 1-7 contain the standard aircraft or missile MDS application. Position 8 contains an "I" for an install program or an "R" for a removal program. Positions 9-15 contain the MOD number as recorded in D363 (see **paragraph 3.20**).

3.25.2.2. For a trainer designator, application PEC (this is not the same thing as a funding PEC. Application PEC will simply be referred to as PEC hereafter), or stock number, always enter the first numeric position of this type of application in position 1. A trainer designator must have an entry in positions 1-6. The first four positions of a PEC must be numeric. A PEC can have a numeric in position 5. A PEC must also have a "P" in position 13. For a stock number, only enter the 9-position NIIN starting in position 1 (see **paragraph 3.20**).

3.25.3. Add a new application. On the File Maintenance IND Indentures screen select "A" for function. Type the NHA on the first line by NIIN or standard designator (STD DES) or part number (P/N). In GUI, click on the appropriate button, and API will display a box; then type the NHA in the box and click on OK. Next, type the component using the same procedures. Press Enter. The user must type the QPA, subsystem essentiality code (SUBS ESSN CD), item essentiality code (ITEMESSN CD), program select code (PRGM SEL CD), and the oldest program begin date (PRGM BEGIN DATE). Leave the rest of the fields blank. Press Enter. If the screen displays the correct information, select Done, and go to the File Maintenance PS Program Selection screen. On the PS screen, type the component and SPD (NHA). Press Enter. API should display the screen, with the same program select data that was entered on the indentures screen. Enter the oldest PBD in the first line under TM

PHAS DT, along with the corresponding application percent (OVRD APPL %) and QPA (OVRD QPAPPL). The override replacement percent (OVRD REPL %) is always zero, as it is not used. If the application is time-phased, enter all the PBDs and associated application percents and QPAs. Press Enter.

3.25.4. Add a PBD for an application (SPD). On the File Maintenance PS Program Selection screen, type the NIIN or TMS on the top line and press Enter. If the correct SPD is not displayed on the second line (SELECT SPD), either type it and press Enter, or use the forward command to page through the records. When the program selection record is displayed with the correct component NIIN/TMS and SPD, type a "B" under function (FUNC) on the line(s) listing the time phased PBDs (TM PHAS DT), and press Enter. API will display the screen with an "Add" line. Enter the new PBD, along with the application percent (OVRD APPL %) and QPA (OVRD QPAPPL). The overhaul replacement percent (OVRD REPL %) is always zero. Press Enter. The user cannot enter a time phased PBD older than the application PBD (PGM BEG DT).

3.25.5. Change an application percent and/or QPA. On the Program Selection screen, type "C" under function (FUNC) on the line(s) to be changed. Overtype the existing values with the new values and press Enter. Time phased PBDs (TM PHAS DT) can only be added and deleted, not changed.

3.25.6. Delete. On the Program Selection screen, the "D" for delete can be entered on any function line (FUNC). If entered on a SPD/NAME line, it will delete that application for the item, along with all PBDs and associated data. If entered on a time phased date line, it will only delete that time phased date and its associated application percent and QPA. Message "DO YOU WANT TO DELETE (Y/N)?" will appear. Enter a "Y" on the CMD line and press Enter, and API will return the message "UPDATE COMPLETE."

3.25.7. Error Messages. "RECORD DOES NOT EXIST" means that the SPD is not on the SPD table. "SELECTION PAST END OF LIST" means the update will not work. "DEPOT LEVEL MAINTENANCE INVALID" means that the user entered a "9" in the second position of the APSC and the application is not a support equipment NIIN.

3.26. Application Program Select Code.

3.26.1. The APSC is a 2-position code that determines the type(s) of item program(s) to be developed. The first and second position code entries are defined in **Table 3.6**. API will only allow a type "9" program to be file maintained for ERRC = "S" or "U" NSNs; the type "9" program cannot be file maintained on ERRC "T" NSNs in D200F.

Table 3.6. Application Program Select Code - Type Explanation.

Code Position	Type	Explanation
1	0	No OIM program
	1	Flying hours or operating hours
	2	Squadrons
	3	Primary averaged inventory or equipment months
	5	Sorties
	7	Drone recoveries
	8	Ammunition expenditures
2	4	PDM
	6	Engine overhaul
	9	NHA MISTR

3.26.2. On the API File Maintenance PS Program Selection screen, the ES can only file maintain one type of OIM program and one type of DLM program per application. For an item with more than one application, the OIM position must be the same for all applications, or equal to zero. Therefore, the ES must look at all applications and their OIM programs and decide the predominant OIM program for the item.

3.27. Application Mission Item Essentiality Code. The application MIEC is file maintained on the API File Maintenance PS Program Selection screen under APP MIEC. Changes to the second and/or third positions can be made by over typing the appropriate position(s). The only use of the MIEC is in SIRS, where the item must have a MIEC with an "A," "B," or "C" in the second position and an "E" or "F" in the third position, before SIRS will perform an OWRM computation for the item.

3.27.1. The first position of the MIEC is derived from the SEC for the application on the SPD table.

3.27.2. The second position of the MIEC is the subsystem or equipment essentiality code (SUBSEC) for aircraft and missile components, communication electronic equipment and support equipment. The ES file maintains this position for the item. The valid codes are "A," "B," "C," "D," and "M." For applications with a future operating program, the ES file maintains the most correct code based upon knowledge of the subsystem.

3.27.2.1. SUBSEC = A is not mission capable - Lack of subsystem prevents the system from doing any wartime or peacetime mission. Always used for propulsion engines.

3.27.2.2. SUBSEC = B is not wartime capable - Lack of subsystem impairs the mission capable performance of wartime and assigned missions.

3.27.2.3. SUBSEC = C is not fully capable - Lack of subsystem impairs the mission capable performance of wartime and assigned missions, but the system can perform at least one assigned mission.

3.27.2.4. SUBSEC = D is not peacetime or training capable - Lack of subsystem prevents the system from performing its peacetime/training missions. Used for applications that have no future operating program, applications that only have a

retention program, applications that only have a past program, and applications that only have a retention program and past program.

3.27.2.5. SUBSEC = M is for FMS only and used only when the first position of the MIEC is 7.

3.27.3. The third position of the MIEC is the item essentiality code or the item's importance to the subsystem. The ES file maintains this position for the item. The valid codes are "E," "F," "G," or "M." E = critical for operation; F = impairs operation; G = not critical for operation; M = FMS and can only be used with SEC 7 and SUBSEC M.

3.28. Application Program Development Code (PDC). The PDC should normally be left blank. The PDC is file maintained on the File Maintenance PS Program Selection screen. To phase in or phase out an application, the preferred method is to use phased application data (see **paragraph 3.28**). However, the capability exists to use only future programs, by file maintaining "F" for the program development code. To use only past programs, the ES file maintains "P" for the program development code.

3.29. Application Program Begin Date.

3.29.1. When the application is first established for the item, the PBD is file maintained on the File Maintenance PS Program Selection screen next to PGM BEG DT. Format is YYYY and QQ. This is the calendar year and the month the qtr ends. The qtr can only be 03, 06, 09, or 12. The PBD describes "when" an item became or is to become operational on a given application. It does not indicate when the application became operational. The PBD is required by API in order to determine when to pick up usage and past program by application for constructing a base period and computing factors. Also, the PBD could be projected into the future and would be used to determine when to pick up future program by application.

3.29.2. The ES must file maintain at least one PBD along with a QPA and application percent. Even if the APSC is 00, and/or the application percent is zero, the PBD cannot be file maintained as 0000 or left blank.

3.29.3. If all the application PBDs are 3 or more years in the past, all the application's program(s) will be used for the item's installed program(s). If the oldest PBD for an application is later than the asset cutoff date, there will be no past program developed for this application. If the oldest application PBD does not fall anywhere within the computation time-span, there will be no program developed for this application.

3.30. Quantity Per Application and Application Percent.

3.30.1. The QPA in API is the maximum quantity of the item that is installed on the application. The QPA is not the quantity per assembly. The best source of the QPA is the appropriate TO for the application, the API Component Item Review list, and historical records maintained by the ES. The application percent is the percentage of the past and future programs of the application that SIRS will use to compute the items requirements.

3.30.2. The QPAs and application percents are associated with the time phased PBD. API will accept a QPA from 0 to 99999 but the QPA of zero should not be used. API will accept an application percent from 000 to 100. The zero states that the item does not appear in any of the applications at that time. The 100 states that the maximum number of items appear on

all applications at that time. When the APSC is 00, none of the QPAs or application percents are used in the SIRS processing.

3.30.3. When time phasing applications, the QPA generally remains the same. **Exception:** A MOD that will result in an increase or decrease of the QPA.

3.30.4. The application percent would be less than 100% for a limited application, where an item is installed on only a percent of all the end items.

3.30.5. API limits one QPA per application for any qtr. In cases where the QPA varies for the same application, the ES develops a weighted average QPA, which is not input to API, but is used to develop a less than 100 percent application percent to input along with the largest QPA.

3.31. API Display Application Program Data by Application/SPD. From the DIS Display menu (see AFMCMAN 23-101, Volume 1), select AI Applications/Indentures. From the Display AI menu, select PDPS Standard Program Designator Program Selection to view application program data by application. In the space by SPD, type the application and press Enter. Follow the exact format for the SPD. If the application is a PEC, type a "P" in position 13. An option is to also type the NIIN/TMS in the Select Component block to view the application data for that item/component. Another option is to type the time phased application date by TM PHAS DT and API will display the data starting with the date. Use the forward command to display the other engines installed on this aircraft.

3.32. API Display Application Program Data by Component/Item. From the DIS Display menu (see AFMCMAN 23-101, Volume 1), select AI Applications/Indentures. From the Display AI menu, select CPS Component Program Selection to view data on which each component/item is used. Type the NIIN/TMS and press Enter. An option is to also type the application by Select SPD to view the item's application program data for that application. Follow the exact format for the SPD. If the application is a PEC, type a "P" in position 13. Another option is to type the time phased application date by TM PHAS DT and API will display the data starting with the date. Use the forward command to display the other aircraft this engine is installed on.

3.33. API Program Products. The following are descriptions of some of the products from API. These products are used by AFSC/AFLCMC personnel to update program data for PECs and for management information. API products can be produced on demand. Select PRGM OP MENU for the Output Products PRGM Programs screen.

3.33.1. AFMC Program Report. Select RFPL AFMC Program Report from the Output Products PRGM Programs screen. This allows the user to produce the Past Program Report and Future Program Report. The user may select information for programs calendar year and qtr. The reports are requested by SPD or SPD Type, or Ownership Code, with the option to request Mission Totals or MD Totals for either Past or Future Program reports.

3.33.1.1. Future (Projected) Programs Report (AD200.FL0FA8A2). This product displays the future program data for all applications on the API database along with various totals. SPD is the application or MDS, or a total. Totals are displayed for each series and for each MD. Engine data is not totaled. SPD TYPE is "A" for aircraft and "E" for engine. SVC is the service code and is "A" for Air Force. PGM TYPE "1" is the flying hours/operating hours which have been rounded to 100s; "3" is the averaged PAI

times 3; “5” is the number of sorties; and “T” is the TAI end of qtr. FY is the FY. Qtr-1 is always the first qtr of the FY (October, November, December). Qtr-2 is always the second qtr (January, February, March). Qtr-3 is always the third qtr (April, May, June). Qtr-4 is always the fourth qtr (July, August, September). RET is the retention quantity calculated as the total quantities for the 8th, 9th and 10th FYs. FY TOTAL is the total for that FY and does not include the retention quantity. WAR is the war program if displayed and if one has been file maintained. Otherwise, the peace program for that year is displayed.

3.33.1.2. Past Program Report (AD200.FK0FA8A1). This product displays the past actual program data for all applications on the API database along with various totals. SPD is the application or MDS, or a total. Totals are displayed for each aircraft series and for each MD. Engine data and trainer data are not totaled. SPD TYPE is “A” for aircraft, “E” for engines. SVC is the service code and is “A” for Air Force. PGM TYPE is type “1” for the actual flying hours/operating hours; type “3” for the actual inventory reported; type “5” for the number of sorties computed by API. FY is the FY of the data displayed. The quantity is displayed by fiscal qtr. FY TOTAL is the total for that FY.

3.33.2. Past Program Change Report (AD200.FP0FA8D1). Select RPEC Past Engine & PEC Computation from the Output Products PRGM Programs screen. This product displays the past actual program data that was changed for the latest SIRS computation and sent to SIRS along with various totals. SPD is the application or MDS, or a total. Totals are displayed for each aircraft series and for each MD. Engine data and trainer data are not totaled. PRGM TYPE is type “1” for the actual flying hours/operating hours; “3” for the actual inventory; or “5” for the actual number of sorties. SVC CD is the service code and is “A” for Air Force. YR/qtr is the calendar year and month of the data displayed. QTY is the program data quantity displayed by month. This report always displays the current 3 months of the qtr even if the quantity sent to SIRS is zero. CHG IND is change indicator and is “A” for add.

3.33.3. Tailored Application Master Report (AD200.FU1FA8D8). Select IMOD Install Mod Sched screen from the Output Products PRGM Programs screen. This product displays the list of modifications data received from D363 each month that updated the API database. The Unmatched Tailored Master Report (AD200.FU0FA8D8) displays any data that will not be used to update the database. Errors are usually caused by the first seven positions of the application from D363 not matching an application on the API SPD table. Either the SPD table should be updated by the AFMC API OPR (AFSC/LGPS), or the correct data file maintained into D363 by the MOD program manager at the site. **Table 3.7** provides an explanation of report data fields.

Table 3.7. Data Fields - Tailored Application Master Report.

	Report Term	Explanation of Term
1	Tailored Application Code	The 15-position MOD application.
2	Application Indicator	Displays "New," "Complete," or "Canceled" if applicable to this MOD application.
3	Type Schedule	Depending on the 8th position of the application, displays either "input removal" or "output install."
4	Mod Class	Either "IV" or "V" is displayed to identify the MOD class.
5	Qty Pro	The quantity programmed is a 6-position field for the total quantity of the aircraft or missile scheduled to be modified when the MOD is completed.
6	Install Level	"D" is displayed if this is a depot MOD and "B" is displayed if this is a base MOD.
7	Start Date	The start date consists of a 2-position year and a 2-position "end month of the qtr" equal to 03, 06, 09, or 12. It is supposed to be the qtr that the MOD started.
8	End Date	The end date consists of a 2-position year and a 2-position "end month of the qtr" equal to 03, 06, 09, or 12. It is supposed to be the qtr that the MOD will be completed.
9	ALC (site) Code	The site code for the MOD.

3.33.4. AFMC Tailored MOD Report (AD200.FU2FA8D8). Select the RTMR Tailored Mod Report screen from the Output Products PRGM Programs screen. This product displays 8 qtrs of past program data (marked by *) and 28 qtrs of future program data for all MOD applications on the API database. **Note:** This report is automatically generated/printed upon selection. **Table 3.8** provides an explanation of report data fields.

Table 3.8. Data Fields - AFMC Tailored MOD Report.

	Report Term	Explanation of Term
1	Tailored Application	The 15-position MOD application from D363.
2	Proc Code	The site code for the MOD.
3	Install Level	"D" is displayed if this is a depot MOD and "B" is displayed if this is a base MOD.
4	Mod Class	Either "IV" or "V" is displayed to identify the MOD class.
5	Type Equip	"A" is displayed if this is an aircraft MOD; "M" is displayed if this is a missile MOD.
6	Start Date	The start date consists of a 2-position year and a 2-position "end month of the qtr" equal to 03, 06, 09, or 12. It is supposed to be the qtr that the MOD started.
7	End Date	The end date consists of a 2-position year and a 2-position "end month of the qtr" equal to 03, 06, 09, or 12. It is supposed to be the qtr that the MOD will be completed.
8	Quant Prog	The quantity programmed is a 6-position field for the total quality of the aircraft or missile scheduled to be modified when the MOD is completed.
9	QTR 1, QTR 2, QTR 3, QTR 4	Qtr 1 is always the first qtr of the FY (October, November, December). Qtr 2 is always the second qtr of the FY, etc.
10	Retent	The retention quantity calculated as the quantities for the 8th, 9th, and 10th FYs.
11	Type Data	Type "1" are the flying hours which are actual hours for the past qtrs and have been rounded to 100s for the future qtrs; Type "3" are the averaged PAI times 3.
12	IPP (WAR)	The war program is displayed, if one has been file maintained. Otherwise, the peace program for that year is displayed.

Table 3.9. Format of the Application.

	Field Position	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
1	ACFT MDS			B	0	0	1	A								
2	ACFT MDS		K	C	1	3	5	T								
3	ACFT MDS	N	K	C	1	3	5	E								
4	ACFT MDS			F	1	1	1	A						F	M	S
5	ACFT MDS			C	1	3	0	A							U	K
6	ENG TMS		T	F	0	0	3	3	0	0	1	A				
7	ENG TMS			F	0	1	0	0	1	0	0					
8	ENG TMS		T	F	0	0	3	0	1	0	3			F	M	S
9	ENG TMS			T	0	0	7	6	0	1	0	A			U	K
10	Missile	A	G	M	0	8	6	B								
11	Drone	Q	R	F	0	0	4	G								
12	Drone		Q	F	1	0	6	B								
13	Trainer	1	A	D	0	0	0	A								
14	Stock Number	1	6	5	0	0	1	5	6	4	8	5	7	7	Z	R
15	PEC	1	0	0	1	1			P							
16	PEC	5	6	0	1				P							
17	MOD			B	0	5	2	H	I	4	5	3	2	4		
18	MOD		N	C	1	3	5	E	R	3	6	4	2	4		
19	Authorized Data															
20	A = alpha	A	A	A	A	A		A	A			A		A	A	
21	N = numeric	N	N	N	N	N	N	N	N	N	N	N	N	N		

Chapter 4

PREDICTIVE LOGISTICS

4.1. Introduction. This chapter describes the computation in SIRS called PRELOG.

4.1.1. PRELOG is one of the five methods in SIRS for computing the TOIMDR used for computing requirements. PRELOG checks 12 qtrs of historical TOIMDR for a significant trend and generates regression forecast estimates. The TOIMDRs computed by PRELOG are displayed on the RAP, Rates and Percents, screen and on the Factors/Usage Printout (Page 1).

4.1.2. SIRS displays six screens with the results of PRELOG. Select the SIRS DIS FUD MENU, FUD Factors/Usage Data screen menu, to get to the PRELOG equations, plots, and plot headers screens. Select SIRS DIS PD MENU**,** PD PRELOG Data screen menu, to get to the PRELOG selected data, error list, and error summary screens. The site D200A/F OPR can request hard copy products of any of the PRELOG products from the Output Products OPSS OPR Reports screen, SIRS OP OPSS (see AFMCMAN 23-101, Volume 2, paragraph 4.2.). The ES can request hard copy products of the PRELOG equations and the PRELOG plots from the Output Products EPSS Reports screen, SIRS OP EPSS (see **paragraph 5.4**). SIRS provides four hard copy products.

Table 4.1. SIRS Hard Copy Products.

	Hard Copy Product	Product Name
1	A-D200.-AFV-A1-86A	PRELOG Plots Report
2	A-D200.-ADS-A1-86A	PRELOG Equations Report
3	A-D200.-ADF-AX-86D	PRELOG Selected Info Report
4	A-D200.-ADD-AX-86A	PRELOG Error List & Summary Report, pages 1 and 2

4.1.3. The ES reviews and analyzes the data on the PRELOG screens along with the factors/usage printout for the TOIMDRs (current and forecasts). The ES selects which method (past 8-qtr average, past 4-qtr average, PRELOG, exponential smoothing, or estimated) of factor computation to use in the requirements computation by file maintaining the FIC. The FIC is a 3-position code, with each position of the code affecting the RAP (see **paragraph 2.26**). Factors and the FIC are file maintained on the File Maintenance FACD Factor Data screen, SIRS FM SND FACD (see **paragraph 2.24**). PRELOG applies only to the computation of the TOIMDR. The ES can select the PRELOG TOIMDR by entering "E," "F," "G," "H," "I," or "J" in the 1st position of the FIC. (See **Table 4.2**.)

Table 4.2. First Position of Factor Indicator Code – PRELOG TOIMDR Selection.

	First Position of FIC	PRELOG TOIMDR
1	E	Uses PRELOG for the TOIMDR only. Uses an 8-qtr average for all of the remaining OIM RAP.
2	F	Uses PRELOG for the TOIMDR only. Uses estimated values for all of the remaining OIM RAP, if present. If estimated values not present, uses a 4-qtr average for all of the remaining OIM RAP.
3	G	Uses PRELOG for the TOIMDR only. Uses a 4-qtr average for all of the remaining OIM RAP.
4	H	Uses PRELOG for the TOIMDR only. Uses estimated values for all of the remaining OIM RAP, if present. If estimated values are not present, uses a 4-qtr average for all of the remaining OIM RAP.
5	I	Uses PRELOG if present or exponential smoothing for TOIMDR; exponential smoothing for all other RAP.
6	J	Uses estimate if present or PRELOG if available for TOIMDR; exponential smoothing for all other RAP.

4.2. The PRELOG Computation.

4.2.1. SIRS provides a maximum of 12 quarterly TOIMDRs for PRELOG use. SIRS will not provide the TOIMDRs for items coded no compute, INS, NSO, military contingency, or obsolete. Each of the SGMs are "screened" by PRELOG. PRELOG will not compute the TOIMDR for a SGM if the item has less than five moving averages, or if all the quarterly demand rates are zero. In addition, for SGMs with a FIC that has an "E," "F," "G," "H," "I," or "J" in the first position, PRELOG will not compute the TOIMDR for items if the number of positive quarterly demand rates is less than the minimum number of positive demand rates, as determined by each D200A/F site OPR. (See **paragraph 4.8.3.2** and AFMCMAN 23-101, Volume 2, paragraph 3.24.4.)

4.2.2. The trend test uses the method of least squares (regression analysis technique) to compute the best fit straight line through the given data. This test is designed to determine if the slope of the computed line is significantly different from a horizontal line. It is also a test of the hypothesis of null slope for a required confidence level. This confidence level is determined by each D200A/F site OPR (see AFMCMAN 23-101, Volume 2, paragraph 3.24.1.). The trend test value (T-STAT) for the SGM is the confidence level the D200A/F site OPR wants the trend to fit into. T-STAT is a signed field.

4.2.2.1. Negative T-STAT values are artificial values that represent insufficient data conditions. These conditions are: a) there are less than five qtrs of moving average data (-1.0000); b) all quarterly TOIMDRs are zero (-2.0000); or c) there are fewer than the required minimum number of positive TOIMDR qtrs as specified by the input variable (-3.0000).

4.2.2.2. If the trend test value for the item was equal to or greater than the confidence level required in the T-TEST value, a "T" appears after the T-STAT value on some reports. The SGM "passed" the test and therefore the SGM is selected for forecasting. PRELOG forecasts are made fitting curves through data points which represent past quarterly TOIMDRs, then mathematically projecting the chosen curve forward in time.

4.2.3. The error level test measures the error involved in using the moving average to forecast the current demand rate. Each quarterly TOIMDR is compared with the immediate preceding moving average. The error level analysis value (ERR-LEV) is a signed field. Negative values are artificial values that represent insufficient data conditions. These conditions are: a) there are less than five qtrs of moving average data (-1.0000); b) all quarterly TOIMDRs are zero (-2.0000); or c) there are fewer than the required minimum number of positive TOIMDR qtrs as specified by the input variable (-3.0000). When the error level test results equal or exceed the D200A/F site OPR determined levels (see AFMCMAN 23-101, Volume 2, paragraph 3.24.), the item is selected for forecasting.

4.3. PRELOG Plot Headers.

4.3.1. The PPH PRELOG Plot Headers screen allows the user to view a single plot header for a specific SGM. Change the AS OF date to view historical data. The PPH screen is the first of three screens that display PRELOG data. These three screens are interchangeable and can be accessed from any of the three screens by pointing and clicking the page numbers on the left side of the screens. The three screens and their applicable page numbers are PPH (page 1), Display PP PRELOG Plots screen (page 2), and Display PE PRELOG Equations screen (page 3). The hard copy PRELOG Plots report displays on each page the information for each SGM as shown on the screens PPH and PP (see **paragraph 4.4.5**).

4.3.2. The PPH screen displays the ALC (site), ES, and IMS codes for the SGM, the item name (ITM NM), unit price (U-P COMP), ERRC, item Program Select Code (PSC) and FIC (FAC IND).

4.3.3. TOIMDR MAH. The moving averages are computed from the recorded base period data, disregarding manually entered RAP. A maximum of eight quarterly moving average TOIMDRs, as computed by PRELOG, are displayed with the most recent qtr on the left and the oldest qtr on the bottom right. Zero demand rates are displayed.

4.3.4. TOIMDR QTRLY. The TOIMDRs are computed from recorded base period data, disregarding manually entered RAP. Twelve qtrs of TOIMDR are displayed from the most recent qtr (on the left) to the oldest (bottom right). Zero demand rates are displayed.

4.3.5. Y = A + B * X ** X.XX. The selected forecasting equation and exponent variable that is plotted. The exponent (PRELOG EXPON) is a signed field. There are nine of these exponents (see AFMCMAN 23-101, Volume 2, Table 3.1., Item 21).

4.3.5.1. A = .XXXX. The computed value of A used in the forecasting equation. This is a signed field.

4.3.5.2. B = .XXXX. The computed value of B used in the forecasting equation. This is a signed field.

4.3.5.3. R-SQUARED = X.XXXX. The computed "goodness of fit" as measured by the coefficient of determination of the forecasting equation. This is a signed field.

4.3.6. Exponent Last Used from the last time PRELOG was performed on the item.

4.3.7. Number of Iterations that it took to come up with the nine exponents shown on the PRELOG Equations screen.

4.3.8. T Stat = X.XXXX. The trend test value for the SGM is a test of confidence level of slope of the input demand data. (See **paragraph 4.2.2**.)

4.3.9. T Stat Cd. The presence of a T indicates that the SGM's trend test was equal to or greater than the confidence level required in the t-test value.

4.3.10. Err Levl = X.XXXX. The error level analysis value is a test of the confidence of the moving average data to forecast the current demand rate. (See **paragraph 4.2.3**.)

4.3.11. Err Lvl Cd. The presence of an "E" indicates that the SGM's forecast analysis was equal to or greater than the confidence level required in the error level analysis value.

4.3.12. Std Dev of TOIMDR Around Curve = XX.XXX. The standard deviation of the rates (TOIMDRs) about the curve.

4.3.13. Computed TOIMDR are the rates computed by SIRS for the current, 1st, 2nd, 3rd, 4th, and 5th forecast years.

4.3.14. PRELOG TOIMDR are the TOIMDRs computed by PRELOG for the current 1st, 2nd, 3rd, 4th, and 5th forecast years.

4.3.15. PRELOG Base Rep Gen % are the PRELOG computed base reparable generation percents for the current, 1st, 2nd, 3rd, 4th, and 5th forecast years.

4.3.16. PRELOG MTBD are the PRELOG computed MTBD. The current qtr MTBD is straight-lined for the current, 1st, 2nd, 3rd, 4th, and 5th forecast years. MTBD is the ratio of the total operating time to the number of demands upon the supply system for the item. MTBD is computed by dividing the item's past installed OIM program by the base reparable generations. Then, MTBD is expressed as hours, months, events or ammunition expenditures, depending on the first position of the item's PSC (see **paragraph 2.10.** for MTBD and **paragraph 3.3.9.** for PSC).

4.4. PRELOG Plots.

4.4.1. The PRELOG Plots screen is the second of three screens that display PRELOG data. Display PP PRELOG Plots screen allows the user to view a single plot for a specific SGM. Each SGM can only have one graph plotted per SIRS computation cycle. The data selected for graphic plotting are based upon the maximum exponent constraint and the computation results for R-squared, otherwise described as the "goodness of fit" as measured by the coefficient of determination. Only SGMs whose demand data equal or exceed the trend test and/or error level test, are selected for equations computation and graphic plotting. Change the AS OF date to view historical data. This screen displays the ALC (site), ES, and IMS codes for the SGM, the item name (ITM NM), unit price (U-P COMP), ERRC, item PSC, and FIC (FAC IND).

4.4.2. The Y-axis represents the demands rate scale which is computed for each SGM. The vertical axis is computed separately for each item.

4.4.3. The X-axis displays the data time span in qtrs and calendar years. The 2-position calendar year is indicated under the fourth qtr so that if the scale should begin with actual data in the fourth qtr, there will be a year identification for that fourth qtr. The qtrs 1, 2, 3, and 4 relate to usage data cutoff dates 1 = 31 March, 2 = 30 June, 3 = 30 September and 4 = 31 December.

4.4.4. Thirty-four qtrs of TOIMDR are plotted. The "+" represent each of 12 qtrs of actual computed TOIMDR QTR. The "-" represent 22 forecasted qtrs of TOIMDRs computed by PRELOG (PRELOG FIT PROJ TOIMDR). The "+" represents the actual value and the "-" represents the predicated value. Qtrs with unavailable or zero demand rates are shown on the plot. If a "-" falls on the same location as that of a "+," only the "+" is displayed. The plot is not displayed if the plot range is less than .001.

4.4.5. The hard copy PRELOG Plots Report displays on each page the information for each SGM as shown on the PP and PPH screens. The hard copy report can be selected from the Output Products OPSS OPR Reports screen, SIRS OP OPSS (see AFMCMAN 23-101, Volume 2, paragraph 4.2.), by SGM; or by site; or by site and division (DIV); or by site, DIV, and ES. The hard copy report can also be selected from the Output Products EPSS ES Reports screen, SIRS OP EPSS (see **paragraph 5.4**), by SGM; by part number and CAGE; or by site, DIV, and ES.

4.5. PRELOG Equations.

4.5.1. The Display PE PRELOG Equation screen allows the user to view the results of nine separate equations on a SGM's demand data as constrained by the nine variable exponents (see AFMCMAN 23-101, Volume 2, Table 3.1., Item 21). This is page 3 of the screens that display PRELOG data. The SGMs selected are those with a PRELOG factor indicator file maintained by the ES, and those SGMs without a PRELOG indicator, but with demand data equal or greater than the trend test (T-TEST) and/or error level (ERRLEV) analysis value. Change the AS OF date to view data from a prior qtr: This screen displays the site and ES codes for the SGM, the item name (ITM NM), unit price (U-P COMP), ERRC, the trend test value (T-STAT), and the error level value (ERR LVL), (see **paragraph 4.2.2** and **4.2.3**). Use the scrolling commands/buttons (Top, Bottom, Back, Forward) to view each of the nine screens per SGM.

4.5.2. BASE NRTS. This is the base NRTS OIM demand data for the base period, up to 2 years based upon the PBD and the asset cutoff date. This total represents those OIM reparable generations that the bases were unable to repair and were shipped to the depots for further processing.

4.5.3. BASE CNDM. This is the base condemnations OIM demand data for the base period, up to 2 years based upon the PBD and the asset cutoff date. This total represents those OIM reparable generations that the bases condemned.

4.5.4. BASE RTS. This is the base RTS OIM demand data for the base period, up to 2 years based upon the PBD and the asset cutoff date. It represents those OIM reparable generations that the bases were able to repair.

4.5.5. RTS EXCL IND. This is the base RTS exclusion indicator, file maintained by the ES. When the base RTS exclusion indicator reflects an "X," SIRS will ignore any base RTS and base condemnations in the computation of OIM RAP. (See **paragraph 2.25**.)

4.5.6. OIM PAST PRGM. This is the item's total OIM program for the base period, up to 2 years, based upon the PBD and asset cutoff date.

4.5.7. TOIMDR MAH. The moving averages are computed from the recorded base period data, disregarding manually entered RAP. A maximum of eight quarterly moving average TOIMDRs, as computed by PRELOG, are displayed with the most recent qtr on the left and the oldest qtr on the bottom right. Zero demand rates are displayed.

4.5.8. TOIMDR QTRLY. The TOIMDRs are computed from recorded base period data, disregarding manually entered RAP. Twelve qtrs of TOIMDR are displayed from the most recent qtr (on the left) to the oldest (bottom right). Zero demand rates are displayed.

4.5.9. EQ. This is the number of the equation displayed. The number will be equal to 1 through 9.

4.5.10. Y = A + B * X ** -X.XX. This is the forecasting equation and exponent variable used in the equation.

4.5.11. A = X.XXXX. This is the computed value of A used in the forecasting equation. This is a signed field.

4.5.12. B = ZX.XXXX. This is the computed value of B used in the forecasting equation. This is a signed field.

4.5.13. R-SQUARED = X.XXXX. This is the computed "goodness of fit" as measured by the coefficient of determination of the forecasting equation. This is a signed field.

4.5.14. FIT DMND RT. This is the PRELOG computed demand rate trend plot points for the first 12 qtrs.

4.5.15. PROJ DMND RT. This is the PRELOG computed demand rate plot points predicted for the next 22 qtrs.

4.5.16. UPPR CTL LIM and LOW CTL LIM. This is the 16 upper control limits and the 16 lower control limits, or prediction intervals, which indicate the validity of the forecast. A narrower interval increases the confidence in the forecast.

4.5.17. The hard copy PRELOG Equations Report is automatically generated for the ES after each Initial and Final computation. The hard copy report can be selected from the Output Products EPSS ES Reports screen, SIRS OP EPSS (see **paragraph 5.4**), by SGM; by part number and CAGE; or by site, DIV, and ES. The hard copy report can also be selected from the Output Products OPSS OPR Reports screen, SIRS OP OPSS (see AFMCMAN 23-101, Volume 2, paragraph 4.2.), by SGM; by site; by site and DIV; by site, DIV, and ES; or with no selection to get data for all sites. Historical data can be printed by selecting a valid AS OF date on the selection screen. The hard copy report shows the general data for the SGM as described in **paragraphs 4.5.1** through **4.5.8**, followed by the data for each of the nine equations as described in **paragraphs 4.5.9** through **4.5.16**, and then a page break.

4.6. PRELOG Selected Information. The Display PSI PRELOG Selected Info screen displays information about the SGMs that were selected for PRELOG screening. The SGMs selected are those with a PRELOG factor indicator file maintained by the ES (see **paragraph 4.1.3**), and those SGMs without a PRELOG indicator, but with demand data equal to or greater than the trend test (T-TEST) and/or error level (ERRLEV) analysis value. The data is in sequence by

DIV/ES code and SGM for the selected site. (This screen may take several minutes to display.) Change the AS OF date to view historical data. The hard copy PRELOG Selected Info report can be selected from the Output Products OPSS OPR Reports screen, SIRS OP OPSS (see AFMCMAN 23-101, Volume 2, paragraph 4.2.), by site; by site and DIV; by site, DIV and ES; or with no selection to get data for all sites. Historical data can be printed by selecting a valid AS OF date on the selection screen. Data displayed are the site, division/ES Code (DIV/ES), the item name (ITM NM), unit price (UNIT PRICE), and ERRC. The indicator (IND) will display *** for a SGM that was selected for PRELOG output even though the factor indicator does not require it. The indicator will display a "P" for a SGM that does not have a PRELOG factor indicator, but would have been automatically selected for PRELOG. Also displayed are the Computed Moving Averages (MV AVG) (see **paragraph 4.5.7**), Computed TOIMDRs (QTR DMND RT) (see **paragraph 4.5.8**), OIM PAST PRGM (see **paragraph 4.5.6**), T STAT (see **paragraph 4.2.2**), and ERROR LEVEL (see **paragraph 4.2.3**).

4.7. PRELOG Error List (PEL). The Display PEL PRELOG Error List screen is page 1 of the two screens that display PRELOG error data.

4.7.1. Data can be accessed by site; by site and DIV; or by site, DIV, and ES code. Change the AS OF date to view historical data. If there are no error records for the selection criteria, "No Data Meets the Selection Criteria" is displayed at the bottom of the screen. This product is printed in NSN sequence. The D200A/F site OPR can request the hard copy product, PRELOG Error List and Summary Report (Page 1) from the Output Products OPSS OPR Reports screen SIRS OP OPSS (see AFMCMAN 23-101, Volume 2, paragraph 4.2.), by site; by site and DIV; by site, DIV, and ES; or with no selection to get data for all sites. Historical data can be printed by selecting a valid AS OF date on the selection screen.

4.7.2. This report displays the SGMs with one of the following conditions:

4.7.2.1. PLOT RANGE IS LESS THAN .001. This item will appear in the PRELOG Equations report because PRELOG forecasting was performed for the SGM. However, the graph has been suppressed because the plot range is less than .001.

4.7.2.2. T STAT IS ZERO. This indicates that the PRELOG computation rejected the SGM because the T- STAT and ERROR LEVEL were both less than their respective cutoff values, and T STAT was equal to zero. The item shows absolutely no trend.

4.8. PRELOG Error Summary (PES). Display PES PRELOG Error Summary screen is page 2 of the two screens that display PRELOG error data.

4.8.1. The PES screen displays a summary of the errors in the PRELOG computation. Data can be accessed by site; by site and DIV; or by site, DIV and ES code. (This screen may take several minutes to display.) Change the AS OF date to view historical data. The D200A/F site OPR can request a hard copy product, PRELOG Error List and Summary Report (page 1) and PRELOG Error List and Summary Report (page 2) from the Output Products OPSS OPR Reports screen, SIRS OP OPSS (see AFMCMAN 23-101, Volume 2, paragraph 4.2.), by site only. This summary will also be printed as the second part of the PRELOG Error List. Historical data can be printed by selecting a valid AS OF date on the selection screen.

4.8.2. This report displays the total number of SGMs that had errors in the PRELOG computation.

4.8.2.1. < 5 Moving Averages. This is the number of SGMs that have less than five past qtrs of TOIMDR moving averages.

4.8.2.2. All Zero Demand Rates. This is the number of SGMs with all demand rates equal to zero.

4.8.2.3. < X Positive Demand Rates. The number of SGMs that failed to equal or exceed the D200A/F site OPR established variable requirement for X number of positive demands rates (see PRELOG MIN NUMBER PAST TOIMDR, AFMCMAN 23-101, Volume 2, paragraph 3.24.4.).

4.8.2.4. Test > / = Not PRELOG. The number of SGMs, with a factor indicator other than PRELOG, which tested equal to or greater than the T-TEST and/or Error Level test values. (Therefore, the SGM "passed.") There are totals displayed under T-TEST and Error Analysis. It is possible for an item to be counted in both of these totals.

4.8.2.5. Test > / = PRELOG Ind. This is the number of SGMs with a factor indicator which indicates PRELOG that tested equal to or greater than T-Test and/or error level test values. (Therefore, the SGM "passed.") There are two totals displayed under T-TEST and Error Analysis. It is possible for an item to be counted in both of these totals.

4.8.2.6. Test < PRELOG Ind. This is the number of SGMs with a factor indicator which indicates "PRELOG Computation" that tested less than the T-Test and error level values. (Therefore, the SGM "failed.")

4.8.2.7. Test < Not PRELOG. This is the number of SGMs, with a factor indicator other than PRELOG, which tested less than the T-Test and error level values. (Therefore, the SGM "failed.")

4.8.2.8. Totals. Total number of items with errors.

4.8.3. Input variables used in the PRELOG computation are displayed on the bottom of the screen. The TSTAT cutoff values are computed. The rest are file maintained by site on the Standard Data By site.

4.8.3.1. Dampening Factor: Y-N (yes-no) (see AFMCMAN 23-101, Volume 2, paragraph 3.24.2.).

4.8.3.2. Minimum Number of Positive Demands Rates: X (see AFMCMAN 23-101, Volume 2, paragraph 3.24.4.).

4.8.3.3. Confidence Level: XX.XX% (see AFMCMAN 23-101, Volume 2, paragraph 3.24.1.).

4.8.3.4. TSTAT Cutoff Value: 8 qtrs - X.XXXX, 9 qtrs - X.XXXX; 10 qtrs - X.XXXX; 11 qtrs - X.XXXX; 12 qtrs - X.XXXX.

4.8.3.5. Error Level Cutoff Value: X.XX (see AFMCMAN 23-101, Volume 2, paragraph 3.24.3.).

Chapter 5

EQUIPMENT SPECIALIST REVIEW PRODUCTS

5.1. Introduction. SIRS produces output products that provide information for ES reviews of the stock numbers for which that ES is responsible. The ES Review List and the Old Stock Number Usage products are described in this chapter, along with the Output Products ES selection screen. Also in this chapter are the explanations of other terms related to item failures and the ES Checklist. When the unit price is less than the unit repair cost, the item will be evaluated for possible consideration to be "consumable" versus a "reparable" based on economic considerations of "throw away" versus "repair it." If an item breaches the 75% threshold, the ES or engineer will review it for possible ERRC code change. For further information, see AFMAN 21-106, *Joint Regulation Governing the Use and Application of Uniform Source, Maintenance, and Recoverability Codes*; Air Force Handbook (AFH) 23-123, Volume 1, *Materiel Management Reference Information*, and Volume 2, Part Two, *Integrated Logistics System-Supply (ILS-S), Standard Base Supply System Operations*; AFMCMAN 23-3, *Cataloging and Standardization*; AFMCI 23-112, *Management of Items Subject To Repair (MISTR)*; Technical Order (T.O.) 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*; T.O. 00-25-195-WA-1, *AF Technical Order System Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipments*; and AFMCMAN 23-101, Volume 1.

5.2. ES Review List (AD200. AKEA#8ES). The hard copy Report ES Review List is "pushed" to the ES when the Initial, Final, and Summary SIRS computation products are printed. This list for each ES contains all items which require action or review for the cycle. This product provides, by ES code, the buy, repair, termination, and excess quantities and dollars for each of the items within an ES code. Also, the product provides messages to indicate potential discrepancies reflected on the items assigned to the ES code. The ES should use this product to help in their review of items. The Display IRL IMS/ES Review List screen can also be viewed via the path SIRS DIS PFI. The Display IRL IMS/ES Review List screen displays data that will be reviewed. The menu allows the user to sort stock numbers by site code, DIV code, IMS code, and ES code. The user must select one of the following: no compute, termination, buy, excess, or repair. To produce Display IRL IMS/ES Review List screen, the site code, DIV code, and ES code were typed, then Enter was pressed. To see additional data for this ES, press the Forward button. Some items will also have messages listed to identify possible discrepancies in the data elements resident on the SIRS database (see **Table 5.1**). Anyone with access to SIRS can access the IRL screen. Typing any letter or number in the block to the left of a message and pressing Enter will cause SIRS to put the last 3 positions of the user's id into that block. The purpose of the block to the left of the message is to let a user annotate that the condition has been reviewed and/or fixed.

Table 5.1. Screen Elements and Messages of Display IRL IMS/ES Review List Screen.

	Screen Element	Explanation
1	NSN SGM/NSN CSN	Listed under NSN SGM is the SGM NSN for the assigned item. If there are substitute items (NSN Current Stock Number) within the subgroup, they will be offset underneath the NSN SGM.
2	ITEM CAT	Displays the item category of the item, either "I" (for INS), "S" (for NSO), blank (active item), or "L," "Y," or "Z" (life-of-type buy) item. (See AFMCMAN 23-101, Volume 4, paragraph 1.6.)
3	CONDITION	Displays either "Buy," "Repair," "Termination," or "Excess."
4	QUANTITY	The quantity projected for the condition displayed.
5	DOLLARS	The total dollars projected for the quantity of the condition displayed.
6	Messages	xxxxx means that various data elements could be identified with this message. Some of the possible messages are listed in line 7 thru 22 of this table.
7	COMP xxxxx JR CNDMN PCT > 100	The xxxxx JR condemnation percent used in the computation is greater than 100%. Check for the data element for validity. (See **paragraph 2.17.**).
8	xxxxx > STD DEV CHK	This means that the current computed percent is very different from the average. The ES should check the data that was used to compute this percent. SIRS computes an average or mean from the computed percentages for the past 7 qtrs and compares that number to the current computed percent. The variance is compared to the value MAX NR OF STD DEV on the Standard Data Table (see AFMCMAN 23-101, Volume 2).
9	xxxxx > STANDARD	The data element has been compared to the corresponding default value on the Standard Data Table - ERRC (see AFMCMAN 23-101, Volume 2). Check the data element for validity.
10	xxxxx EXCEEDS STD	Same as item 9 above.
11	xxxxx EXC STD DEV	Same as item 8 above.
12	DEMAND DATA NOT FOUND	Item has no usage. (See **Chapter 1**.)
13	DEP REP GENS W/ ITEM PRGM SEL CD =000	This item has depot reparable generations but the program select code indicates no depot level maintenance program which is an error. Research and file maintain either the correct depot reparable generations in SIRS or the correct depot program in API system, D200F (see **paragraph 1.8.**).
14	DEPOT CNDMN	The depot condemnations are less than the MISTR

	ARE < NRTS-JR CNDMN	condemnations. Research and file maintain the correct values. (See **paragraph 2.17**.)
15	FORECAST xxxxx PCT	This identifies which percent was file maintained instead of being computed by SIRS. Check for validity. (See **Chapter 2**.)
16	INPUT PROPER APPL PRGM SEL CODE (APSC)	When the IPSC is all zeroes and the item is not a container (containers have a FSC = 8145), this message is produced. Research and file maintain the correct APSC in API. (See **paragraph 3.26.**).
17	ITEM SHOULD BE REVWED FOR CATG CHG	Item is coded INS or NSO, but should be coded active, based on the item's computed factors, which are not being used in the computation. Review usage and computed factors for validity and consider changing ICC. (See AFMCMAN 23-101, Volume 4, paragraph 1.6. and **Chapters 1** and **2**.)
18	MISTR CHANGED FROM HIGHER ASSEMBLY	This is a warning message that the item's MISTR program may have changed because a "for real" re-computation was run for this item's NHA. Therefore, this item's requirements may have changed.
19	USE FACTORS DID NOT SUM TO ONE	The ES can ignore this message. This is a warning message that the Aircraft Availability analyst at AFSC (AFSC/LGPS) should research.
20	TOTAL DEP REP GENS LESS THAN JR CNDMN	The total depot reparable generations are less than the JR condemnations. Research and file maintain the correct values. (See **paragraph 1.8**.)
21	MDS MISSING WITH MAJCOM USAGE	Standard Base Supply System shows demands for an item identified to a particular weapon system but that application has not been file maintained for the item. Or the base misidentified the weapon system from which the part was removed. Research and file maintain the correct application.
22	NO COMP	When the ES reviews the ES Review Listing before and during the initial cycle they will focus first on items that have Compute Code B, P, or R ("no compute" items) with on-order quantities. The ES will add values to the critical elements to ensure the system produces a computation worksheet in the Initial computation. See AFMCMAN 23-101, Volume 4, paragraph 1.14.3. No action is required on codes N and X.

5.3. Old Stock Number Usage (AD200. AENAB89D). This product is automatically "pushed" to the ES. This product is produced from the Requirements Item Identification Data (RIID) update prior to the Initial SIRS computation. Stock numbers cannot be manually added or deleted in SIRS. The SIRS database is updated by data from RIID that is updated from the Catalog Management System (D043). When a CSN is replaced with another CSN, the ES

should review the stock number usage data that was transferred and then file maintain corrections in SIRS to the recorded data.

Table 5.2. Data Elements of Old Stock Number Usage Report.

	Report Data Element	Explanation
1	ALC (site)	The site responsible for the management of the NSN.
2	DIV	The division at the site responsible for the management of the NSN.
3	ES	The ES at the site responsible for the management of some data for the NSN.
4	OLD STOCK NUMBER	The former CSN for which this usage data was recorded.
5	CURRENT STOCK NUMBER	The new CSN for which this usage data is now recorded
6	CURRENT/QTR	The last qtr of data, as of the asset cutoff date.
7	BASE NRTS	The base NRTS for the last 12 qtrs.
8	BASE RTS	The base RTS for the last 12 qtrs.
9	DEP RPR GEN	The depot reparable generations for the last 12 qtrs.
10	MISTR CNDMN	The MISTR condemnations for the last 12 qtrs.
11	BASE CNDMN	The base condemnations for the last 12 qtrs.
12	DEP CNDMN	The depot condemnations for the last 12 qtrs.
13	MISTR RPR	The MISTR repairs for the last 12 qtrs.

5.4. Output Products Equipment Specialist Selection Screen. Hard copy products are "pushed" to the ES after each SIRS computation for stock numbers that require action or review. It is possible to get a product for any stock number by using the Output Products SIRS Secondary Item Requirements screen, SIRS OP Menu. Select EPSS and press Enter to get the Output Products EPSS ES Reports screen. To get a product from a previous cycle, change the AS OF date. Type either the SGM or the part number and select the product to get a product for that stock number. Leave the SGM and part number blank and type the site, DIV, and ES code and select the product to get that product for all NSNs for that ES. Press Enter. The screen will display a message XXXXXXX job number has been requested. Use procedures for CA-DISPATCH at your location to get your printed product. The product should be printed at the printer designated as your default printer. The Factors/Usage Printout is described in **paragraph 1.13.** The PRELOG Equations and PRELOG Plots are described in **Chapter 4**. The MISTR RPR and Repair Data product is described in AFMCMAN 23-101, Volume 4, paragraph 8.6. The SRAN Usage report is described in AFMCMAN 23-101, **paragraph 1.1.5.** See AFMCMAN 23-101, Volume 1, paragraph 2.11.9. for the output product generation schedule.

5.5. Terms Relating to Failures of Items.

5.5.1. A number of terms are used to measure performance or reliability of hardware and to determine the frequency or rate of failure, removal, or replacement as it affects spare requirements. This rate or factor is divided into or multiplied by a future program in order to predict the number of actions or events that might occur.

5.5.2. In group I are the Mean Time To Failure (MTTF) related terms. The related terms are service life, life expectancy and Time Before Overhaul (TBO). Service life is the amount of

time normally expressed in terms of operating hours, missile months, equipment months, etc, which will elapse before a newly installed item will require removal and replacement, regardless of whether the item is repaired at base or depot level. TBO is the average time before overhaul, or the maximum time (replacement interval) before overhaul. All these terms indicate how long we expect something to last before replacement or retirement from use. To compute these factors we must know for each item failed or removed, how long the part was operated or used, in hours, months, miles, etc. The formula for MTTF is the total operations accumulated at time of removal divided by the number of removals. With the advent of the actuarial methodology of computing life expectancy, the MTTF method has several short comings. True life expectancy can be determined only by using the actuarial computation. For items having a maximum time or replacement interval, the computed MTTF service life, or life expectancy never exceeds the prescribed overhaul time; it is normally less due to premature failures.

5.5.3. In group II are the Mean Time Between Failures (MTBF) related terms. The related terms are Mean Time Between Maintenance Actions (MTMA), MTBD, and issue interval. MTBF and MTBD are similar terms where MTMA refers to mean time between maintenance actions and MTBD refers to demand intervals or true failures.

5.5.4. Operating Hours. This parameter, used in computing group II factors (and rates), has several variations.

5.5.4.1. Aircraft (Fleet) Flying Hours. This is the normal baseline used to measure past operating experiences and to express future flying hours (program).

5.5.4.2. Unit Operating Hours. This is generally based on aircraft flying hours but with corrections applied to obtain more refined results. These corrections (as used in the factor printout) are the QPA and percent application shown in **Table 5.3**

Table 5.3. Unit Operating Hours.

	Given:	
1	Pump Assembly, NSN 1650002037877	
2	Applications	All C-135
3	QPA	= 2 per aircraft
4	Percent application	= 80 percent (another pump used on 20% of fleet)
5	Flying hours (all C-135)	= 206000 (past 24 months)
	Computed:	
6	206000 x 2 (QPA)	= 412000 (pump program)
7	412000 x 80%	= 329600 (pump 1650002037877)
8	Past program, factor printout	= 3296 (x 100)

5.5.4.3. Unit Operating Hours. This is a more refined version of the paragraph above. In this case, an item is operated with an Elapsed Time Indicator (ETI) or event counter installed. Provision is made for recording actual unit operating time in hours at the time of failure or removal. Also, total installed ETI time can be collected at the end of prescribed periods (monthly or quarterly) and fed back to the manager to produce

actuarial products for more exact reliability analysis than otherwise available. It is anticipated that this kind of data will be increasingly available on newer weapon systems. Such data may be corrected to be compatible with aircraft flying hours as shown above. ETI time normally depicts actual usage including ground or test time and that portion of aircraft flight time during which the unit is actually energized. The correction K-factor is simply the ratio of total ETI time to flying time (see **Table 5.4**).

Table 5.4. Deriving K-Factor.

	Given:		
1	F-16C, selected bases, for 2 months		
	Computed:		
	(Hours)	**Total ETI Time / Flying Time**	**K-Factor**
2	Base A	600 / 200	= 3:1 (or 3)
3	Base B	1064 / 380	= 2.8:1 (or 2.8)
4	Base C	644 / 280	= 2.3:1 (or 2.3)
5	Total	2308 / 860	= 2.7:1 or (2.7) Mean

5.5.4.4. This K-factor is used to convert fleet flying hours to unit operating time for computing MTBF (reliability) (see **Table 5.5**).

Table 5.5. Computing Mean Time Between Failure.

	Given:	
1	F-16C fleet flying hours for 1 month	= 1200
2	Total item failures for fleet	= 6
3	K-Factor	= 2.7
	Computed:	
4	F-16C fleet flying hours for 1 month (1200) x K-Factor (2.7)	= 3240 unit operating hours monthly
5	Unit operating hours monthly (3240) /Total item failures for fleet (6)	= 540 hours MTBF

5.5.4.5. This K-factor is used to convert unit operating hours (ETI) to aircraft hours for establishing demand interval (see **Table 5.6**).

Table 5.6. Converting Unit Operating Hours to Demand Interval.

	Given:	
1	Total ETI time (F-16 fleet)	= 3240 hours
2	Total demands (same period)	= 6
3	Correction K-Factor	= 2.7
	Computed:	
4	3240 / 2.7	= 1200 flying hours
5	1200 / 6	= 200 flying hours per demand

5.5.4.6. As explained below, this value can be converted to the TOIMDR as used in SIRS. (The above ETI data normally do not need correction for QPA or percent application if they are based on installed units by NSN.)

5.5.5. Rates may be computed using one of the above group II factors, or directly from the basic data (see **Table 5.7** through **5.9**).

Table 5.7. Computing Failure Rate.

	Given:	
1	MTBF	= 800 hours
	Computed:	
2	Hours / MTBF	Failure Rate Per x Hours
3	1 / 800	= .00125 per 1 hour
4	100 / 800	= .1250 per 100 hours
5	1000 / 800	= 1.250 per 1000 hours

Table 5.8. Computing Total OIM Demand Rate.

	Given:	
1	OIM demand interval	= 1200 hours
	Computed:	
2	Hours / OIM demand interval	Total OIM Demand Rate Per x Hours
3	1 / 1200	= .0008 per 1 hour
4	100 / 1200	= .0833 per 100 hours

Table 5.9. Computing TOIMDR.

	Given:	
1	Base reparable generations	= 26
2	Past program (100 hours)	= 3296 (corrected by QPA and application %)
	Computed:	
3	Base reparable generations / past program	TOIMDR
4	26 / 3296	= .0079 (per 100 hours) *
	Note: By visual examination, this can be expressed as .00008 per hour or .0790 per 1000 hours (moving the decimal point).	

5.5.6. Group II Relationships. Failures are a discrete kind of event of significance in reliability analysis (MTBF) but not necessarily compatible with the determination of spares. **Table 5.10** indicates these relationships.

Table 5.10. Failures and Group II Relationships.

	Given:	
1	Base period	= 12 months
2	Base period program	= 48,000 hours
3	Number of maintenance actions (1)	= 120 (which includes repair in place, remove and replace, bench checked and repaired, bench check - serviceable, bench check - NRTS, and condemnations)
4	Number of failures (2)	= 100 (normally less than the total maintenance actions - excludes items replaced due to expiration of time and those found serviceable at time of bench check - must be repaired or condemned)
5	Number of demands (3)	= 80 (remove and replace actions (recurring) for which maintenance requests a serviceable spare from supply)
	Computed:	
6	*MTMA = 48000/120	= 400 hours
7	Rate = 120/48000	= .2500 (Rate/100)
8	*MTBF = 48000/100	= 480 hours
9	Rate = 100/48000	= .2080 (Rate/100)
10	*MTBD = 48000/80	= 600 hours
11	Rate = 80/48000	= .1667 (Rate/100)
	* Note that the same base period program is used (dividend) but the different kind of event (divisor) directly determines the value of the factor in each case. While a rate per 100 hours can be computed in each case, only the demand interval (and corresponding rate) is directly applicable to requirements computations. Thus, a	

	TOIMDR developed from MTMA or MTBF is correct only when the number of maintenance actions or failures equate to the number of demands. Otherwise, the rate is an estimate.

5.5.7. Summary. Service life or life expectancy for an item is computed differently than the demand interval of MTBF; therefore, they should not be used interchangeably because they are not the same parameter. For items having a maximum time for replacement, the serviceable life is normally less than the prescribed time due to premature failures. The MTBF or demand interval frequently exceeds the replacement time (when prescribed) due to the method of computation. If the item's PSC has '1' as the first position, the OIM demand rate is computed in terms of "per 100 hours," and the past program shown for the item is in terms of "installed hundred hours." A TOIMDR estimated by the ES for insertion in the Factors/Usage Printout must be stated in the same terms as above to avoid erroneous results. ETI time on components may be used to develop a TOIMDR through use of a correction factor (ratio of ETI time to flying time from a field sample) under conditions outlined above. An understanding of the variations which may occur in a rate (such as TOIMDR) during total life span of an item enhances the prediction capability for future hardware if the trend is charted and analyzed. The Factors/Usage Printout makes this procedure feasible by showing the computed rate each qtr.

5.6. Equipment Specialist Responsibilities. The ES will:

5.6.1. Review items' usage and factors for currency, accuracy, and completeness and file maintains any changes.

5.6.2. Review estimated rates/factors and file maintenance actions to ensure they are current, accurately computed, supported, and correct information in D200A.

5.6.2.1. Thoroughly document the methodology and formulas used in calculating the estimated rates/factors and the reasons for using them including key assumptions, facts, specific details, decision maker's names and retain IAW AFMCMAN 23-101, Volume 1, paragraph 1.15.9.

5.6.2.2. Prior to file maintenance, the ES will obtain documented TCO or lead ES signature/approval on all estimated condemnation factors/rates on all items unless Item Category Code is "I" or "Y" for insurance or "S" or "Z" for NSO. **Note:** INS/NSO items do not use any estimated factors/rates in their calculations of requirements.

5.6.3. Provide initial values for factors for new items.

5.6.4. Be responsible for the accuracy and completeness of applications input through D200F.

5.6.5. Assist the IMS/MM with validation of the ERRC, IAC, ICC, base repair cycle days, and depot repair cycle days.

5.6.6. Use estimated factors when past usage is not reflective of future maintenance activities or concepts.

5.6.6.1. On an exception basis, adjustments to past usage are acceptable when actions occurred that are not expected to recur in the future, and the usage history is distorted.

However, usage data will not be adjusted to preclude the need for estimating factors. Possible adjustments include:

5.6.6.1.1. Base condemnations that are not expected to recur at base level are file maintained to depot condemnations with a corresponding increase in base NRTS.

5.6.6.1.2. Base NRTS that have occurred due to conditions which have been corrected may be removed.

5.6.6.1.3. During periods of greatly reduced program due to grounding of aircraft or other circumstances, the TOIMDR may be distorted due to continued usage. The ES may estimate the usage factor to a rate that accounts for the grounding circumstance and annotate the reason and methodology used on the Notepad.

5.6.6.1.4. When MISTR condemnations exceed depot condemnations total, one or both are incorrect and need to be adjusted.

5.6.6.1.5. Depot reparable generations may include JR condemnations, NJR replacements, or depot NRTS which occur from transient aircraft or during MOD programs. If no overhaul program applies, or if the ES has knowledge of valid depot NRTS, that part of the depot reparable generations may be file maintained to base NRTS.

5.6.6.1.6. Usage for one-way substitutable items with equivalent reliability may be consolidated. However, usage should not be moved to the preferred item when a MOD was done to increase reliability.

5.6.6.2. Changing usage in D200A does not change the behavior of the maintenance organizations. If usage reporting indicates inappropriate maintenance actions or activities, the ES must work to correct the behavior of the maintenance organization so future reporting is improved. Corrective actions can range from notifying the maintenance customer of their failure to follow the proper maintenance concept, to changing the SMR code, and initiating corresponding cataloging and T.O. changes.

5.6.6.3. Changing significant reported quantities (more than statistical outliers) could create a disconnect between the using activity and the D200A forecast.

5.6.7. Review, adjust, or forecast factors based on total maintenance knowledge of the item. This includes, but is not limited to:

5.6.7.1. Extent of, or planned extension of, the base self-sufficiency program on the item. Any extension reduces the percentage of items reported as base NRTS and increases the percentage repaired at base level. Failure of bases to accomplish repair in the past period due to lack of facilities or parts must be considered in adjusting current percentages. Changes to restricting base level repair should also be considered.

5.6.7.2. Any changes to items on which a mandatory time change has been established. An increase in the specified time change decreases the number of reparable generations occurring at the bases. Conversely, a decrease in the specified time change increases the number of reparable generations occurring at the bases. Consider changes occurring during the past period which may affect the current rates or percents.

5.6.7.3. Planned materiel improvements or extent of compliance on modifications already authorized. Reliability changes affect the frequency of failure and thus the rate at which the base generates reparables. Engineering changes which affect maintainability or ease of base maintenance may influence the forecasted base NRTS percent.

5.6.7.4. Planned operational life of the item in the Air Force inventory. A pending or forecasted phase-out or phase-in of the item may affect all percentages projected for the future FY.

5.6.7.5. Planned changes in mission requirements.

5.6.7.6. Change in repair procedures that could change condemnation percents.

5.6.7.7. Changes in current or future conditions. While SIRS computes straight-line forecast factors based on past usage when using moving average, the ES should adjust these maintenance factors to show current and future conditions. The current factor must represent present reliability and maintenance conditions, so projections of repair workloads are accurate and readiness may be assessed. The first, second, third, fourth, and fifth year forecasts must represent expected changes so that purchasing, budgeting, and maintenance planning may be as accurate as possible.

5.6.7.8. Age of items, repair procedures, work specifications, and modifications. SIRS does not contain data concerning the age of items, repair procedures, work specifications, modifications, nor the effect that these might have on future factors. The ES should forecast the effect these conditions have or will have upon factors. When a forecast factor is input, the current rate should also be reviewed for accuracy and adjusted to represent current conditions.

5.6.8. Coordinate technical changes affecting requirements with the IMS/MM responsible for the expense items of known changes in configuration, added or deleted applications, superseded items, time change or shelf life intervals, or other factors which might affect future consumption or application of consumable items.

5.6.9. In coordination with engineers, identify the necessary data that needs to be reported on each item when a weapon system is determined to be handled initially under the ICS concept. The method of reporting this data may vary from entering the data into the maintenance systems to having a manual record provided to the ES for file maintenance into SIRS.

5.6.10. Measure contractor achievement for each affected factor reflected in SIRS if AFMC is to realize RIW guaranteed benefits.

5.6.10.1. The ES will maintain increased surveillance to ensure requirements determinations are accurate.

5.6.10.2. The ES will phase in the application data in the correct time frame of the computation time span, for the RIW item and the item it is replacing, if applicable.

5.6.10.3. The ES must review and update the factors while the RIW item replacement program is being performed. This adjustment must continue until the RIW item contract has been completed and the data reported to SIRS are considered realistic, for both the RIW item and the item being replaced, if applicable. When the unit price is less than unit repair cost, the item should be considered for a change to “consumable” versus a “reparable” based on economic considerations of “throw away” versus “repair it.” If an

item breaches the 75% threshold, the ES or engineer will review it for possible ERRC code change. For further information, see AFMAN 21-106; AFH 23-123, Volume 1 and Volume 2, Part Two; AFMCMAN 23-3, *Cataloging and Standardization*; AFMCI 23-112; Technical Order (T.O.) 00-20-3; T.O. 00-25-195-WA-1; and AFMCMAN 23-101, Volume 1, paragraph 11.7.

5.6.11. In order to prevent critical customer supportability gaps for items, consider the following actions when necessary/applicable:

5.6.11.1. Review product performance data and the Factors/Usage Printout to monitor maintenance requirements, performance, and trend changes which could lead to the creation of new critical items.

5.6.11.1.1. The ES will utilize programs that may provide prediction feasibility and thus additional prevention insight. These include the engine analyzer program, spectrometric oil analysis, and structural integrity.

5.6.11.1.2. The ES will attempt to predict changes in the forecasted rates used in computing spares when a summation of all the data available, combined with technical and engineering judgment, indicates future degradation of the reliability of an item, with increased demands on supply. This will result in an increase of spares required for that critical period.

5.6.11.1.3. When adverse trends (operations, program, assets, and usage) are detected, the ES will advise the IMS/MM so that a joint analysis and corrective action can be initiated, if needed. **Note:** Not all factors creating a critical item are controllable or predictable and thus preventable

5.6.12. Conduct a critical item analysis.

5.6.12.1. First, determine which of the below factors is/are responsible for the critical item condition:

5.6.12.1.1. Increase in actual operations (unprogrammed) or an increase in deployment (changes in pipelines, number of bases).

5.6.12.1.2. Changes in mission or operating concept.

5.6.12.1.3. Maintenance repair practice (repair level) not in agreement with the source and repair codes used in provisioning or computation of spares.

5.6.12.1.4. Decrease in item reliability (or failure to attain predicted reliability). Created by over-optimistic prediction of reliability, maintenance degradation (learning curve, etc.), changes in operating environment or mission, changes in acquisition source, changes in overhaul activity, increased wear-out due to increased age of the installed population for items with this characteristic (predictable), and failure of parts due to engineering or materiel deficiencies (unpredictable).

5.6.12.2. Secondly, take action to resolve the basic problem.

5.6.12.3. Third, use temporary selective management methods to relieve the situation. These may include: expedite delivery schedules, relax TO tolerances where noncritical causes of condemnations are a primary factor, and/or increase maintenance effort with priority repair or additional sources of repair.5.6.13. Estimate

factors/forecasts/requirements for life-limited items. Certain components of aircraft and engines, due to safety considerations, must be limited to the amount of time they may be installed and in use. When these life limits are reached, the parts must be removed and replaced. Life limits will vary depending upon commodity types and circumstances.

5.6.13.1. The ES must develop a schedule for replacement at the asset level based upon information of existing assets (both installs and spares) and their expired and remaining operational usage.

5.6.13.2. When developing a forecast for future needs on life limited replacements, the ES will research usage information to determine if unscheduled (or early) removals have precluded a future life limit replacement.

5.6.13.3. Once the future schedule is finalized at the asset level, the requirements for replacing life limited parts may be expressed with either a factor and/or additive (reference AFMCMAN 23-101, Volume 4, paragraph 5.4.20 for additional information).

5.6.13.4. For life limited replacements to be done at field level, an SRRB template is required. See AFMCMAN 23-101, Volume 1, Chapter 1 for calendar time change items.

5.6.13.5. When additive is determined as the best course of action, IMS/MMs and ESs will jointly develop additives. A TASK additive should be used in cases where an additive is considered appropriate; **Exception:** Propulsion items (outlined below).

5.6.13.6. For propulsion items,

5.6.13.6.1. The forecast for the life limits must be in accordance with the:

5.6.13.6.1.1. Enterprise planning of engine removals from the Comprehensive Engine management System (CEMS) and/or the Aerospace Engine Life Committee (AELC), or

5.6.13.6.1.2. MAJCOM approved SRRB template for field removals.

5.6.13.6.2. The ES will:

5.6.13.6.2.1. Input the factors and provide the additive data to the IMS/MM matching the factor development for input to the LIFE LIM REPL (Life Limited Replacement) additive.

5.6.13.6.2.2. Provide the additive data to the IMS/MM each time the factors are updated.

5.6.13.6.2.3. The IMS/MM will ensure the additive is updated to match the factors (see Volume 4, **Chapter 5**).

5.7. Validation of Usage, Factors and Application Data.

5.7.1. Item Application. What is it used on? How recently has this been validated? If unable to validate, why? What is the NHA? How many are installed in each higher assembly (quantity per assembly)? If unable to establish this, why? Is the application data current and correct?

5.7.2. Can other similar items be modified to satisfy this requirement?

5.7.3. Specifications. Are the current specifications essential to item reliability? How recently has this been reassessed for eliminating gold plating? If this has not been done, should it? When will this be done, if recommended?

5.7.4. History of Product Improvements. Past performance problems, solutions, status of completion. Past and pending Engineering Change Proposals (ECPs) and completion date. Anticipated ECPs and completion dates. Previous modifications and date completed. (Anticipated modifications and completion date and percent of completion as of program date.) What effect do these engineering changes have on service life? Should usage factors be adjusted on the basis of such changes?

5.7.5. Level of Repair. Can base repair be increased and thereby reduce depot repair of the NHA? Should this be recommended? If not, why? How recently has level of repair been reassessed?

5.7.6. New Items. Have factors from a functionally similar item been used? If so, identify item and its application. If not, what is the estimated TOIMDR based on? What is percent of base repair based on? What is percent of depot repair based on? What is base condemnation percent based on? What is the MISTR condemnation percent based on? What is base repair cycle based on? What is depot repair cycle based on? What is the PDM, EOH, and/or NHA MISTR NJR program percent based on? What is the PDM, EOH, and/or NHA MISTR NJR replacement percent based on? What is the PDM, EOH, and/or NHA MISTR JR condemnation percent based on? Be specific about what has been used in arriving at estimated factors.

5.7.7. Shelf Life. Does shelf life apply to this item? What is the shelf life? Has this been recently reevaluated? Can it be extended? Can it be eliminated through past or anticipated engineering changes?

5.7.8. Time Change Item. What is the mandatory replacement interval, if applicable? Is this still essential to system reliability? Can it be extended? If so, when will this be done? Can it be eliminated entirely? If so, when will this be done? How recently has this been reassessed? Has it been changed recently? If so, when? How long has the same replacement time applied? Have all approved changes been published? If not, why? If not, when will this be done? Are actual or anticipated changes built into usage factors used in current computation?

5.7.9. Item Usage and Item Replacements. Are these caused primarily by: Operating during flying hours? The period it is installed and in use, in aircraft, missile, or equipment? Failures discovered in PDM, EOH or NHA MISTR? Other causes of replacements?

5.7.10. Other Product Analysis. What products were analyzed? List them. Is data available? Is it adequate and realistic? What does it show? What actions have we taken as a result of analyzing the data? What actions are planned? When will they be taken? What are primary causes of failure? Can failures be decreased? If so, how? If so, when? Planned improvements. Past issue trend. What are the primary causes of NRTS? Do they seem compatible with planned level of repair? Can NRTS be decreased? If not, why? If so, how? If so, when will we do so? Planned improvements?

5.7.11. Past Usage. Has item usage significantly fluctuated during the past? What are the causes? Are such trends expected to continue? Should peaks be leveled and factors adjusted proportionately? If not, why?

5.7.12. Back Orders. Are current backorders (where there is a significant number) valid requirements when considered in relation to assigned mission of requesting organizations?

5.7.13. Stock Level. Considering item application and usage, would it be feasible to reduce or eliminate base levels on the item and stock at centralized points? Would base mission suffer as a result of this?

5.7.14. War Requirements. Considering item characteristics and function, would it be used during war?

5.7.15. Reclamation. Would it be feasible and economical to satisfy the requirement from reclamation? Is this recommended? If not, why?

5.7.16. Kits and Kit Items. It is known that many types of kits are bought without adequate efforts to determine whether the items in them are already available in the system. One depot site stocked both a field repair kit and a depot kit for generators. The same items that are in the field repair kit, plus some extra ones, are included in the depot repair kit. Even though the field repair kits were far into long supply, the depot site bought, in effect, all of the depot repair kits. Does this condition exist on this item? Has use of kit components been assessed for elimination of kit items which are not being used? Is this item included in a kit? Are components stock listed as logical spares and also included in kits? Is this a duplication of stockage?

5.7.17. Total OIM Demand Rate. Have trends been identified and analyzed? Does the current TOIMDR represent current conditions? Can item reliability be increased? Are trends accurately forecasted?

5.7.18. Base NRTS Percent. Have trends been identified and analyzed? Can NRTS percent be reduced? Are forecasts accurate and consistent with trend? Does the SMR code allow NRTS?

5.7.19. Base Condemnation Percent. What is the base condemnation percent? Are the condemnations the result of “fair wear and tear” or unusual circumstances? Can the base condemnation percent be decreased? If not, why? Does the SMR code allow base condemnations?

5.7.20. MISTR Condemnation Percent. Have trends been identified and analyzed? Are the condemnations the result of “fair wear and tear” or unusual circumstances? Are current and forecast factors accurate? Does this item have a NHA MISTR organic or contractor repair program?

5.7.21. Program Select Codes. Are there base reparable generations? Is the first position of the APSC a zero? If so, is this correct? Are there depot reparable generations? Does the second position of the APSC indicate the correct DLM program?

5.7.22. DLM Factors. Are the DLM factors consistent with the APSC? Are the DLM factors consistent with the usage data that have been reported? Are the usage data consistent with actual shop data?

5.7.23. RIW. Have factors been adjusted to compensate for RIW-type items? Are factors phased out on an old item and phased in on replacing an RIW item? Have application data been revised or adjusted?

5.7.24. Life Cycle Costing (LCC). Have factors been adjusted to compensate for LCC-type items? Are factors phased out on an old item and phased in on replacing an LCC item? Have application data been revised or adjusted?

5.7.25. Modifications. Have factors been adjusted due to modifications? Have the application data been time phased to compensate for modifications?

5.7.26. Is the FIC correct?

5.7.27. Base RTS Exclusion Indicator. Is there justification for using the base RTS exclusion indicator?

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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFH 23-123, Volume 1, *Materiel Management Reference Information,* 8 August 2013

AFH 23-123, Volume 2, Part Two, *Integrated Logistics System-Supply (ILS-S), Standard Base Supply System Operations,* 8 August 2013

AFI 16-501, *Control and Documentation of Air Force Programs*, 15 August 2006

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AFMCI 23-109, *Applications, Programs and Indentures*, 29 March 2005

AFMCI 23-112, *Management of Items Subject To Repair (MISTR),* 7 March 2006

AFMCI 23-121, *AFMC Improved Item Replacement Program (IIRP) and Demand Reduction Initiative (DRI) Guidance and Procedures,* 28 September 2006

AFMCMAN 23-101, Volume 1, *General D200A/N Information*, TBD

AFMCMAN 23-101, Volume 2, *System Level Data and OPR Reports (D200A, D200N)*, TBD

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AFMCMAN 23-101, Volume 4, *IMS/PMS/MM Data and Reports (D200A, D200N),* TBD

AFMCMAN 23-3, *Cataloging and Standardization*, 14 September 2010

AFMCMAN 23-5, *Reutilization & Disposition System (D035G) For Wholesale Items*, 9 June 2014

Title 10 United States Code Section 2210

Title 10 United States Code Section 2213

T.O. 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System,* 15 August 2015

T.O. 00-25-4-WA-1, *Depot Maintenance of Aerospace Vehicles and Training Equipment,* 15 October 2002

T.O. 00-25-195-WA-1, *AF Technical Order System Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipments,* 29 October 2012

Adopted Forms

AFMC Form 206, *Temporary Work Request*

Abbreviation and Acronyms

ABCS—Automated Budget Compilation System

AELC—Aerospace Engine Life Committee

AFLCMC—Air Force Life Cycle Management Center

AFSC—Air Force Sustainment Center

ALC—Air Logistics Complex

API—Applications, Programs, Indentures

APSC—Application Program Select Code

AR—Attrition Reserve Aircraft

BAI—Backup Aircraft Inventory

BES—Budget Estimate Submission

BPPBS—Biennial Planning, Programming and Budget System

CAGE—Contractor And Government Entity

CAV AF—Commercial Asset Visibility Air Force

CCB—Configuration Control Board

CEMS—Comprehensive Engine Management System

CSN—Current Stock Number

CSRD—Computer Systems Requirements Document

DLM—Depot Level Maintenance

DMISA—Depot Maintenance Interservice Support Agreement

DoD—Department of Defense

DRI—Demand Reduction Initiative

ECP—Engineering Change Proposal

EOH—Engine Overhaul

ERRC—Expendability, Recoverability, Reparability Category

ES—Equipment Specialist

ETI—Elapsed Time Indicator

EY—Extended Year

F/M—File-Maintained

FEEMS—Field Engine Exchangeable Management System

FIC—Factor Indicator Code

FMS—Foreign Military Sales

FSC—Federal Stock Class

FUP—Forecasted Unit Price

FY—Fiscal Year

GUI—Graphical User Interface

I&S—Interchangeability and Substitutability

IAC—Item Activity Code

ICC—Item Category Code

ICS—Interim Contractor Support

IIRP—Improved Item Replacement Program

IMS—Inventory Management Specialist

IPSC—Item Program Select Code

JR—Job Routed

LCC—Life Cycle Costing

LRS—Logistics Readiness Squadron

MAD—Mean Absolute Deviation

MAH—Moving Average History

MAJCOM—Major Command

MD—Mission Design

MDS—Mission Design Series

MICAP—Mission Capability

MIEC—Mission Item Essentiality Code

MISTR—Management of Items Subject To Repair

MOD—Modification

MTBD—Mean Time Between Demands

MTMA—Mean Time Between Maintenance Actions

MTTF—Mean Time To Failure

NHA—Next Higher Assembly

NIIN—National Item Identification Number

NIMSC—Nonconsumable Item Materiel Support Code

NJR—Non Job Routed

NRTS—Not Reparable This Station

NSN—National Stock Number

NSO—Numeric Stockage Objective

O&ST—Order and Shipping Time

OIM—Organizational and Intermediate Maintenance

OPR—Office of Primary Responsibility

OSD—Office of the Secretary of Defense

OWRM—Other War Reserve Materiel

PA—Program Authorized

PAA—Primary Aircraft Authorized

PAI—Primary Aircraft Inventory

PB—President's Budget

PBD—Program Begin Date

PDM—Programmed Depot Maintenance

PEC—Program Element Code

PFMR—Project Funds Management Record

PICA—Primary Inventory Control Activity

PMS—Production Management Specialist

POM—Program Objective Memorandum

PRA—Projected Requirements and Assets

PRELOG—Predictive Logistics

PSC—Program Select Code

QDR—Quality Deficiency Report

QPA—Quantity Per Application

qtr—Quarter

RAP—Rates And Percents

RBL—Readiness Based Leveling

RCO—Resource Control Officer

RDE—Requirements Data Exchange

RE21—Repair Enterprise for the 21st Century

REMIS—Reliability and Maintainability Information System

RIID—Requirements Item Identification Data

RIW—Reliability Improvement Warranty

RTS—Reparable This Station

SCMG—Supply Chain Management Group

SCMS—Supply Chain Management Squadron

SEC—System Essentiality Code

SGM—Subgroup Master

SIRS—Secondary Item Requirements System

SMCW—Subgroup Master Computation Worksheet

SMR—Source, Maintenance and Recoverability

SOR—Source Of Repair

SPD—Standard Program Designator

SRAN—Stock Record Account Number

SRC—Source Reference Code

SRRB—Spares Requirement Review Board

TAI—Total Aircraft Inventory

TBO—Time Before Overhaul

TCTO—Time Compliance Technical Order

TMS—Type Model Series

T.O—. — Technical Order

TOIMDR—Total Organizational and Intermediate Maintenance Demand Rate

WRM—War Reserve Materiel

Terms

Acquisition— Obtaining logistics support, supplies, or services under an acquisition agreement or under a cross-servicing agreement. This includes purchasing (whether for payment in currency, replacement-in-kind, or by exchange for equal value), renting, leasing, or any method of temporarily obtaining logistics support, supplies, or services. Reference DoDM 4140.01, Volume 1, *DoD Supply Chain Materiel Management Procedures: Operational Requirements*.

Activity— A unit, organization, or installation performing a function or mission, (e.g., reception center, redistribution center, naval station, naval shipyard). Reference Joint Publication 1-02, *DoD Dictionary of Military Terms*.

Additive Requirement— Requirements that are supported by projected requirements (e.g., modifications) rather than past demand experience. Requirements computed outside the recoverable computation. Reference AFI 23-101.

Assembly— In logistics, an item forming a portion of equipment that can be provisioned and replaced as an entity and which normally incorporates replaceable parts or groups of parts. Reference DoDM 4140.01, Volume 2, *DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning*.

Automated Budget Compilation System (ABCS)— An online, real-time main frame system that resides on the Logistics and Sustainment Management Data Bank (LMDB)(D075). It is used to prepare budget submissions for both buy and repair of AFMC- managed reparables and consumables. Reference AFMCI 23-112, *Management of Items Subject to Repair (MISTR).*

Budget— A planned program for a fiscal period in terms of estimated costs, obligations, and expenditures. Reference AFMAN 65-604, *Appropriation Symbols and Budget Codes*.

Cancellation Request— A transaction that allows a requisitioner or other authorized activity to request cancellation of all or a portion of the quantity of materiel ordered in a previously submitted requisition. Reference DoDM 4140.01, Volume 5, *DoD Supply Chain Materiel Management Procedures: Delivery of Materiel.*

Component— In logistics, a part or combination of parts having a specific function, which can be installed or replaced only as an entity. Reference DoDM 4140.01, Volume 6, *DoD Supply Chain Materiel Management Procedures: Materiel Returns, Retention, and Disposition.*

Computation Asset Cutoff Date— The last day of each calendar quarter (31 December, 31 March, 30 June, and 30 September). The Secondary Item Requirements System (SIRS)(D200A) computes items using data that are current on these dates.

Compute Code— One-digit alpha code assigned to all subgroup master items in SIRS that tells D200A to perform or not perform a computation. SIRS generates the compute code; it cannot be file maintained.

Consumable Item— An item of supply or an individual item (except explosive ordnance and major end items of equipment) that is normally expended or used up beyond recovery in the use for which it is designed or intended. Reference DoDM 4140.01, Volume 2.

Contract— A mutually binding legal relationship obligating the seller to furnish the supplies or services (including construction) and the buyer to pay for them. It includes all types of commitments that obligate the Government to an expenditure of appropriated funds and that, except as otherwise authorized, are in writing. In addition to bilateral instruments, contracts include (but are not limited to) awards and notices of awards; job orders or task letters issued under basic ordering agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications. Contracts do not include grants and cooperative agreements covered by 31 U.S.C. 6301, *et seq.* Reference FAR, Subpart 2.1.

Contract Termination— The cessation or cancellation, in whole or in part, of work under a prime contractor a subcontract for the convenience of, or at the option of, the government, or due to failure of the contractor to perform in accordance with the terms of the contract. Reference AFI 23-101.

Contractor— An authorized Air Force contractor that occupies the facilities of, or receives support from, another Air Force, Air Force Reserve, or Air National Guard unit. Reference AFI 65-601, Volume 1.

Coordination— The necessary action to ensure adequate exchange of information to integrate, synchronize, and deconflict operations between separate organizations. Coordination is not necessarily a process of gaining approval but is most often used for mutual exchange of information. Reference AFI 23-101.

Data Element— A basic unit of information in a business transaction. Reference DLM 4000.25, *Defense Logistics Management Standard*.

Demand— An indication of a requirement, a requisition, or similar request for an item of supply or individual item. Demands are categorized as either recurring or non-recurring. Reference DoDM 4140.01, Volume 1.

Depot Maintenance Inter—Service Support Agreement (DMISA) - A formalized agreement similar to a contract whereby one Service (the Agent) obligates itself to provide depot maintenance support for another Service (the Principal). (Source: OPNAVINST 4790.14A, et.al) For the purpose of this manual, DMISA also covers depot maintenance provided for under inter-Service support agreements not covered by the referenced joint regulation. Reference DLM 4000.25.

Depot Repair Cycle (DRC)— Begins when a maintenance activity determines that an unserviceable item can be repaired and end when the unserviceable item is restored to serviceable condition and is recorded as such on supply records. Include all time between the beginning and end of the repair cycle in computing repair-cycle requirements, except avoidable time, such as time expended due to the lack of a repair requirement or inefficiency. Beginning and ending points of each segment of the total repair cycle are described in Appendix 4 of this enclosure. Do not include increases to the repair cycle time due to awaiting parts in computing repair cycle. Reference DoDM 4140.01, Volume 2.

Depot Stock Levels— Depot stock levels represent those levels that are required in support of depot overhaul requirements. These are subdivided into two categories, job-routed (JR) and non job-routed (NJR) stock levels. JR items are those items that are repaired as part of a higher assembly repair. The stock level in support of JR overhaul requirements represents the amount of stock required to prevent delay of programmed overhauls during the subassembly O&ST. NJR items are those items that are removed during an overhaul and turned into supply. The NJR stock level requirement represents the quantity of stock required to support the overhaul line during subassembly O&ST. Reference AFI 23-101.

End Item— A final combination of end products, component parts, or materials that is ready for its intended use, e.g., ship, tank, mobile machine shop, or aircraft. Reference DoDM 4140.01, Volume 2.

Excess— Materiel at a retail supply activity that is excess to that activity's requirements and is subject to return to the wholesale materiel manager, redistribution within the DoD supply chain, or to disposal by Defense Logistics Agency Disposition Services. Reference DoDM 4140.01, Volume 1.

Expendability, Recoverability, Reparability, Category (ERRC) Code— A code employed by the Air Force to categorize AF inventory into various management groupings. The three position ERRC Designator and the one-position ERRC Code are completely interchangeable. Generally, the three position is used in correspondence and publications and the one position in automatic data processing programs (space premium). Reference DoD 4100.39-M, Volume 10, Table 69.

Extended Year (EY)— The Fiscal Year that follows the Budget Year.

Failure— The event, or inoperable state, in which any item or part of an item does not, or would not, perform as previously specified. AFI 20-106 (IP), *Management of Aviation Critical Safety Items.*

Federal Supply Classification (FSC)— A series of four numbers at the beginning of the national stock number (NSN) that designates the general commodity grouping of the item of supply (e.g., Class 5130 designates hand tools, power driven). Reference DoDM 4140.01, Volume 3, *DoD Supply Chain Materiel Management Procedures: Materiel Sourcing.*

File Maintenance— The act or method of making changes, deletions, or additions to elements of data on an established computer file.

Fiscal Year (FY)— The 12month period which begins 1 October of one year and ends 30 September of the next. Reference AFMAN 65-604.

Forecast Unit Price (FUP)— A nine-position numeric element that is determined by multiplying the unit price by the appropriate inflation factors in D200A. Valid entries are in dollar and cents format with two decimal places.

Foreign Military Sales (FMS)— That portion of the United States security assistance authorized by the Foreign Assistance Act of 1961, as amended, and the Arms Export Control Act of 1976, as amended. This assistance differs from the International Military Education and Training Program in that the recipient provides reimbursement for defense articles and services transferred. Also called FMS. (See Joint Publication 1-02.) Reference DLM 4000.25.

Insurance Item— A non-demand-based, stocked, essential item for which no failure is predicted through normal usage. However, if a failure were to be experienced or a loss should occur through accident, abnormal equipment or system failure, or other unexpected occurrence, lack of replacement item will seriously hamper the operational capability of a weapon system. Reference DoDM 4140.01, Volume 2.

Interchangeability and Substitutability (I&S)— Conditions which permit the exchange of one item for another without affecting design or performance beyond acceptable limits. Reference DoD 4100.39-M, Glossary.

Interchangeable Item— An item which possesses such functional and physical characteristics as to be equivalent in performance, reliability, and maintainability, to another item of similar or identical purposes, and is capable of being exchanged for the other item without selection for fit or performance and without alteration of the items themselves or adjoining items, except for adjustment. Reference DoD 4100.39-M, Glossary.

Inventory— Materiel, titled to the U.S. Government, held for sale or issue, held for repair, or held pending transfer to disposal. This definition covers the same population of items as the definition for inventory in Chapter 4 of Volume 4 of DoD 7000.14-R (Reference (f)). Inventory does not include tangible personal property to be consumed in normal operations, operating materials, and supplies as defined in DoD 7000.14-R. Reference DoDM 4140.01, Volume 1.

Inventory Management Specialist— Individual who performs analytical work in managing, regulating, coordinating, or otherwise exercising control over supplies, equipment, or other materiel. The work includes one or more phases of materiel management including initial planning, provisioning and requirements determination, acquisition and distribution, accountability, and ultimate issue for consumption, retention, or disposal. The work requires

knowledge of acquisition processes, automated records and control systems, materiel substitution criteria, and storage, issue, and disposal processes.

Item— An item is a single hardware article or a unit formed by a grouping of subassemblies, components or constituent parts. In the DoD, an item is any article produced, stocked, stored, issued, or used; or any product, including systems, materiel, parts, subassemblies, sets and accessories. Reference DLM 4000.25.

Item Activity Code (IAC)— One-position code used in SIRS to identify the cycle or cycles that an item must be reviewed.

Item Identification— A collection and compilation of data to establish the essential characteristics of an item that give the item its unique character and differentiate it from other supply items. Reference DoDM 4140.01, Volume 3.

Item Management Control System (IMCS)(D043)— Information technology system that provides for AF participation in the Federal Cataloging Program, as set forth by DoD 4100.39M. D043 interfaces with FLIS and numerous other databases, and is the central repository of Federal and AF logistics data for over two million AF-used items of supply. Reference AFMCMAN 23-3.

Item Management Team— Functional group consisting of the IMS/MM, ES, PMS, Logistics Management Specialist, and Engineer.

Item Manager Wholesale Requisition Process (IMWRP)(D035A)— An information technology system that provides worldwide property accounting, inventory control, and distribution/redistribution of materiel at the wholesale level (reference AFMCMAN 23-5, Volume 1, *D035A, D035B, RAMP and WHSL Module Data Subsystems*).

Item Review Listing (IRL)— Web-based tool designed for the IMS/MM and PMS to use during file maintenance. It presents the list of NSNs for the IMS/MM/PMS and ES in the order of most important to review, down to least important to review. It also provides the capability to document which items they have reviewed/worked. The IRL in IRIS also provides the ability for IMS/MM, PMS, and ES supervisors to monitor the progress of their personnel during the review/file maintenance window(s).

Kits— Assembled repair parts and components required for maintenance support of an end item. Reference DoDM 4140.01, Volume 4, *DoD Supply Chain Materiel Management Procedures: Make and Maintain Materiel*.

Life—Limited Aircraft Parts - Any part for which a mandatory replacement limit is specified in the type design, the Instructions for Continued Airworthiness, or the maintenance manual. Title 14, Code of Federal Regulations, Part 43, *Maintenance, Preventive Maintenance, Rebuilding, and Alteration*, current edition.

Life—of-Type Buy (LOTB) - A one-time procurement, when all cost effective and prudent alternatives have been exhausted, for the total future requirement of an item that is no longer expected to be produced. The procurement quantity is based upon demand or engineering estimates of wear out rates or item malfunction or failure sufficient to support the applicable equipment until phased out. Reference DoDM 4140.01, Volume 2.

Maintenance (Materiel)— All action taken to retain materiel in a serviceable condition or to restore it to serviceability. It includes inspection, testing, servicing, classification as to

serviceability, repair, rebuilding, and reclamation. (Source: Joint Publication 1-02). Maintenance, used generically in this manual, also includes evaluation, assembly, disassembly, conversion, and modification. Reference DLM 4000.25.

Master Item— The item/NSN in an I&S Family which is commonly regarded by the managing and using Services/Agencies as a suitable substitute for all other items in the family as the preferred item for procurement purposes. Reference DoD 4100.39-M, Glossary.

Materiel— All items necessary to equip, operate, maintain, and support military activities without distinction as to its application for administrative or combat purposes, excluding real property, installations, and utilities. Materiel is either serviceable (i.e., in an issuable condition) or unserviceable (i.e., in need of repair to make it serviceable). Reference DoDM 4140.01, Volume 1.

Materiel Condition— A classification of materiel that reflects its readiness for issue and use or to identify the action underway to change the status of materiel. Reference DLM 4000.25.

Materiel Management Aggregation Code (MMAC)— A two-position alphabetic code (AA thru ZZ) authorized to identify specific items (National Stock Numbers) to be managed by a specific manager at one of the Air Logistics Centers (ALCs), Contractor Inventory Control Points (**) or Special Cataloging Activities. The ** identifies a MMAC designated for use by a Contractor ICP. Reference DoD 4100.39-M, Volume 10, Table 66.

Materiel Manager— Any DoD activity or Defense Agency that has been assigned materiel management responsibilities for the DoD and participating federal agencies. The term includes responsibilities performed by either wholesale materiel managers or retail materiel managers: managing, cataloging, demand and supply planning, requirements determination and definition, procurement, distribution, overhaul and repair of reparable materiel, and disposal of materiel. Reference DoDM 4140.01, Volume 1.

Mission Item Essentiality Code (MIEC)— Three-position alpha/numeric code that designates the level of criticality of an asset to the mission. This code is broken down into: position 1 = System Essentiality, position 2 = Item Essentiality, and position 3 = Organization Essentiality. This code is provided to the bases by the major commands. Reference AFH 23-123, Volume 1.

Modification— A U.S. Government-approved change in the configuration of a part or item that offers a benefit to the U.S. Government by correcting deficiencies, satisfying a change in operational or logistic support requirements, or effecting a life-cycle cost savings. Reference DoDM 4140.01, Volume 2.

National Item Identification Number (NIIN)— The last 9 digits of the NSN that differentiates each individual supply item from all other supply items. The first 2 digits signify the National Codification Bureau that assigned the NIIN, while the last 7 digits are not significant and are sequentially assigned by the FLIS. All U.S. manufactured items have a National Codification Bureau Code of "00" (cataloged before 1975) or "01" (cataloged in 1975 or later). Reference DoDM 4140.01, Volume 9, DoD Supply Chain Materiel Management Procedures: Materiel Programs.

National Stock Number (NSN)— The 13-digit stock number replacing the 11-digit federal stock number. It consists of the 4-digit federal supply classification code and the 9-digit national item identification number. The national item identification number consists of a 2-digit National

Codification Bureau number designating the central cataloging office (whether North Atlantic Treaty Organization or other friendly country) that assigned the number and a 7-digit (xxx-xxxx) nonsignificant number. Arrange the number as follows: 9999-00-999-9999. Reference DoDM 4140.01, Volume 2.

Next Higher Assembly (NHA)— The next higher assembly on or with which the item is used as a subassembly, part, attachment, or accessory. Also, the classification of the higher assembly is indicated specifically in Groups and Classes of the Federal Supply Classification (Cataloging Handbook H2). May actually include components, subassemblies, assemblies and end items or systems. Reference DoD 4100.39-M.

Non—Consumable Item Materiel Support Code (NIMSC) - Alphanumeric codes assigned to non-consumable items, which indicates the degree of materiel support (numeric) or repair responsibility (alpha). Reference DoDM 4140.01, Volume 2.

Non—Job-Routed (NJR) - The procedure for repairing the Next-Higher Assembly (NHA) and the subindentured items separately. Reference AFMCI 21-156, *Operational Workloading, Planning and Scheduling Control*.

Not Reparable This Station (NRTS)— Term used to characterize the process of returning items that cannot be successfully repaired by a base maintenance repair shop to a repair activity designated by the wholesale item manager. Reference AFI 23-101.

Numeric Stockage Objective (NSO)— Essential items with low or sporadic demands or forecasts of failure. These items are stocked in minimum quantities. Reference AFI 23-101.

Operating Requirement— Ensures that all assets removed due to failure will be replaced at the time of removal. It is computed by multiplying the organizational/intermediate demand rate by the operating program. Reference AFI 23-101.

Order and Shipping Time (O&ST)— Average number of days between the initiation and receipt of stock replenishment requisitions assuming sufficient stock is available on the depot shelf to satisfy the requisition at the time the requisition is received. Reference AFI 23-101.

Organic— The capability of a Military Service or a Defense Agency to sustain logistics operations through U.S. Government organizational structures. Reference DoDM 4140.01, Volume 1.

Organizational Intermediate Maintenance (OIM)— That maintenance which is the responsibility of and performed by a using organization on its assigned equipment. These responsibilities normally include the inspection, service, lubrication, adjustment and replacement of parts, minor assemblies, and subassemblies. Reference AFI 23-101.

Other War Reserve Materiel (OWRM)— Consumable and reparable items required to sustain forces after the RSP support period. Reference AFI 25-101, *War Reserve Materiel (WRM) Program Guidance and Procedures*.

Overhaul— The process of disassembly sufficient to inspect all the operating components and the basic end article. It includes the repair, replacement, or servicing as necessary, followed by the reassembly and bench check or flight test. Upon completion of the overhaul process, the component or end article will be capable of performing its intended service life or service tour. Reference AFI 20-106 (IP).

Preferred Item— An item of supply which has functional or physical characteristics which render it a higher order of preference for use than that accorded to another similar item of supply. Reference DoD 4100.39-M.

Primary Inventory Control Activity (PICA)— The service or agency ICP designated as the single activity within the DoD responsible for providing materiel support. Reference DoDM 4140.01, Volume 2.

Program Office— An office created by the Component Acquisition Executive to complete the necessary actions associated with planning of an acquisition program. Reference DoDI 5000.02, *Operation of the Defense Acquisition System*.

Program Select Code (PSC)— A four-position code that determines the type(s) of item program(s) to be developed. It is assigned to each component that is expected to be removed from a higher assembly and replaced. The four-position PSC in D200A translates to a two-position PSC in D200F. Reference AFMCI 23-109.

Programmed Depot Maintenance (PDM)— Inspection and correction of defects that require skills, equipment or facilities not normally possessed by operating locations. Reference TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment*.

Property Loss— Unintended, unforeseen, or accidental loss, damage or destruction to Government property that reduces the Government's expected economic benefits of the property. Loss does not include purposeful destructive testing, obsolescence, normal wear and tear, or manufacturing defects. Loss includes, but is not limited to: items that cannot be found after a reasonable search; theft; damage resulting in unexpected harm to property requiring repair to restore the item to usable condition; or destruction resulting from incidents that render the item useless for its intended purpose or beyond economical repair. Reference DoDI 5000.64.

Provisioning— The management process of determining and acquiring the range and quantity of support items necessary to operate and maintain an end item of materiel for an initial period of service. Reference DoDM 4140.01, Volume 2.

Quantity Per Assembly (QPA)— The number of components that are installed in that component's Next Higher Assembly (NHA). Reference AFMCI 23-109.

Readiness Spares Package (RSP)— A kit consisting of selected spares and repair parts required sustaining operations (without resupply) at a base, a deployed location, or a dispersed location for the first month of conventional activity as projected in USAF war plans. Reference AFH 23-123, Volume 1.

Reduction— (As it refers to termination actions) An action to reduce or cancel quantities that have been requested for purchase on a PR or MIPR, but are not yet on a firm contract or priced exhibit. A reduction is accomplished with an amendment to the PR or MIPR.

Reliability Improvement Warranty (RIW) Item— An item that is under manufacturer warranty. When RIW-coded items fail, the retail supply system keys on RIMCS data to initiate shipment to a contractor using project code 390 and project name PACER WARRANT.

Reparable Item— An item of supply subject to economical repair and for which the repair (at either depot or field level) is considered in satisfying computed requirements at any inventory level. Reference DoDM 4140.01, Volume 10.

Requirements Computation— Any mathematical calculation performed to support requirements determination functions. Reference DoDM 4140.01, Volume 2.

Requirements Control Officer (RCO)— Individuals within the IMS groups that disseminate guidance, assist IMSs with SIRS issues and to help them understand secondary item processes and tasks. RCOs also consolidate and submit the data inputs for reports required by the site's D200A OPRs.

Requirements Item Identification Data (RIID)(D200E)— An information technology system that receives feeds from the Master Item Identification Control System (MIICS) (D043). It provides cataloging data and stock list changes. Reference AFMCI 23-109, Applications, Programs and Indentures.

Requisition— An order for materiel initiated by an established, authorized organization (i.e., a DoD or non-DoD organization that has been assigned a DoD activity address code) that is transmitted either electronically, by mail, or telephoned to a supply source within the DoD or external to the DoD (the General Services Administration, the Federal Aviation Administration, or other organizations assigned management responsibility for categories of materiel), according to procedures specified in Reference (a) and DLM 4000.25-1-M (Reference (u)). Reference DoDM 4140.01, Volume 2.

Research (Physical Inventory)— An investigation of potential or actual discrepancies between physical count and recorded balances. The purpose of research is to determine the correct balance and determine the cause of discrepancies. Reference DLM 4000.25.

Safety Level (SL)— The quantity of materiel required to be on-hand to permit continued operation in the event of a minor interruption of normal replenishment or a fluctuation in demand. Reference DoDM 4140.01, Volume 2.

Secondary Inventory Control Activity (SICA)— The service or agency inventory control point receiving materiel support from the PICA for selected logistics functions. Reference DoDM 4140.01, Volume 4.

Secondary Item— An item of supply that is not defined as a principal item and includes reparable components, subsystems, and assemblies, consumable repair parts, bulk items and material, subsistence, and expendable end items, including clothing and other personal gear. Reference DoDM 4140.01, Volume 1.

Secondary Item Requirements System (SIRS)— A wholesale information technology system aligned under the Requirements Management System (RMS). It computes the Air Force's secondary item requirements on an aggregate basis, and applies available worldwide assets to those requirements. It is assigned Data System Designator (DSD) D200A.

Service Code— One-digit alpha code that signifies the first position of the MAPAC and identifies the customer service. Reference DLM 4000.25, Appendix 2.2 and DLM 4000.25-1, *Military Standard Requisitioning and Issue Procures (MILSTRIP),* Appendix 2.2.

Shipment— Movement of materiel from point of origin to destination by any mode. Reference DLM 4000.25.

Source of Repair (SOR)— An industrial complex (organic, commercial contract, or inter-service facility) with required technical capabilities to accomplish depot repair, overhaul

modification, or restoration of specific types of military hardware or software. Reference TO 00-25-4.

Source Reference Code (SRC)— A system-generated code used to indicate the origin of the unit data.

Spares— For D200A purpose: Those parts in retail and wholesale supply; parts intransit between bases and depots; parts at the repair contractor facility or depot maintenance; parts intransit between bases, depots, and/or repair contractor facilities; on loan assets; and assets stored at a contractor facility. Spare parts, for D200A purposes, do not include: assets issued to base-level maintenance; SPRAM assets; bench stock issued to depot maintenance; and installed assets in NHA or end items.

Stock Level— Demand level or an adjusted level. Reference AFI 23-101.

Subgroup— A range of items within a family group which are interchangeable with each other. Items which have no interchangeable relationships with any other items are the sole members of their subgroup. Items which are not interchangeable are assigned different subgroup code values. DoD 4100.39-M.

Substitute Item— An item which possesses such functional and physical characteristics as to be capable of being exchanged for another only under specified conditions or for particular applications and without alteration of the items themselves or of adjoining items. This term is synonymous with the phrase "one way interchangeability", such as item B can be interchanged in all applications for item A, but item A cannot be used in all applications requiring item B. Reference DoD 4100.39-M, Glossary.

Supply Condition Code (SCC)— A one-position alphabetic code used to classify materiel in terms of readiness for issue and use or to identify action underway to change the status of materiel. Reference DLM 4000.25-2, *Military Standard Transaction Reporting and Accountability Procedures (MILSTRAP)*, Appendix 2.5.

Termination— An action to reduce or cancel an undelivered quantity of assets that are on a firm contract.

Unit Price— Indicates the cost or value of one unit of issue of an item. Reference AFH 23-123, Volume 1.

User— An individual, organization, or accounting entity that receives services. A user may be internal or external to the DoD Component. Reference DoD 7000.14-R, Glossary.

War Reserve Materiel— Consists of enterprise managed, dynamically positioned equipment and consumables that contribute to initial operations and provide initial support cross the full range of military operations. It enhances Agile Combat Support capability to reduce the time required to achieve an operational capability and/or produce an operational effect. Reference AFI 23-101.

Wholesale— The highest level of organized DoD supply that procures, repairs, and maintains stocks to resupply the retail levels of supply. Synonymous with wholesale supply, wholesale level of supply, wholesale echelon, and national inventory. DoDM 4140.01, Volume 1.