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Pamphlet 700-24

Sample Data Collection

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Sample Data Collection

Not applicable.

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Sample Data Collection

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I. INTRODUCTION

Purpose: This pamphlet is written for you, the soldier, but also with the purpose of providing everyone associated with equipment readiness with an understanding of the Army's Sample Data Collection (SDC) Program.

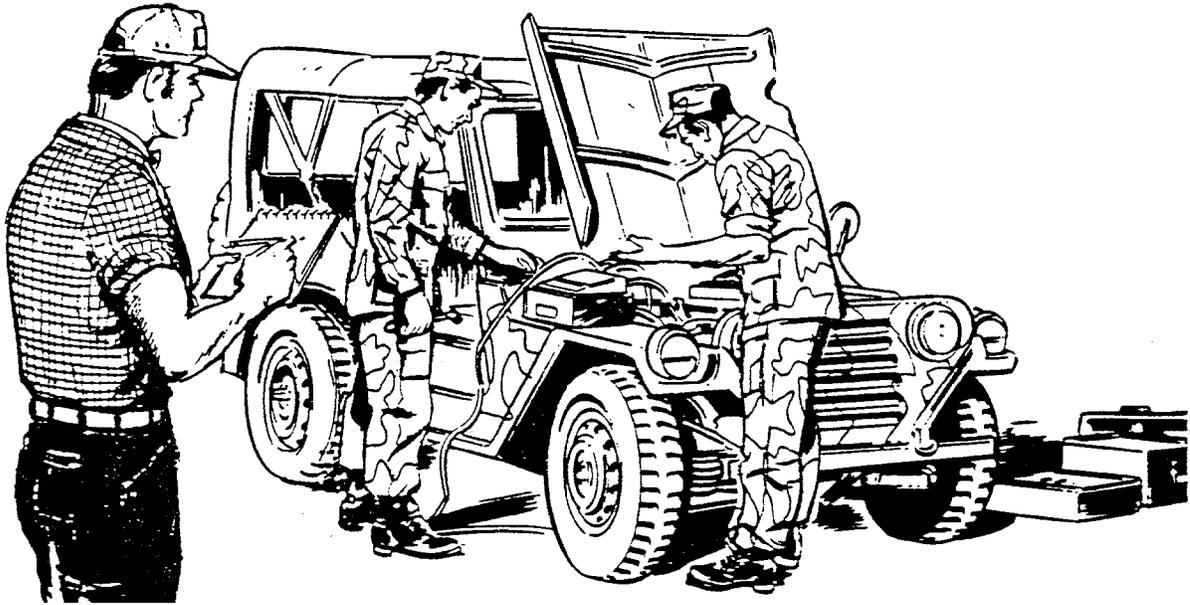


Figure 1-1. Army's Sample Data Collection (SDC) Program

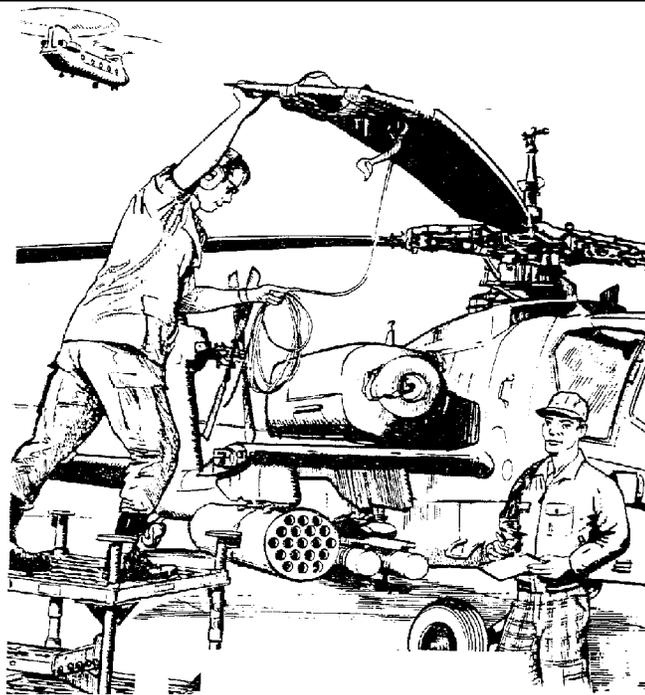


Figure 1-2. Army's Sample Data Collection (SDC) Program

II. GENERAL

a. **WHY SDC?** Before 1970, the Army employed a total maintenance management data collection system which required all Army units to collect data on all maintenance significant equipment in the inventory.

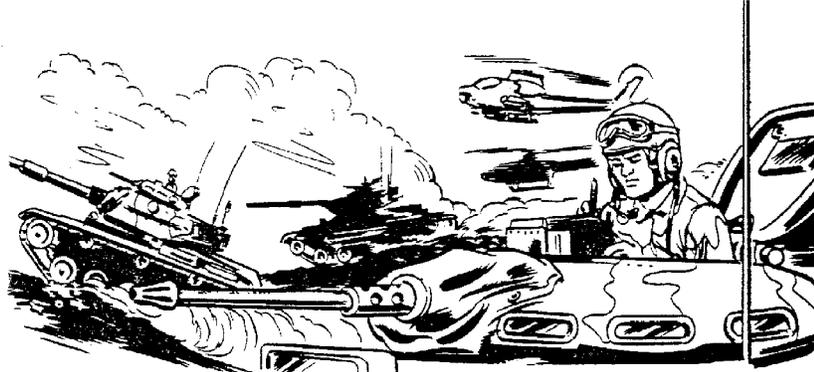


Figure 2-1. Data collection work

(1) The system was cancelled by DA for these reasons:

- The data collection work put a heavy burden on troops.
- The cost was too high.
- The data was unreliable.
- The volume of data was unmanageable.



Figure 2-2. Data collection work

(2) However, collection of data at the using unit level and its support unit was still needed on actual equipment performance by equipment users, planners and developers.

(3) Equipment undergoes thorough testing under simulated field conditions before it is approved for production and issue. However, it becomes a completely new “ball game” as far as performance and maintenance requirements are concerned once it is issued to the user for operation and support.



Figure 2-3. Data collection work

(4) The Army needs actual data on equipment operation and support in the hands of the user – to evaluate its effectiveness properly and determine requirements for logistic improvements.

(5) Headquarters, Department of the Army decided this could best be obtained by selective sampling, which would also conserve resources at all levels.

b. WHAT IS SDC? SDC is a method for selective reporting on specific equipment in accordance with procedures provided under AR 750-37 for collection of maintenance data.

(1) Collection is done on a specific kind of equipment in specific units and for specific objectives.

(2) Under AR 750-37, SDC, DA designates certain equipment for mandatory SDC projects, also the SDC proponent (command or activity responsible for the initiation of the SDC project) can justify the need for additional equipment performance data as discretionary SDC projects. Either way, periodically the proponent must document how the data was used to meet the stated objectives.

(3) The bottom line is that DA emphasis is placed on assuring that data reporting does not place an undue burden on the soldier. But it still makes sure that logisticians and engineers receive real world data on equipment performance in the hands of soldiers.

(4) This data is used to let equipment developers and equipment managers know how well their equipment is performing in the field and provides participating and like units with tailored feedback information.



Figure 2-4. Data collection work

(5) Feedback Information is provided to the major field commands and to the using unit through tailored reports and on-site mini-computers.

c. **WHEN AND HOW IS SDC USED?** SDC can be conducted at any point during the field phase of the equipment life cycle. Critical points are after FUE and after major modification or redesign.

(6) Examples are:

- On introduction of new equipment (M2/M3 BFVS, M939 Series Truck, etc)
- After major modification of equipment (M102 Howitzer, LACV-30, etc.)
- After equipment reconditioning (VRC-12 radio family, M60 Tank, etc.)
- For special studies/requirements (Operating & Support Cost Reports, BLACKHAWK, Predictive Analysis Flagging System, etc.)



Figure 2-5. When and how is SDC used?

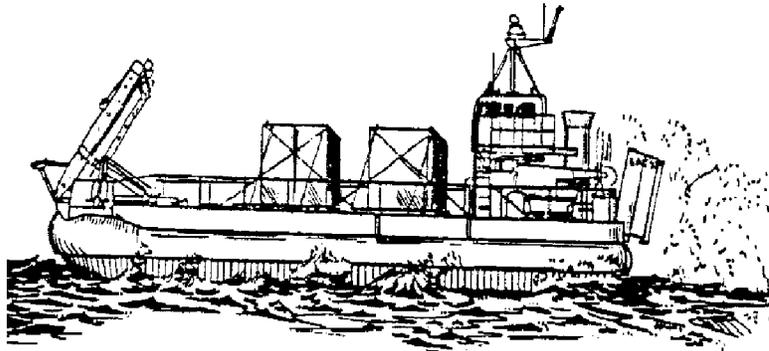


Figure 2-6. When and how is SDC used?



Figure 2-7. When and how is SDC used?

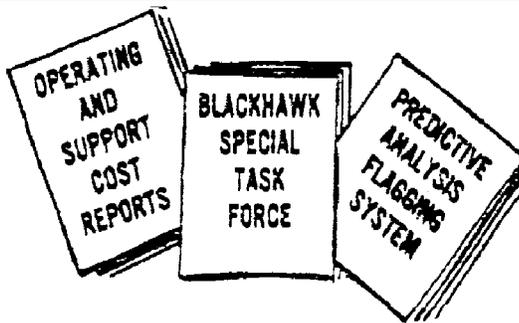


Figure 2-8. When and how is SDC used?

(7) Essential information gained from SDC is used for identifying and correcting materiel deficiencies and for analyzing maintenance/logistics/support/performance, equipment system performance, operating and support costs, operational readiness and mission capability. It also provides a data base to support life cycle management policies.

d. WHO IS RESPONSIBLE? The Deputy Chief of Staff for Logistics (DCSLOG) has staff responsibility for SDC at DA level.

- Under direction of the Deputy Chief of Staff for Supply, Maintenance, and Transportation, Headquarters Army Materiel Command (AMC) is delegated operational responsibility. The U.S. AMC Materiel Readiness Support Activity (MRSA), is executive agent for DA and AMC. MRSA develops policy, guidance and direction, performs staffing requirements, maintains the principal policy documents, conducts annual program reviews, coordinates concept papers and plans with MACOM and DA staff, and provides approval authority for SDC concept papers, plans and field procedures guides.
- The developer of an SDC project may be any command or activity in support of DA mandatory requirements or needs to gather information about additional equipment or other logistic programs. The SDC proponent is responsible

for the initiation of an SDC project, preparation of a Concept Paper, SDC Plan, Field Procedures Guide (FPG) and when required, a Field Monitor's Guide (FMG).

- The SDC proponent funds and monitors the project, insures provisions of the FPG are followed, assures compliance with AR 750-37, conducts field training, and assures stated objectives are attained. The proponent also provides data analysis to logistic managers and field users.
- Major Army Commands (MACOMs) review the narrative concept paper, SDC plan and FPG, approve the participating units and identify data feedback requirements.
- Other MACOM responsibilities include insuring provisions of the FPG are followed, identifying MACOM points of contact for SDC actions, and most of all, preparing at least annually a report containing the benefits, adverse impact and recommendations for improving each SDC project.



Figure 2-9. Who is responsible?

III. METHODS OF COLLECTION

There are two SDC methods that may be used:

a. User Participant. In accordance with the approved FPG participating field unit personnel record the data on standard Army Maintenance Management System (TAMMS) forms. You do the maintenance, make the repairs, record it on the forms, and forward the data to a source designated by the proponent agency. This method is seldom used due to the troop burden and lack of data reliability.

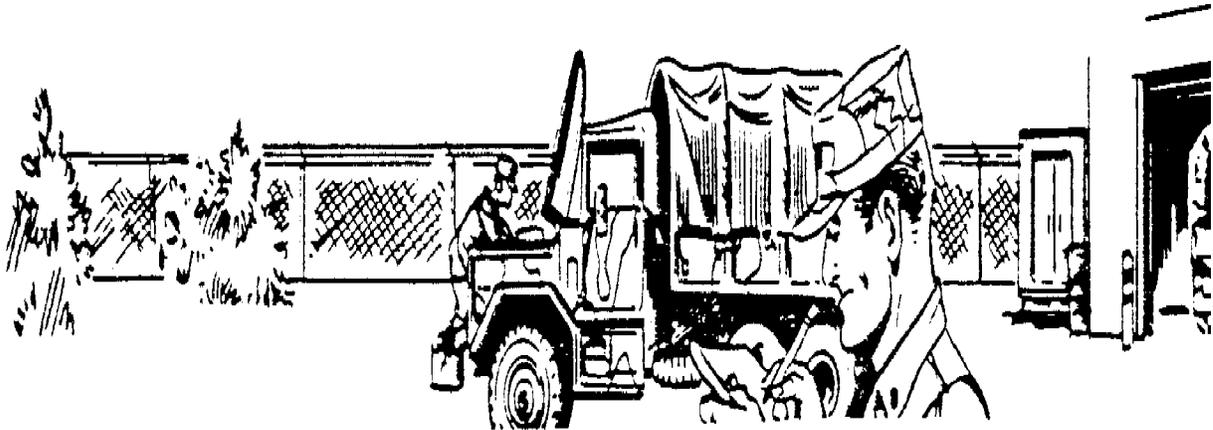


Figure 3-1. Methods of Collection

b. Proponent.

(1) **Level 1.** Participating units record the information on standard, modified standard, or approved unique forms. On-site proponent agency members or representatives collect data forms, obtain additional information, conduct edit routines, perform quality checks, and forward data to a source designated by the proponent agency. You do the maintenance, make the repairs, record it on the forms and someone else picks up the forms and takes it from there.

(2) **Level 2.** The requesting agency, or its representative, records the special additional information on TAMMS forms or specially designed forms. You do the maintenance, make the repairs, do your normal paperwork, and someone else fills in the additional information.



Figure 3-2. Methods of Collection

IV. SPECIAL SAMPLE DATA COLLECTION

a. Field Exercise Data Collection (FEDC). In addition to unit level SDC, special effort is made to obtain data from field exercise sites in Germany, Korea, and the National Training Center. Using contractor support, on a noninterference basis, data is obtained from the supply and maintenance forms generated during the exercise. These are entered onto magnetic tape and sent to the U.S. Army Materiel Systems Analysis Agency where they become part of the overall data base. To ensure that the effect of training is adequately assessed, an equipment inventory is taken prior to the exercise. Follow-up visits are made afterwards to complete the data collection effort. From this data, information is provided to the unit (e.g., parts usage, miles during), and to the major subordinate commands.

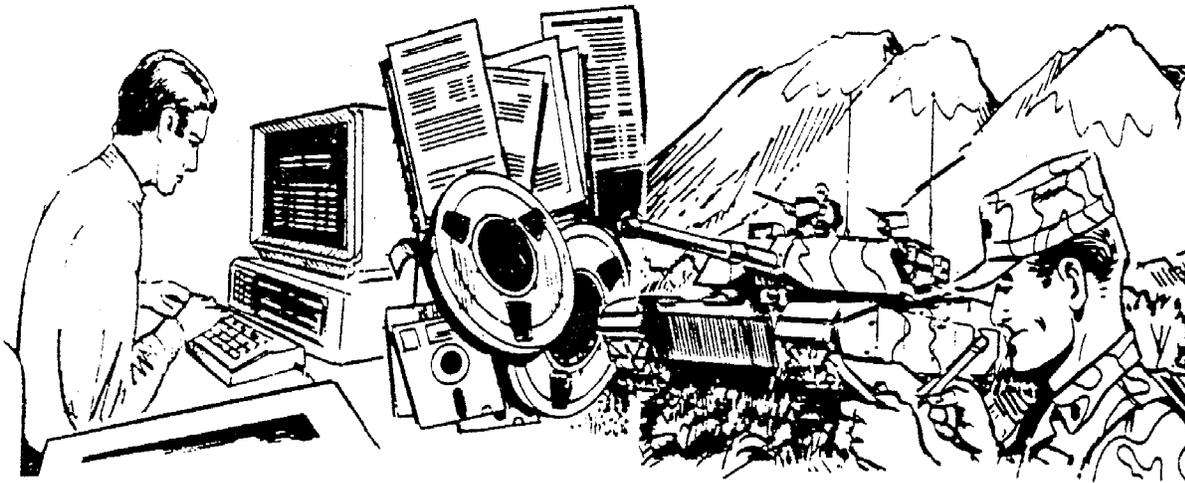


Figure 4-1. Special Sample Data Collection

b. ADEA/AMCSA Sample Data Collection. The ADEA/ AMCSA Sample Data Collection Program at Fort Lewis, WA, consists of data collection, testing, and evaluation of non-developmental items as candidate go-to-war systems under the light division organizational structure. The program initiatives include compressing the materiel acquisition cycle and troop involvement in up-front testing of equipment.

V. IF SDC COMES TO YOUR UNIT WHAT CAN YOU EXPECT?

a. If the data collection falls under a proponent Level 1 method, you may be required to record additional information, such as manhours, parts costs, elapsed time, etc. However, you will not be required to mail the forms anywhere.

b. A data collector (either a Department of the Army civilian or a contractor person) will come to your unit, pick up your forms and provide advice and assistance.

c. If the data collection method falls under a proponent Level 2 method, you will not be required to record any additional information. All additional information is recorded by a contractor.

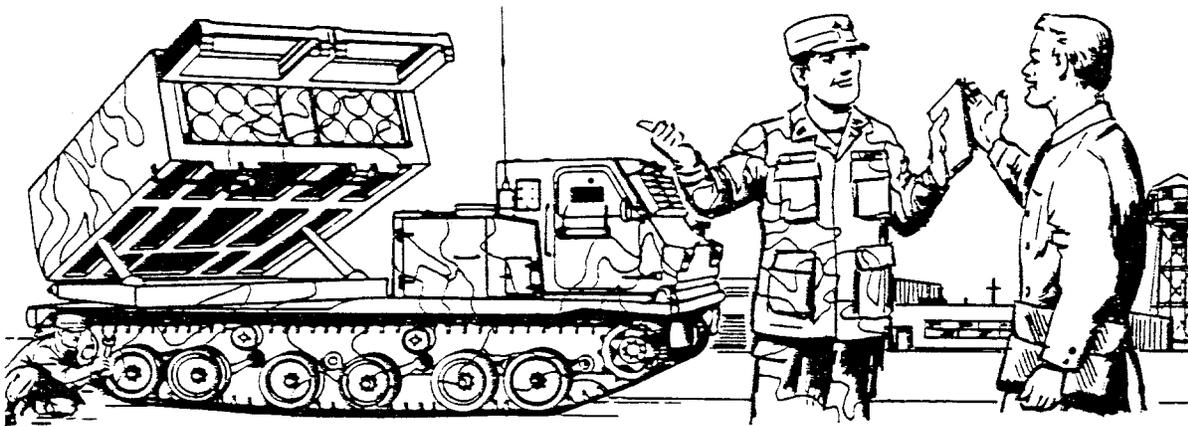


Figure 5-1. If SDC Comes to Your Unit What Can You Expect?

d. The Level 1 method requires more troop participation and is less costly for the Army. The Level 2 method provides more unique data elements, sometimes requires less troop participation but is more costly. Designation of Level 1 or Level 2 SDC projects will vary commensurate with approved objectives.

e. If the data collection falls under the user participant method, you will be required to forward all completed TAMMS forms to a central location. But don't worry; this method has not been used since 1972.

f. So how does all this benefit you?

VI. BENEFITS OF SDC

a. When sufficient information has been collected on a specific piece of equipment, it's boiled down into a form that design engineers, technicians, logistics personnel and command authorities can use to make improvements. Specific benefits to the soldier are tailored SDC reports, unit maintenance/supply profiles, identification of training needs, improved operational readiness, and status reports.

b. The long term benefits are better equipment and improved readiness.

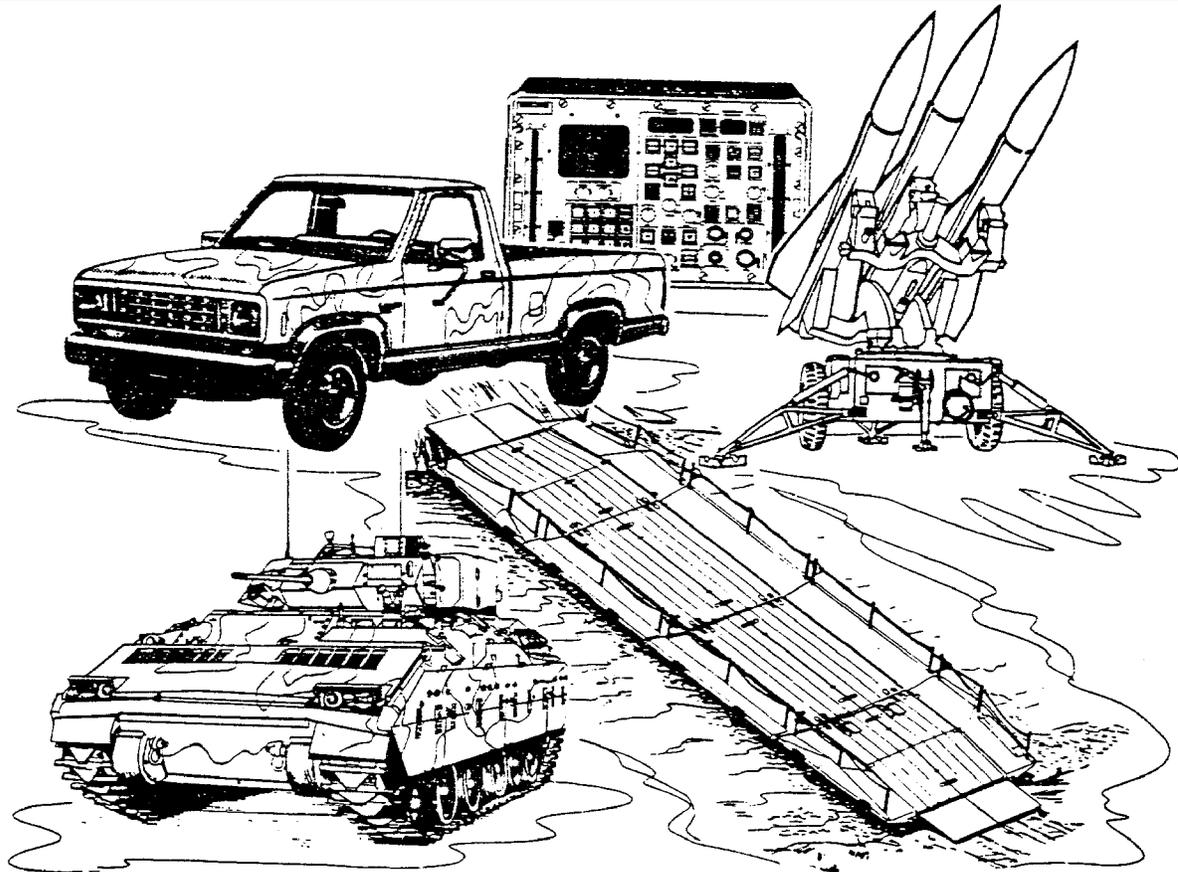


Figure 6-1. Benefits of SDC

c. SDC has led to improvements in the Bradley Fighting Vehicle System M2/M3, the CUCV Series, the HAWK Missile, the AN/TLQ-17A Countermeasures Set, and the Ribbon Bridge.

- Also improved through SDC are the JSIIDS, CH-47, BLACKHAWK (UH-60), FIREFINDER, Multiple Launch Rocket System, and M198 Howitzer.

The improvements can also be in other areas:

- Improved data for technical manuals, scrapping of unnecessary Product Improvement Programs (PIPs) initiation of other PIPs, modification and redesign of equipment, changes, policies and procedures, revisions of MOS training, safety, Modification Work Order validation, Equipment Improvement Report evaluation, supply/manufacturing system changes, providing operational and support costs to Comptroller of the Army (COA) and much more.

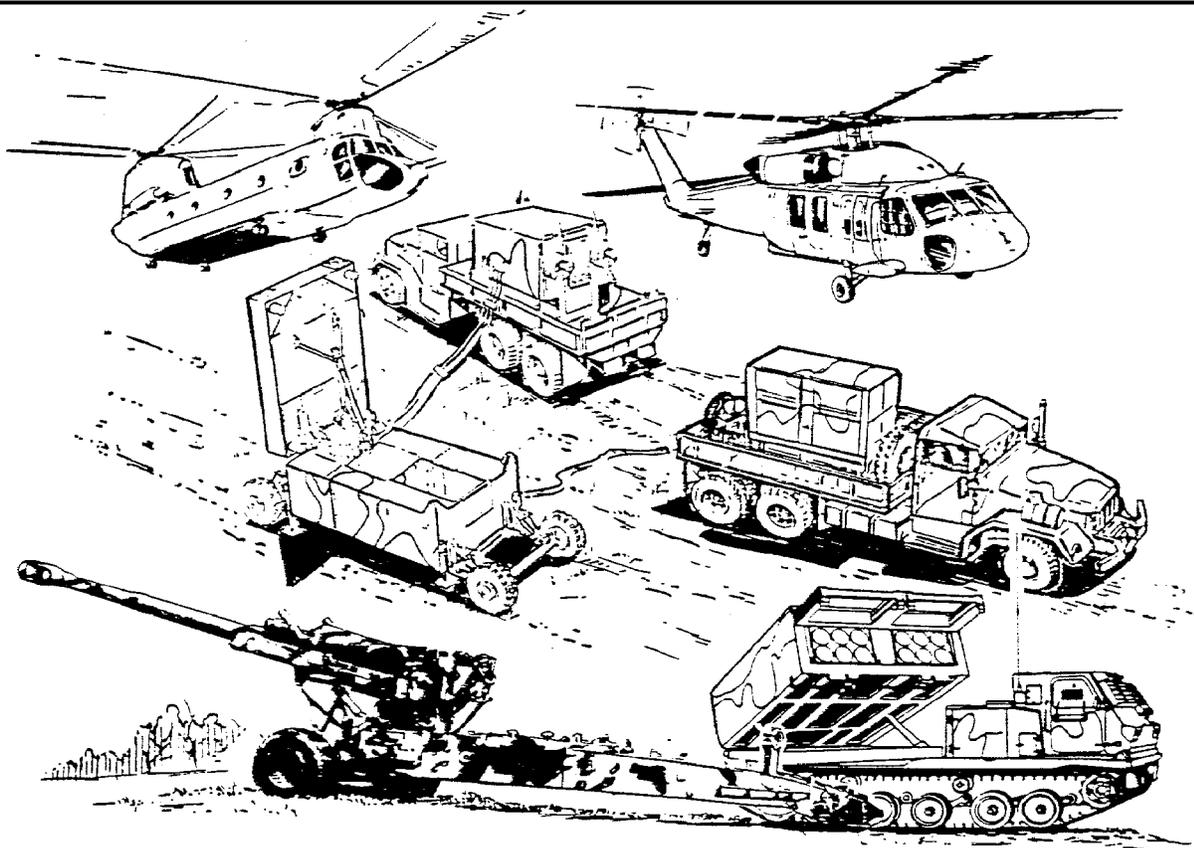


Figure 6-2. Benefits of SDC

d. Data from SDC is also used to develop tailored feedback reports for unit management, special summaries of individual unit data, as requested, and where direct access on-site terminals are located real time turn around data.

e. Most of the improvements are long term in nature, and benefits may not be recognized until two or three years after sampling is done. Sometimes, however, immediate benefits are realized, such as improved TMs.

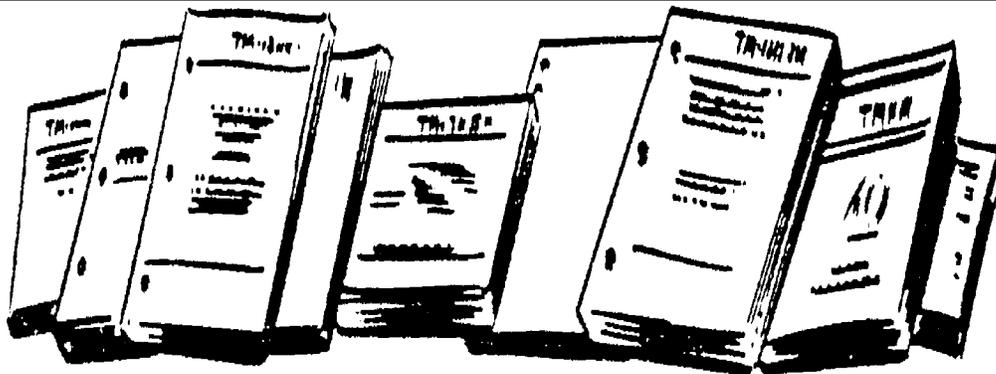


Figure 6-3. Benefits of SDC

f. SDC provides information to the Army that cannot be obtained in any other way. This critical program plays a key role in meeting the requirements of the United States Army and the U.S. Army Materiel Command for information on the performance of equipment in the field. Sampling has proven to be an effective method for collecting data at the least cost.



Figure 6-4. Benefits of SDC

g. In addition to the benefits derived by the Army, private industry also uses SDC. In FY 87 SDC was used by General Dynamics, Hughes Aircraft, Sikorsky, and other contractors to assist in design studies, RAM assessments, and component failure studies.

h. **Some specific benefits and results:**

TROOP SUPPORT EQUIPMENT

(1) LACV - 30

- Value Engineering Initiatives (projected \$250K savings)
- RAM design effort ongoing (projected 5 years savings of \$26.20M)
- Supported management decision to reject SMART initiative #03165
- Support of U.S. Government's position in lawsuit "BHC vs U.S." District Court #235-84C. Potential savings in the millions - results pending

(2) Generator Sets (10, 15, 30, 60 KW)

- Improved reliability, reduced fuel, other initiatives with a 5 year projected savings of \$157M
- Increased user satisfaction, improved support and readiness

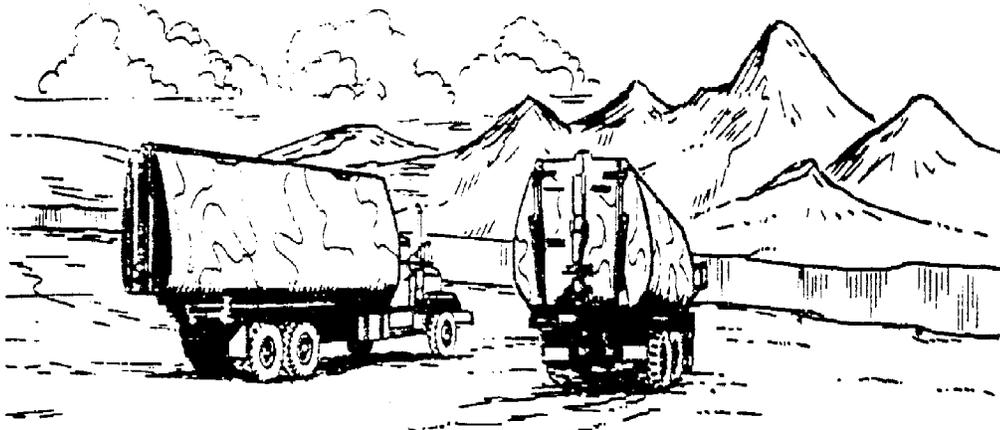


Figure 6-5. Troop Support Equipment

(3) **Ribbon Bridge**

- Value Engineering Proposal (projected 5 yr savings of \$3M)
- Identified PIPs (TOW hook release, fuel tank filler, handrails)
- Substantiated redesign of cooling systems
- Confirmed need for repair kits

i. **COMMUNICATIONS/ELECTRONICS EQUIPMENT AN/TLQ-17A**

- \$7M cumulative projective savings in spare parts
- \$304K annual estimated reduction in maintenance costs

j. **ARTILLERY EQUIPMENT**

(a) **M109 Howitzer**

- SDC supported major M109 series PIPs for an annual savings of \$1.2M
- SDC demonstrated warranty clause in M109A2 contract was not cost effective. The result was that the clause was changed for a one-time savings of \$725K

(b) **M110A2 Howitzer**

- SDC demonstrated a proposed fallback indicator PIP was not required for a \$9M one-time cost avoidance

(c) **M102 Howitzer**

- Using SDC data, a proposed breech mechanism PIP was determined to be unnecessary for a \$2M one-time cost avoidance

(d) **AVIATION**

- HQ AMC estimated \$12M cost reduction in combat PLL/ASL accomplished by the adjustment of some Mean Unit Between Repair (MUBR), using SDC input
- \$240M savings on warranty cost for six new type aircraft

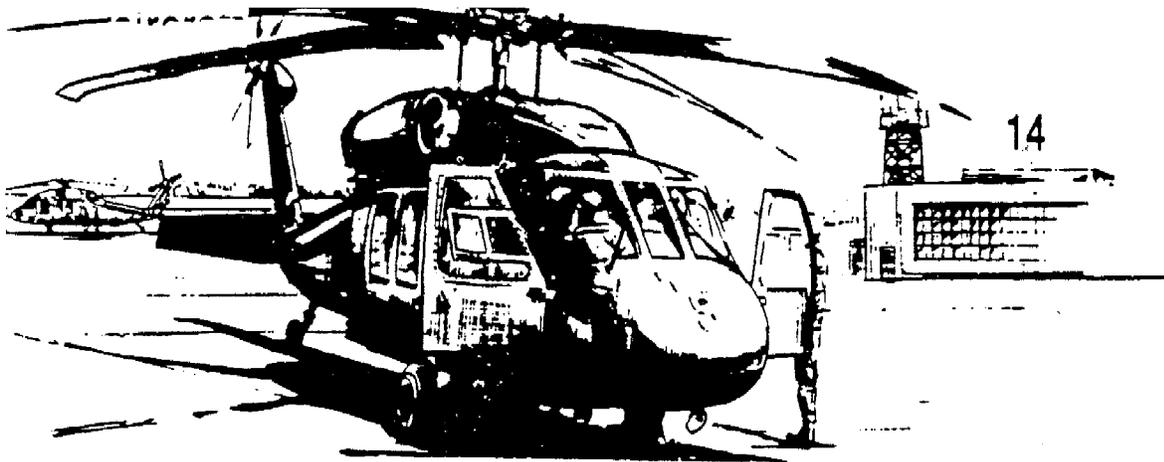


Figure 6-6. Aviation

k. **MISSILE SYSTEMS**

(a) **FAAR**

- SDC data was a contributory factor in developing PIPs that generated cost savings of 700K and 18% increase in system availability

(b) **CHAPARRAL**

- 100% increase in Mean Time Between Failure (MTBF)

- 7.5% increase in availability

(c) **HAWK**

- Chassis replaced by circuit cards eliminating 138 adjustments performed by maintenance personnel and 36% increase in MTBF (HPIR)
- Eliminated a proposed ineffective PIP for a \$21 M savings

(d) **MLRS**

- Identification and validation of items for system improvements

(e) **TANK AND AUTOMOTIVE EQUIPMENT**

- Cost avoidance of \$87M based on recalculation of the Operational Readiness Float for M1 from 5 to 2 tanks per battalion. This cost represents a 3000% return on the investment in the M1 SDC Project

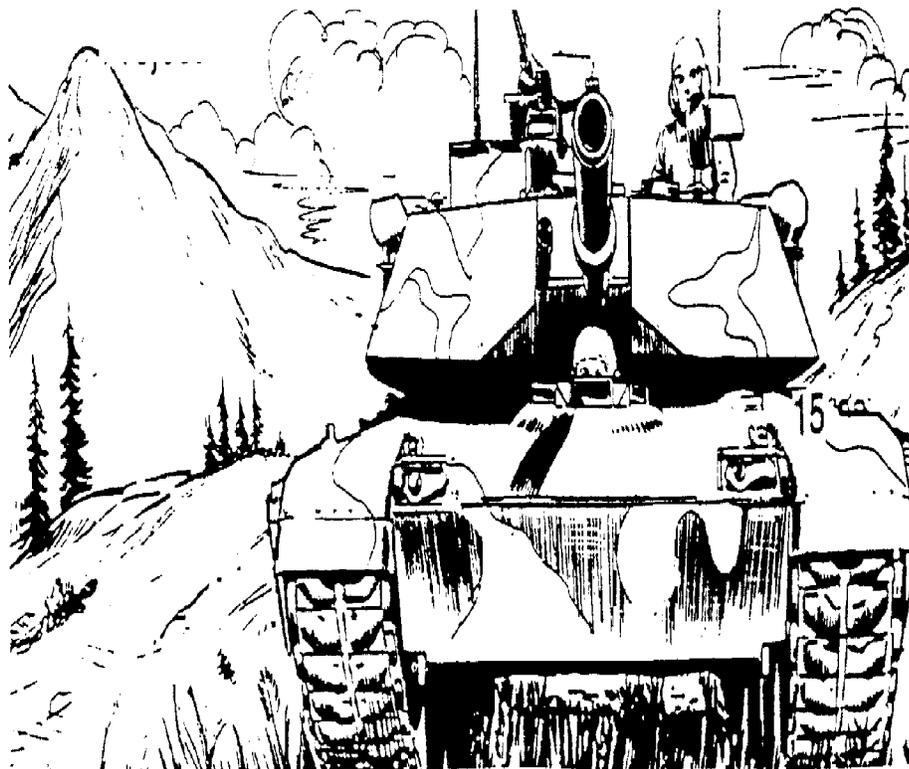


Figure 6-7. Tank and Automotive Equipment

(f) **OVERALL**

Through FY 87 the Army has saved several million dollars through SDC by improving equipment, reducing logistic support costs, making equipment more reliable and supportable and increasing readiness.

(g) **THE RESULT**

The result will be that you, the soldiers of today and tomorrow, will have better equipment that is combat ready and easier to maintain and support.

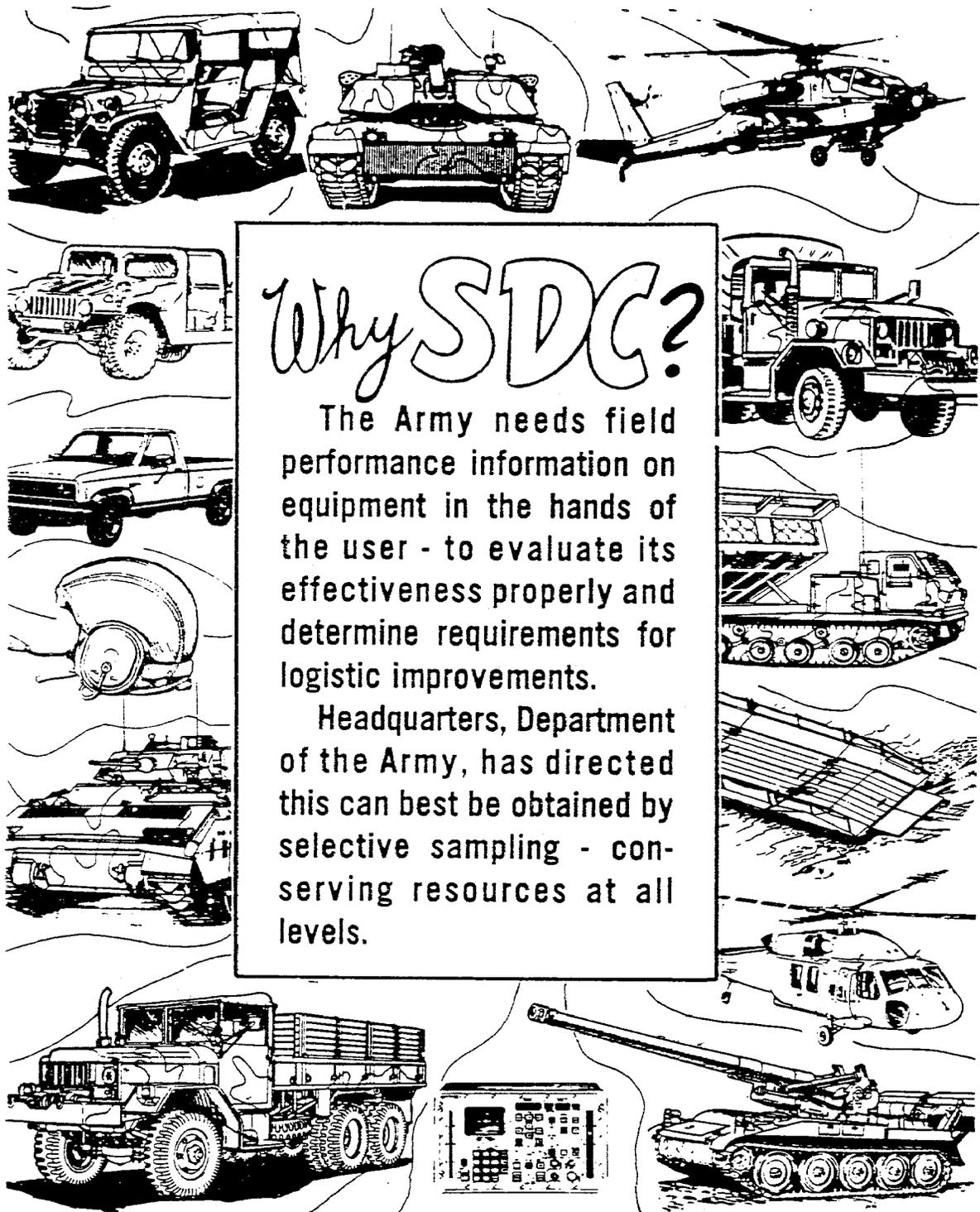


Figure 6-8. The Result

1. WHY SDC?

(a) The Army needs field performance information on equipment in the hands of the user – to evaluate its effectiveness properly and determine requirements for logistic improvements.

(b) Headquarters, Department of the Army, has directed this can best be obtained by selective sampling – conserving resources at all levels.



Why SDC?

The Army needs field performance information on equipment in the hands of the user - to evaluate its effectiveness properly and determine requirements for logistic improvements.

Headquarters, Department of the Army, has directed this can best be obtained by selective sampling - conserving resources at all levels.

Figure 6-9. Why SDC?

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