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A case study of tooling management at the Naval Aviation Depot at Cherry Point, North Carolina

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A CASE STUDY OF TOOLING MANAGEMENT AT THE NAVAL AVIATION DEPOT AT CHERRY POINT, NORTH CAROLINA

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by

BRUCE EDWARD LAVIOLETTE

DEDICATION

To my wife and best friend, MaryEllen

Abstract

This dissertation is a case study of the tooling management system at the Naval Aviation Depot at Cherry Point, North Carolina. The study involved three similar surveys of production machinists in one group, their supervisors, and the toolroom staff supporting those machinists. The surveys were designed to measure various production losses and the level of machinist satisfaction with numerous tooling management aspects. Survey results were used to compare the perceptions of the three groups and quantify various losses in the tooling management system at that industrial facility.

Major daily productive losses were identified from inefficiencies in the tooling management system. These losses were grouped into various categories such as searching for tools, working with poor quality tooling, or repairing products damaged by tooling. Productive time losses measured included both machinist time and time lost by others related to the respective incident. All machinists indicated that

time was lost daily and that productive losses based on their daily workload ranged upward from fifty percent of that workload. As many as fifty incidents of damaged products occurred daily. Supervisors did not indicate awareness of the magnitude of the productive losses or product quality problems indicated by the machinists.

Tooling quality was a major issue to the machinists. Results from all surveys were in agreement that purchasing poor quality tools was a waste. Poor quality tooling resulted in short tool life, premature disposal of tools or reduced production quality or quantity. Although higher quality tooling was desired, it was unclear whether higher quality tooling was needed.

Other issues explored in this study included communications between the supervisors and machinists, quality of toolroom service, tooling utilization and maintenance training, budgeting for an adequate tooling program, planning for proper and required tooling, tooling information availability, management support of tooling programs and tooling responsibility.

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1. INTRODUCTION

Industry as we know it today cannot exist without tooling. Tooling is an integral part of any production process and is an invaluable component in the quest for continual improvement of processes. Tooling is a manufacturing asset that influences production, quality, efficiency, employee morale, and quality of work life. Providing the right tool at the right cost at the right time represents a major management challenge. As used in this dissertation, tooling is defined as tools that are necessary for the various operations on a part or product. Tooling includes dies, jigs, fixtures, gauges, and cutting tools.[1]

The need for effective management of tooling is beginning to gain the attention of management in many manufacturing organizations throughout the United States. Tooling management is an area that offers potential for significant savings in terms of inventory control, product quality and employee productivity. Most interest at this time is being targeted toward inventory control. The establishment of the Tool Management Association, General Services

Administration national conferences, and efforts within the Department of Defense, and nuclear and aviation industries are indicators of the increased interest in tooling management. Tooling management, however, remains severely hampered by the absence of scholarly research and lack of academic programs regarding tooling management systems.

The need for research in the area of tooling management provided motivation for this study. There was also a need for case studies in the area of tooling management. The Naval Aviation Depot (NADEP) at Cherry Point, North Carolina provided opportunity for study of a major tooling system in a high technology manufacturing and remanufacturing facility. This tooling management system was studied to determine the system's effectiveness and effects on product and production quality. The NADEP is comprised of about three thousand employees and more than 125 shop facilities consisting of about one million square feet of work space and hangar space. Operations performed in those facilities include a wide range of tasks such as overhaul, repair and test of jet aircraft engines; overhaul and test of various aircraft including helicopters, Harriers, other military fighter jets, and jet transports; complete aircraft painting; repair on delicate electronic equipment; plating; and advanced technology

processes for repairing jet engine blades and vanes (engine airfoils). The NADEP management embraces a form of Total Quality Management (TQM) that was modified by the Navy and is known as Total Quality Leadership (TQL). The NADEP has been awarded numerous national and prestigious awards for improved government service, cost saving initiatives and demonstrated excellent management through employee involvement. The NADEP was selected by the Department of Defense as a demonstration facility for the implementation of TQM principles in the federal government. Workload direct labor exceeds three million hours per year and total workload dollar volume greater than five hundred million dollars per year.

This study assesses user perceptions of the tooling management system, effectiveness at the NADEP in terms of tooling quality, effect of tooling on product quality, and effect of tooling on productivity. The primary instruments used were three separate surveys designed to appraise areas such as lost time attributed to tooling, tooling quality, and effect on production. The NADEP production machinists, their supervisors and the supporting toolroom staff were canvassed by these surveys. This study compares the perceptions of these three groups concerning features and attributes of the NADEP tooling management system. Further, the study measured

various hidden losses in time involved with the tooling management process.

2. LITERATURE SURVEY

2.1 **The Importance of Tools:** Humankind has known since the Stone Age that tools are needed for executing many forms of work. Tools have become increasingly technical ever since the fabrication of that first primitive axe as much as a million and a half years ago.[2] Tooling is now integrated into our most complicated equipment and sophisticated processes without which contemporary manufacturing and construction could not occur. Carlyle related the importance of tools to the human race when he wrote:

> "But on the whole, man is a tool-using animal. Weak in himself, of small stature, he stands on a base at most for the flattest soled, of some half square foot, insecure enough, has straddled out his legs, lest the very wind supplant him. Feeblest of bipeds three quintels are a crushing load for him; the steer of the meadow tosses him aloft like a wasted rag. Nevertheless, he can use tools, can devise tools; with these the granite mountains melt into light dust before him; he kneads glowing iron as if it were soft paste; the seas are his smooth highway; winds and fire his unwavering steeds. Nowhere do you find him without his tools; for without tools he is nothing. With tools he is all." [3]

Further, our culture has recognized the importance of tools through the incorporation of tooling-related phrases or

sayings into our everyday speech. Consider familiar adages such as "a carpenter is only as good as his tools",[4] "tools of the trade",[5] "where the offence is, let the axe fall"[6] or "the cutting edge of technology".[7] Intuitively we all know about the importance of tooling.

Melnyk has stated "...tooling is essential to manufacturing success. Without an effective formal tool management and control system, firms cannot hope to compete on speed, flexibility, cost and quality. Yet...tooling is out of control. How can we expect to achieve manufacturing excellence?"[8] Mason offers that tool management is the most denied area in maintenance and manufacturing.[9] Company managers generally do not get excited about tool management until a major problem occurs (such as a production shutdown or government audit).[10]

2.2 **The New Trends:** Global competition and the drive for quality has changed our focus and strategies in industry and service work.[11] Trends in machining include multi-axis and multi-function machining with both static and rotating tools, identically designed for quick change and modular flexibility.[12] Jobs are moving toward a more technologically oriented service work force.[13] Tomorrow's

methods will most certainly be different from today's as technological efforts concentrate on machine and operations efficiency, reduced operating costs and increased productivity. Along with enhanced processes and demand for better service comes increased requirements for and greater dependence on tooling. These dynamics demand better tool management. Melnyk made the argument that if there is no proper management of the tool system, we have no idea of the cost to the production system.[14] Further, lack of management support will result in serious quality deficiencies and production interruptions thereby incurring additional cost and attendant inability to compete. Industrial locations where successful tool management systems have been introduced credit their success in part to tool management.[15] Melnyk is one of the few scholars actively involved with research in the area of tooling management.

2.3 **Past Practices:** Why has there been a lack of tool management over the years? The answer to this question can also help explain the lack of growth in this area. A few suggested answers follow:

- It is easy to expense tool purchases and forget about them.[16]

- When we perceive that there is no problem, there is no problem. We don't go looking. See no evil and there is no evil.[17]

- There is a misconception that tool management is a simple problem that requires little attention.[18]

- Compromises are made in processes and schedules at the artisan level because of tool problems that are unknown to the process developers and at higher levels of management.[19]

- There is an absence of academic research in this area of operations, engineering, manufacturing or management.[20]

- Tooling problems are often hidden by outcomes.[21]

- There is a lack of attention to tool management on a collegiate level. There are no courses in the engineering or business schools that deal

with the subject of tooling management.[22]

- There is a lack of knowledge of the true costs associated with tooling.[23]

- There is a failure by management to involve employees in the tool management process.[24]

2.4 **The Cost to Industry:** What is the cost of tooling? Mason estimated that four percent of all operating costs in manufacturing are tooling procurements. He states that in the aviation manufacturing industry, 12 percent is typical of tooling purchase costs.[25] The true cost of tooling and its effect on product quality is unknown, since management has done an inadequate job of identifying the costs involved with poor quality and service.[26] These costs are difficult to quantify and there have been few studies to show how to develop appropriate methods to capture these costs. Mason provides some scope to the problem of tool management:[27]

- Typically 30 to 60 percent of a shop's tooling inventory is somewhere on the shop floor, lost and expensed, with much of it stored away in personal toolboxes.

- Typically 16 percent of scheduled production cannot be met because the tooling is not available.

- Typically 40 to 80 percent of a supervisor's time is spent looking for and expediting materials and tools.

- Operators can spend up to 20 percent of their time searching for cutting tools.

2.5 **Tooling Education:** Due in part to the lack of industrial urgency, our schools offer no courses in tooling management, and as a result, the seriousness of this technical yet manageable problem continues to grow. [28] [29] [30] There are few writers and certainly no major leaders who carry the torch on the issue of tool management.[31] This lack of attention and sense of urgency means that the available literature regarding the subject of tools and tooling management is extremely limited. The lack of literature availability and management training in this area has resulted in complacency among the leaders and managers of industry.

2.6 **Computer Assisted Management:** Traditionally, our leaders and managers attempt to manage or gain control of assets by implementing extensive bureaucratic measures. Complicated bureaucracies do not belong in the toolroom as they can and will be a hindrance to progress.[32] However, computers (a part of those bureaucracies established) have been a necessary and useful tool for managers, when it is recognized that the computers work for the system and that the system does not work for the computer.[33] Managing large amounts of inventory, keeping track of monies spent, and writing reports are just some of the useful services that a computer can provide.[34]

Brown discusses the problem of a lack of historical and financial data, and points out that many quick and measurable savings can be gained through implementation of even a minimal tool management system. According to Brown, tooling support can exceed all other costs on a project. This in itself is good justification for good tool management.[35] Other problems that can be controlled by a good tool management system include excess inventories, stockouts, lost tooling, storage space problems, machine downtime, short tool life, high premiums for rush orders, incorrect orders,

unnecessary overtime, reduced output rates, increased tool change costs, and the need for large supplementary toolboxes.[36]

Brown goes on to say that, industry-wide, an immediate reduction in inventory requirements of a conservative 20 percent has been experienced when a tool management system is installed. Consumable products are reduced by as much as 50 percent. This can justify tooling control systems for many companies. Good tool management techniques can result in reduced staffing and will allow tooling costs to be charged back to specific jobs. Better planning can be implemented since 30 to 60 percent of a shop's tooling inventory is somewhere on the shop floor, lost, forgotten and expensed. Fully 16 percent of scheduled production nationwide cannot be met because tooling is not available. Manufacturing supervisors may spend 40 to 80 percent of their time looking for and expediting materials and tooling. A metalworking company can spend seven to twelve times as much on tooling, jigs and fixtures as it does on capital equipment expenditures. Tooling costs are as much as 30 percent of the cost of the equipment it is used on.[37] What is the cost of a missing two-dollar tool?

For want of a drill, the part was delayed.
For want of the part, the product wasn't built.
For want of the product, the order was lost.
For want of an order, the plant was closed.[38]

2.7 **Technological Advancements:** Tools continue to become increasingly complicated, technical and expensive. The variety of tools can exceed an individual's wildest expectations. Tools are being designed for special one-time use. Special metals and alloys are being developed to extend the life of tools and improve their operational efficiency and product quality. Tools are being designed for multi-purpose use as well as unique applications. Special coatings are being applied to improve performance characteristics.[39]

Efficient use of tools is related to product cost factors.[40] Moriarty states that tooling must be utilized to its useful life expectancy rather than being scrapped after each use.[41] This is difficult to do but some testing is ongoing to determine maximum wear capabilities of commonly used tools. Some computer software is currently available to determine wear capability of a typical tool based on type of tool, material, rate, speed, and other factors.[42] Experimentation in this area is being done at the Rock Island Arsenal where usage data is being captured so an estimate can

made of life expectancy of a tool at any given time.[43] By capturing the type of material being processed, X, Y, and Z axis location, spindle hp, spindle rpm, feed rate, and torque information, models have been developed that predict tool life expectancy, and to a limited degree, tool failure. The tools are not being run into failure at this time because the data is being accumulated from actual production work. However, useful life of the tools employed in the project has been increased by greater than 50 percent without a loss of performance, quality or safety. The data has shown that the tooling life expectancy is predictable, and that different products and manufacturers can be compared.[44]

2.8 **Value Adding Activity:** Tool management must be a value-adding activity, and not a system developed out of distrust.[45] Changing paradigms in manufacturing management, and a heightened interest in quality and value, has created a new manufacturing paradox: building a system for change while managing the system for stability.[46] Globalization, systems awareness, developing a "sustainable" competitive advantage, growing awareness of the people on the shop floor, and the concept of selling the process versus selling the product are all requiring a change in our thinking and planning.[47] The importance and visibility of tooling is now becoming a

strategic issue.[48] A new philosophy in tooling management is growing that will help generate new industry now and in the future. There is still a tremendous lack of experience and knowledge regarding tool management.[49] Tooling is basic to industry.[50] Tooling management then, is an important issue that needs serious consideration and can provide substantial benefits to society.[51]

2.9 **The Contribution:** Academic study and research is needed to support education and to advance knowledge in this specialized field of study. The writings discussed here provided substantial reason to select the area of tool management as a subject to study. The writings of Melnyk[52] and Mason[53] give consideration to many of the traditional managerial aspects of tool asset management. Brown[54] has given consideration to tooling management cost justifications. Duggan,[55] Long[56] and Plute[57] consider the computer aspects of tooling management. Brown[58] and Moriarty[59] have studied many important technical issues having to do with efficient and economical tooling usage. The teachings of Deming, stimulate interest in the effect of processes and systems on the individual as well as product quality.[60] Deming's approach supports the idea of researching the effects of the tooling management system on

issues related to tooling users. Hence, the need for case studies and evaluation of various tooling management systems.

A bibliography of literature reviewed during the preparation of this thesis is provided as Appendix A. Although not specifically cited by references herein, this literature expanded my knowledge of tooling issues and likely would be of use and interest to others studying in this subject.

3. SURVEY PROCEDURE

3.1 **Tool Management Characteristics:** A list of the major characteristics and attributes considered important relative to a tooling management system was developed by the author and is provided as Appendix B. The attributes and characteristics were developed from discussions with users of tooling in various manufacturing organizations during the last several years. The list was not pretested although the characteristics evolved during years of experience with tooling management and provided significant opportunity for meaningful measurement of important tooling management attributes. The list was divided into primary areas of interest and those primary areas were further sub-divided into more detailed groupings. The primary areas of interest were: (1) tooling quality, (2) management quality, (3) support services quality, and (4) production quality. These four primary areas of tooling management were further sub-divided into defining elements. The elements for the primary area of management quality included process design, training, maintenance support, tooling availability, communications between employees and supervisors, budgeting, job planning, tooling support, inventory control and staffing of tooling support positions. The elements for the primary

area of tooling quality include tooling design, applicability to the production process, availability, cost, safety, maintainability and procurement. The element "procurement" is additionally divided into defining fundamentals that include cost, vendor considerations, timeliness, research, manufacturer reputation, user considerations, order quantity, available tooling features, tooling usage, and one-time use versus multi-time usage. Elements for the primary area of support services quality include proximity to worksite, adequate stocking, operating tooling preventative maintenance system, responsive complaint system, areas specific to the support services staffing including organization, friendliness, preparation, knowledge of tooling, and desire to provide a professional service.

The three primary areas of management quality, tooling quality, and support services quality are supporters of the fourth primary area "production quality." Production quality elements include lost time due to rework, lost time due to tooling availability, lost time on production equipment, lost time of personnel, timeliness of the produced work, product quality, productivity, job safety, material costs related to tooling errors, malfunctions and failures, profitability, productivity, consistency, capability of the

process, customer satisfaction, and quality of worklife. Quality of worklife was sub-divided into the sub-elements system ease of usage, personal job satisfaction, stress, and comfort level.

The four primary areas and their elements were used as guidelines to aid in the development of the three surveys used in this study. The first survey was designed to evaluate machinist perceptions. The questions from that survey were used or modified as appropriate for two additional surveys, a supervisor survey and a toolroom staff survey. The latter two surveys employed the questions used on the machinist survey with revision to reflect the perspectives of the toolroom staff and the supervisors. Changes were held to the minimum possible, however, to allow perception comparison among the three different groups. The machinist survey is provided as Appendix C, the supervisor survey as Appendix D, and the toolroom survey as Appendix E. A cross check was made between the survey questions and the primary areas and elements to ensure that each of the primary areas of interest was being measured and that none of the primary areas of interest was being over or under emphasized. Survey question relationship to the primary areas of interest is presented in Appendix F.

3.2 **Constructing the Machinist Survey:** The first issue was whether the survey questionnaire should have written answers or multiple choice answers. A test calling for hand written responses might result in limited feedback, while multiple choice questions needed to be developed in a manner that would not be leading to ensure unbiased answers. Further, questions requiring written responses would be difficult and time consuming to quantify. With consideration of the pros and cons of both survey types, a decision was made to develop a survey that would be primarily made up of multiple choice questions, with an allowance for additional voluntary written responses.

The second consideration was the number of selections to be used in a multiple choice question. The value of having few selections or many selections and whether there should be even or odd number of question answer selections were also of concern. This consideration resulted in the decision that the survey questions would have the odd amount of five selections.[61]

The survey questions were prepared and formatted to the survey style selected above. The questions were thoroughly reviewed to determine if all of the tool management

attributes in Appendix F were being measured. This was achieved by cross checking each question against each attribute in the table. Considerable effort was made to maintain unbiased language that would also be positive, easy to read and understand to obtain accurate information by avoiding misinterpretations.

Originally the survey was to be administered as an interview. This method was considered to be the process that would give the most accurate information, and follow on questions could be asked if desired. During the survey preparations, however, it was determined that the interview method of administering the survey would be too time consuming and that the questions might be interpreted differently depending upon the tone of administrator's voice. Therefore, the final method selected for survey administration was to allow the respondents to independently read and answer the survey questionnaire.

3.3 **The Test Survey:** The test population for the survey was a group of five machinists selected from the facilities maintenance and repair machine shops, since those machinists utilize the same tool management system as those in the proposed survey population and the trades were very similar.

The five machinists were selected from the first shift machinists by the supervisor of the facilities maintenance and repair machine shop. Prior to administering the survey test the president of the local union representing all machinists at the NADEP was consulted with union approval resulting.

The test surveys were conducted over a period of three days individually with the five machinists selected to participate in the survey test group. Prepared instructions included as Appendix G were read to each of the machinists. The survey questionnaire took approximately 45 minutes to complete in this manner. A short list of lessons learned during the test surveys included: (1) the need for specific instructions, (2) open questions received few responses, (3) provide value options for estimated values, (4) reword questions 38a, 39a, 40a, 41a, 52a, (5) quantitative questions should have a "zero" or "none" option, and (6) the list of tool management characteristics appeared to be accurate for this survey. Based on those lessons, several minor editorial changes were made to the survey. It was also determined that the test would be proctored by an independent unbiased individual.

3.4 **Constructing the Toolroom and Supervisor Surveys:** As mentioned previously, the toolroom staff and supervisor surveys were developed from the machinist survey, with the idea of comparing respective responses. Questions remained the same as the machinist surveys except that wording was revised to reflect the perspectives of the supervisors and toolroom staff. No consideration was given to adding questions or to further alteration of the survey questions for the toolroom staff or the supervisors, since the intent was to make each survey as similar as possible. The finalized machinist, supervisor and toolroom staff surveys are included with this dissertation as Appendices C, D, and E respectively as identified previously.

3.5 **Conducting the Machinist Survey:** All machinist surveys were administered in a controlled classroom environment, with about 25 participants at a time. Survey sessions were held at the beginning of the first and second shifts and near the end of the shift for third shift machinists. All machinist surveys were administered during the week of August 25, 1992. The survey sessions were proctored by a computer software technology cooperative education student from a local community college. None of the survey participants were personally familiar with this

person. The proctor read prepared instructions, included as Appendix I, which explained the purpose of the survey and provided details such as how to indicate responses, handed out surveys, collected completed survey forms but played no other role in this project. The population surveyed consisted of all 110 machinists who work in the production machine shops at the NADEP. These individuals perform aviation parts manufacturing and remanufacturing and aviation production overhaul functions typically associated with the machinist trade. The population included personnel with varying levels of experience, education and job grades as discussed in chapter four.

3.6 **Conducting the Supervisor Survey:** The supervisor surveys were handed out on September 2, 1992 to the seven individual supervisors responsible for the work assigned to the machine shops being surveyed. The supervisors were asked not to discuss the survey with each other. The instructions accompanying the surveys requested that the surveys be completed and returned by September 16, 1992. After an additional week with no responses, the surveys were collected from the supervisors on September 23, 1992. The supervisor instructions are included as Appendix J. Demographics of the supervisors are discussed in Chapter 4.

3.7 **Conducting the Toolroom Survey:** The toolroom staff surveys were administered on September 16, 1992 by the toolroom supervisor. Prepared instructions, Appendix K, were read to the group of participants (eight tools and parts attendants) who provide the toolroom service to the machine shops. Demographic information is discussed in Chapter 4.

3.8 **Data Analysis:** When all of the surveys had been completed, statistical information was derived using the SPSS statistical software package.[62] The collected data were reviewed in many different ways to determine if there was a difference between different demographic groups of machinists. For example, evaluations were made of the machinist survey based on sex, age and education level. No significant differences in the responses were detected. For this reason, no further consideration was given to demographic groupings. Since the toolroom staff and supervisory populations were so small, no attempts were made to analyze the data demographically.

The survey answers had been divided into five separate categories to comply with the Likert survey format.[63] Discussions with some of the survey participants after the

surveys had been completed, however, showed considerable differences in the interpretation between the five categories. The distinction between the answers of "agree" and "strongly agree", and of "disagree" and "strongly disagree" was difficult to interpret considering that everyone had a different concept of what "strongly disagree" and "disagree" or "agree" and "strongly agree" mean. Therefore, the results of the surveys were evaluated by considering the sum of the answers to groupings consisting of "agree" and "strongly agree" in one group and "disagree" and "strongly disagree" in another group. Percentages were determined by dividing the total number of answer selections for an answer grouping by the individual survey population. Lack of an answer and "neither agree or disagree" were considered during the data evaluation although there is no further discussion of that category in this study (those answers never received the major response.) The raw results of the machinist, supervisor and toolroom staff surveys are included as Appendices L, M, and N respectively. The machinist and supervisor written responses are provided as Appendices O and P respectively. There were no toolroom staff written responses.

3.9 **Computing Machinist Time Losses:** Questions one

through seventeen were designed to measure various machinist time losses resulting from the tool management system. Responses were sought in terms of time lost during the typical day because of various situations. Respondents were required to quantify those losses. The quantifications were divided into five time groups: (1) less than half an hour lost, (2) more than half an hour but less than one hour lost, (3) more than one hour but less than two hours lost, (4) more than two hours and less than four hours lost, and (5) more than four hours lost. Also, the number of incidents per day were measured.

Formulae were devised and used to calculate the total number of hours lost in Questions 1 through 15. Question 17 also dealt with time, but was considered to be constructive time, not lost time, because it considered the issue of time spent by the machinists and supervisors communicating. The formulae were designed to be conservative yet realistic. The total hour losses were based only on "agree" and "strongly agree" responses. Next, the time lost per answer was set at the low point and again at the high point for each of the time categories.

Having set those parameters, the hours lost were

calculated by two methods. The two methods provided a range of time lost, from low to high. The first method calculated the low estimate of machinist lost time. This calculation was determined by multiplying the lowest possible combination of time answers by the total number of "agree" and "strongly agree" responses. For example, if there were ten "agree" and "strongly agree" answers, and ten or more responses that indicated a less than half hour loss per day, then the calculated loss was considered to be ten times zero (the lowest combination for the time category.) This calculates to no time lost each day. If only five of the responses indicated less than half an hour lost per day, and five or more indicated one half to one hour of lost time per day, the calculation would be five times zero hours plus five times one half of an hour for a total of about two and one half hours.

The second calculation established the high estimate of time lost. This calculation was determined by multiplying highest possible combination of time answers by the total number of "agree" and "strongly agree" responses. For example, if there were ten "agree" and "strongly agree" answers, and ten or more responses that indicated more than two hours but less than four hours lost per day, then the

calculated loss was considered to be ten times four hours (the highest combination for the time category.) This calculates to 40 hours lost each day. If only five of the responses indicated more than four hours lost per day, and five or more indicated more than two and less than four hours lost time per day, the calculation would be five times four hours plus five times five and one half hours[64] for a total of about 47.5 hours.

The two methods gave the extremes. In the examples given above the time lost would have been from an extreme of no time lost per day to 47.5 hours lost per day. The workload for the group of machinists was approximately 850 hours per day six days per week during the time frame that the survey was conducted.[65] The hours calculated by using the calculation methods were then converted to percentage of production hours lost. This was done by dividing the number of hours lost by 850 hours. The resulting percentage was provided to enhance the understanding of the magnitude of the losses reflected by the surveys. Using the examples, the resulting percentages would be from zero to 5.6 percent of the daily workload. A compilation of the results of the calculations is included as Appendix Q.

4. Results and Discussion

4.1 **Machine Shop Background:** The diversity of the work, and the development of the various functions performed at NADEP over the years, led management to create two major machinist work centers. One machining center consists of conventional machining operations. This machinist group primarily supports work relating to jet engines, helicopter transmissions and aircraft ground support equipment. Approximately 43 percent of the NADEP machinist population work in this machining center. A second machining center consists of a conventional machine shop and a computerized numerically controlled (CNC) shop. This group performs manufacturing work, aircraft support work, and other types of general machining work required to support aircraft overhaul work at the NADEP. Here can be found about 52 percent of the machinist population (15 percent in the CNC shop and 37 percent in the conventional shop.) Five percent of the machinist survey respondents did not indicate which shop they worked in.

4.2 **Machinist Demographics:** The demographics of the machinist population as measured by this survey can be viewed in Charts 4-1 and 4-2. Chart 4-1 shows that 78 percent of the

employee population work in conventional machine shops using conventional machining equipment such as lathes, grinding machines and others. Fifteen percent of the population work in the CNC machine shop. About seven percent of the population did not identify themselves as either CNC or conventional, however, based on actual population counts, they are likely to be conventional because about 85 percent of the machinists are in the conventional machinist shops.[66]

The experience level of the machinists, as displayed on chart 4-1, varies; however, about 48 percent of the population have between six and 15 years of total experience. The United States Government wage grade levels tend to reflect the experience level with a majority of the grades falling in the skilled working grades. The mean grade was WG-9.4. The grade structure follows the Office of Personnel Management (OPM) guidelines[67] for pay setting and staffing qualifications and generally works as follows: the higher the grade, the greater the skill and training required, with higher wages resulting. The WG-2 grade in this case is a cooperative education student entry level. Grades WG-6 through WG-8 are the middle worker levels that include helpers and personnel at varying levels of skill and

training, while the WG-9 and WG-10 grades are considered to be fully trained and experienced machinists. The WG-11 grade is used as a pay level for the CNC machinists. About 14 percent of the personnel are at the WG-11 pay grade basically mirroring the population of 15 percent that work in the CNC shop. Over half of the population (55 percent) works on first shift, 28 percent of the population works on the second shift while seven percent of the population works on third shift.

Approximately 27 percent of the machinists completed the apprentice program operated at the NADEP. Forty four percent of the machinists graduated from a technical school, while 61 percent of the machinists have had some college training as shown on Chart 4-2. Thirteen percent earned associate degrees and four percent earned bachelor degrees. Not measured by the survey, but later confirmed, is that 98 percent of the population graduated from high school. The group was about 87 percent male and eight percent female (five percent did not indicate sex.)

4.3 **Supervisor Demographics:** Supervisor demographics are shown in Charts 4-3 and 4-4. The supervisors are distributed between the conventional machine shop and the

CNC machine shop proportionately when the following is considered. The CNC machinists comprise 15 percent of the machinist population and the conventional machinists make up 78 percent of the machinist population (six percent did not specify shop.) However, supervisor responses showed 43 percent supervised conventional machinists and 43 percent supervised CNC machinists. Further investigation showed that the second and third shift supervisors supervise both CNC and conventional machinist shops. The majority of the supervisors had from 11 to 15 years of experience, although up to 39 years of service was reported. Gender analysis shows that 86 percent of the supervisors were male and 14 percent were female. Job grades were at the WS-10 level (71 percent) and the WS-11 level (29 percent.)

Chart 4-4 shows that all supervisors are high school graduates. Fifty seven percent are apprentice program graduates and 29 percent are technical school graduates. Eighty six percent had taken some college courses with 14 percent having earned a bachelor's degree.

4.4 **Toolroom Demographics:** The toolroom at the NADEP is chartered to procure, store, issue and maintain all tools, including cutting tools, handtools, and hand operated power

tools. Experience level is demonstrated by the toolroom demographics, where more than half of the employees had less than five years of experience. Toolroom personnel are among the lowest paid at the NADEP. The highest non-supervisory grade level is WG-6, with an entry level of WG-4. [68] All toolroom staff surveyed graduated from high school. Sixty two percent of the toolroom staff have attended college with twelve percent having completed an associate degree. Toolroom demographics are displayed on Charts 4-6 and 4-7.

4.5 **Time Losses - Searching for Tools:** The machinists indicated that they spend time on a daily basis looking for tools. Chart 4-7 shows percentages for responses to questions in the surveys dealing with time lost while searching for tools. The majority of machinists showed that they spend time searching for tools in their shop (73 percent), looking for misplaced tools (72 percent), acquiring tools at the toolroom (59 percent), and searching for alternate tools (56 percent). Two differences between the supervisor survey and the machinist survey for this group of questions was that only 14 percent of the supervisors felt that the machinists spend time searching for tools in the shop, and about 43 percent of the supervisors indicated that machinists spend time searching for misplaced tools. Daily losses associated with

searching for tools, were estimated to be from about 31 percent to 194 percent of the daily machinist workload. Although the upper percent of time lost seems high, consider that the survey attempts to measure the time lost by others as well as the machinists. The time lost was split between the machinist and other persons, however, the time lost is being compared to the machinist workload. The time lost searching for tooling exceeds estimates made by Mason.[69] Mason had estimated that the machinists lose approximately twenty percent of their time searching for tools. Mason's estimates were not based on any specific studies however. Mason also stated that 30 to 60 percent of the tooling is lost in the shop. This survey did not measure inventory losses, however, the survey would tend to support the concept that tools are lost in the shop because of the amount of time the machinists spend searching for tools. Searching for tools was the most costly loss of time indicated by this group of machinists. Chart 4-8 displays the losses for each of these questions. As a note of interest, the toolroom had a significant tool management computer system for tracking tools that was in use at the time of the survey. The system had become obsolete and unreliable and a replacement system had been selected, and in fact was installed approximately two months after the surveys had been completed. This fact is

mentioned here since a good computer system might be useful for tracking tools, and could help to avoid lost tools in the shops and therefore lost time searching for lost tools. A follow-up survey might help in determining whether a sophisticated computer system does help to reduce losses of this nature at the NADEP. Searching for alternate tools sparked numerous written comments. Machinist written answers pointed to many reasons that might be causes of time loss. An example of a time consuming problem was the time loss associated with the need to readjust or rebuild fixtures to fit or utilize alternate tools. Artisan written responses are included as Appendix O.

4.6 **Time Losses - Poor Tool Quality:** As shown on Chart 4-9, productive time losses related to poor quality tooling (with no apparent damage to product) was the next highest time loss area suggested by the machinist survey responses. In this instance about 50 percent of the machinists lose time on a daily basis related to the quality of tooling and its impact on production speed and efficiency. This amounted to a loss of from about six percent to 41 percent of machinist workload hours as shown on Chart 4-10. Employees indicated that the use of lower quality tooling has an adverse affect on product quality. The machinist written

responses here indicated that poor quality tools require more maintenance and suggested that tool maintenance should be performed by shops other than where the machinists work. There were two differences between the machinist and supervisor surveys. The first was that 71 percent of the supervisors feel tools are being repaired daily because of poor quality of the tools received, versus about 55 percent for the machinists. This might have a relationship to the relatively small population of the supervisors. It is possible that one of the machine shops is experiencing more problems with tooling than another. The surveys, however, did not measure that characteristic. Also, about 30 percent of the supervisors feel time is lost daily due to inefficient or outdated tools, compared to 59 percent of the machinists. The author suggests that the difference between the machinists and the supervisors in this area might be a function of communications. The problem is accepted and dealt with by the experienced machinist and not communicated to the supervisor.

4.7 **Time Losses - Repairs to Products:** The third largest loss in productive time is caused by repair of products damaged by poor quality tools, misuses of tools or nonavailability of the proper tools. The respondents believed

that these problems had a negative impact on product quality. Survey results are shown on Chart 4-11. Approximately one quarter of the machinists indicated daily problems relating to these issues with daily losses amounting from about two percent to 81 percent of daily machinist workload. The specific percentages are shown on Chart 4-12. Additional material costs indicated by the machinists ranged from five dollars to thousands of dollars for each incident. Material costs could be a significant issue considering that the machinists state that damage to products, due in part to tooling quality and usage, occur as many as 50 times per day. Numbers of incidents are shown in Chart 4-12a. However, the greatest cost could be in customer dissatisfaction should a defective part be passed on. Inadequate information was provided by the survey to properly analyze this issue because customer satisfaction was not measured.

4.8 **Communications:** The machinist, supervisor and toolroom personnel agreed that communications about tooling take place daily. Survey results can be seen on Chart 4-13. The machinist survey indicated that approximately one to three percent of their time is spent in discussions with the supervisors daily. Further, it is interesting to note that all parties agreed that the communications improved both

product quality and productivity. The only difference between the surveys was that 54 percent of the supervisors indicated that there was improvement in quality due to communications while 88 percent of the machinists feel there was an improvement in quality. Specifics were not asked for nor were they given for how product quality was improved or how production increased by these communications.

4.9 **Toolroom Service:** When asked if the toolroom provides the desired service, about half of the machinists agreed that the service met their needs. The toolroom and supervisor surveys showed a higher level of satisfaction than the machinists relating to the tool room service. Machinist dissatisfaction, however, was indicated when the service was further explored. Concerns of the machinists included tools that are not in working order, tools received were not as desired, some tools are not maintained properly, and the tools issued by the toolroom are not of high quality. Conversely, the toolroom was given high scores for ensuring that the tools were calibrated and issued with safety devices. This might be attributed to the work certification system that demands high accuracy and frequent documented calibration cycles. Mixed reviews resulted when asked if the toolroom provides a professional service. About 35 percent of

the machinists and 75 percent of the supervisors agreed that the toolroom provides a professional service. The term "professional service" was not defined. The difference in the perceptions might be related to the fact that the toolroom had worked with the supervisors during the previous year to correct various problems. An interesting factor is that in all cases that measured specific service values, the supervisors and toolroom staff indicated from 30 percent to 50 percent higher perceptions of satisfaction than the machinists. The author suggests that this also might be a factor of the relationship that the toolroom and supervisors shared during the previous year. Finally, when asked if the NADEP does a good job of providing tools, 40 percent of the machinists stated that they agreed, while the toolroom and supervisor surveys reflected a 65 percent agreement level. About 55 percent of the machinists feel the NADEP tooling program affects the quality of work in a positive manner. Refer to Charts 4-14 and 4-15 for this information. In the opinion of the author improved toolroom training, higher skilled toolroom staff and reliable computer services are needed to improve the toolroom services.

4.10 **Tooling Satisfaction:** The machinists indicated a low satisfaction with the quality of tools that they receive.

Almost half (48 percent) of the machinists responded that the tools received at the toolroom are not of high quality and a proportionate amount said that they did not have the quality of tool needed, compared with 22 percent who felt that the tools received were of the quality needed. All three surveys agreed that the tools received at the toolroom window are not of high quality, but the supervisory survey indicated that the tools received are of the quality needed. A note of interest here is that the toolroom has made efforts to improve the quality of tooling procurements during the year prior to the survey. At the time of the survey, new tooling received as a result of those procurements was beginning to be made available for issue. The effect of the new tooling on customer satisfaction could not be measured, since that effort was so new. The three groups surveyed overwhelmingly agreed that a higher quality tool would improve product quality, production quantity and efficiency, and workplace safety. No specific examples were given to help explain what was meant by poor quality tools. (This is a very important issue, however, would require additional interviews which is beyond the scope of this study.) Yet, peculiarly, as shown in Chart 4-16, when asked if the tools that they are issued affect quality, quantity, efficiency and safety in a positive manner, the machinists responded with an average 60 percent

positive satisfaction. The supervisory and toolroom surveys tended to echo the positive feelings in this area. Issues raised by the machinists regarding tooling quality include the following:

- The procurement of low quality tooling is a waste of money.

- Poor quality tooling requires more frequent replacement of the tools. This creates unnecessary downtime, additional administrative work, more frequent trips to the toolroom and potential damage to the product.

- Lower quality tools break more frequently. They also require more maintenance.

- Higher quality tools would increase production through longer cutting times between replacement and faster feed rates.

- Efficiency is directly related to tool quality.

4.11 **Responsibility for Tooling Management:** Questions

that dealt with tooling responsibility, Chart 4-17, brought some interesting responses. The three surveys indicated a high percentage of agreement that management, supervision and toolroom workers share the responsibility for ensuring the proper tools are available. The machinists, however, reflected that they were mixed on their own responsibility in the matter, with 40 percent indicating they were responsible and 31 percent indicating no responsibility. The supervisors and toolroom, though, attributed nearly no responsibility to the machinist. One suggested reason for this is that the NADEP tooling management system excludes the workers (in this case the machinists) and the toolroom is assigned the responsibility to procure, maintain and issue all tools. The NADEP provides all tools to the employees. Also, the three surveys assigned little or no responsibility to production control. (It should be noted here that production control has been more closely associated with material expediting than with tool availability at the NADEP.) The area of planning and estimating also generated mixed responses. Whereas the machinists generally felt that planning and estimating had no responsibility in ensuring that the proper tools are available, sixty percent of the toolroom staff and eighty percent of the supervisors agreed that planning and estimating had a high degree of responsibility. The NADEP

planning and estimating group only estimate worker time and materials and have nothing to do with tooling issues. All surveys were in agreement that tools are not properly planned for jobs with approximately 70 percent agreement here.

4.12 **Tooling Budgets:** Survey results for tool budgets and funding are found on Charts 4-18 and 4-19. Funding of tooling showed a considerable amount of misunderstanding in all of the surveys, perhaps with good reason. Estimates of annual expenditures varied from less than ten thousand dollars per year to greater than one million dollars per year. During the fiscal year beginning October 1, 1991 and ending September 30, 1992, approximately 950 thousand dollars was spent on tooling at the NADEP and an estimated additional 1.5 million dollars was spent on tooling received as a part of the cost of industrial equipment procurement.[70] When asked if enough money is allocated, more than 70 percent of the toolroom staff and machinist surveys indicated "neither agree/disagree", while 57 percent of the supervisors felt that there is insufficient funding allocated. It was confirmed that tooling expenditures have not exceeded budgeted and authorized amounts in the last ten years[71] and there were no documented cases of refusal to procure specific or additional needed tools. In the opinion of the author,

budget and expenditure information should be readily available to all interested personnel. Machinists should be invited to participate in the tooling procurement process to help improve the quality of tools being ordered, to increase machinist awareness of the problems that are encountered in the procurement system, and to encourage up-front consideration of tooling features. Machinist participation would help to raise the understanding of the cost of tooling and would certainly improve communications. There was very little disagreement with the idea that there is waste in the NADEP tooling program. Most comments on this subject related to the procurement and disposal of inferior quality of tools. Chart 4-20 depicts the data on this issue.

4.13 **Tooling Information:** Availability of tooling information, shown on Chart 4-21, was another area that showed a significant difference between the machinist survey and toolroom and supervisory surveys. While the machinist surveys indicated that tooling information is not readily available, the supervisory and toolroom surveys showed overwhelming belief that information is readily available. Only 35 percent of the machinists feel they have a say in tool selection compared with 58 percent of the supervisors.

4.14 **Management Support:** The toolroom staff and supervisor surveys agreed on many issues and management support of tooling needs was no exception. On Chart 4-22, all of the respondents to the toolroom and supervisory surveys felt that management supports tooling needs. In comparison, only 39 percent of the machinists agreed that management supports tooling needs. Further, 70 percent of the supervisors felt that new ideas were considered freely, while only 39 percent of the machinists agreed (Chart 4-21.)

4.15 **Training:** Training in the use of tooling presented a situation where the supervisory and machinist surveys agreed as shown on Chart 4-23. Over half of the respondents in the machinist survey agreed that the machinists had received adequate training in the use of tools. On the other hand, 75 percent of the toolroom staff felt that they, unlike the machinists, had received inadequate training. This might have been influenced by the fact that the machinists are required to meet rigid certification criteria and have instructors readily available, while the toolroom has no organized training program. Interestingly, there were several written comments in the machinist and supervisory surveys that stated that the toolroom needed more training in tools. Supervision and management were generally held responsible

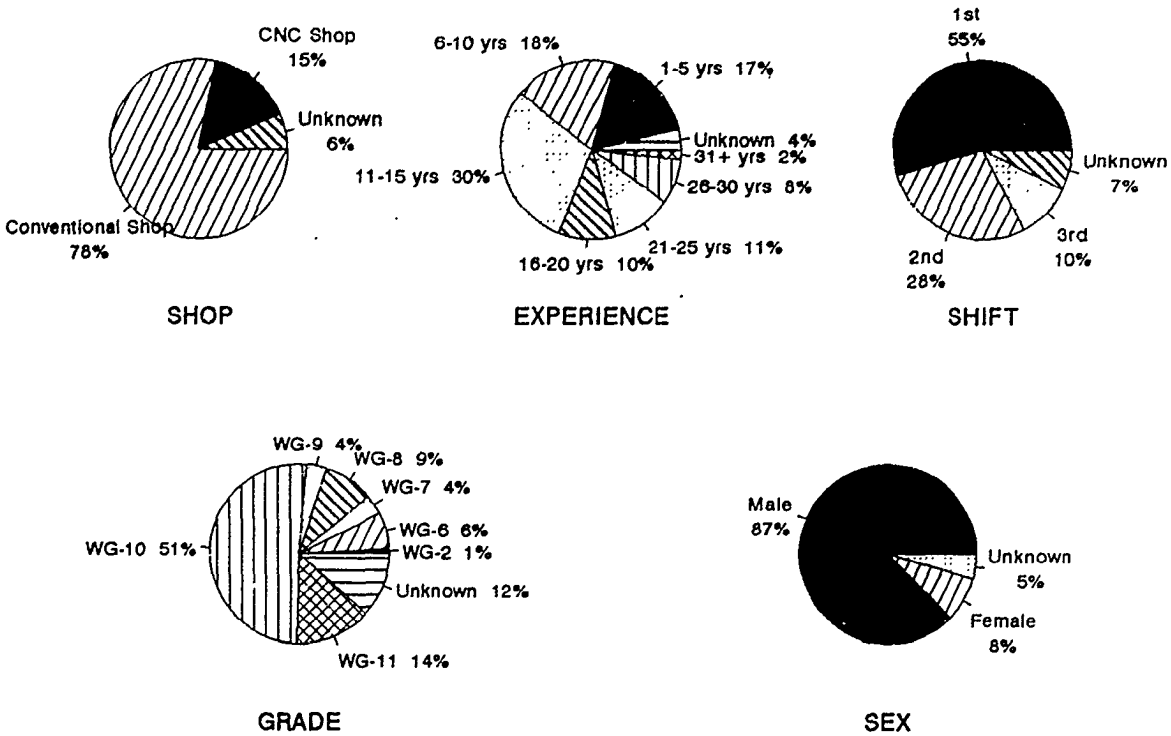
for ensuring proper training. Tooling is a valuable asset that is increasing in technological sophistication. In the opinion of the Author, the toolroom staff is inadequately trained to deal with the highly specialized issues associated with tooling. This contributes to losses caused by improper storage and handling, poor tooling maintenance, and communications problems.

4.16 **Quality Issues:** On issues of quality, all survey responses on questions relating to tooling effect on product quality, were above 40 percent in agreement that tooling had a positive affect on quality. One explanation for this relatively low percentage is related to the machinist perception that the quality of tooling is poor. The TQL philosophy embraced by the NADEP stresses the importance of all parts of the system on product quality. Tooling is only one of those parts of the production system. Therefore, the tooling might be considered to have little effect on product quality, or the machinist skills might be considered to compensate for tooling quality, by those who do not believe that the tooling does not have a positive effect on product quality. These responses are shown on Charts 4-24 and 4-25.

4.17 **Planning:** The final issue considered by the

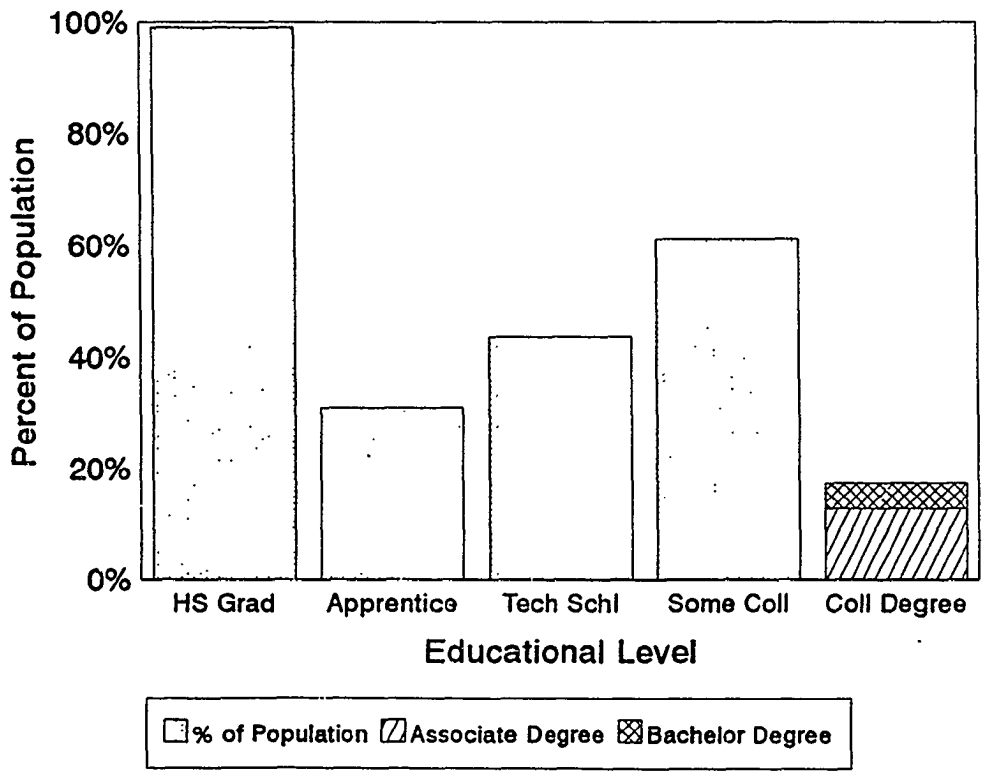
surveys was that of planning. Planning issue responses can be seen on Chart 4-26. None of the toolroom staff, ten percent of the machinists, and 16 percent of the supervisors indicate that jobs are properly planned for tools. About 35 percent of the machinists and about 55 percent of the supervisors and toolroom staff believe that the tools needed by the machinists are received in a timely fashion and that the variety of tools needed are available. As previously discussed, there are considerable losses resulting from untimely receipt of tooling. Tooling is not generally considered during the job planning process. Tooling consideration occurs prior to job release to the production shop only when the CNC programmers initially design a new computer program for the CNC equipment that requires a special tool. Also, tooling is given advance consideration when a new weapon system is introduced to the NADEP. Survey results indicated agreement between the machinists, supervisors and toolroom personnel that time is spent daily searching for alternate tools. The lack of advanced planning could be a cause for non-availability of tools. Over half of the respondents indicated problems in this area resulting in a daily loss of from about six percent to eleven percent of machinist production labor. The costs involved with delaying the start of a work project was not measured by this

research. The impact that can result, however, is less efficient use of equipment, backlog of other workload, impact on customer needs caused by delays, potential quality problems, unnecessary build-up of stock levels awaiting use and clutter caused by the excess inventory. Chart 4-27 displays the cumulative daily losses by all personell associated with the particular job as identified by the machinists. Total labor loss estimates range from 50 to 300 percent of the machinist workload (including losses of other associated personnel.) Although it should be recognized that not all losses can be attributed to planning, the author suggests that planning could be a major cause for the losses detected by this survey.



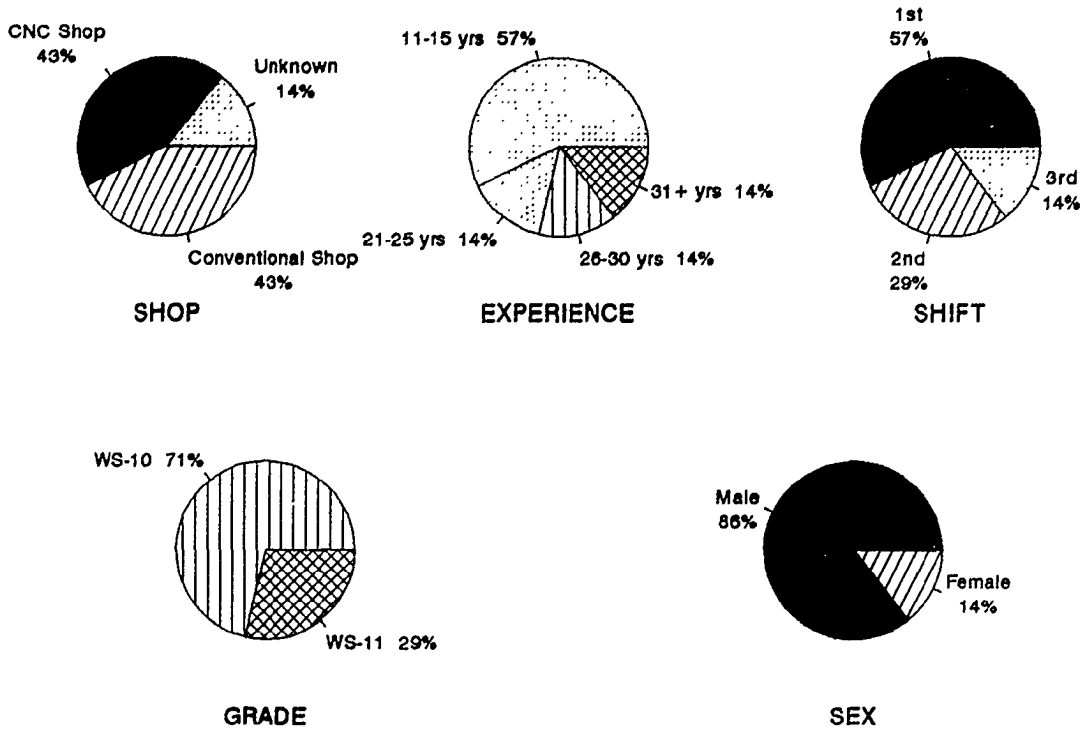
Machinist Population Demographics

Chart 4-1



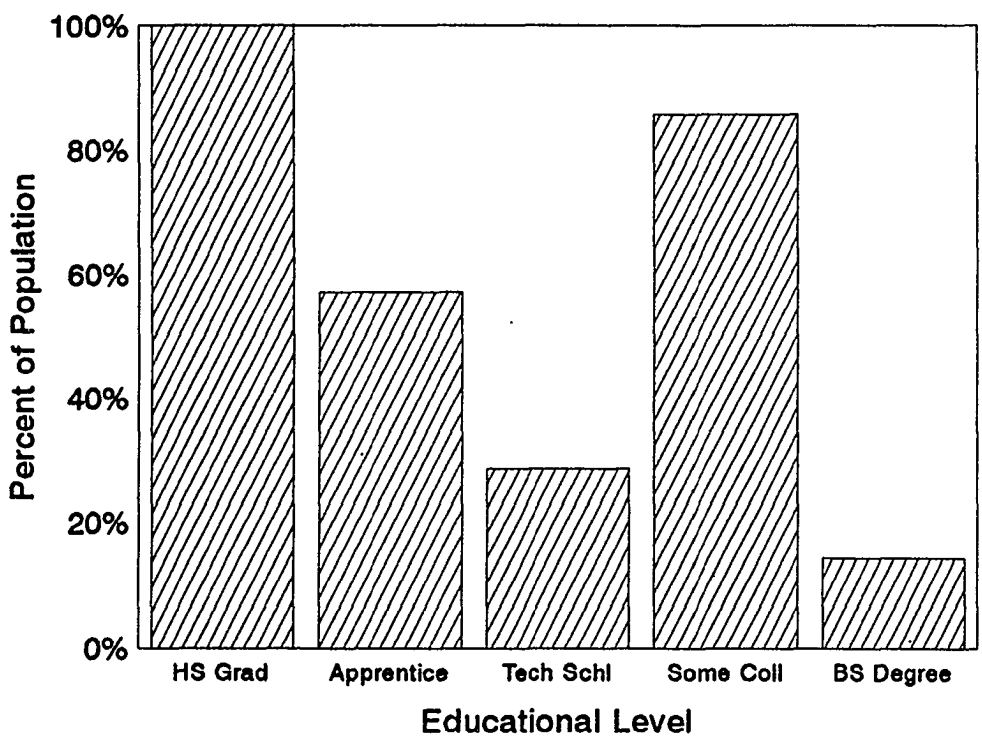
Education Make-up of Machinist Population

Chart 4-2



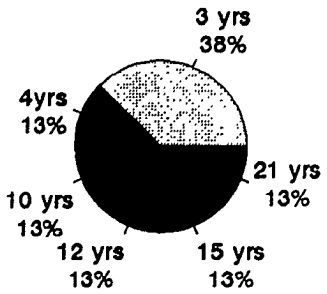
Supervisor Population Demographics

Chart 4-3

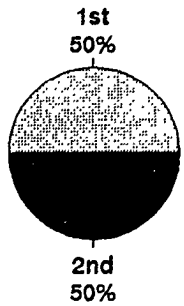


Education Makeup of Supervisor Population

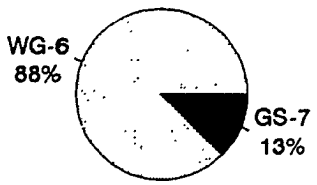
Chart 4-4



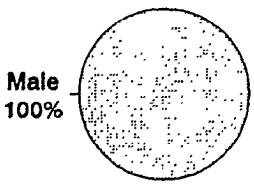
EXPERIENCE



SHIFT



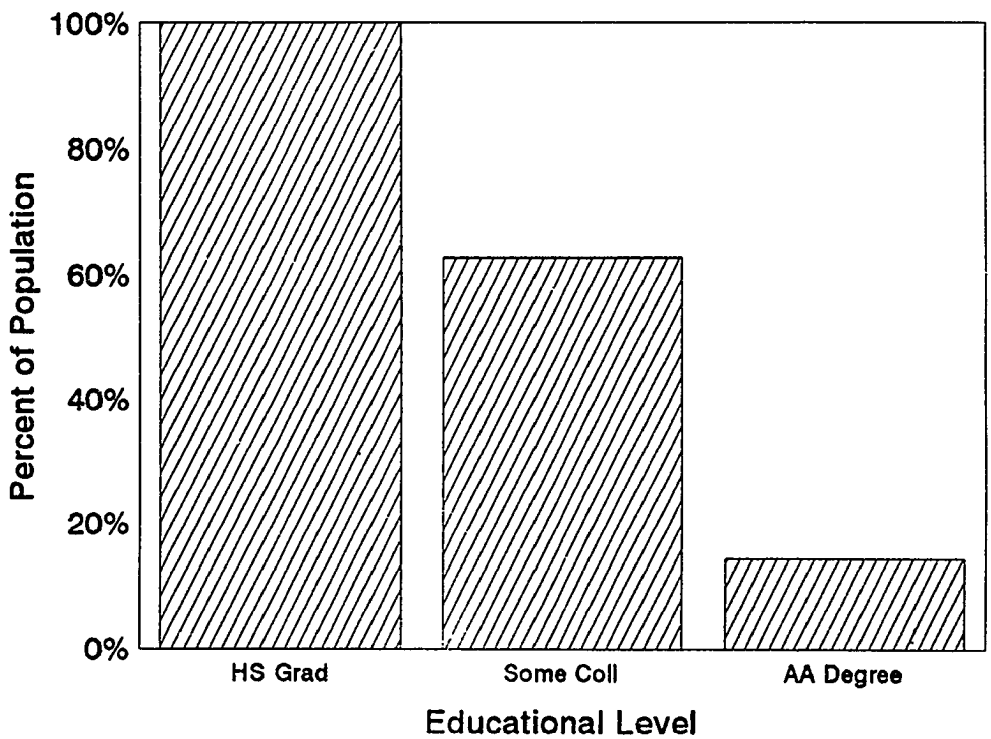
GRADE



SEX

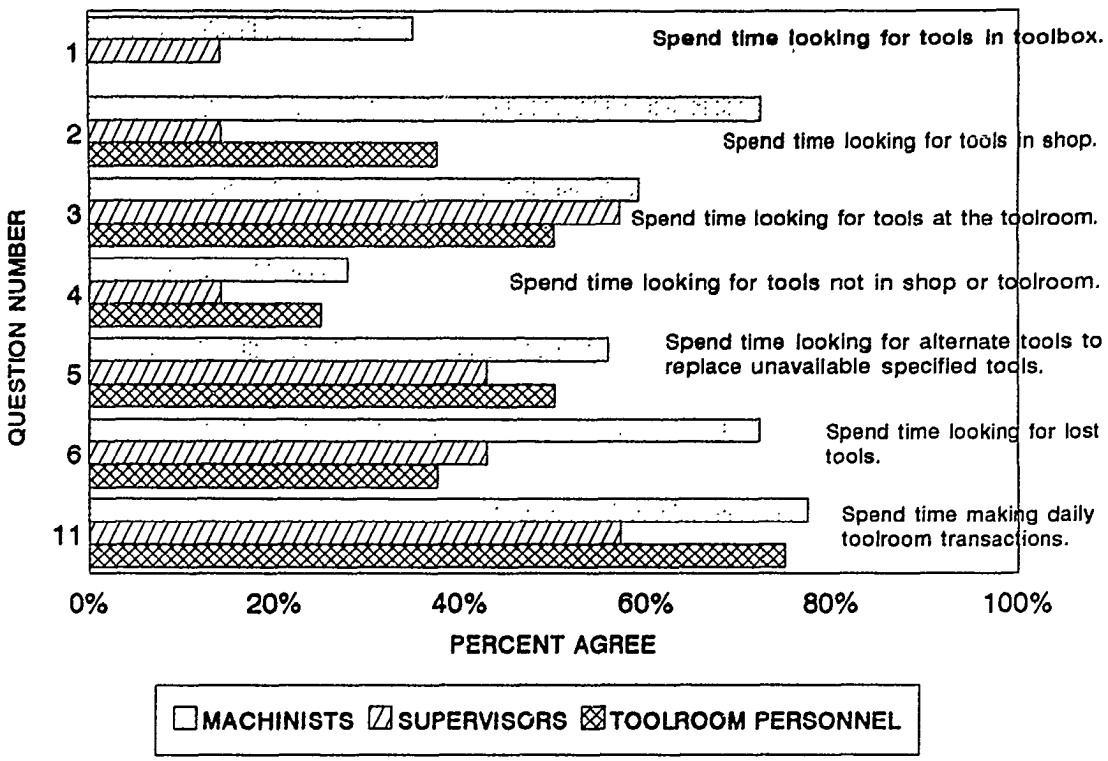
Toolroom Staff Demographics

CHART 4-5



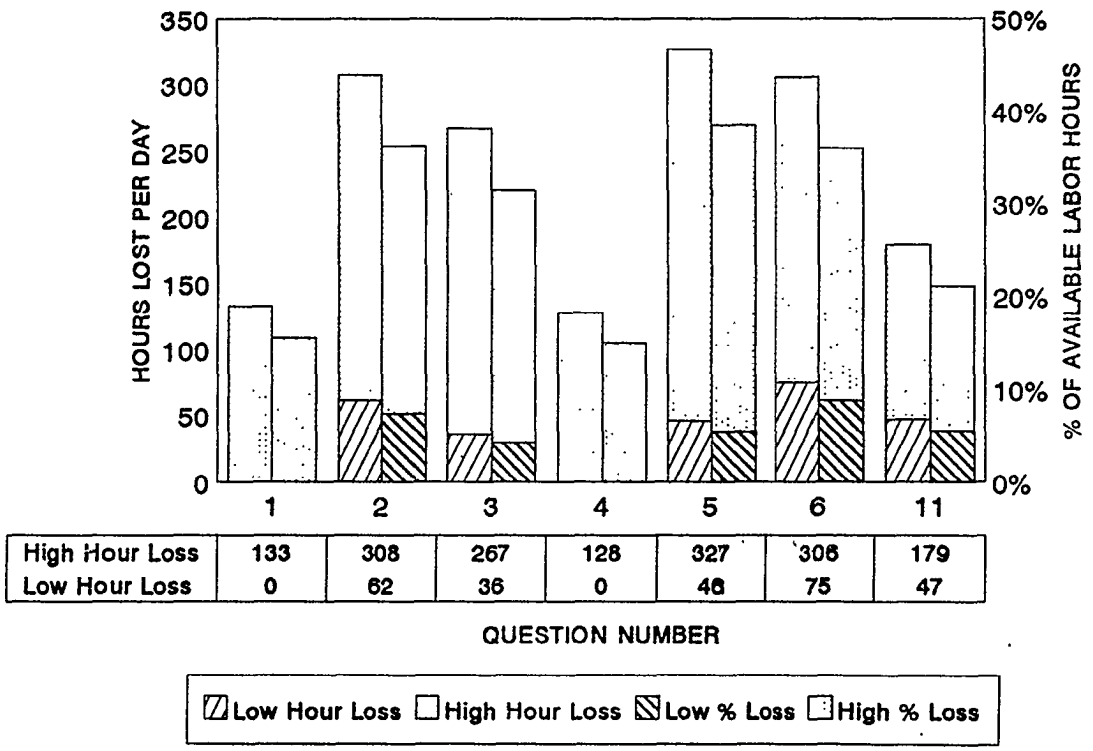
Education Makeup of Toolroom Staff Population

Chart 4-6



Machinist Time Spent Searching for Tools.

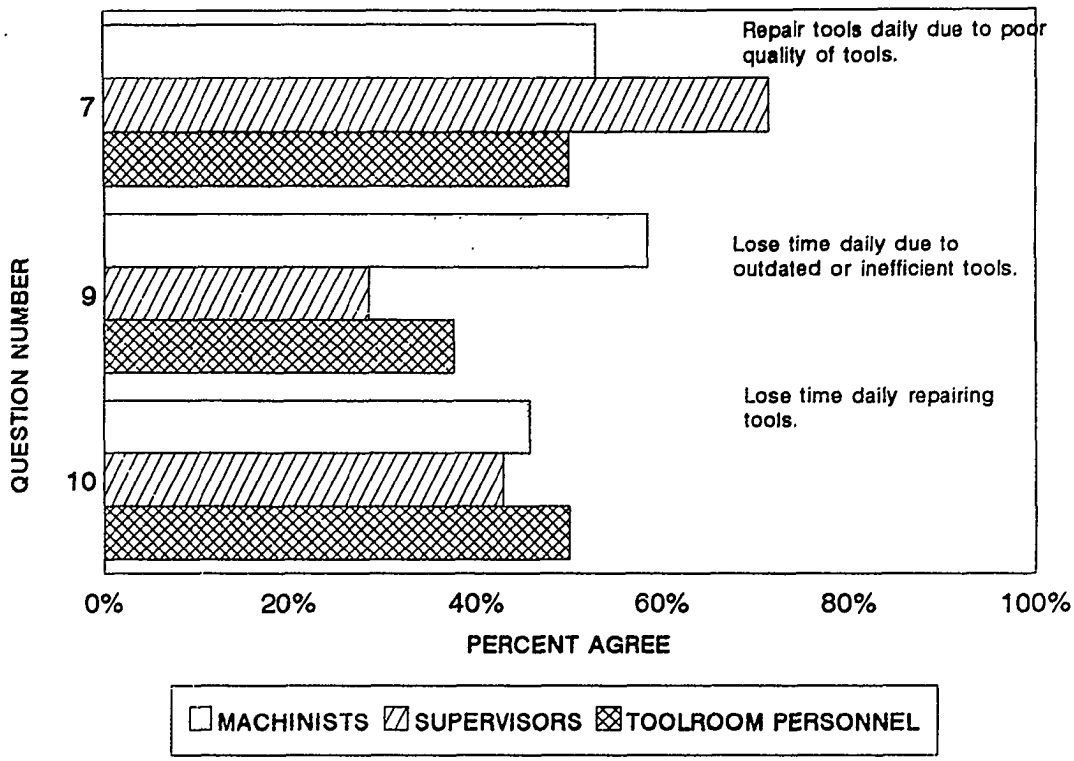
Chart 4-7



	1	2	3	4	5	6	11
High Hour Loss	133	308	267	128	327	306	179
Low Hour Loss	0	62	36	0	46	75	47

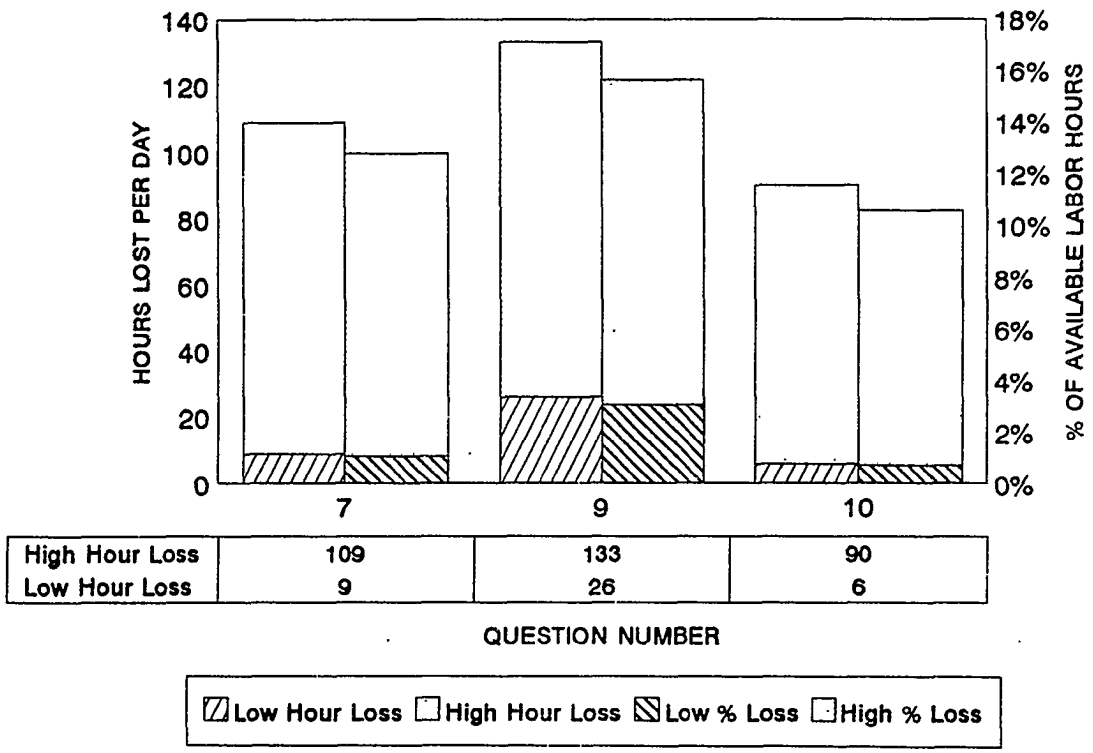
Daily Hour Losses Looking for Tools
Refer to Chart 4-7 for summary of each question number.

Chart 4-8



Machinist Daily Labor Losses Caused by Poor Quality Tools.

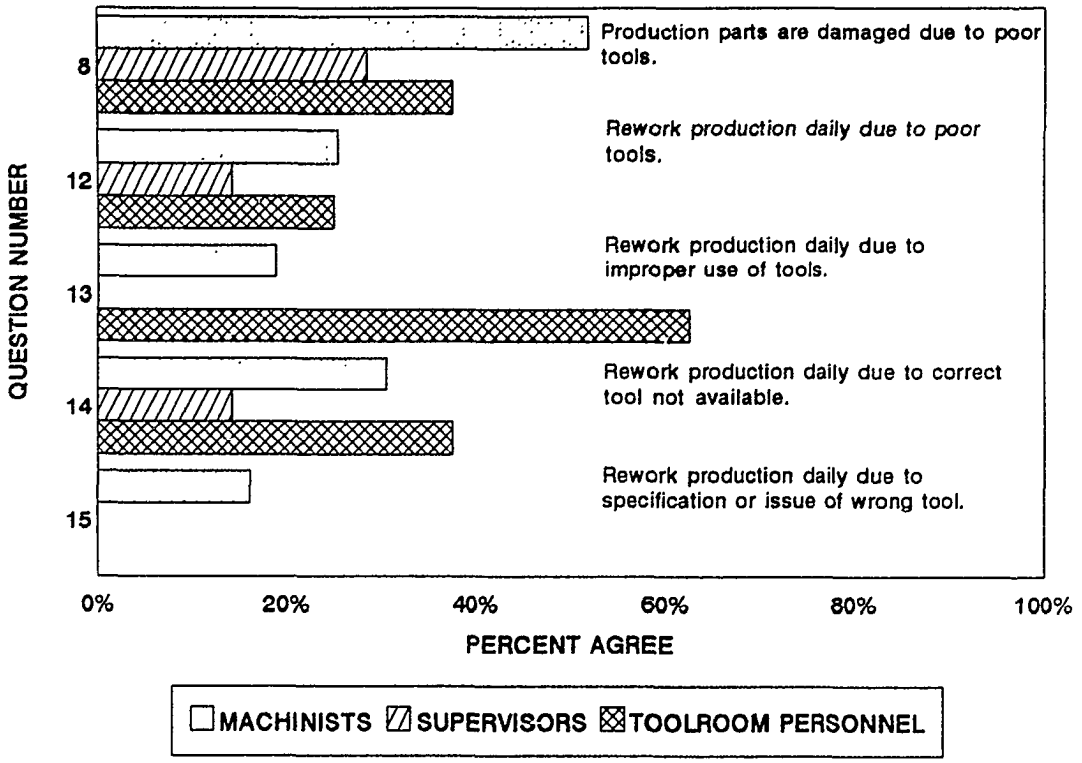
CHART 4-9



High Hour Loss	109	133	90
Low Hour Loss	9	26	6

Daily Hour Losses Because of Tool Quality Issues
Refer to Chart 4-9 for summary of each question number.

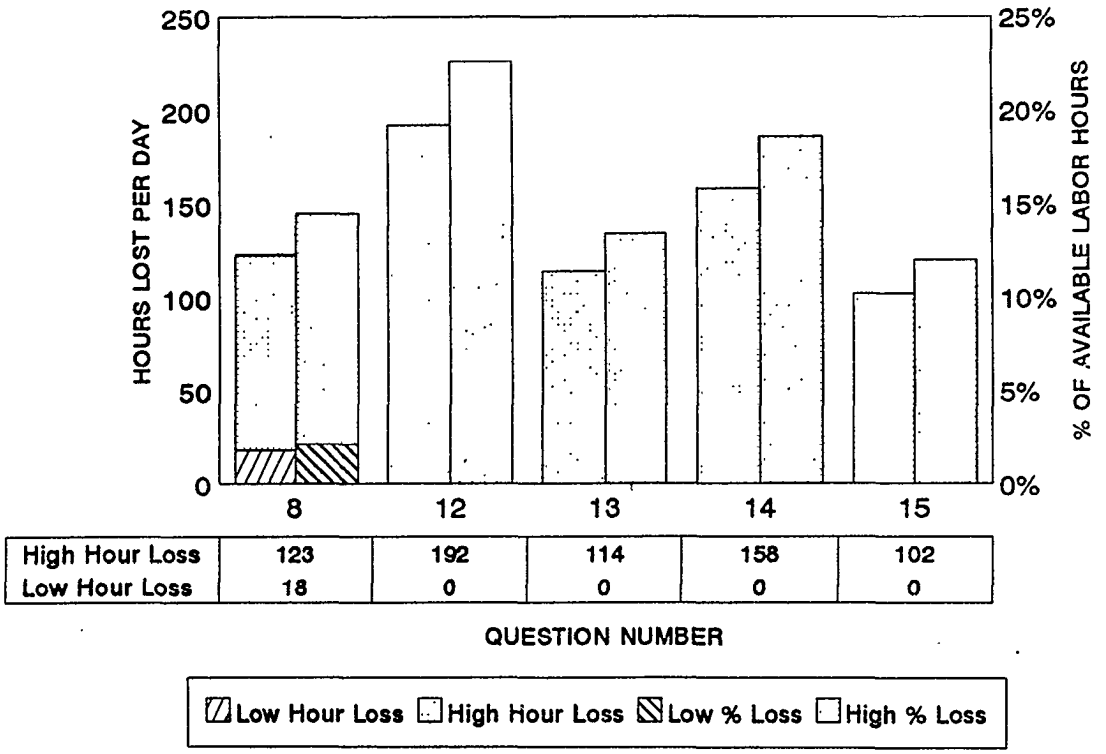
Chart 4-10



Machinist Daily Labor Losses From Repairing Production.

CHART 4-11

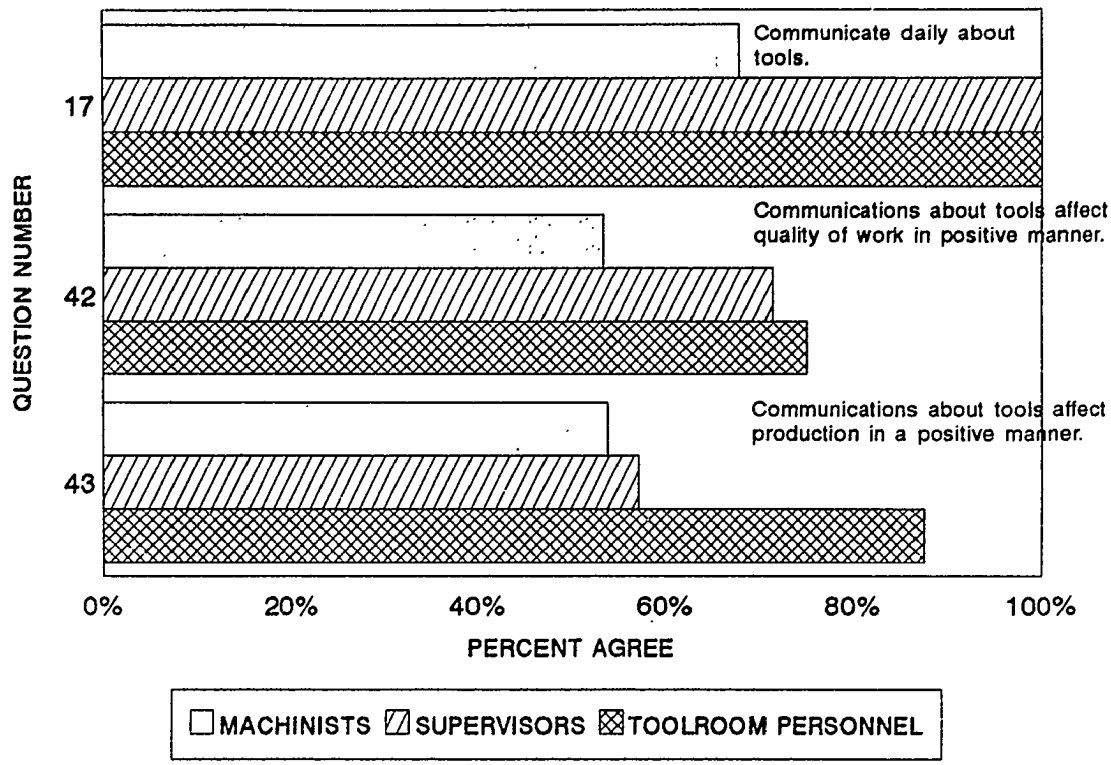
chrt4-11 ch3



High Hour Loss	123	192	114	158	102
Low Hour Loss	18	0	0	0	0

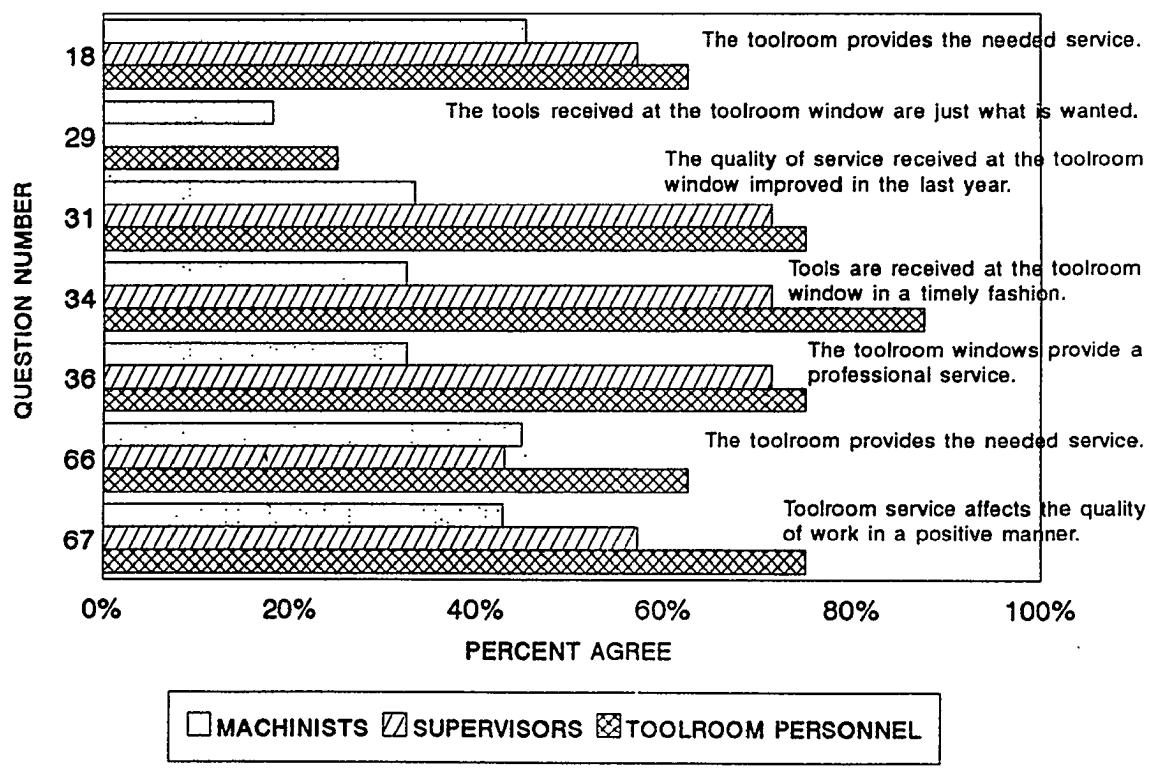
Daily Hour Losses Repairing Production
Refer to Chart 4-11 for summary of each question number.

Chart 4-12



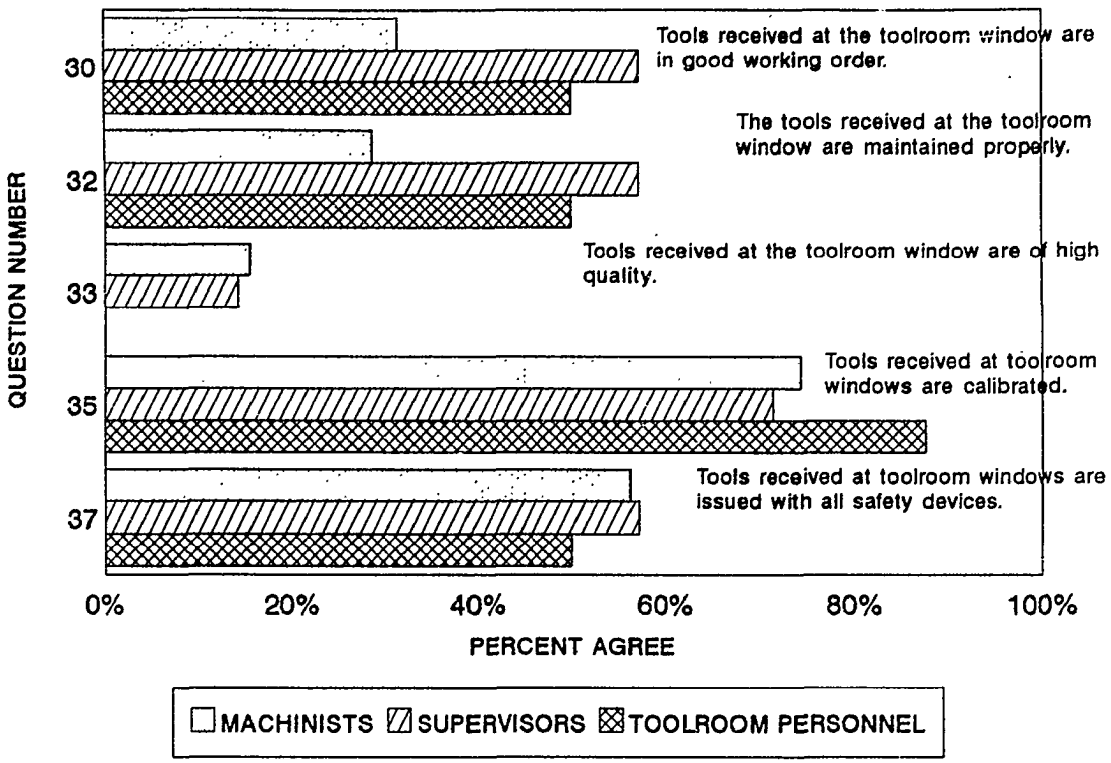
Spend Time Communicating

CHART 4-13



Perceptions of Toolroom Support

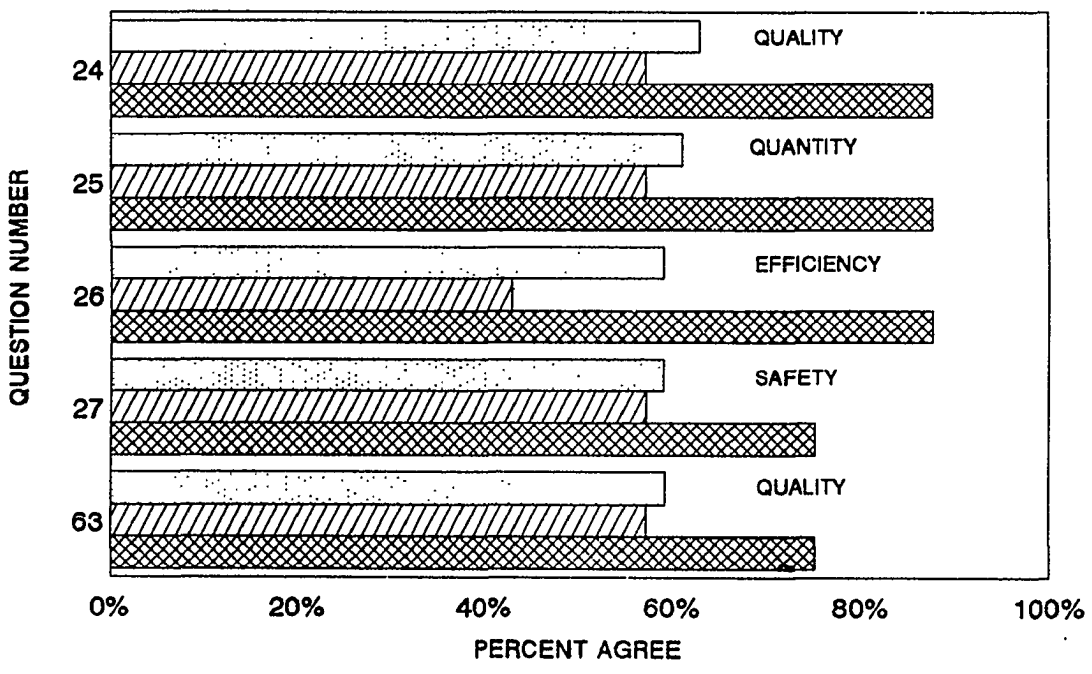
Chart 4-14



Issued Tooling Quality

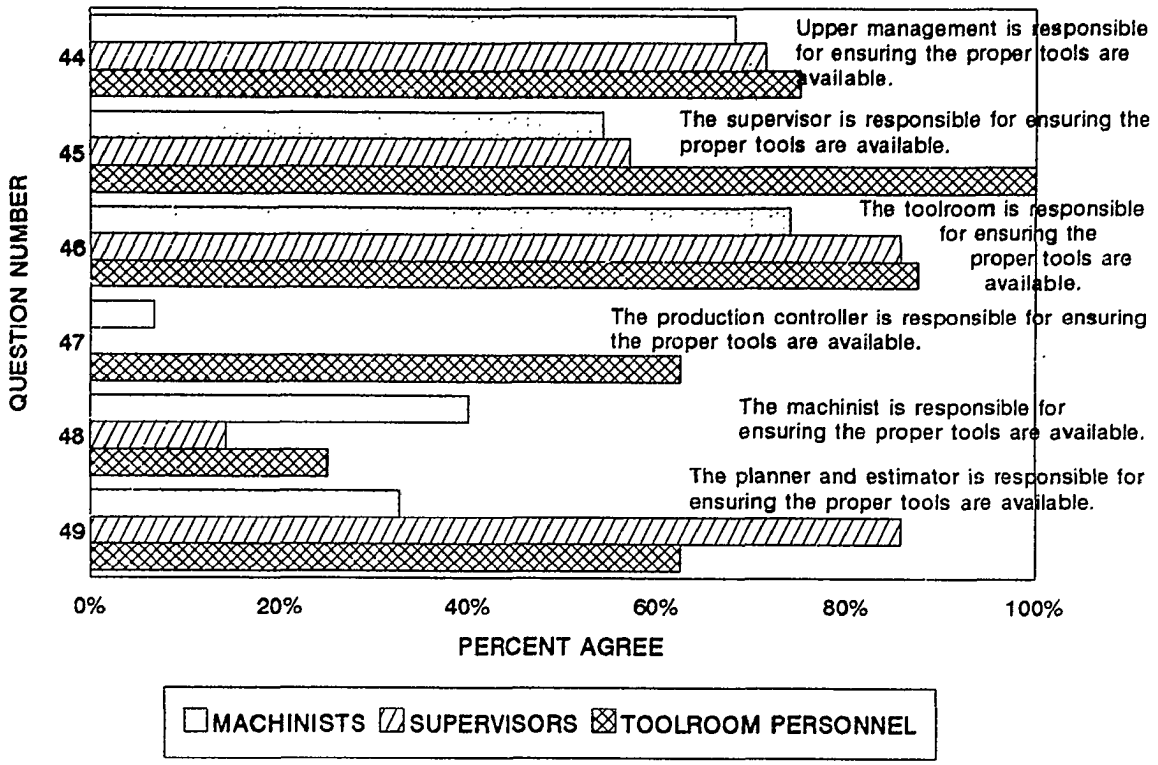
Chart 4-15

The issued tools affect the _____ of work in a positive manner.



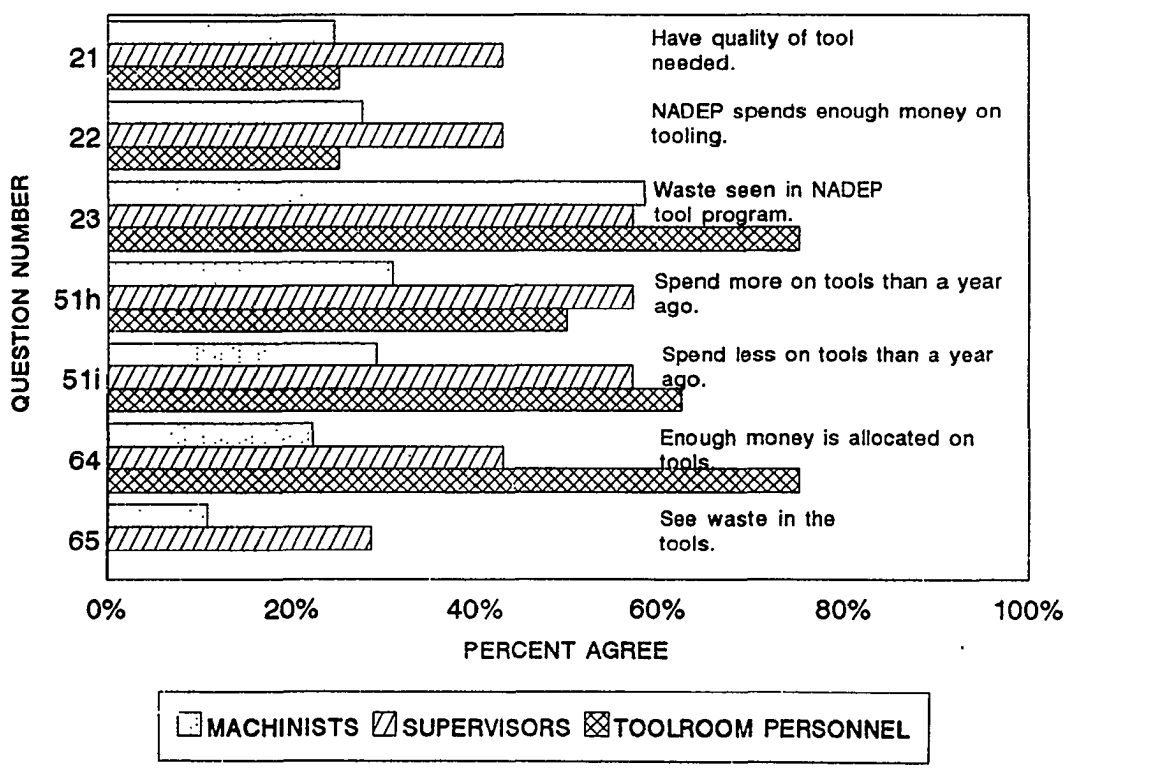
Effects of Issued Tools

Chart 4-16



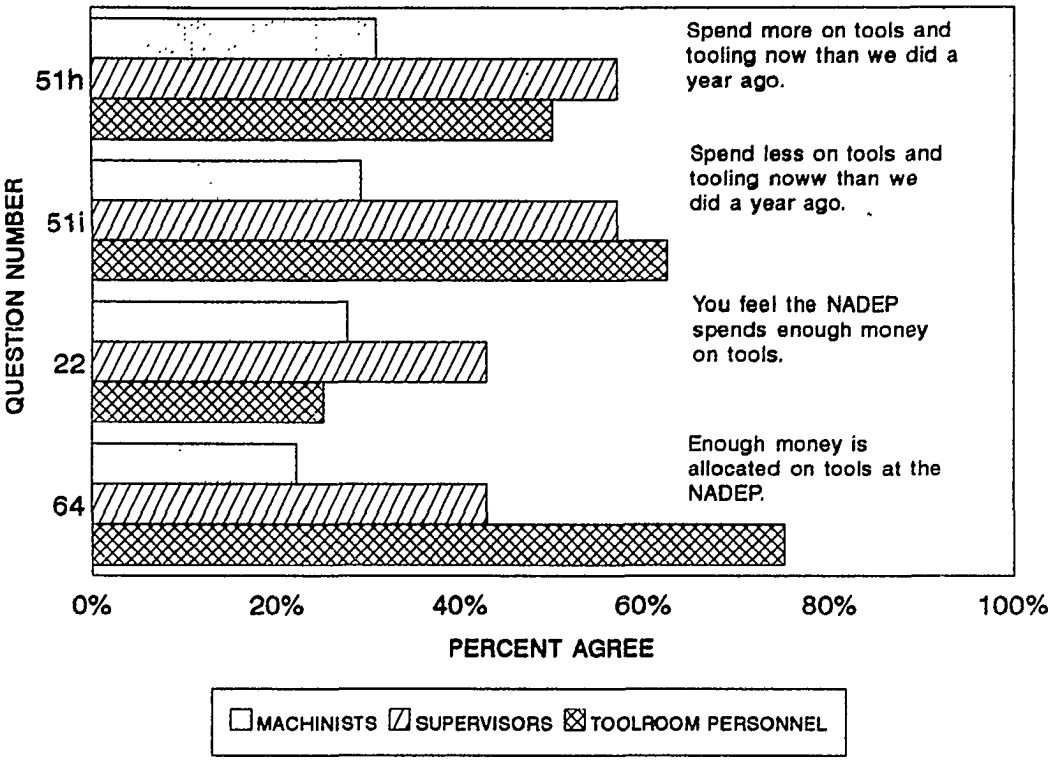
Tooling Management Responsibility

Chart 4-17



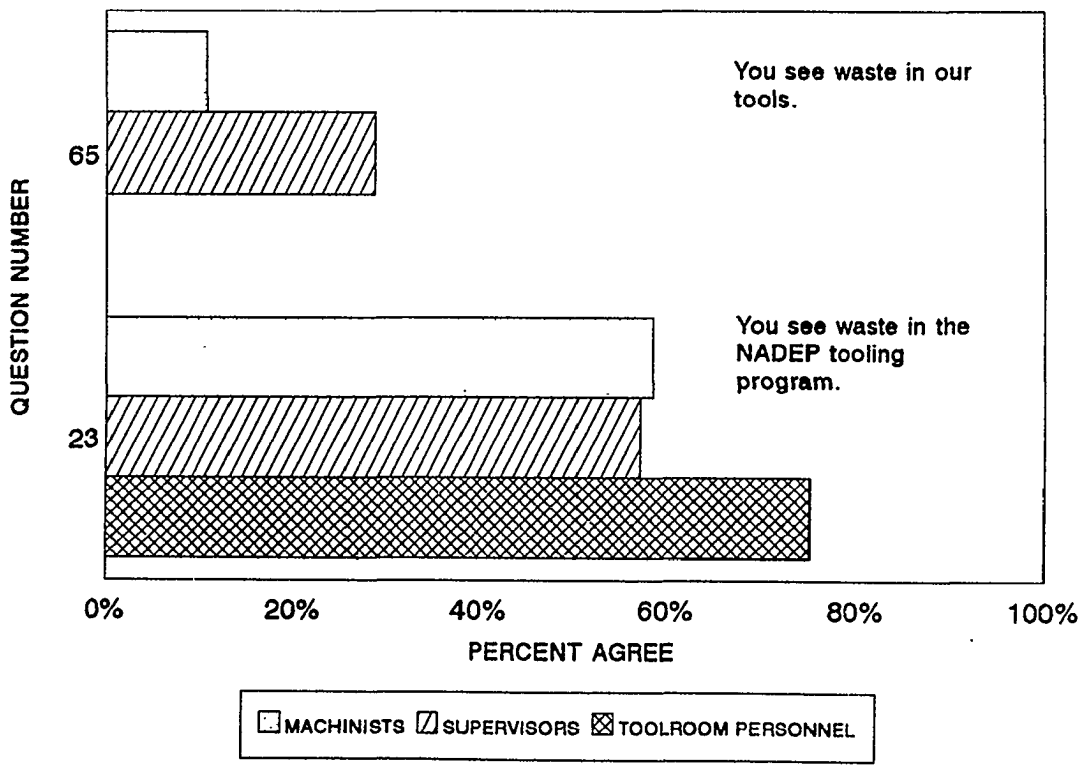
Tooling Budgets

CHART 4-18



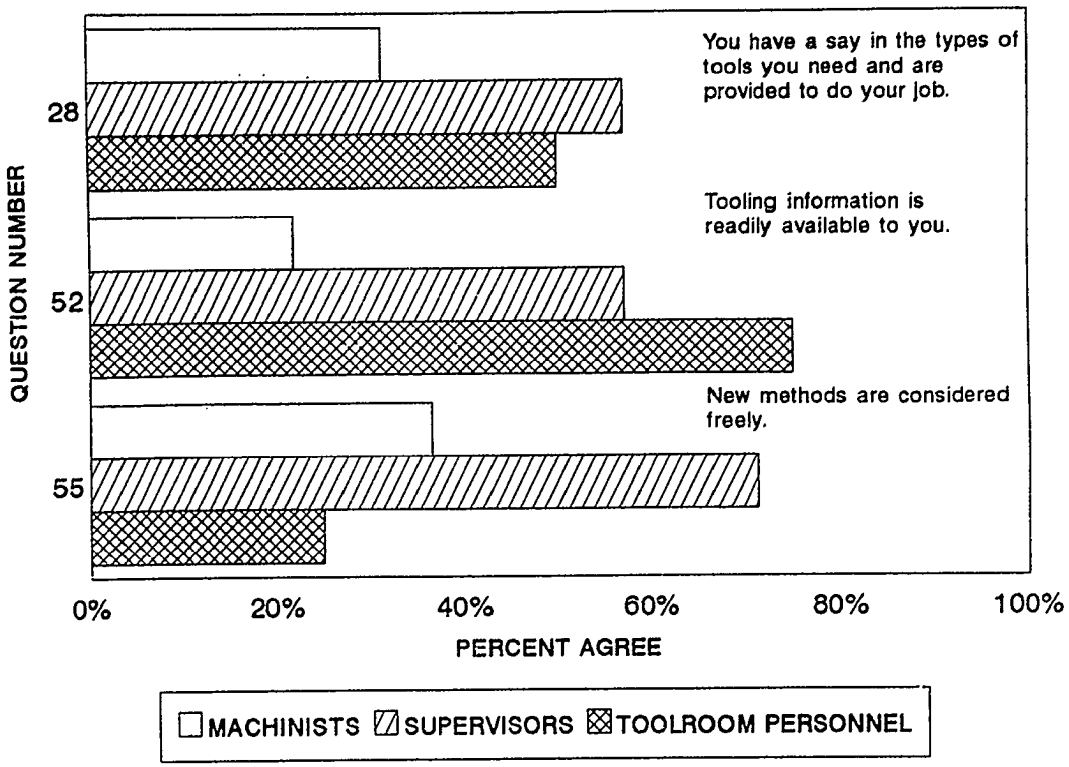
Tooling Spending

Chart 4-19



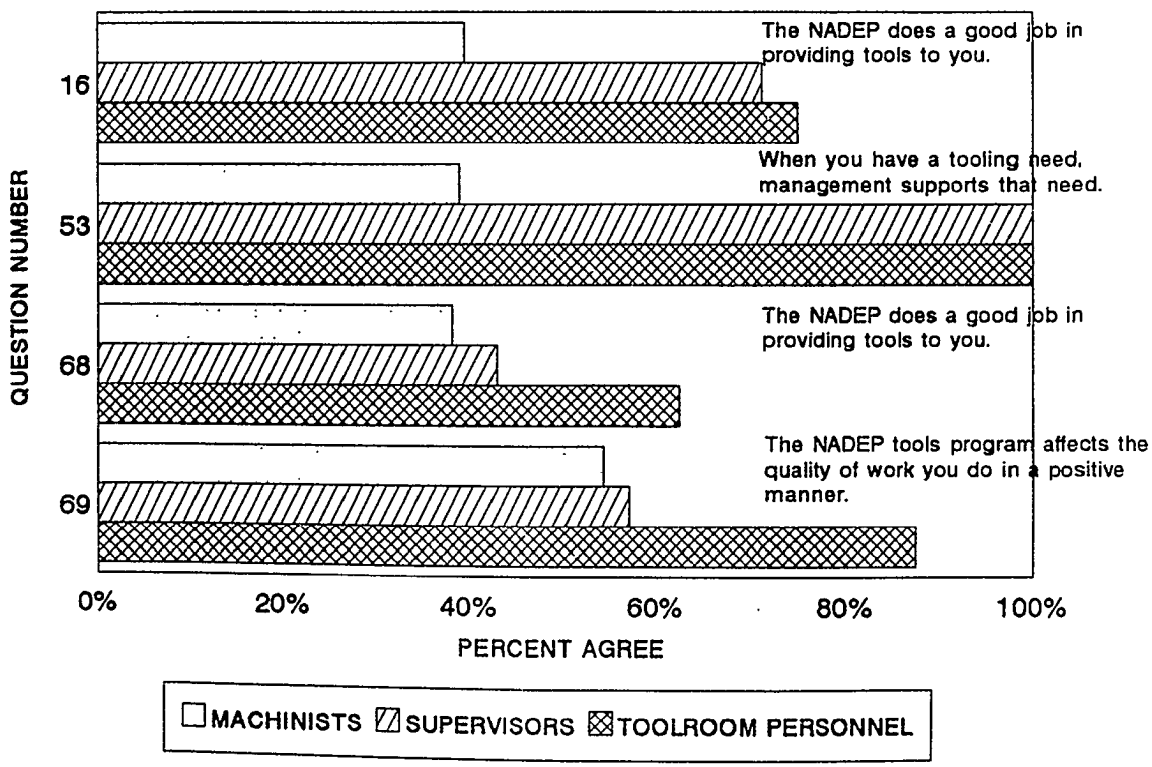
Waste in the Tooling System

Chart 4-20



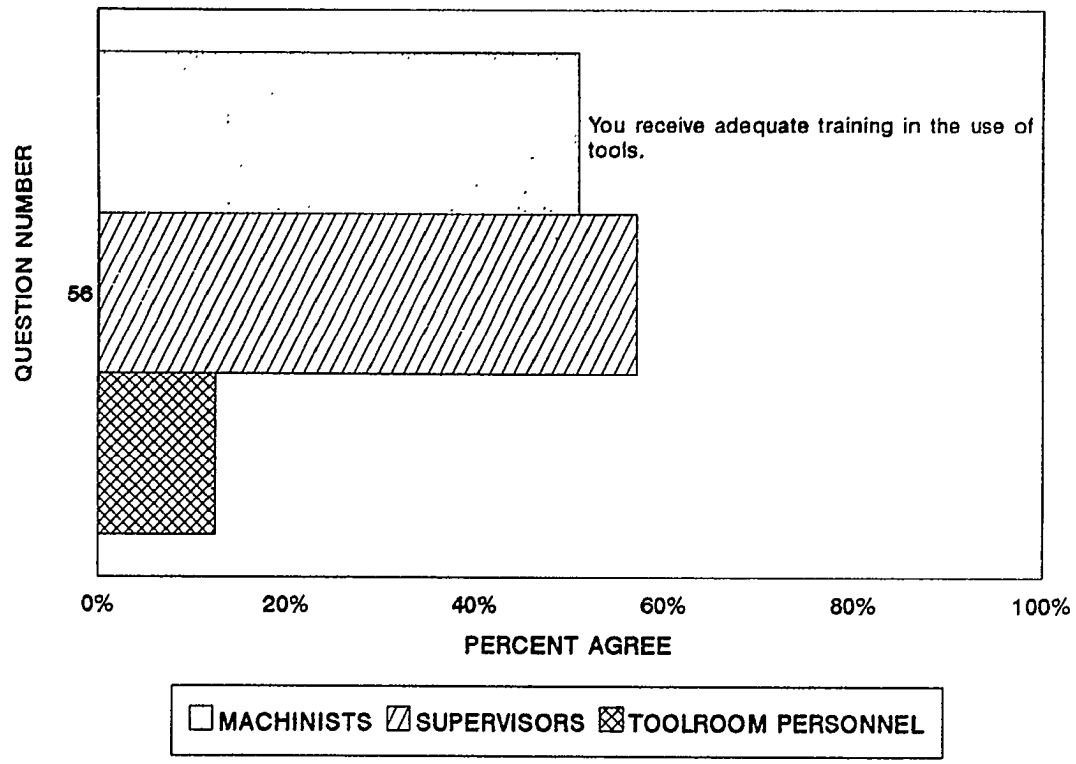
Methods and Information

Chart 4-21



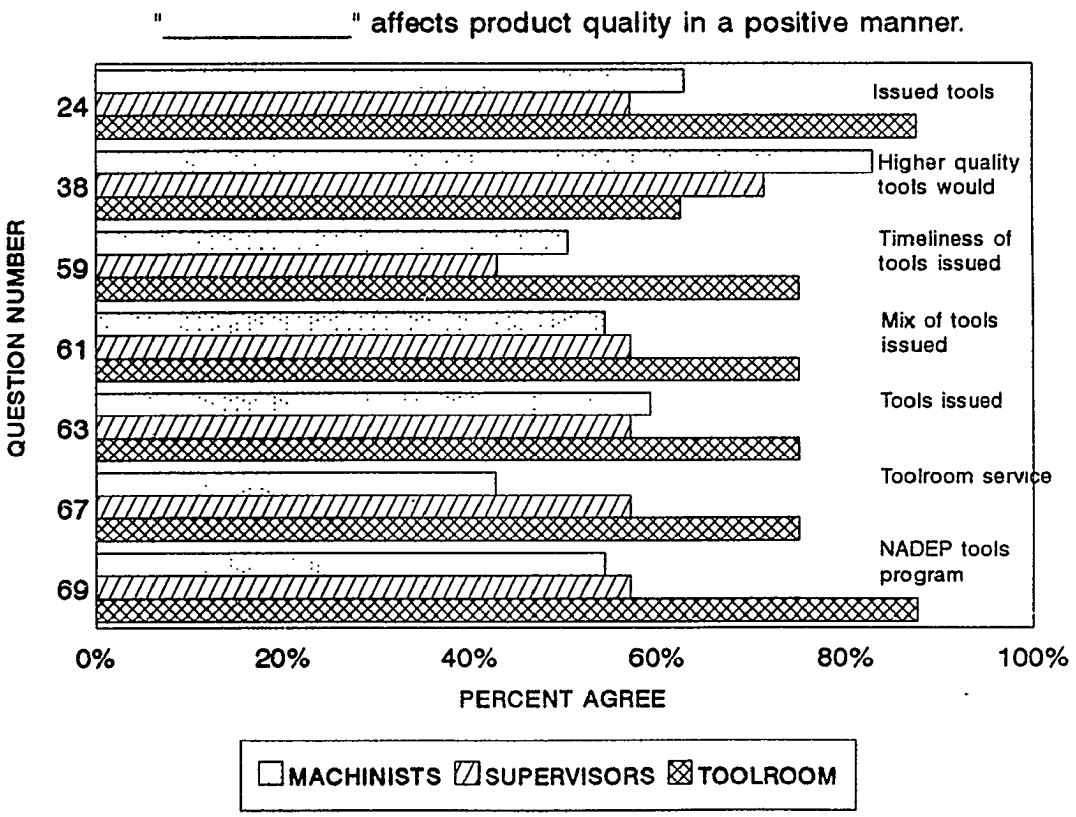
NADEP Tooling System

Chart 4-22



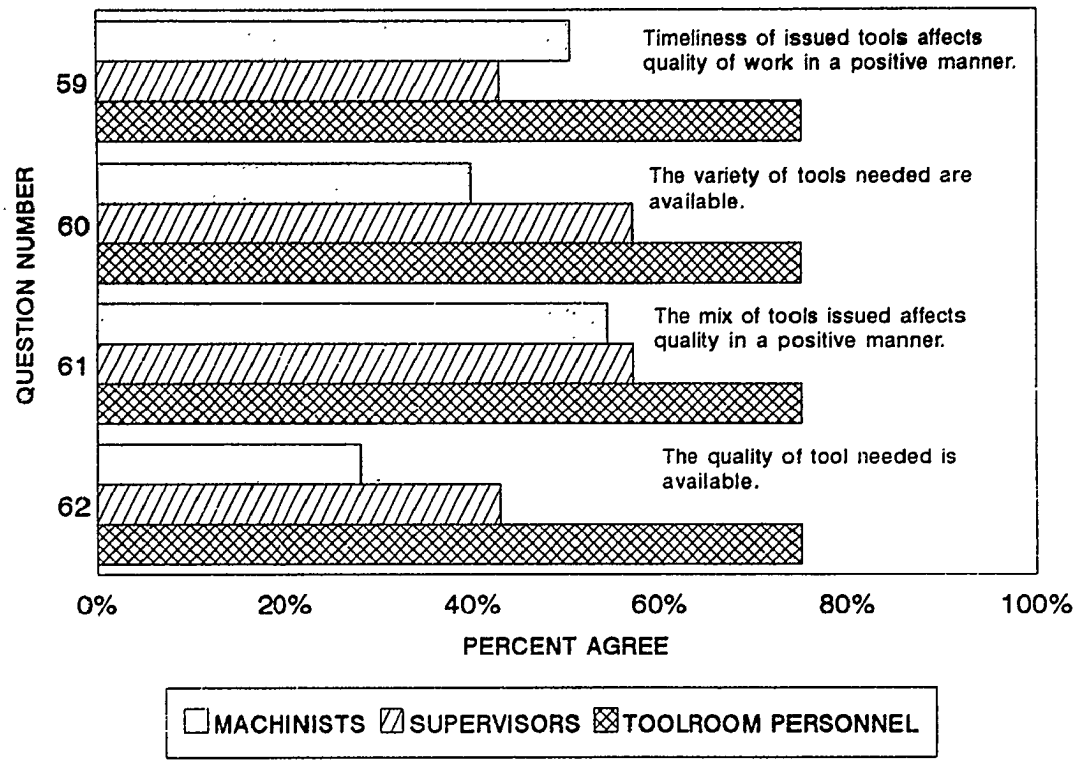
Personnel Training

Chart 4-23



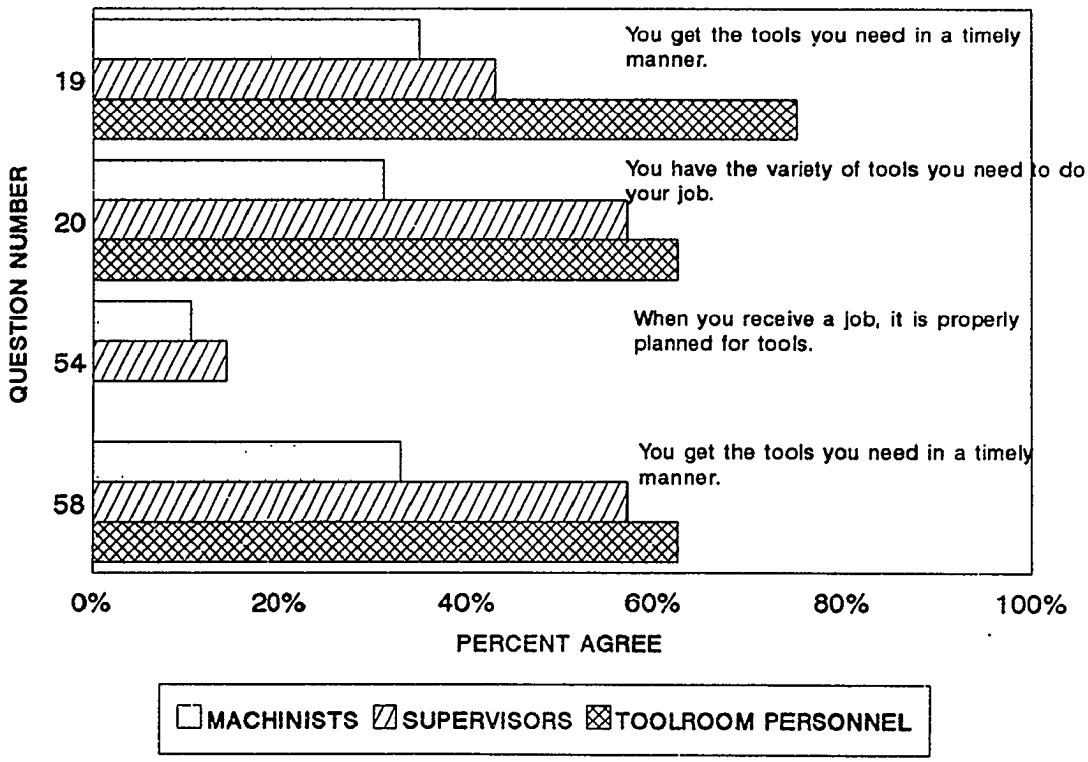
Effects on Product Quality

Chart 4-24



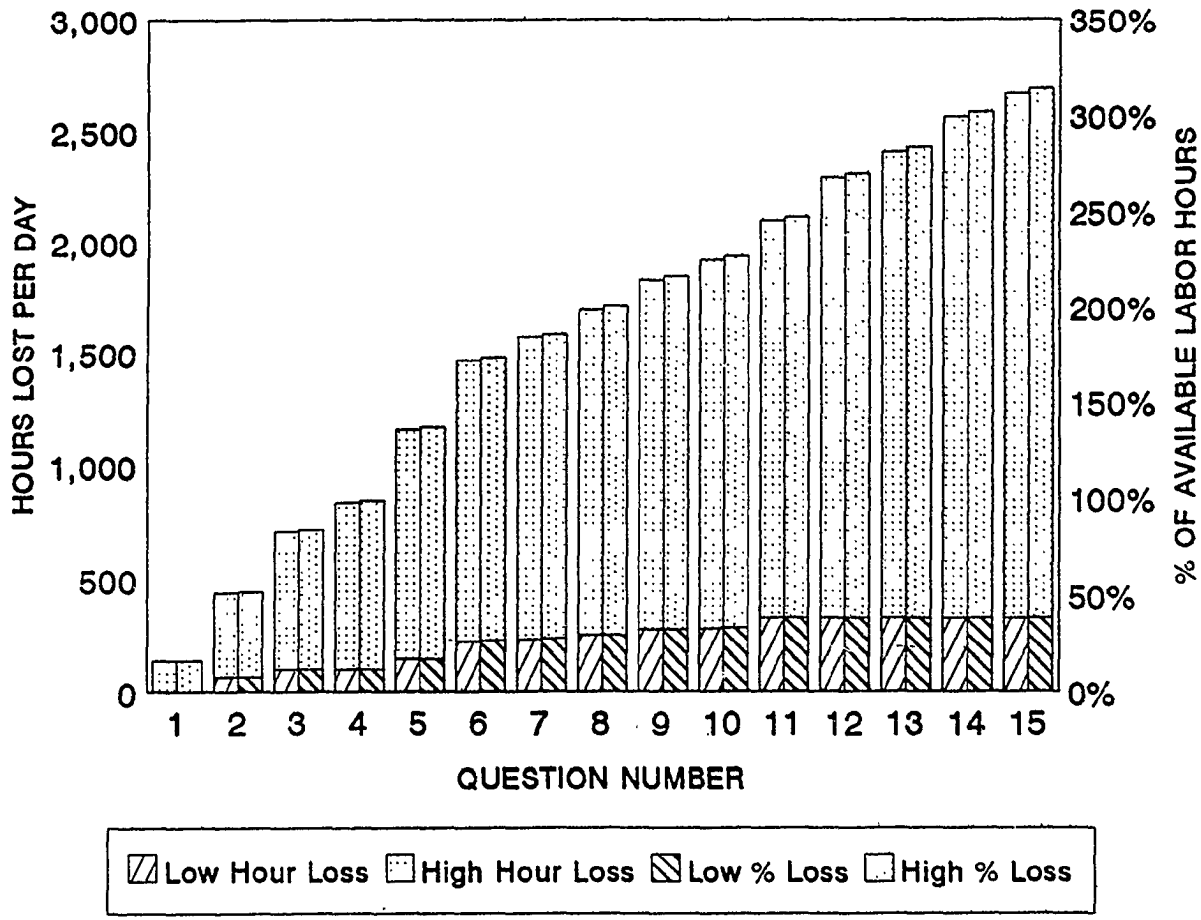
General Production Support

Chart 4-25



Tooling Planning

Chart 4-26



Cumulative Daily Hour Losses for All Tooling Issues

Chart 4-27

5. CONCLUSIONS

Tooling is a sophisticated asset and its management requires close attention to many details. The realization that good tooling management can result in significant savings through inventory reduction, increased productivity and improved product quality is a prerequisite of establishing a quality tooling management system. This case study determined that daily losses could be greater than the workload assigned to those machinists. Nearly all of the losses were technically manageable, but require substantial improvements in the existing tooling management system. Communication, employee participation, sound planning, training, better inventory management, technical information availability and statistical process control are all important ingredients that can improve this system and provide the desired tangible and intangible benefits.

5.1 **Demographics:** The machinists and supervisors as a group were highly educated and trained. They also showed much experience in their trade. The toolroom staff has much less education and experience. A sophisticated production workforce such as the machinists requires equally well trained and experienced support groups. The toolroom staff is

not an exception, particularly in an organization where the major responsibility for tooling management falls upon the shoulders of the toolroom staff. Steps should be taken to increase the toolroom staff education and experience level.

5.2 **Time Losses:** Major losses result from inefficiencies in the tool management system on a daily basis. The greatest losses resulted from searching for tools. An improved computer tooling management system recently installed should help to eliminate some of the time losses associated with this category. It is extremely important that the machinists have the capability of querying the system database to determine if and where tools are available. Further, the machinists should be encouraged to utilize that system. As a stakeholder in the tooling process, the machinists should be invited to participate with the toolroom in finding ways to make the tools more available to the users.

5.3 **Quality of Tooling:** The quality of tooling is not as expected by the machinists. New procurement methods that might help improve the quality of available tools could not be measured by this survey. Efforts of this type should continue. This is another area where the machinists should be

a participant in the process. If the machinists perceive that the quality of the tooling received is poor, the highest quality tool may not ever change their minds. Further, the possibility exists that the highest quality of tool is available, yet the feature desired by the machinist is not a part of that tool. Without machinist participation, issues such as just mentioned may continue unresolved.

5.4 **Tooling Calibration and Maintenance:** Calibration was considered to be satisfactory. Tooling maintenance is otherwise considered to be poor by the machinists. This is a problem that requires additional considerable management support. The toolroom does not have the required staff to support the work needed to maintain the tooling. Additional personnel are needed in this area, however, that in itself will not solve the problem. Training and experience are needed by those being tasked with the maintenance of the tools. The author does not recommend that another organization be tasked with tool maintenance, since this would create a more complex tooling management matrix and could lead to further confusion and delays.

5.5 **Tooling Budgets:** Tooling budget information was not available for review by the personnel surveyed. There is a

perception that insufficient funding is provided for tooling. Sufficient funding may be allotted for quality tooling, since there have been on tooling requests refused and money is usually available at the end of each fiscal year. The availability of budget information might help all personnel understand the cost of tooling and lead to a greater appreciation of the need to properly maintain and utilize tooling.

5.6 **Tooling Program Waste:** There was considerable agreement that there is waste in the tooling management program. The area of waste most often identified was the procurement of poor quality tooling that was disposed of due to short tool life, required premature disposal or slowed the production quality or quantity. This can only be resolved through selection and procurement of the proper quality tooling.

5.7 **Tooling Training:** The machinists through the apprentice and certification programs receive adequate training in the use of tooling. The toolroom staff needs training. The author suggests that the instructors used to train the machinists could also help train the toolroom staff. An organized and documented training program should be

developed and then conducted. Courses should include technical issues, customer service issues and toolroom specific topics.

5.8 **Tooling Planning:** There is no organization specifically tasked with tooling planning. Tooling aspects for the various production jobs are not properly planned. Stakeholders should participate in the planning process. Planning, however begins when a job is conceived, and therefore the tooling requirements need to be determined at that time to provide as much time as is possible to procure specialized tooling. This could be tied into the tooling management computer system.

5.9 **Toolroom Services:** There were several toolroom services that could be improved. These include response time at the toolroom tool issue area, tooling maintenance, and the provision of tooling information. These issues can be improved through training, better toolroom layout, and an improved and reliable computer system.

5.10 **Product Quality:** Products are being damaged on a daily basis due to tooling. This is the most important reason for improving the toolroom management system. A team effort

to make the changes in the system such as those mentioned above and others is crucial to minimizing any product quality problems.

5.11 **Study Critique:** Although considerable effort was made to design a survey that would be easy to understand and interpret, limitations were encountered. The first limitation was in not defining the difference between "agree" and "strongly agree", and "disagree" and "strongly disagree". The differences might be of interest. Second, follow-up questions were not asked to further probe or explain response meaning. In many cases this might have provided valuable additional information. The list of tool management attributes was found to be accurate for this survey and would be used again.

5.12 **Need For Future Research:** The need for further research exists and the opportunities are many. Many areas addressed by this study provide opportunity for further research. For example, how do the findings of this study apply to other organizations? Did the new computer system have the desired effect on the tooling management system? Did the new procurement procedure have the desired effect on the system? A study could be made to determine the validity of the time losses identified by this survey. Finally, a

financial study could be made to determine actual costs related to various aspects of tooling management. For example, do higher quality tools (hence more expensive) provide a pay back?

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APPENDIX B

SURVEY AREAS OF INTEREST

Management Quality

1) Process Design
2) Training
3) Tool Availability
4) Communications (Both Ways)
5) Maintenance Support
6) Budgeting
7) Job Planning
8) Tool Support
8a) Inventory Control
8b) Staffing

Tool Quality

9) Applicability to Process
10) Right Tool
11) Availability
12) Safety
13) Cost
14) Procurement
14A) Tool Quality
15) Maintainability
16) Usability
17) Tool Design
17A) Versatility

Support Services Quality

18) Close Proximity to Worksite
19) Professionalism
20) Knowledge
21) Right Tools
22) Courteousness
23) Tool Availability
24) Operating Tool PM System
25) Responsive Complaint System
26) Quality Tools
27) Preparation
28) Friendliness
29) Organization
29a) Safety/Ergonomics

Production Quality

30) Lost Time - Rework
31) Lost Time - Tools
32) Lost Time - Machines
33) Lost Time - Personnel
34) Timeliness of Work
35) Product Quality
36) Productivity
37) Job Safety
38) Profitability
39) QWL
40) Capability
41) Process
42) Consistency
43) Efficiency
44) Material Costs

APPENDIX C

MACHINIST TOOLING SURVEY

Circle your appropriate shop: NC SHOP / CONVENTIONAL SHOP (e)

Name **(OPTIONAL)**:

Building: 133 / 137

Years in Your Field:

Years in Your Shop:

Shift: 1st or 2nd or 3rd

Apprentice Grad?: Y or N

Tech School Grad?: Y or N

Some College?: Y or N

College Degree?: AS, AA, BS, BA, MS, MA

Job Grade:

Sex: F or M

1. During the average day, you spend time searching for tools in **your toolbox.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. tool found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

2. During the average day, you spend time searching for tools in your **shop**.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. tool found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

3. During the average day, you spend time searching for tools at the **toolroom**.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. tool found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

4. During the average day, you spend time searching for tools **not** in your shop or the toolroom.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. tool found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

5. During the average day, you spend time searching for **alternate** tools to replace specified tools not available.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. tool found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The affect of alternate tools on **quality** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The affect of alternate tools on **productivity** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Why did you choose to use an alternate tool? Why was the tool considered an alternate.

i. Use of the alternate tool caused _____ of extra work.
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

j. If there was additional material cost, how much was there?

6. During the average day, you spend time searching for tools that are not where they should be or that you know are in the shop but can't find.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. tool found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

7. During the average day, you spend time replacing tools more often due to the poor quality of tool received.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. my time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

d. The affect of the poor quality tool on **quality** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

8. **Production parts** are damaged due directly to poor quality, defective, or improperly maintained tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. my time lost:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time lost:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

d. estimated material value per incident:

9. You lose time each day due to use of inefficient or outdated tooling.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is lost?

a. my time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

d. The affect of inefficient or outdated tooling on quality is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

10. You lose time each day repairing tools (tools that **others** should be repairing)?

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is lost?

a. my time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

d. What organization should have made the repair?

11. You spend time at the toolroom window making tool transactions on a daily basis.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. my time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time (have someone waiting):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

12. During the average day, you spend time reworking production items damaged due to poor or inferior quality tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. part repaired successfully (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. part repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. part not repaired successfully (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. part not repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The affect of the rework caused by inferior quality tools on **quality** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The affect of the rework caused by inferior quality tools on **productivity** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Cost of additional materials used per incident?

13. During the average day, you spend time reworking production items damaged due to improper use of tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. part repaired successfully (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. part repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. part not repaired successfully (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. part not repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The affect of improper use of tools on **quality** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The affect of improper use of tools on **productivity** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Cost of additional materials used per incident due to the affect of improper use of tools.

14. During the average day, you spend time reworking production items damaged due to nonavailability of the proper tool.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. part repaired successfully (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. part repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. part not repaired successfully (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. part not repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The affect of rework caused by use of improper tools on **quality** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The affect of rework caused by use of improper tools on **productivity** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Cost of additional materials used per incident?

15. During the average day, you spend time reworking production items damaged because you were issued or directed to use the wrong tool.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so, how much time is spent?

a. part repaired successfully (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. part repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. part not repaired successfully (my time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. part not repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The affect of rework caused by using the wrong tool on **quality** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The affect of rework caused by using the wrong tool on **productivity** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Cost of additional materials used per incident?

16. The NADEP does a good job in providing tools to you.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

17. You communicate with your management about tooling matters.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If so:

a. Your communications with your supervisor are different from your communications with your branch head or above about tools and tooling.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

b. Your communications with your management improved over the last year.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

c. my time used during these discussions:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. others' time during these discussions:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

18. The toolroom provides the service you need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

19. You get the tools you need in a timely manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

20. You have the variety of tools you need to do your job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

21. You have the **quality** of tools you need to do your job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

22. You feel the NADEP spends enough money on tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

23. You see waste in the NADEP tools program.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

a. If **so**, where?

24. The tools you are issued affect the **quality** of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

25. The tools you are issued affect the **quantity** of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

26. The tools issued to you affect the **efficiency** of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

27. The tools issued to you affect your **safety** during the work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

28. You have a say in the types of tools you need and are provided to do your job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

29. The tools you receive at the toolroom window are just what you want.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

30. The tools you receive at the toolroom window are in good working order.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

31. The quality of service you receive at the toolroom window has improved in the last year.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

32. The tools you receive at the toolroom window are maintained properly.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

33. The tools you receive at the toolroom window are of high quality.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

34. The tools you receive at the toolroom window are available in a timely fashion.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

35. The tools you receive at the toolroom window are calibrated (when necessary.)

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

36. The toolroom windows provide you with a professional service.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

37. The tools you receive at the toolroom window are issued with all safety devices.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

38. Higher quality tools would affect the **quality** of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

a. Example and time frame that it happened in:

39. Higher quality tools would affect the **quantity** of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

a. Example and time frame that it happened in:

40. Higher quality tools would affect the **efficiency** of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

a. Example and time frame that it happened in:

41. Higher quality tools would affect your **safety** during the work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

a. Example and time frame that it happened in:

42. The communications you have with your supervisor about tools affects the quality of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

43. The communications you have with your supervisor about tools affects your production in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

44. Upper management is responsible for ensuring the proper tools are available for the job I am doing.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

45. My supervisor is responsible for ensuring the proper tools are available for the job I am doing.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

46. The Toolroom is responsible for ensuring the proper tools are available for the job I am doing.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

47. The production controller is responsible for ensuring the proper tools are available for the job I am doing.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

48. I am responsible for ensuring the proper tools are available for the job I am doing.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

49. The planner and estimator is responsible for ensuring the proper tools are available for the job I am doing.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

50. I communicate with my supervisor _____ about tools.

a. once per day.
b. more than once per day.
c. less than once per day. d) once per week.
d. once per month.

51. The amount of money the NADEP spends on tooling each year is:

a. less than $10,000 per year.
b. more than $10,000 less than $50,000 per year.
c. more than $50,000 less than $100,000 per year.
d. more than $100,000 less than $250,000 per year.
e. more than $250,000 less than $500,000 per year.
f. more than $500,000 less than $1,000,000 per year.
g. more than $1,000,000 per year.

h. We spend more on tools and tooling now than we did a year ago.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

i. We spend less on tools and tooling now than we did a year ago.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

52. Tooling information is readily available to you.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

a. If not, please give an example and time-frame.

53. When you have a tooling need, management supports that need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

54. When you receive a job, it is properly planned for tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

55. New methods are considered freely.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

56. You receive adequate training in the use of tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

57. Whose responsibility is it to see that you get the proper tool training? (Place in order of responsibility with the most important individual first and the least important last.)

____ a. yours.
____ b. shop supervisor.
____ c. management.
____ d. planning.
____ e. toolroom.
____ f. training.
____ g. union.
____ h. safety.
____ i. tool control.
____ j. other. Name _____

58. You get the tools you need in a timely manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

59. The timeliness of tools you are issued affects the quality of your work in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

60. You have the variety of tools you need to do your job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

61. The mix of tools you are issued affects the quality of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

62. You have the quality of tools you need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

63. The tools you are issued affect the quality of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

64. Enough money is allocated for tools at the NADEP.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

a. If no, how much is enough?

65. You see waste in our tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

a. If yes, where?

66. The toolroom provides the service you need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

67. The toolroom service affects the quality of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

68. The NADEP does a good job in providing tools to you.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

69. The NADEP tools program affects the quality of work you do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

70. During the day I spend _____ hours using tools or tooling to perform some type of production work.

a. less than .5 hours.
b. more than .5 less than 1 hour.
c. more than 1 less than 4 hours.
d. more than 4 less than 8 hours.
e. 8 or more hours.

71. Do you have any comments or suggestions that might help improve the NADEP tools program?

APPENDIX D

SUPERVISOR TOOLING SURVEY

Circle your appropriate shop: NC SHOP / CONVENTIONAL SHOP (s)

Name **(OPTIONAL)**:

Building: 133 / 137

Years in Your Field:

Years in Your Shop:

Shift: 1st or 2nd or 3rd

Apprentice Grad?: Y or N

Tech School Grad?: Y or N

Some College?: Y or N

College Degree?: AS, AA, BS, BA, MS, MA

Job Grade:

Sex: F or M

1. During the typical day, your shops spend time searching for tools in **their toolboxes.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through e below.)

a. tool found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

2. During the typical day, your employees spend time searching for tools in your **shop.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through e below.)

a. tool found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

3. During the typical day, your employees spend time searching for tools at the **toolroom**.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through e below.)

a. tool found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

4. During the typical day, your employees spend time searching for tools **not** in your shop or the toolroom.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through e below.)

a. tool found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

5. During the typical day, your employees spend time searching for **alternate** tools to replace specified tools not available.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through j below.)

a. tool found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The affect of alternate tools on **quality** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The affect of alternate tools on **productivity** is positive.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Why use an alternate tool? Why was the tool considered an alternate?

i. Use of the alternate tool caused _____ of extra work.
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

j. If there was additional material cost, how much was there?

6. During the typical day, your employees spend time searching for tools that are not where they should be or that you know are in the shop but they can't find.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through e below.)

a. tool found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. tool found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. tool not found (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. tool not found (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

7. During the typical day, your employees spend time replacing tools more often due to the poor quality of tool received.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through d below.)

a. employee time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

d. Poor quality tools lowers product **quality**.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

8. **Production parts** are damaged due directly to poor quality, defective, or improperly maintained tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through d below.)

a. employee time lost:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time lost:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

d. estimated material value per incident:

9. Your employees lose time each day due to use of inefficient or outdated tooling.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through d below.)

a. employee time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

d. Inefficient or outdated tooling adversely affects product quality.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

10. Your employees lose time each day repairing tools (tools that **others** should be repairing)?

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through d below.)

a. employee time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

d. What organization should have made the repair?

11. Your employees frequently spend time at the toolroom window making tool transactions.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through c below.)

a. employee time:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. others' time (have someone waiting):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

12. During the typical day, your employees spend time reworking production items damaged due to poor or inferior quality tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through h below.)

a. part repaired successfully (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. part repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. part not repaired successfully (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. part not repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The rework caused by inferior quality tools lowers product **quality.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The rework caused by inferior quality tools lowers **productivity.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Cost of additional materials used per incident?

13. During the typical day, your employees spend time reworking production items damaged due to improper use of tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through h below.)

a. part repaired successfully (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. part repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. part not repaired successfully (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. part not repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The improper use of tools lowers product **quality.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The improper use of tools lowers **productivity.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Cost of additional materials used per incident due to the affect of improper use of tools.

14. During the typical day, your employees spend time reworking production items damaged due to nonavailability of the proper tool.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through h below.)

a. part repaired successfully (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. part repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. part not repaired successfully (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. part not repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The rework caused by use of improper tools lowers product **quality**.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The rework caused by use of improper tools lowers **productivity**.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

h. Cost of additional materials used per incident?

15. During the typical day, your employees spend time reworking production items damaged because they were issued or directed to use the wrong tool.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through h below.)

a. part repaired successfully (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

b. part repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

c. part not repaired successfully (employee time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. part not repaired successfully (others' time):
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

f. The rework caused by using the wrong tool lowers product **quality**.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

g. The rework caused by using the wrong tool lowers **productivity**.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* h. Cost of additional materials used per incident?

16. The NADEP does a good job in providing tools to your employees.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

17. You communicate with your employees about tooling matters.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time is typically spent per employee per day: (answer a through e below.)

a. Your communications with your employees are different from your communications with your supervisor about tools and tooling.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

b. Your communications with your employees improved over the last year.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

c. my time used during these discussions:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

d. others' time during these discussions:
   a) less than .5 hour.
   b) more than .5 hour less than 1 hour.
   c) more than 1 hour less than 2 hours.
   d) more than 2 hours less than 4 hours.
   e) more than 4 hours.

e. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

18. The toolroom provides the service your employees need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

19. Your employees get the tools they need in a timely manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

20. Your employees have the variety of tools they need to do the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

21. Your employees have the **quality** of tools they need to do the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

22. You feel the NADEP spends enough money on tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

23. You see waste in the NADEP tools program.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If **so**, where?

24. The tools your employees are issued affect the **quality** of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

25. The tools your employees are issued affect the **quantity** of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

26. The tools issued to your employees affect the **efficiency** of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

27. The tools issued to your employees affect their **safety** during the work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

28. Your employees have a say in the types of tools they need and are provided to do the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

29. The tools your employees receive at the toolroom window are just what they want.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

30. The tools your employees receive at the toolroom window are in good working order.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

31. The quality of service your employees receive at the toolroom window has improved in the last year.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

32. The tools your employees receive at the toolroom window are maintained properly.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

33. The tools your employees receive at the toolroom window are of high quality.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

34. The tools your employees receive at the toolroom window are available in a timely fashion.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

35. The tools your employees receive at the toolroom window are calibrated (when necessary.)

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

36. The toolroom windows provide your employees with a professional service.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

37. The tools your employees receive at the toolroom window are issued with all safety devices.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

38. Higher quality tools would affect the **quality** of work your employees do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

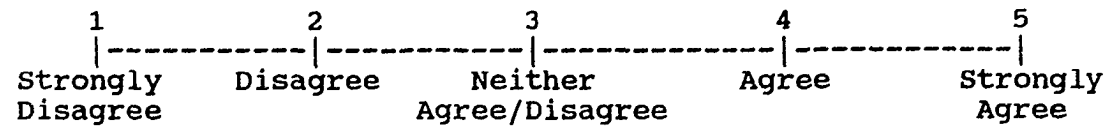
********* a. Example:

39. Higher quality tools would affect the **quantity** of work your employees do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

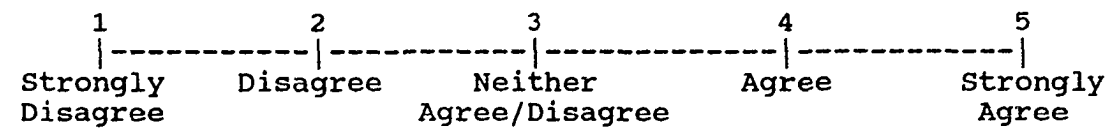
********* a. Example:

40. Higher quality tools would affect the **efficiency** of work your employees do in a positive manner.



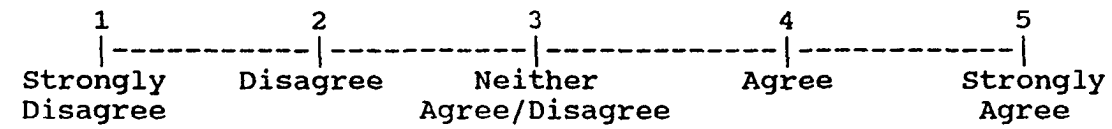
********* a. Example:

41. Higher quality tools would affect employee **safety** during the work they do in a positive manner.

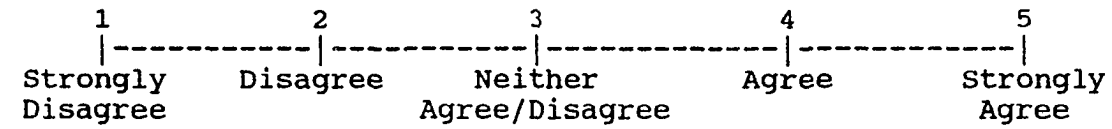


********* a. Example:

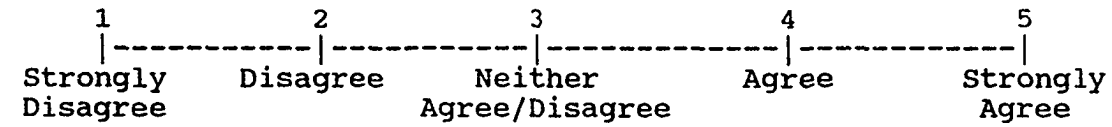
42. The communications you have with your supervisor about tools affects the quality of work you do in a positive manner.



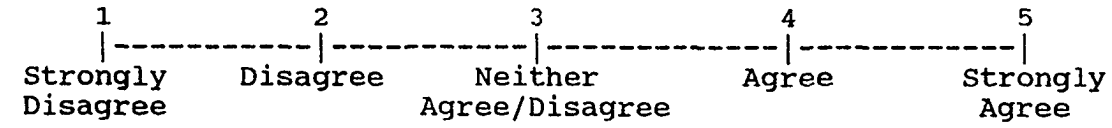
43. The communications you have with your employees about tools affects production in a positive manner.



44. Upper management is responsible for ensuring the proper tools are available for the job.



45. The supervisor is responsible for ensuring the proper tools are available for the job.



46. The Toolroom is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

47. The production controller is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

48. The employee is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

49. The planner and estimator is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

50. I communicate about tools with employees:

a. once per day.
b. more than once per day.
c. less than once per day.
d. once per week.
e. once per month.

51. The amount of money the NADEP spends on tooling each year is:

a. less than $10,000 per year.
b. more than $10,000 less than $50,000 per year.
c. more than $50,000 less than $100,000 per year.
d. more than $100,000 less than $250,000 per year.
e. more than $250,000 less than $500,000 per year.
f. more than $500,000 less than $1,000,000 per year.
g. more than $1,000,000 per year.

51.a. We spend more on tools and tooling now than we did a year ago.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

51.b. We spend less on tools and tooling now than we did a year ago.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

52. Tooling information is readily available to your employees.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If you disagree, please give an example and time-frame of incident.

53. When your employees have a tooling need, you support that need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

54. When your employees receive a job, it is properly planned for tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

55. New methods are considered freely.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

56. Your employees receive adequate training in the use of tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

57. Whose responsibility is it to see that your employees get the proper tool training? (Place in order of responsibility with the most important individual first and the least important last.)

_____ a. employee.
_____ b. shop supervisor.
_____ c. management.
_____ d. planning.
_____ e. toolroom.
_____ f. training.
_____ g. union.
_____ h. safety.
_____ i. tool control.
_____ j. other. Name _____

58. Your employees get the tools they need in a timely manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

59. The timeliness of tools your employees are issued affects the quality of work in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

60. Your employees have the variety of tools they need to do the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

61. The mix of tools your employees are issued affects the quality of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

62. Your employees have the quality of tools they need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

63. The tools your employees are issued affect the quality of work in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

64. Enough money is allocated for tools at the NADEP.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If you disagree, how much is enough?

65. You see waste in our tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If you agree, where?

66. The toolroom provides the service your employees need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

67. The toolroom service affects the quality of work in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

68. The NADEP does a good job in providing tools to your employees.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

69. The NADEP tools program affects the quality of work in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

70. During the day your employees typically spend the following amount of time using tools or tooling to perform some type of production work:

a. less than .5 hours.
b. more than .5 less than 1 hour.
c. more than 1 less than 4 hours.
d. more than 4 less than 8 hours.
e. 8 or more hours.

71. Do you have any comments or suggestions that might help improve the NADEP tools program?

APPENDIX E

TOOLROOM STAFF TOOLING SURVEY

Name **(OPTIONAL)**:

Toolroom #:

Years in Your Shop:

Shift: 1st or 2nd

Apprentice Grad?: Y or N

Tech School Grad?: Y or N

Some College?: Y or N

College Degree?: AS, AA, BS, BA, MS, MA

Job Grade:

Sex: F or M

1. During the typical day, the shop employees you support spend time searching for tools in **their toolboxes.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

2. During the typical day, the shop employees you support spend time searching for tools in their **shop.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

3. During the typical day, the shop employees you support spend time searching for tools at the **toolroom.**

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time do you think is typically spent per employee per day: (answer questions a through c.)

a. tool found:
   a) less than 1 minute.
   b) more than 1 minute less than 5 minutes.
   c) more than 5 minutes less than 10 minutes.
   d) more than 10 minutes less than 15 minutes.
   e) more than 15 minutes.

b. tool not found:
   a) less than 1 minute.
   b) more than 1 minute less than 5 minutes.
   c) more than 5 minutes less than 10 minutes.
   d) more than 10 minutes less than 15 minutes.
   e) more than 15 minutes.

c. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

4. During the typical day, the shop employees you support spend time searching for tools **not** in their shop or the toolroom.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

5. During the typical day, the shop employees you support spend time searching for **alternate** tools to replace specified tools not available.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

6. During the typical day, the shop employees you support spend time searching for tools that are not where they should be or that you know are in the shop but they can't find.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

7. During the typical day, the shop employees you support spend time replacing tools more often due to the poor quality of tool received.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

8. **Production parts** are damaged due directly to poor quality, defective, or improperly maintained tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

9. The shop employees you support lose time each day due to use of inefficient or outdated tooling.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

10. The shop employees you support lose time each day repairing tools (tools that **others** should be repairing)?

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. What organization should have made the repair?

11. The shop employees you support spend time at the toolroom window making tool transactions on a daily basis.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you do not disagree with this statement, how much time do you think is typically spent per employee per day: (answer questions a through c.)

a. employee time:
   a) less than 5 minutes.
   b) more than 5 minutes less than 10 minutes.
   c) more than 10 minutes less than 15 minutes.
   d) more than 15 minutes less than .5 hours.
   e) more than .5 hours.

b. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

12. During the typical day, the shop employees you support spend time reworking production items damaged due to poor or inferior quality tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

13. During the typical day, the shop employees you support spend time reworking production items damaged due to improper use of tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

14. During the typical day, the shop employees you support spend time reworking production items damaged due to nonavailability of the proper tool.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

15. During the typical day, the shop employees you support spend time reworking production items damaged because they were issued or directed to use the wrong tool.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

16. The NADEP does a good job in providing tools to the shop employees you support.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

17. You communicate with the shop employees you support about tooling matters.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

If you agree with this statement answer a and b below:

a. Your communications with the shop employees you support improved over the last year.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

b. number of incidents:
   a) 1 per day.
   b) 5 or less per day.
   c) 10 or less per day.
   d) more than 10 per day.

18. The toolroom provides the support the shop employees need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If you disagree with this statement please explain:

19. The shop employees get the tools they need in a timely manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

20. Shop employees have the variety of tools they need to do the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

21. Shop employees have the **quality** of tools they need to do the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

22. You feel the NADEP spends enough money on tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

23. You see waste in the NADEP tools program.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If you see waste, please explain where?

24. The tools shop employees are issued affect the **quality** of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

25. The tools issued to employees affect the **quantity** of work of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

26. The tools issued to the employees you support affect the **efficiency** of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

27. The tools issued to the employees you support affect their **safety** during the work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

28. The employees you support have a say in the types of tools they need and are provided to do the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

29. The tools employees receive at the toolroom window are just what they want.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

30. The tools employees receive at the toolroom window are in good working order.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

31. The quality of support employees receive at the toolroom window has improved in the last year.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

32. The tools employees receive at the toolroom window are maintained properly.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

33. The tools employees receive at the toolroom window are of high quality.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

34. The tools employees receive at the toolroom window are available in a timely fashion.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

35. The tools employees receive at the toolroom window are calibrated (when necessary.)

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

36. The toolroom windows provide employees with a professional support.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

37. The tools employees receive at the toolroom window are issued with all safety devices.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

38. Higher quality tools would affect the **quality** of work the employees you support do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. Please give an example if you agree:

39. Higher quality tools would affect the **quantity** of work the employees you support do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. Please give an example if you agree:

40. Higher quality tools would affect the **efficiency** of work the employees you support do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. Please give an example if you agree:

41. Higher quality tools would affect employee **safety** during the work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. Please give an example if you agree:

42. The communications you have regarding tools with the employees you support ultimately affects the quality of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

43. The communications you have regarding tools with the employees you support ultimately affects the production in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

44. Upper management is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

45. The production supervisor is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

46. The Toolroom is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

47. The production controller is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

48. The employee is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

49. The planner and estimator is responsible for ensuring the proper tools are available for the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

50. I communicate with employees _____ about tool problems.

a. once per day.
b. more than once per day.
c. less than once per day.
d. once per hour.
e. twice per day.

51. The amount of money the NADEP spends on tooling each year is:

a. less than $10,000 per year.
b. more than $10,000 less than $50,000 per year.
c. more than $50,000 less than $100,000 per year.
d. more than $100,000 less than $250,000 per year.
e. more than $250,000 less than $500,000 per year.
f. more than $500,000 less than $1,000,000 per year.
g. more than $1,000,000 per year.

51.a. We spend more on tools and tooling now than we did a year ago.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

51.b. We spend less on tools and tooling now than we did a year ago.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

52. Tooling information is readily available to the employees you support.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If disagree with this statement, please give an example.

53. When the employees you support have a tooling need, you support that need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

54. When the employees you support receive a job, it is properly planned for tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

55. New methods are considered freely.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

56. The employees you support receive adequate training in the use of tools.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

57. Whose responsibility is it to see that the employees you support get the proper tool training? (Place in order of responsibility with the most important individual first and the least important last.)

_____ a. employee.
_____ b. shop supervisor.
_____ c. management.
_____ d. planning.
_____ e. toolroom.
_____ f. training.
_____ g. union.
_____ h. safety.
_____ i. tool control.
_____ j. other. Name _____

58. The employees you support get the tools they need in a timely manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

59. The timeliness of tools employees are issued affects the quality of work in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

60. Employees have the variety of tools they need to do the job.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

61. The mix of tools employees are issued affects the quality of work they do in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

62. Employees have the quality of tools they need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

63. The tools employees are issued affect the quality of work in a positive manner.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

64. Enough money is allocated for tools at the NADEP.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If you disagree with this statement, how much is enough?

65. You see waste in our tools.

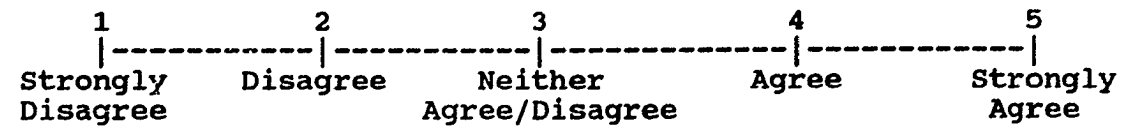
1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

********* a. If you do see waste, please give an example:

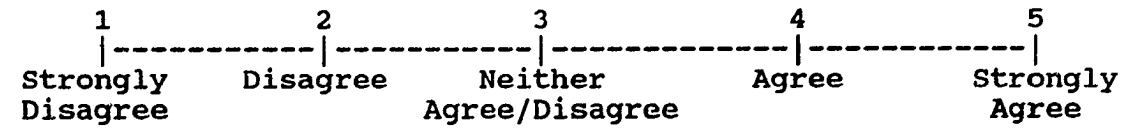
66. The toolroom provides the service employees need.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

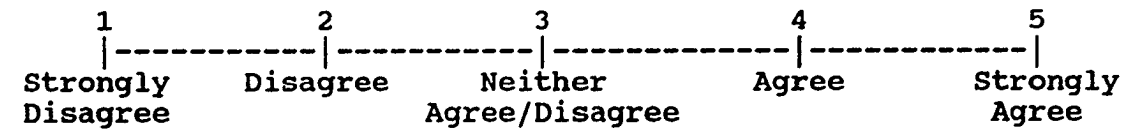
67. The toolroom service affects the quality of work in a positive manner.



68. The NADEP does a good job in providing tools to employees.



69. The NADEP tools program affects the quality of work in a positive manner.



70. During the day the employees you support spend _____ hours using tools or tooling to perform some type of production work.

a. less than .5 hours.
b. more than .5 less than 1 hour.
c. more than 1 less than 4 hours.
d. more than 4 less than 8 hours.
e. 8 or more hours.

71. Do you have any comments or suggestions that might help improve the NADEP tools program?

APPENDIX F

SURVEY AREA ASSOCIATION WITH QUESTIONS

Interest Area	Survey Question Involved
Management Quality	
1) Process Design	1,2,3,4,5,6,7,9,11,12,13,15,16, 18,20,23,29,54,55,59,65,68,69
2) Training	13,52,56,57
3) Tool Availability	1,2,3,4,5,6,14,15,16,19,20,23,29, 34,44,45,46,47,48,49,58,59,60,63, 65,68,69
4) Communications (Machinist to Supervisor & Supervisor to Machinist)	17,23,38,42,43,50,53,59
5) Maintenance Support	8,10,32,35,65,68,69
6) Budgeting	16,22,23,51,64,65,68
7) Job Planning	5,9,11,14,15,16,19,20,23,26,27, 28,29,44,45,52,54,58,59,60,61,63, 65,68,69
8) Tool Support	10,12,14,15,16,18,19,20,23,26,27, 28,29,44,45,52,53,54,58,59,60,61, 65,68,69
8a) Inventory Control	23,65
8b) Staffing	16,18,31,36,66,67,68

Interest Area	Survey Question Involved
Tool Quality	
9) Applicability to Process	7,9,13,16,19,20,29,65,68
10) Right Tool	7,8,9,12,13,15,16,19,20,21,23,26, 29,65,68
11) Availability	14,15,16,19,20,29,46,59,65
12) Safety	8,21,27,37,41
13) Cost	22,23,51,65
14) Procurement	14,16,22,33,65,68
14A) Tool Quality	7,8,9,12,16,21,23,33,38,39,40,41, 62,65
15) Maintainability	8,10,23,30,32
16) Usability	9,13,23,65
17) Tool Design	7,9,12,23
17A) Versatility	9,20,23

Interest Area	Survey Question Involved
Support Services Quality	
18) Close Proximity to Worksite	11,18,31,36,65,66,67,68,69
19) Professionalism	18,28,31,36,66,67,68,69
20) Knowledge	18,31,36,52,66,67,68,69
21) Right Tools	9,12,14,15,16,18,19,20,23,24,25, 26,27,29,31,33,36,37,46,49,60,61, 63,65,66,67,68,69
22) Courteousness	18,31,36,66,67,68,69
23) Tool Availability	2,3,5,14,16,18,19,29,20,23,31,34, 36,46,47,49,58,59,60,61,66,67,68, 69
24) Operating Tool PM System	8,10,18,23,30,31,32,35,36,65,66, 67,68,69
25) Responsive Complaint System	17,18,28,31,36,55,65,66,67,68,69
26) Quality Tools	7,8,16,18,21,24,25,26,27,31,33, 36,37,38,39,40,41,62,63,65,66,67, 68,69
27) Preparation	14,16,18,19,23,26,29,30,31,32,36, 44,47,49,58,59,65,66,67,68,69
28) Friendliness	18,28,31,36,66,67,68
29) Organization	18,28,31,34,36,65,66,67,68
29a) Safety	37,68

Interest Area	Survey Question Involved
Production Quality	
30) Lost Time - Rework	8,15,14,13,12
31) Lost Time - Tools	1,2,3,4,5,6,7,8,9,10,11,12,13,14, 15,19
32) Lost Time - Machines	1,2,3,4,5,6,7,8,9
33) Lost Time - Personnel	1,2,3,4,5,6,7,8,9,10,11,12,13,14, 15,17,19
34) Timeliness of Work	25,48,58,69
35) Product Quality	5,8,12,13,14,15,24,33,38,42,48,59, 60,61,63,69
36) Productivity	1,2,3,4,5,6,7,8,9,11,12,13,14,15, 25,26,39,43,48,58
37) Job Safety	27,37,41
38) Profitability	22,26
39) QWL	3,27,28,30
40) Capability	9,20,29
41) Process	9,12,13,14,15,16,20,25,39,70
42) Consistency	12,29,30,33,35
43) Efficiency	7,9,10,11,12,14,15,16,20,25,26, 29,40
44) Material Costs	5,8,12,13,14,15

RELATIONSHIP OF SURVEY QUESTIONS TO INTEREST AREAS

Question Number	Interest Area
1	1,3,31,33,36
2	1,3,23,31,33,36
3	1,3,23,31,33,36
4	1,3,31,33,36
5	1,3,7,23,33,35,36,44
6	1,3,33,36
7	1,9,10,14A,17,26,33,36,43
8	5,10,12,14A,15,24,26,30,33,35, 36,44
9	1,7,10,14a,17,21,23,36,40,41,43
10	5,8,15,24,33,43
11	1,7,18,33,36,43
12	1,8,10,17,21,14A,30,33,36,41,42, 43,44
13	1,2,9,10,16,30,31,33,35,36,41,44
14	3,7,8,11,14,21,23,27,30,33,35,36, 41,43,44
15	1,3,7,8,10,11,21,30,33,35,36,41, 43,44
16	1,3,6,7,8,8b,9,10,11,14,14a,21, 23,26,27,41,43
17	4,25,33
18	1,8,8b,18,19,20,21,22,23,24,25, 26,27,28,29
19	3,7,8,9,10,11,21,23,27,34
20	1,3,7,8,9,10,11,12,17a,21,23,40, 41,43

Question Number	Interest Area
21	10,14A,26
22	6,13,14,38
23	1,3,4,6,7,8,8a,10,13,14a,15,16,17, 17a,21,23,24,27
24	21,26
25	21,26,34,36,41,43
26	7,8,10,21,26,27,36,38,43
27	7,8,21,26,12,37,39
28	4,7,8,25,28,29,19,39,41
29	1,3,7,8,9,10,11,21,23,27,40,42,43
30	15,24,27,39,42
31	8b,18,19,20,21,22,23,24,25,26,27, 28,29
32	5,15,24,27
33	14,14a,21,26,35,42
34	3,23,29,35
35	5,24,42
36	8b,18,19,20,21,22,23,24,25,26,27, 28,29
37	12,21,26,29a,37
38	14A,26,35
39	14A,26,36
40	14A,26,43

Question Number	Interest Area
41	12,14A,26,37
42	4,35
43	4,36
44	3,7,8,27
45	3,7,8
46	3,11,21,23
47	3,23,27
48	3,34,3536
49	3,21,32,27
50	4
51	6,13
52	2,7,8,20
53	4,8
54	1,7,8
55	1,4,25
56	2
57	2
58	3,7,8,23,27,34,36
59	1,3,7,8,11,23,27,34,35
60	3,7,8,21,23,35

Question Number	Interest Area
61	7,8,21,23,35
62	14A,26
63	3,7,21,26,35
64	6
65	1,3,5,6,7,8,8a,9,10,11,13,14,14a, 18,21,24,25,2627,29
66	8b,18,19,20,21,22,23,24,25,26,27, 28,29
67	8b,18,19,20,21,22,23,24,25,26,27, 28,29
68	1,3,5,6,7,8,8b,9,10,14,18,19,20, 21,22,23,24,25,26,27,28,29,29a
69	1,3,5,7,8,18,19,20,21,22,23,24,25, 26,27,35
70	41
71	ALL

APPENDIX G
INSTRUCTIONS FOR TEST TOOL MANAGEMENT SURVEY

This tool management survey is being made in an effort to determine what affect tooling has on production and the quality of workmanship accomplished here at the Naval Aviation Depot. There is no way of determining your name, so there should not be any concern about being absolutely honest. Further, the information gathered on each individual survey will be kept in strictest confidence and will not be released. The more honesty involved with your answers, the greater the chance will be that the survey can be used as a useful tool to help improve the NADEP tool management system. Should you have a comment about a question, you may star the question and write your comment on the back of the page. A copy of the results will be provided to you when they become available. Changes in the tool management system will likely occur as a result of the data obtained from this survey.

The information accumulated in this survey will also be used by Bruce Laviolette in the preparation of a doctoral dissertation on tool management, which will be published and utilized as a training aid by colleges, universities and other industrial facilities. A copy of the dissertation will be made available here at the NADEP upon request. Completion of that document is expected in the March 1993 time frame. A committee of six distinguished persons will evaluate the dissertation prior to final release. Most notably, this committee includes Dr. John Cammett of this command and Dr. Edwards Deming.

Instructions

1. Answer every question.

2. Answer the first question before moving to the next.

3. Circle the **most appropriate** answer only unless otherwise instructed.

4. If you have a comment, star the question to indicate a comment and write the comment on the back of the page.

5. Please do not discuss this survey with others until it has been completed.

Thank you in advance for your time, patience and honesty. A few minutes here can lead to a better workplace and the development of a more professional tool management system that can better serve you. Thank you again!

MACHINIST INSTRUCTIONS FOR TOOL MANAGEMENT SURVEY

The purpose of this survey is to determine and measure the affect of the management of tooling on production and the quality of workmanship accomplished here at the Naval Aviation Depot. Unless you provide your name, there is no way of determining your name, so there should not be any concern about being absolutely honest. If you do provide your name, it will only be used to get back to you, if desired, for more information about a specific question. Further, the information gathered on each individual survey will be kept in strictest confidence and will not be individually released. The survey will be used as an instrument to help improve the NADEP tool management system, so honest answers are desired and encouraged. Should you have a comment about a question, you may star the question and write your comment on the back of the page. If you do so, be sure to identify the question number related to your response. A copy of the results will be made available upon compilation of the answers. Changes in the tool management system will likely occur as a result of the data obtained from this survey. Remember that the survey is concerned with tooling, not general hand tools.

The information accumulated in this survey will also be used by Bruce Laviolette in the preparation of a doctoral dissertation on tool management, which will be published and utilized as a training aid by colleges, universities and other industrial facilities. A copy of the dissertation will be made available here at the NADEP upon request. Completion of that document is expected in the March 1993 time frame. A committee of six distinguished persons will evaluate the dissertation prior to final release. Most notably, this committee includes Dr. John Cammett of this command and Dr. Edwards Deming.

Instructions

1. Answer every question. There is no right or wrong answer. Although you may not know an exact answer, your perceptions are important.

2. Answer the first question before moving to the next.

3. Circle the **most appropriate** answer only unless otherwise instructed.

4. If you have a comment, star the question to indicate a comment and write the comment on the back of the page.

5. Please do not discuss this survey with others until all personnel have taken the survey.

Thank you in advance for your time, patience and honesty. A few minutes here can lead to a better workplace

and the development of a more professional tool management system that can better serve you. Thank you again!

SUPERVISOR INSTRUCTIONS FOR TOOL MANAGEMENT SURVEY

The purpose of this survey is to determine and measure the affect of the management of tooling on production and the quality of workmanship accomplished here at the Naval Aviation Depot. Unless you provide your name, there is no way of determining your name, so there should not be any concern about being absolutely honest. If you do provide your name, it will only be used to get back to you, if desired, for more information about a specific question. Further, the information gathered on each individual survey will be kept in strictest confidence and will not be individually released. The survey will be used as an instrument to help improve the NADEP tool management system, so honest answers are desired and encouraged. Should you have a comment about a question, you may star the question and write your comment on the back of the page. If you do so, be sure to identify the question number related to your response. A copy of the results will be made available upon compilation of the answers. Changes in the tool management system will likely occur as a result of the data obtained from this survey.

The information accumulated in this survey will also be used by Bruce Laviolette in the preparation of a doctoral dissertation on tool management, which will be published and utilized as a training aid by colleges, universities and other industrial facilities. A copy of the dissertation will be made available here at the NADEP upon request. Completion of that document is expected in the March 1993 time frame. A committee of six distinguished persons will evaluate the dissertation prior to final release. Most notably, this committee includes Dr. John Cammett of this command and Dr. Edwards Deming.

Instructions

1. Answer every question. There is no right or wrong answer. Although you may not know an exact answer, your perceptions are important.

2. Answer the first question before moving to the next.

3. Circle the **most appropriate** answer only unless otherwise instructed.

4. If you have a comment and there is insufficient space on the page to adequately address the problem, star the question to indicate a comment and write the comment on another sheet of paper.

5. Please do not discuss this survey with others until all personnel have taken the survey. Please return the survey no later than the close of business 9/16/92.

Thank you in advance for your time, patience and honesty. A few minutes here can lead to a better workplace and the development of a more professional tool management system that can better serve you. Thank you again!

TOOLROOM INSTRUCTIONS FOR TOOLING SURVEY

The purpose of this survey is to determine and measure the affect of the management of tooling on production and the quality of workmanship accomplished here at the Naval Aviation Depot. Unless you provide your name, there is no way of determining your name, so there should not be any concern about being absolutely honest. If you do provide your name, it will only be used to get back to you, if desired, for more information about a specific question. Further, the information gathered on each individual survey will be kept in strictest confidence and will not be individually released. The survey will be used as an instrument to help improve the NADEP tool management system, so honest answers are desired and encouraged. Should you have a comment about a question, you may star the question and write your comment on the back of the page. If you do so, be sure to identify the question number related to your response. A copy of the results will be made available upon compilation of the answers. Changes in the tool management system will likely occur as a result of the data obtained from this survey.

The information accumulated in this survey will also be used by Bruce Laviolette in the preparation of a doctoral dissertation on tool management, which will be published and utilized as a training aid by colleges, universities and other industrial facilities. A copy of the dissertation will be made available here at the NADEP upon request. Completion of that document is expected in the March 1993 time frame. A committee of six distinguished persons will evaluate the dissertation prior to final release. Most notably, this committee includes Dr. John Cammett of this command and Dr. Edwards Deming.

Instructions

1. Answer every question. There is no right or wrong answer. Although you may not know an exact answer, your perceptions are important.

2. Answer the first question before moving to the next.

3. Circle the **most appropriate** answer only unless otherwise instructed.

4. If you have a comment, star the question to indicate a comment and write the comment on the back of the page.

5. Please do not discuss this survey with others until all personnel have taken the survey.

Thank you in advance for your time, patience and honesty. A few minutes here can lead to a better workplace and the development of a more professional tool management system that can better serve you. Thank you again!

CARDNO1

Value Label	Valid Percent	Cum Percent
	100.0	100.0
	100.0	

Valid cases 1

ADMNORDR

Value Label	Valid Percent	Cum Percent
	100.0	100.0
	100.0	

Valid cases 1

QUEST1 SHOP

Value Label	Valid Percent	Cum Percent
NC SHOP	16.5	16.5
CONVENTIONAL SHOP	83.5	100.0
	Missing	
	100.0	

Valid cases

CARDNO1

Value Label

Valid cases 107

ADMNORDR

Value Label

Valid cases 107

QUEST1 SHOP

Value Label
NC SHOP
CONVENTIONAL SHOP

Valid cases 103

QUEST2 NAME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	107	100.0	Missing	
	Total	107	100.0	100.0	

Valid cases 0 Missing cases 107

- -

QUEST3 BUILDING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	133	47	43.9	45.2	45.2
	137	57	53.3	54.8	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

QUEST4 YEARS IN FIELD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	2	5	4.7	4.7	4.7
	3	8	7.5	7.5	12.3
	4	4	3.7	3.8	16.0
	5	2	1.9	1.9	17.9
	6	4	3.7	3.8	21.7
	8	4	3.7	3.8	25.5
	9	4	3.7	3.8	29.2
	10	8	7.5	7.5	36.8
	11	6	5.6	5.7	42.5
	12	9	8.4	8.5	50.9
	13	5	4.7	4.7	55.7
	14	6	5.6	5.7	61.3
	15	7	6.5	6.6	67.9
	17	1	.9	.9	68.9
	18	4	3.7	3.8	72.6
	20	6	5.6	5.7	78.3
	21	1	.9	.9	79.2
	23	3	2.8	2.8	82.1
	24	1	.9	.9	83.0
	25	7	6.5	6.6	89.6
	26	1	.9	.9	90.6
	27	4	3.7	3.8	94.3
	28	3	2.8	2.8	97.2
	30	1	.9	.9	98.1
	38	1	.9	.9	99.1
	42	1	.9	.9	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

QUEST5 YEARS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	9	8.4	8.6	8.6
	2	6	5.6	5.7	14.3
	3	11	10.3	10.5	24.8
	4	3	2.8	2.9	27.6
	5	3	2.8	2.9	30.5
	6	7	6.5	6.7	37.1
	7	1	.9	1.0	38.1
	8	7	6.5	6.7	44.8
	9	12	11.2	11.4	56.2
	10	14	13.1	13.3	69.5
	11	8	7.5	7.6	77.1
	12	4	3.7	3.8	81.0
	13	5	4.7	4.8	85.7
	14	4	3.7	3.8	89.5
	15	3	2.8	2.9	92.4
	16	2	1.9	1.9	94.3
	17	1	.9	1.0	95.2
	18	2	1.9	1.9	97.1
	23	1	.9	1.0	98.1
	25	1	.9	1.0	99.0
	28	1	.9	1.0	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST6 SHIFT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	60	56.1	58.8	58.8
	2	31	29.0	30.4	89.2
	3	11	10.3	10.8	100.0
	.	5	4.7	Missing	
	Total	107	100.0	100.0	

Valid cases 102 Missing cases 5

QUEST7 APPRENTICE GRAD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	29	27.1	29.6	29.6
NO	2	69	64.5	70.4	100.0
	.	9	8.4	Missing	
	Total	107	100.0	100.0	

Valid cases 98 Missing cases 9

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QUEST8 TECH SCHOOL GRAD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	48	44.9	48.0	48.0
NO	2	52	48.6	52.0	100.0
	.	7	6.5	Missing	
	Total	107	100.0	100.0	

Valid cases 100 Missing cases 7

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QUEST9 SOME COLLEGE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	67	62.6	67.7	67.7
NO	2	32	29.9	32.3	100.0
	.	8	7.5	Missing	
	Total	107	100.0	100.0	

Valid cases 99 Missing cases 8

QUEST10 COLLEGE DEGREE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AS	1	12	11.2	63.2	63.2
AA	2	2	1.9	10.5	73.7
BS	3	2	1.9	10.5	84.2
BA	4	3	2.8	15.8	100.0
	.	88	82.2	Missing	
	Total	107	100.0	100.0	

Valid cases 19 Missing cases 88

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QUEST11 JOB GRADE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	2	1	.9	1.0	1.0
	6	7	6.5	7.2	8.2
	7	4	3.7	4.1	12.4
	8	10	9.3	10.3	22.7
	9	4	3.7	4.1	26.8
	10	56	52.3	57.7	84.5
	11	15	14.0	15.5	100.0
	.	10	9.3	Missing	
	Total	107	100.0	100.0	

Valid cases 97 Missing cases 10

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QUEST12 SEX

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
FEMALE	1	9	8.4	8.6	8.6
MALE	2	96	89.7	91.4	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST13 SPEND TIME SEARCHING TOOLS IN TOOLBOX

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	14	13.1	14.0	14.0
DISAGREE	2	18	16.8	18.0	32.0
NEITHER	3	33	30.8	33.0	65.0
AGREE	4	32	29.9	32.0	97.0
STRONGLY AGREE	5	3	2.8	3.0	100.0
	.	7	6.5	Missing	
	Total	107	100.0	100.0	

Valid cases 100 Missing cases 7

- -

QUEST14 MYA; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	71	66.4	80.7	80.7
.5 TO 1HR	2	15	14.0	17.0	97.7
1 TO 2	3	2	1.9	2.3	100.0
	.	19	17.8	Missing	
	Total	107	100.0	100.0	

Valid cases 88 Missing cases 19

- -

QUEST15 OTHE; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	68	63.6	81.0	81.0
.5 TO 1HR	2	12	11.2	14.3	95.2
1 TO 2	3	4	3.7	4.8	100.0
	.	23	21.5	Missing	
	Total	107	100.0	100.0	

Valid cases 84 Missing cases 23

QUEST16 MYA; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	58	54.2	70.7	70.7
.5 TO 1HR	2	20	18.7	24.4	95.1
1 TO 2	3	3	2.8	3.7	98.8
2 TO 4	4	1	.9	1.2	100.0
	.	25	23.4	Missing	
	Total	107	100.0	100.0	

Valid cases 82 Missing cases 25

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QUEST17 OTHE; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	55	51.4	67.1	67.1
.5 TO 1HR	2	22	20.6	26.8	93.9
1 TO 2	3	4	3.7	4.9	98.8
2 TO 4	4	1	.9	1.2	100.0
	.	25	23.4	Missing	
	Total	107	100.0	100.0	

Valid cases 82 Missing cases 25

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QUEST18 NUMBER INCIDENTS SEARCHING TOOLS IN TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	48	44.9	55.8	55.8
1 TO 5	2	30	28.0	34.9	90.7
5 TO 10	3	3	2.8	3.5	94.2
>10	4	5	4.7	5.8	100.0
	.	21	19.6	Missing	
	Total	107	100.0	100.0	

Valid cases 86 Missing cases 21

QUEST19 SPEND TIME SEARCHING TOOLS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	5	4.7	4.9	4.9
DISAGREE	2	6	5.6	5.9	10.8
NEITHER	3	17	15.9	16.7	27.5
AGREE	4	65	60.7	63.7	91.2
STRONGLY AGREE	5	9	8.4	8.8	100.0
	.	5	4.7	Missing	
	Total	107	100.0	100.0	

Valid cases 102 Missing cases 5

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QUEST20 MYB; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	41	38.3	41.8	41.8
.5 TO 1HR	2	42	39.3	42.9	84.7
1 TO 2	3	13	12.1	13.3	98.0
2 TO 4	4	1	.9	1.0	99.0
>4	5	1	.9	1.0	100.0
	.	9	8.4	Missing	
	Total	107	100.0	100.0	

Valid cases 98 Missing cases 9

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QUEST21 OTHF; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	41	38.3	45.6	45.6
.5 TO 1HR	2	43	40.2	47.8	93.3
1 TO 2	3	5	4.7	5.6	98.9
>4	5	1	.9	1.1	100.0
	.	17	15.9	Missing	
	Total	107	100.0	100.0	

Valid cases 90 Missing cases 17

QUEST22 MYB; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	39	36.4	43.8	43.8
.5 TO 1HR	2	38	35.5	42.7	86.5
1 TO 2	3	9	8.4	10.1	96.6
2 TO 4	4	1	.9	1.1	97.8
>4	5	2	1.9	2.2	100.0
	.	18	16.8	Missing	
	Total	107	100.0	100.0	

Valid cases 89 Missing cases 18

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QUEST23 OTHF; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	42	39.3	47.7	47.7
.5 TO 1HR	2	39	36.4	44.3	92.0
1 TO 2	3	5	4.7	5.7	97.7
>4	5	2	1.9	2.3	100.0
	.	19	17.8	Missing	
	Total	107	100.0	100.0	

Valid cases 88 Missing cases 19

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QUEST24 NUMBER INCIDENTS SEARCHING TOOLS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	48	44.9	50.0	50.0
1 TO 5	2	44	41.1	45.8	95.8
5 TO 10	3	1	.9	1.0	96.9
>10	4	3	2.8	3.1	100.0
	.	11	10.3	Missing	
	Total	107	100.0	100.0	

Valid cases 96 Missing cases 11

QUEST25 SPEND TIME SEARCHING TOOLS AT TOOLROOM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	11	10.3	10.7	10.7
DISAGREE	2	8	7.5	7.8	18.4
NEITHER	3	23	21.5	22.3	40.8
AGREE	4	44	41.1	42.7	83.5
STRONGLY AGREE	5	17	15.9	16.5	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

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QUEST26 MYC; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	41	38.3	46.1	46.1
.5 TO 1HR	2	41	38.3	46.1	92.1
1 TO 2	3	6	5.6	6.7	98.9
2 TO 4	4	1	.9	1.1	100.0
	.	18	16.8	Missing	
	Total	107	100.0	100.0	

Valid cases 89 Missing cases 18

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QUEST27 OTHG; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	43	40.2	50.0	50.0
.5 TO 1HR	2	34	31.8	39.5	89.5
1 TO 2	3	7	6.5	8.1	97.7
2 TO 4	4	2	1.9	2.3	100.0
	.	21	19.6	Missing	
	Total	107	100.0	100.0	

Valid cases 86 Missing cases 21

QUEST28 MYC; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	39	36.4	46.4	46.4
.5 TO 1HR	2	36	33.6	42.9	89.3
1 TO 2	3	9	8.4	10.7	100.0
	.	23	21.5	Missing	
	Total	107	100.0	100.0	

Valid cases 84 Missing cases 23

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CARDNO2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	2	107	100.0	100.0	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

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JOBNO2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	107	100.0	100.0	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

- -

QUEST29 OTHG; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	40	37.4	48.2	48.2
.5 TO 1HR	2	34	31.8	41.0	89.2
1 TO 2	3	9	8.4	10.8	100.0
	.	24	22.4	Missing	
	Total	107	100.0	100.0	

Valid cases 83 Missing cases 24

QUEST30 NUMBER INCIDENTS SEARCHING TOOLS AT TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	45	42.1	51.1	51.1
1 TO 5	2	39	36.4	44.3	95.5
5 TO 10	3	3	2.8	3.4	98.9
>10	4	1	.9	1.1	100.0
	.	19	17.8	Missing	
	Total	107	100.0	100.0	

Valid cases 88 Missing cases 19

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QUEST31 SPEND TIME SEARCHING TOOLS NOT IN SHOP/T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	17	15.9	16.3	16.3
DISAGREE	2	25	23.4	24.0	40.4
NEITHER	3	33	30.8	31.7	72.1
AGREE	4	27	25.2	26.0	98.1
STRONGLY AGREE	5	2	1.9	1.9	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

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QUEST32 MYD; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	44	41.1	65.7	65.7
.5 TO 1HR	2	18	16.8	26.9	92.5
1 TO 2	3	4	3.7	6.0	98.5
2 TO 4	4	1	.9	1.5	100.0
	.	40	37.4	Missing	
	Total	107	100.0	100.0	

Valid cases 67 Missing cases 40

QUEST33 OTHH; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	44	41.1	65.7	65.7
.5 TO 1HR	2	19	17.8	28.4	94.0
1 TO 2	3	3	2.8	4.5	98.5
>4	5	1	.9	1.5	100.0
	.	40	37.4	Missing	
	Total	107	100.0	100.0	

Valid cases 67 Missing cases 40

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QUEST34 MYD; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	41	38.3	61.2	61.2
.5 TO 1HR	2	20	18.7	29.9	91.0
1 TO 2	3	6	5.6	9.0	100.0
	.	40	37.4	Missing	
	Total	107	100.0	100.0	

Valid cases 67 Missing cases 40

- -

QUEST35 OTHH; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	44	41.1	67.7	67.7
.5 TO 1HR	2	17	15.9	26.2	93.8
1 TO 2	3	4	3.7	6.2	100.0
	.	42	39.3	Missing	
	Total	107	100.0	100.0	

Valid cases 65 Missing cases 42

QUEST36 NUMBER INCIDENTS SEARCHING TOOLS NOT SHO.

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	50	46.7	73.5	73.5
1 TO 5	2	18	16.8	26.5	100.0
	.	39	36.4	Missing	
	Total	107	100.0	100.0	

Valid cases 68 Missing cases 39

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QUEST37 SPEND TIME SEARCHING ALTERNATE TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	10	9.3	9.6	9.6
DISAGREE	2	11	10.3	10.6	20.2
NEITHER	3	25	23.4	24.0	44.2
AGREE	4	51	47.7	49.0	93.3
STRONGLY AGREE	5	7	6.5	6.7	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

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QUEST38 MYI; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	42	39.3	50.0	50.0
.5 TO 1HR	2	28	26.2	33.3	83.3
1 TO 2	3	11	10.3	13.1	96.4
2 TO 4	4	3	2.8	3.6	100.0
	.	23	21.5	Missing	
	Total	107	100.0	100.0	

Valid cases 84 Missing cases 23

QUEST39 OTHK; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	37	34.6	48.7	48.7
.5 TO 1HR	2	28	26.2	36.8	85.5
1 TO 2	3	11	10.3	14.5	100.0
	.	31	29.0	Missing	
	Total	107	100.0	100.0	

Valid cases 76 Missing cases 31

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QUEST40 MYI; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	38	35.5	49.4	49.4
.5 TO 1HR	2	23	21.5	29.9	79.2
1 TO 2	3	16	15.0	20.8	100.0
	.	30	28.0	Missing	
	Total	107	100.0	100.0	

Valid cases 77 Missing cases 30

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QUEST41 OTHK; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	42	39.3	56.0	56.0
.5 TO 1HR	2	22	20.6	29.3	85.3
1 TO 2	3	10	9.3	13.3	98.7
2 TO 4	4	1	.9	1.3	100.0
	.	32	29.9	Missing	
	Total	107	100.0	100.0	

Valid cases 75 Missing cases 32

QUEST42 NUMBER INCIDENTS SEARCHING ALTERNATE TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	63	58.9	79.7	79.7
1 TO 5	2	15	14.0	19.0	98.7
5 TO 10	3	1	.9	1.3	100.0
	.	28	26.2	Missing	
	Total	107	100.0	100.0	

Valid cases 79 Missing cases 28

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QUEST43 AFFCT ALTERNATE TOOLS ON QUALITY IS POSI

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	13	12.1	13.7	13.7
DISAGREE	2	26	24.3	27.4	41.1
NEITHER	3	28	26.2	29.5	70.5
AGREE	4	23	21.5	24.2	94.7
STRONGLY AGREE	5	5	4.7	5.3	100.0
	.	12	11.2	Missing	
	Total	107	100.0	100.0	

Valid cases 95 Missing cases 12

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QUEST44 AFFCT ALTERNATE TOOLS ON PRODCTVTY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	17	15.9	17.9	17.9
DISAGREE	2	27	25.2	28.4	46.3
NEITHER	3	25	23.4	26.3	72.6
AGREE	4	20	18.7	21.1	93.7
STRONGLY AGREE	5	6	5.6	6.3	100.0
	.	12	11.2	Missing	
	Total	107	100.0	100.0	

Valid cases 95 Missing cases 12

QUEST45 WHY USE AN ALTERNATE TOOL COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	31	29.0	34.1	34.1
NO	2	60	56.1	65.9	100.0
	.	16	15.0	Missing	
	Total	107	100.0	100.0	

Valid cases 91 Missing cases 16

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QUEST46 HOW MUCH EXTRA WORK ALTERNATE TOOL CAUSE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	32	29.9	38.1	38.1
.5 TO 1HR	2	26	24.3	31.0	69.0
1 TO 2	3	20	18.7	23.8	92.9
2 TO 4	4	6	5.6	7.1	100.0
	.	23	21.5	Missing	
	Total	107	100.0	100.0	

Valid cases 84 Missing cases 23

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QUEST47 HOW MUCH ADDTNL MATERIAL COST COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	18	16.8	20.0	20.0
NO	2	72	67.3	80.0	100.0
	.	17	15.9	Missing	
	Total	107	100.0	100.0	

Valid cases 90 Missing cases 17

QUEST48 SPEND TIME SEARCHING MISPLACED TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	6	5.6	5.7	5.7
DISAGREE	2	7	6.5	6.7	12.4
NEITHER	3	16	15.0	15.2	27.6
AGREE	4	63	58.9	60.0	87.6
STRONGLY AGREE	5	13	12.1	12.4	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST49 MYJ; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	38	35.5	41.3	41.3
.5 TO 1HR	2	39	36.4	42.4	83.7
1 TO 2	3	14	13.1	15.2	98.9
2 TO 4	4	1	.9	1.1	100.0
	.	15	14.0	Missing	
	Total	107	100.0	100.0	

Valid cases 92 Missing cases 15

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QUEST50 OTHL; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	37	34.6	44.6	44.6
.5 TO 1HR	2	38	35.5	45.8	90.4
1 TO 2	3	7	6.5	8.4	98.8
2 TO 4	4	1	.9	1.2	100.0
	.	24	22.4	Missing	
	Total	107	100.0	100.0	

Valid cases 83 Missing cases 24

QUEST51 MYJ; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	39	36.4	45.3	45.3
.5 TO 1HR	2	37	34.6	43.0	88.4
1 TO 2	3	7	6.5	8.1	96.5
2 TO 4	4	3	2.8	3.5	100.0
	.	21	19.6	Missing	
	Total	107	100.0	100.0	

Valid cases 86 Missing cases 21

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QUEST52 OTHL; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	41	38.3	50.0	50.0
.5 TO 1HR	2	32	29.9	39.0	89.0
1 TO 2	3	6	5.6	7.3	96.3
2 TO 4	4	3	2.8	3.7	100.0
	.	25	23.4	Missing	
	Total	107	100.0	100.0	

Valid cases 82 Missing cases 25

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QUEST53 NUMBER INCIDENTS SEARCHING MISPLACED TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	61	57.0	70.1	70.1
1 TO 5	2	25	23.4	28.7	98.9
5 TO 10	3	1	.9	1.1	100.0
	.	20	18.7	Missing	
	Total	107	100.0	100.0	

Valid cases 87 Missing cases 20

QUEST54 SPEND TIME REPLACING TOOLS CAUSE QUALITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	7	6.5	6.9	6.9
DISAGREE	2	7	6.5	6.9	13.7
NEITHER	3	32	29.9	31.4	45.1
AGREE	4	41	38.3	40.2	85.3
STRONGLY AGREE	5	15	14.0	14.7	100.0
	.	5	4.7	Missing	
	Total	107	100.0	100.0	

Valid cases 102 Missing cases 5

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QUEST55 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	43	40.2	51.8	51.8
.5 TO 1HR	2	33	30.8	39.8	91.6
1 TO 2	3	5	4.7	6.0	97.6
2 TO 4	4	2	1.9	2.4	100.0
	.	24	22.4	Missing	
	Total	107	100.0	100.0	

Valid cases 83 Missing cases 24

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QUEST56 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	49	45.8	63.6	63.6
.5 TO 1HR	2	26	24.3	33.8	97.4
1 TO 2	3	1	.9	1.3	98.7
2 TO 4	4	1	.9	1.3	100.0
	.	30	28.0	Missing	
	Total	107	100.0	100.0	

Valid cases 77 Missing cases 30

QUEST57 NUMBER OF INCIDENTS REPLACING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	49	45.8	62.8	62.8
1 TO 5	2	27	25.2	34.6	97.4
5 TO 10	3	2	1.9	2.6	100.0
	.	29	27.1	Missing	
	Total	107	100.0	100.0	

Valid cases 78 Missing cases 29

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QUEST58 AFFECT POOR QUALITY TOOL ON QUALITY IS P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	26	24.3	27.1	27.1
DISAGREE	2	16	15.0	16.7	43.8
NEITHER	3	15	14.0	15.6	59.4
AGREE	4	24	22.4	25.0	84.4
STRONGLY AGREE	5	15	14.0	15.6	100.0
	.	11	10.3	Missing	
	Total	107	100.0	100.0	

Valid cases 96 Missing cases 11

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QUEST59 PRODUCTION PARTS DAMAGED DUE POOR QUALIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	10	9.3	9.4	9.4
DISAGREE	2	15	14.0	14.2	23.6
NEITHER	3	26	24.3	24.5	48.1
AGREE	4	42	39.3	39.6	87.7
STRONGLY AGREE	5	13	12.1	12.3	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

QUEST60 MY TIME LOST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	33	30.8	42.3	42.3
.5 TO 1HR	2	33	30.8	42.3	84.6
1 TO 2	3	9	8.4	11.5	96.2
2 TO 4	4	3	2.8	3.8	100.0
	.	29	27.1	Missing	
	Total	107	100.0	100.0	

Valid cases 78 Missing cases 29

- -

QUEST61 OTHERS TIME LOST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	43	40.2	58.1	58.1
.5 TO 1HR	2	23	21.5	31.1	89.2
1 TO 2	3	7	6.5	9.5	98.6
2 TO 4	4	1	.9	1.4	100.0
	.	33	30.8	Missing	
	Total	107	100.0	100.0	

Valid cases 74 Missing cases 33

- -

QUEST62 NUMBER INCIDENTS OF DAMAGED PARTS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	54	50.5	71.1	71.1
1 TO 5	2	22	20.6	28.9	100.0
	.	31	29.0	Missing	
	Total	107	100.0	100.0	

Valid cases 76 Missing cases 31

QUEST63 ESTIMATED MATERIAL VALUE PER INCIDENT CO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	25	23.4	31.6	31.6
NO	2	54	50.5	68.4	100.0
	.	28	26.2	Missing	
	Total	107	100.0	100.0	

Valid cases 79 Missing cases 28

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CARDNO3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	3	107	100.0	100.0	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

- -

JOBNO3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	107	100.0	100.0	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

- -

QUEST64 TIME LOST DUE TO OUTDATED TOOLING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	8	7.5	7.5	7.5
DISAGREE	2	13	12.1	12.3	19.8
NEITHER	3	23	21.5	21.7	41.5
AGREE	4	48	44.9	45.3	86.8
STRONGLY AGREE	5	14	13.1	13.2	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

QUEST65 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	31	29.0	39.7	39.7
.5 TO 1HR	2	38	35.5	48.7	88.5
1 TO 2	3	6	5.6	7.7	96.2
2 TO 4	4	3	2.8	3.8	100.0
	.	29	27.1	Missing	
	Total	107	100.0	100.0	

Valid cases 78 Missing cases 29

- -

QUEST66 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	36	33.6	50.0	50.0
.5 TO 1HR	2	28	26.2	38.9	88.9
1 TO 2	3	6	5.6	8.3	97.2
2 TO 4	4	1	.9	1.4	98.6
>4	5	1	.9	1.4	100.0
	.	35	32.7	Missing	
	Total	107	100.0	100.0	

Valid cases 72 Missing cases 35

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QUEST67 NUMBER INCIDENTS TIME LOST DUE TO OUTDAT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	44	41.1	58.7	58.7
1 TO 5	2	29	27.1	38.7	97.3
5 TO 10	3	2	1.9	2.7	100.0
	.	32	29.9	Missing	
	Total	107	100.0	100.0	

Valid cases 75 Missing cases 32

QUEST68 AFFECT OUTDATED TOOLING ON QUALITY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	22	20.6	23.4	23.4
DISAGREE	2	17	15.9	18.1	41.5
NEITHER	3	24	22.4	25.5	67.0
AGREE	4	18	16.8	19.1	86.2
STRONGLY AGREE	5	13	12.1	13.8	100.0
.	.	13	12.1	Missing	
	Total	107	100.0	100.0	

Valid cases 94 Missing cases 13

- -

QUEST69 TIME LOST EACH DAY REPAIRING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	12	11.2	11.2	11.2
DISAGREE	2	15	14.0	14.0	25.2
NEITHER	3	31	29.0	29.0	54.2
AGREE	4	43	40.2	40.2	94.4
STRONGLY AGREE	5	6	5.6	5.6	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

- -

QUEST70 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	40	37.4	54.8	54.8
.5 TO 1HR	2	24	22.4	32.9	87.7
1 TO 2	3	9	8.4	12.3	100.0
	.	34	31.8	Missing	
	Total	107	100.0	100.0	

Valid cases 73 Missing cases 34

QUEST71 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	44	41.1	65.7	65.7
.5 TO 1HR	2	20	18.7	29.9	95.5
1 TO 2	3	3	2.8	4.5	100.0
	.	40	37.4	Missing	
	Total	107	100.0	100.0	

Valid cases 67 Missing cases 40

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QUEST72 NUMBER INCIDENTS REPAIRING TOOLING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	51	47.7	71.8	71.8
1 TO 5	2	19	17.8	26.8	98.6
5 TO 10	3	1	.9	1.4	100.0
	.	36	33.6	Missing	
	Total	107	100.0	100.0	

Valid cases 71 Missing cases 36

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QUEST73 WHAT ORGANIZATION SHOULD MADE REPAIR COM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	49	45.8	62.8	62.8
NO	2	29	27.1	37.2	100.0
	.	29	27.1	Missing	
	Total	107	100.0	100.0	

Valid cases 78 Missing cases 29

QUEST74 SPEND TIME AT TOOLRM MAKING TOOL TRANSAC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	5	4.7	4.7	4.7
DISAGREE	2	8	7.5	7.5	12.3
NEITHER	3	11	10.3	10.4	22.6
AGREE	4	58	54.2	54.7	77.4
STRONGLY AGREE	5	24	22.4	22.6	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

- -

QUEST75 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	39	36.4	40.6	40.6
.5 TO 1HR	2	41	38.3	42.7	83.3
1 TO 2	3	15	14.0	15.6	99.0
2 TO 4	4	1	.9	1.0	100.0
	.	11	10.3	Missing	
	Total	107	100.0	100.0	

Valid cases 96 Missing cases 11

- -

QUEST76 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	35	32.7	41.2	41.2
.5 TO 1HR	2	37	34.6	43.5	84.7
1 TO 2	3	13	12.1	15.3	100.0
	.	22	20.6	Missing	
	Total	107	100.0	100.0	

Valid cases 85 Missing cases 22

QUEST77 NUMBER INCIDENTS AT TOOLRM MAKING TRANSA

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	32	29.9	34.8	34.8
1 TO 5	2	55	51.4	59.8	94.6
5 TO 10	3	4	3.7	4.3	98.9
>10	4	1	.9	1.1	100.0
	.	15	14.0	Missing	
	Total	107	100.0	100.0	

Valid cases 92 Missing cases 15

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QUEST78 SPEND TIME REWORKING ITEMS DUE POOR TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	10	9.3	9.4	9.4
DISAGREE	2	23	21.5	21.7	31.1
NEITHER	3	46	43.0	43.4	74.5
AGREE	4	23	21.5	21.7	96.2
STRONGLY AGREE	5	4	3.7	3.8	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

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QUEST79 MYN; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	35	32.7	54.7	54.7
.5 TO 1HR	2	18	16.8	28.1	82.8
1 TO 2	3	8	7.5	12.5	95.3
2 TO 4	4	1	.9	1.6	96.9
>4	5	2	1.9	3.1	100.0
	.	43	40.2	Missing	
	Total	107	100.0	100.0	

Valid cases 64 Missing cases 43

QUEST80 OTHR; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	38	35.5	61.3	61.3
.5 TO 1HR	2	15	14.0	24.2	85.5
1 TO 2	3	7	6.5	11.3	96.8
>4	5	2	1.9	3.2	100.0
	.	45	42.1	Missing	
	Total	107	100.0	100.0	

Valid cases 62 Missing cases 45

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QUEST81 MYN; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	39	36.4	61.9	61.9
.5 TO 1HR	2	10	9.3	15.9	77.8
1 TO 2	3	11	10.3	17.5	95.2
2 TO 4	4	1	.9	1.6	96.8
>4	5	2	1.9	3.2	100.0
	.	44	41.1	Missing	
	Total	107	100.0	100.0	

Valid cases 63 Missing cases 44

- -

QUEST82 OTHR; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	41	38.3	66.1	66.1
.5 TO 1HR	2	10	9.3	16.1	82.3
1 TO 2	3	8	7.5	12.9	95.2
2 TO 4	4	1	.9	1.6	96.8
>4	5	2	1.9	3.2	100.0
	.	45	42.1	Missing	
	Total	107	100.0	100.0	

Valid cases 62 Missing cases 45

QUEST83 NUMBER INCIDENTS REWORK DUE POOR TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	48	44.9	75.0	75.0
1 TO 5	2	16	15.0	25.0	100.0
	.	43	40.2	Missing	
	Total	107	100.0	100.0	

Valid cases 64 Missing cases 43

- -

QUEST84 AFFECT REWORK ON QUALITY IS POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	18	16.8	19.1	19.1
DISAGREE	2	23	21.5	24.5	43.6
NEITHER	3	26	24.3	27.7	71.3
AGREE	4	19	17.8	20.2	91.5
STRONGLY AGREE	5	8	7.5	8.5	100.0
	.	13	12.1	Missing	
	Total	107	100.0	100.0	

Valid cases 94 Missing cases 13

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QUEST85 AFFECT REWORK ON PRODUCTIVITY IS POSITIV

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	22	20.6	23.2	23.2
DISAGREE	2	23	21.5	24.2	47.4
NEITHER	3	24	22.4	25.3	72.6
AGREE	4	18	16.8	18.9	91.6
STRONGLY AGREE	5	8	7.5	8.4	100.0
	.	12	11.2	Missing	
	Total	107	100.0	100.0	

Valid cases 95 Missing cases 12

QUEST86 COST ADDTNL MATERIALS PER INCIDENT COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	12	11.2	13.3	13.3
NO	2	78	72.9	86.7	100.0
	.	17	15.9	Missing	
	Total	107	100.0	100.0	

Valid cases 90 Missing cases 17

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QUEST87 SPEND TIME REWORKING ITEMS DUE IMPROPER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	16	15.0	15.1	15.1
DISAGREE	2	27	25.2	25.5	40.6
NEITHER	3	43	40.2	40.6	81.1
AGREE	4	17	15.9	16.0	97.2
STRONGLY AGREE	5	3	2.8	2.8	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

- -

QUEST88 MYP; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	37	34.6	71.2	71.2
.5 TO 1HR	2	11	10.3	21.2	92.3
1 TO 2	3	2	1.9	3.8	96.2
>4	5	2	1.9	3.8	100.0
	.	55	51.4	Missing	
	Total	107	100.0	100.0	

Valid cases 52 Missing cases 55

QUEST89 OTHT; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	38	35.5	73.1	73.1
.5 TO 1HR	2	10	9.3	19.2	92.3
1 TO 2	3	3	2.8	5.8	98.1
>4	5	1	.9	1.9	100.0
	.	55	51.4	Missing	
	Total	107	100.0	100.0	

Valid cases 52 Missing cases 55

- -

QUEST90 MYP; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	34	31.8	65.4	65.4
.5 TO 1HR	2	13	12.1	25.0	90.4
1 TO 2	3	2	1.9	3.8	94.2
2 TO 4	4	1	.9	1.9	96.2
>4	5	2	1.9	3.8	100.0
	.	55	51.4	Missing	
	Total	107	100.0	100.0	

Valid cases 52 Missing cases 55

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QUEST91 OTHT; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	37	34.6	71.2	71.2
.5 TO 1HR	2	10	9.3	19.2	90.4
1 TO 2	3	3	2.8	5.8	96.2
2 TO 4	4	1	.9	1.9	98.1
>4	5	1	.9	1.9	100.0
	.	55	51.4	Missing	
	Total	107	100.0	100.0	

Valid cases 52 Missing cases 55

QUEST92 NUMBER INCIDENTS REWORK DUE IMPROPER USE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	40	37.4	74.1	74.1
1 TO 5	2	12	11.2	22.2	96.3
5 TO 10	3	2	1.9	3.7	100.0
	.	53	49.5	Missing	
	Total	107	100.0	100.0	

Valid cases 54 Missing cases 53

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QUEST93 AFFECT IMPROPER USE TOOLS ON QUALITY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	21	19.6	22.6	22.6
DISAGREE	2	26	24.3	28.0	50.5
NEITHER	3	21	19.6	22.6	73.1
AGREE	4	15	14.0	16.1	89.2
STRONGLY AGREE	5	10	9.3	10.8	100.0
	.	14	13.1	Missing	
	Total	107	100.0	100.0	

Valid cases 93 Missing cases 14

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QUEST94 AFFECT IMPROPER USE TOOLS ON PRODTVTY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	22	20.6	23.2	23.2
DISAGREE	2	28	26.2	29.5	52.6
NEITHER	3	20	18.7	21.1	73.7
AGREE	4	17	15.9	17.9	91.6
STRONGLY AGREE	5	8	7.5	8.4	100.0
	.	12	11.2	Missing	
	Total	107	100.0	100.0	

Valid cases 95 Missing cases 12

QUEST95 COST MATERIALS DUE TO IMPROPER USE TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	10	9.3	11.2	11.2
NO	2	79	73.8	88.8	100.0
	.	18	16.8	Missing	
	Total	107	100.0	100.0	

Valid cases 89 Missing cases 18

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QUEST96 SPEND TIME REWORKING ITEMS DUE TOOL NOT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	13	12.1	12.4	12.4
DISAGREE	2	19	17.8	18.1	30.5
NEITHER	3	41	38.3	39.0	69.5
AGREE	4	27	25.2	25.7	95.2
STRONGLY AGREE	5	5	4.7	4.8	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST97 MYM; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	39	36.4	65.0	65.0
.5 TO 1HR	2	16	15.0	26.7	91.7
1 TO 2	3	4	3.7	6.7	98.3
>4	5	1	.9	1.7	100.0
	.	47	43.9	Missing	
	Total	107	100.0	100.0	

Valid cases 60 Missing cases 47

QUEST98 OTHQ; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	42	39.3	71.2	71.2
.5 TO 1HR	2	10	9.3	16.9	88.1
1 TO 2	3	6	5.6	10.2	98.3
>4	5	1	.9	1.7	100.0
	.	48	44.9	Missing	
	Total	107	100.0	100.0	

Valid cases 59 Missing cases 48

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CARDNO4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	3	1	.9	.9	.9
	4	106	99.1	99.1	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

- -

JOBNO4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	107	100.0	100.0	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

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QUEST99 MYM; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	43	40.2	74.1	74.1
.5 TO 1HR	2	6	5.6	10.3	84.5
1 TO 2	3	6	5.6	10.3	94.8
2 TO 4	4	2	1.9	3.4	98.3
>4	5	1	.9	1.7	100.0
	.	49	45.8	Missing	
	Total	107	100.0	100.0	

Valid cases 58 Missing cases 49

QUEST100 OTHQ; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	46	43.0	78.0	78.0
.5 TO 1HR	2	6	5.6	10.2	88.1
1 TO 2	3	5	4.7	8.5	96.6
2 TO 4	4	1	.9	1.7	98.3
>4	5	1	.9	1.7	100.0
	.	48	44.9	Missing	
	Total	107	100.0	100.0	

Valid cases 59 Missing cases 48

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QUEST101 NUMBER INCIDENTS REWORK DUE NONAVAILABIL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	51	47.7	83.6	83.6
1 TO 5	2	10	9.3	16.4	100.0
	.	46	43.0	Missing	
	Total	107	100.0	100.0	

Valid cases 61 Missing cases 46

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QUEST102 AFFECT IMPROPER USE TOOLS ON QUALITY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	21	19.6	22.1	22.1
DISAGREE	2	25	23.4	26.3	48.4
NEITHER	3	26	24.3	27.4	75.8
AGREE	4	17	15.9	17.9	93.7
STRONGLY AGREE	5	6	5.6	6.3	100.0
	.	12	11.2	Missing	
	Total	107	100.0	100.0	

Valid cases 95 Missing cases 12

QUEST103 AFFECT IMPROPER USE TOOLS ON PRODUCTIVIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	20	18.7	21.1	21.1
DISAGREE	2	29	27.1	30.5	51.6
NEITHER	3	23	21.5	24.2	75.8
AGREE	4	17	15.9	17.9	93.7
STRONGLY AGREE	5	6	5.6	6.3	100.0
	.	12	11.2	Missing	
	Total	107	100.0	100.0	

Valid cases 95 Missing cases 12

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QUEST104 COST MATERIALS PER INCIDENT IMPROPER USE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	9	8.4	10.0	10.0
NO	2	81	75.7	90.0	100.0
	.	17	15.9	Missing	
	Total	107	100.0	100.0	

Valid cases 90 Missing cases 17

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QUEST105 SPEND TIME REWORKING ITEMS DUE WRONG TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	20	18.7	19.0	19.0
DISAGREE	2	27	25.2	25.7	44.8
NEITHER	3	41	38.3	39.0	83.8
AGREE	4	13	12.1	12.4	96.2
STRONGLY AGREE	5	4	3.7	3.8	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST106 MYO; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	31	29.0	66.0	66.0
.5 TO 1HR	2	12	11.2	25.5	91.5
1 TO 2	3	3	2.8	6.4	97.9
>4	5	1	.9	2.1	100.0
	.	60	56.1	Missing	
	Total	107	100.0	100.0	

Valid cases 47 Missing cases 60

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QUEST107 OTHS; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	33	30.8	70.2	70.2
.5 TO 1HR	2	10	9.3	21.3	91.5
1 TO 2	3	3	2.8	6.4	97.9
>4	5	1	.9	2.1	100.0
	.	60	56.1	Missing	
	Total	107	100.0	100.0	

Valid cases 47 Missing cases 60

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QUEST108 MYO; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	34	31.8	72.3	72.3
.5 TO 1HR	2	8	7.5	17.0	89.4
1 TO 2	3	2	1.9	4.3	93.6
2 TO 4	4	2	1.9	4.3	97.9
>4	5	1	.9	2.1	100.0
	.	60	56.1	Missing	
	Total	107	100.0	100.0	

Valid cases 47 Missing cases 60

QUEST109 OTHS; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	34	31.8	72.3	72.3
.5 TO 1HR	2	8	7.5	17.0	89.4
1 TO 2	3	3	2.8	6.4	95.7
2 TO 4	4	1	.9	2.1	97.9
>4	5	1	.9	2.1	100.0
	.	60	56.1	Missing	
	Total	107	100.0	100.0	

Valid cases 47 Missing cases 60

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QUEST110 NUMBER INCIDENTS REWORK DUE WRONG TOOL I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	41	38.3	82.0	82.0
1 TO 5	2	9	8.4	18.0	100.0
	.	57	53.3	Missing	
	Total	107	100.0	100.0	

Valid cases 50 Missing cases 57

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QUEST111 AFFECT USING WRONG TOOL ON QUALITY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	19	17.8	20.2	20.2
DISAGREE	2	32	29.9	34.0	54.3
NEITHER	3	20	18.7	21.3	75.5
AGREE	4	18	16.8	19.1	94.7
STRONGLY AGREE	5	5	4.7	5.3	100.0
	.	13	12.1	Missing	
	Total	107	100.0	100.0	

Valid cases 94 Missing cases 13

QUEST112 AFFECT USING WRONG TOOL ON PRODUCTIVITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	19	17.8	20.9	20.9
DISAGREE	2	30	28.0	33.0	53.8
NEITHER	3	18	16.8	19.8	73.6
AGREE	4	19	17.8	20.9	94.5
STRONGLY AGREE	5	5	4.7	5.5	100.0
	.	16	15.0	Missing	
	Total	107	100.0	100.0	

Valid cases 91 Missing cases 16

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QUEST113 COST MATERIALS INCIDENT WRONG TOOL COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	8	7.5	8.9	8.9
NO	2	82	76.6	91.1	100.0
	.	17	15.9	Missing	
	Total	107	100.0	100.0	

Valid cases 90 Missing cases 17

- -

QUEST114 NADEP DOES GOOD JOB PROVIDING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	12	11.2	11.3	11.3
DISAGREE	2	25	23.4	23.6	34.9
NEITHER	3	27	25.2	25.5	60.4
AGREE	4	36	33.6	34.0	94.3
STRONGLY AGREE	5	6	5.6	5.7	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

QUEST115 COMMUNICATE WITH MANAGEMENT ABOUT TOOLIN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	.9	.9
DISAGREE	2	9	8.4	8.5	9.4
NEITHER	3	24	22.4	22.6	32.1
AGREE	4	53	49.5	50.0	82.1
STRONGLY AGREE	5	19	17.8	17.9	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

- -

QUEST116 COMMUNICATE DIFFENTLY WITH SUP VS. BRANC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	6	5.6	5.8	5.8
DISAGREE	2	13	12.1	12.6	18.4
NEITHER	3	41	38.3	39.8	58.3
AGREE	4	30	28.0	29.1	87.4
STRONGLY AGREE	5	13	12.1	12.6	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

QUEST117 COMMUNICATION IMPROVED OVER LAST YEAR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	6	5.6	5.8	5.8
DISAGREE	2	14	13.1	13.5	19.2
NEITHER	3	46	43.0	44.2	63.5
AGREE	4	35	32.7	33.7	97.1
STRONGLY AGREE	5	3	2.8	2.9	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

- -

QUEST118 MY TIME COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	59	55.1	73.8	73.8
.5 TO 1HR	2	12	11.2	15.0	88.8
1 TO 2	3	7	6.5	8.8	97.5
>4	5	2	1.9	2.5	100.0
	.	27	25.2	Missing	
	Total	107	100.0	100.0	

Valid cases 80 Missing cases 27

- -

QUEST119 OTHERS TIME COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	49	45.8	68.1	68.1
.5 TO 1HR	2	16	15.0	22.2	90.3
1 TO 2	3	4	3.7	5.6	95.8
>4	5	3	2.8	4.2	100.0
	.	35	32.7	Missing	
	Total	107	100.0	100.0	

Valid cases 72 Missing cases 35

QUEST120 NUMBER OF INCIDENTS COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	56	52.3	80.0	80.0
1 TO 5	2	13	12.1	18.6	98.6
>10	4	1	.9	1.4	100.0
	.	37	34.6	Missing	
	Total	107	100.0	100.0	

Valid cases 70 Missing cases 37

- -

QUEST121 SERVICE; TOOLROOM PROVIDES SERVICE FOR Y

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	14	13.1	13.5	13.5
DISAGREE	2	14	13.1	13.5	26.9
NEITHER	3	29	27.1	27.9	54.8
AGREE	4	43	40.2	41.3	96.2
STRONGLY AGREE	5	4	3.7	3.8	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

- -

QUEST122 TIMELY; GET TOOLS IN TIMELY MANNER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	16	15.0	15.1	15.1
DISAGREE	2	24	22.4	22.6	37.7
NEITHER	3	29	27.1	27.4	65.1
AGREE	4	35	32.7	33.0	98.1
STRONGLY AGREE	5	2	1.9	1.9	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

QUEST123 VARIETY; HAVE VARIETY OF TOOLS NEED TO D

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	8	7.5	7.5	7.5
DISAGREE	2	39	36.4	36.8	44.3
NEITHER	3	26	24.3	24.5	68.9
AGREE	4	33	30.8	31.1	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

- -

QUEST124 HAVE QUALITY OF TOOLS TO DO JOB

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	16	15.0	15.1	15.1
DISAGREE	2	27	25.2	25.5	40.6
NEITHER	3	37	34.6	34.9	75.5
AGREE	4	25	23.4	23.6	99.1
STRONGLY AGREE	5	1	.9	.9	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

- -

QUEST125 FEEL NADEP SPEND ENOUGH MONEY ON TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	16	15.0	15.2	15.2
DISAGREE	2	24	22.4	22.9	38.1
NEITHER	3	36	33.6	34.3	72.4
AGREE	4	27	25.2	25.7	98.1
STRONGLY AGREE	5	2	1.9	1.9	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST126 SEE WASTE IN NADEP TOOL PROGRAM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	5	4.7	4.7	4.7
DISAGREE	2	7	6.5	6.6	11.3
NEITHER	3	32	29.9	30.2	41.5
AGREE	4	38	35.5	35.8	77.4
STRONGLY AGREE	5	24	22.4	22.6	100.0
	.	1	.9	Missing	
	Total	107	100.0	100.0	

Valid cases 106 Missing cases 1

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QUEST127 WHERE DO SEE WASTE IN TOOL PROGRAM COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	27	25.2	27.8	27.8
NO	2	70	65.4	72.2	100.0
	.	10	9.3	Missing	
	Total	107	100.0	100.0	

Valid cases 97 Missing cases 10

- -

QUEST128 QUALITY; TOOLS ISSUED AFFCT QUALITY IN P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	3	2.8	2.9	2.9
DISAGREE	2	11	10.3	10.5	13.3
NEITHER	3	25	23.4	23.8	37.1
AGREE	4	48	44.9	45.7	82.9
STRONGLY AGREE	5	18	16.8	17.1	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST129 QUANTITY; TOOLS ISSUED AFFCT QUANTITY IN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	4	3.7	3.8	3.8
DISAGREE	2	9	8.4	8.6	12.4
NEITHER	3	28	26.2	26.7	39.0
AGREE	4	45	42.1	42.9	81.9
STRONGLY AGREE	5	19	17.8	18.1	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST130 EFFICNCY; TOOLS ISSUED AFFCT EFFICIENCY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	4	3.7	3.8	3.8
DISAGREE	2	12	11.2	11.4	15.2
NEITHER	3	27	25.2	25.7	41.0
AGREE	4	46	43.0	43.8	84.8
STRONGLY AGREE	5	16	15.0	15.2	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST131 SAFETY; TOOLS ISSUED AFFCT SAFETY IN POS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	3	2.8	2.9	2.9
DISAGREE	2	13	12.1	12.4	15.2
NEITHER	3	27	25.2	25.7	41.0
AGREE	4	48	44.9	45.7	86.7
STRONGLY AGREE	5	14	13.1	13.3	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST132 HAVE SAY IN TYPES OF TOOLS NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	16	15.0	15.2	15.2
DISAGREE	2	34	31.8	32.4	47.6
NEITHER	3	22	20.6	21.0	68.6
AGREE	4	31	29.0	29.5	98.1
STRONGLY AGREE	5	2	1.9	1.9	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST133 VARIETY; TOOLS RECEIVED AT TOOLROOM WHAT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	11	10.3	10.5	10.5
DISAGREE	2	30	28.0	28.6	39.0
NEITHER	3	45	42.1	42.9	81.9
AGREE	4	19	17.8	18.1	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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CARDNO5

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	4	1	.9	.9	.9
	5	106	99.1	99.1	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

- -

JOBNO5

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	107	100.0	100.0	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

- -

QUEST134 TOOLS RECEIVED AT TOOLROOM GOOD WORKING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	7	6.5	6.7	6.7
DISAGREE	2	28	26.2	26.7	33.3
NEITHER	3	37	34.6	35.2	68.6
AGREE	4	32	29.9	30.5	99.0
STRONGLY AGREE	5	1	.9	1.0	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST135 QUALITY OF SERVICE AT TOOLROOM IMPROVED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	12	11.2	11.4	11.4
DISAGREE	2	19	17.8	18.1	29.5
NEITHER	3	39	36.4	37.1	66.7
AGREE	4	29	27.1	27.6	94.3
STRONGLY AGREE	5	6	5.6	5.7	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST136 TOOLS RECEIVED AT TOOLROOM MAINTAINED PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	9	8.4	8.6	8.6
DISAGREE	2	33	30.8	31.4	40.0
NEITHER	3	33	30.8	31.4	71.4
AGREE	4	30	28.0	28.6	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST137 TOOLS RECEIVED AT TOOLROOM HIGH QUALITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	14	13.1	13.6	13.6
DISAGREE	2	35	32.7	34.0	47.6
NEITHER	3	38	35.5	36.9	84.5
AGREE	4	15	14.0	14.6	99.0
STRONGLY AGREE	5	1	.9	1.0	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

QUEST138 TIMELY; TOOLS RECEIVED AT TOOLROOM TIMEL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	11	10.3	10.5	10.5
DISAGREE	2	23	21.5	21.9	32.4
NEITHER	3	37	34.6	35.2	67.6
AGREE	4	34	31.8	32.4	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST139 TOOLS RECEIVED AT THE TOOLROOM CALIBRATE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	1.0	1.0
DISAGREE	2	6	5.6	5.7	6.7
NEITHER	3	20	18.7	19.0	25.7
AGREE	4	69	64.5	65.7	91.4
STRONGLY AGREE	5	9	8.4	8.6	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST140 SERVICE; TOOLROOM PROVIDE PROFESSIONAL S

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	15	14.0	14.3	14.3
DISAGREE	2	18	16.8	17.1	31.4
NEITHER	3	38	35.5	36.2	67.6
AGREE	4	30	28.0	28.6	96.2
STRONGLY AGREE	5	4	3.7	3.8	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST141 TOOLS RECEIVED AT TOOLROOM WITH SAFETY D

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	3	2.8	2.9	2.9
DISAGREE	2	4	3.7	3.8	6.7
NEITHER	3	39	36.4	37.1	43.8
AGREE	4	55	51.4	52.4	96.2
STRONGLY AGREE	5	4	3.7	3.8	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST142 QUALITY; HIGH QUALTY TLS AFFCT QUALTY OF

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	1.0	1.0
DISAGREE	2	1	.9	1.0	1.9
NEITHER	3	16	15.0	15.2	17.1
AGREE	4	58	54.2	55.2	72.4
STRONGLY AGREE	5	29	27.1	27.6	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST143 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	10	9.3	10.8	10.8
NO	2	83	77.6	89.2	100.0
	.	14	13.1	Missing	
	Total	107	100.0	100.0	

Valid cases 93 Missing cases 14

QUEST144 QUANTITY; HIGH QUALTY TLS AFFCT QUANTY I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	1.0	1.0
DISAGREE	2	1	.9	1.0	1.9
NEITHER	3	26	24.3	24.8	26.7
AGREE	4	49	45.8	46.7	73.3
STRONGLY AGREE	5	28	26.2	26.7	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST145 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	9	8.4	9.7	9.7
NO	2	84	78.5	90.3	100.0
	.	14	13.1	Missing	
	Total	107	100.0	100.0	

Valid cases 93 Missing cases 14

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QUEST146 EFFICNCY; HIGH QUALTY TLS AFFCT EFFCNCY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	2	1.9	1.9	1.9
DISAGREE	2	1	.9	1.0	2.9
NEITHER	3	24	22.4	22.9	25.7
AGREE	4	54	50.5	51.4	77.1
STRONGLY AGREE	5	24	22.4	22.9	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST147 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	7	6.5	7.5	7.5
NO	2	86	80.4	92.5	100.0
	.	14	13.1	Missing	
	Total	107	100.0	100.0	

Valid cases 93 Missing cases 14

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QUEST148 SAFETY; HIGH QUALTY TLS AFFCT SAFETY IN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	1.0	1.0
DISAGREE	2	5	4.7	4.8	5.7
NEITHER	3	27	25.2	25.7	31.4
AGREE	4	49	45.8	46.7	78.1
STRONGLY AGREE	5	23	21.5	21.9	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

- -

QUEST149 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	8	7.5	8.6	8.6
NO	2	85	79.4	91.4	100.0
	.	14	13.1	Missing	
	Total	107	100.0	100.0	

Valid cases 93 Missing cases 14

QUEST150 COMMUNICATIONS WITH SUP AFFECT QUALITY I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	1.0	1.0
DISAGREE	2	6	5.6	5.7	6.7
NEITHER	3	42	39.3	40.0	46.7
AGREE	4	50	46.7	47.6	94.3
STRONGLY AGREE	5	6	5.6	5.7	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST151 COMMUNICATIONS WITH SUP AFFECT PROD IN P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	1.0	1.0
DISAGREE	2	8	7.5	7.7	8.7
NEITHER	3	39	36.4	37.5	46.2
AGREE	4	50	46.7	48.1	94.2
STRONGLY AGREE	5	6	5.6	5.8	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

QUEST152 UPPER MANAGEMENT RESPONSIBLE FOR PROPER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	1.0	1.0
DISAGREE	2	8	7.5	7.7	8.7
NEITHER	3	24	22.4	23.1	31.7
AGREE	4	43	40.2	41.3	73.1
STRONGLY AGREE	5	28	26.2	26.9	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

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QUEST153 SUPERVISOR RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	2	1.9	1.9	1.9
DISAGREE	2	10	9.3	9.5	11.4
NEITHER	3	36	33.6	34.3	45.7
AGREE	4	39	36.4	37.1	82.9
STRONGLY AGREE	5	18	16.8	17.1	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST154 TOOLROOM RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	.9	1.0	1.0
DISAGREE	2	5	4.7	4.8	5.8
NEITHER	3	21	19.6	20.2	26.0
AGREE	4	50	46.7	48.1	74.0
STRONGLY AGREE	5	27	25.2	26.0	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

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QUEST155 PRODUCTION CONTROLLER RESPONSIBLE FOR PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	19	17.8	18.1	18.1
DISAGREE	2	45	42.1	42.9	61.0
NEITHER	3	34	31.8	32.4	93.3
AGREE	4	4	3.7	3.8	97.1
STRONGLY AGREE	5	3	2.8	2.9	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST156 I AM RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	13	12.1	12.4	12.4
DISAGREE	2	20	18.7	19.0	31.4
NEITHER	3	30	28.0	28.6	60.0
AGREE	4	31	29.0	29.5	89.5
STRONGLY AGREE	5	11	10.3	10.5	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST157 PLANNER AND ESTIMATOR RESPONSIBLE FOR PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	14	13.1	13.5	13.5
DISAGREE	2	32	29.9	30.8	44.2
NEITHER	3	24	22.4	23.1	67.3
AGREE	4	25	23.4	24.0	91.3
STRONGLY AGREE	5	9	8.4	8.7	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

QUEST158 HOW MUCH COMMUNICATE WITH MY SUPERVISOR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	25	23.4	27.5	27.5
>1	2	26	24.3	28.6	56.0
<1	3	13	12.1	14.3	70.3
1 PER WEEK	4	15	14.0	16.5	86.8
1 PER MONTH	5	12	11.2	13.2	100.0
	.	16	15.0	Missing	
	Total	107	100.0	100.0	

Valid cases 91 Missing cases 16

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QUEST159 AMOUNT NADEP SPENDS ON TOOLING EACH YEAR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<10000	1	9	8.4	15.5	15.5
10 TO 50	2	3	2.8	5.2	20.7
50 TO 100	3	8	7.5	13.8	34.5
100 TO 250	4	12	11.2	20.7	55.2
250 TO 500	5	7	6.5	12.1	67.2
>1MILLION	7	19	17.8	32.8	100.0
	.	49	45.8	Missing	
	Total	107	100.0	100.0	

Valid cases 58 Missing cases 49

QUEST160 NADEP SPENDS MORE ON TOOLING THAN YEAR A

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	3	2.8	3.1	3.1
DISAGREE	2	10	9.3	10.3	13.4
NEITHER	3	54	50.5	55.7	69.1
AGREE	4	26	24.3	26.8	95.9
STRONGLY AGREE	5	4	3.7	4.1	100.0
	.	10	9.3	Missing	
	Total	107	100.0	100.0	

Valid cases 97 Missing cases 10

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QUEST161 NADEP SPENDS LESS ON TOOLING THAN YEAR A

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	4	3.7	4.2	4.2
DISAGREE	2	24	22.4	25.0	29.2
NEITHER	3	57	53.3	59.4	88.5
AGREE	4	8	7.5	8.3	96.9
STRONGLY AGREE	5	3	2.8	3.1	100.0
	.	11	10.3	Missing	
	Total	107	100.0	100.0	

Valid cases 96 Missing cases 11

QUEST162 TOOLING INFORMATION AVAILABLE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	8	7.5	7.6	7.6
DISAGREE	2	26	24.3	24.8	32.4
NEITHER	3	48	44.9	45.7	78.1
AGREE	4	22	20.6	21.0	99.0
STRONGLY AGREE	5	1	.9	1.0	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST163 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	3	2.8	3.3	3.3
NO	2	87	81.3	96.7	100.0
	.	17	15.9	Missing	
	Total	107	100.0	100.0	

Valid cases 90 Missing cases 17

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QUEST164 MANAGEMNET SUPPORT TOOLING NEEDS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	5	4.7	4.8	4.8
DISAGREE	2	13	12.1	12.4	17.1
NEITHER	3	46	43.0	43.8	61.0
AGREE	4	39	36.4	37.1	98.1
STRONGLY AGREE	5	2	1.9	1.9	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

QUEST165 TOOLS PROPERLY PLANNED FOR JOBS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	16	15.0	15.2	15.2
DISAGREE	2	40	37.4	38.1	53.3
NEITHER	3	38	35.5	36.2	89.5
AGREE	4	10	9.3	9.5	99.0
STRONGLY AGREE	5	1	.9	1.0	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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QUEST166 NEW METHODS CONSIDERED FREELY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	6	5.6	5.8	5.8
DISAGREE	2	20	18.7	19.2	25.0
NEITHER	3	40	37.4	38.5	63.5
AGREE	4	36	33.6	34.6	98.1
STRONGLY AGREE	5	2	1.9	1.9	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

QUEST167 RECEIVE ADEQUATE TRAINING IN USE OF TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	4	3.7	3.8	3.8
DISAGREE	2	12	11.2	11.5	15.4
NEITHER	3	35	32.7	33.7	49.0
AGREE	4	47	43.9	45.2	94.2
STRONGLY AGREE	5	6	5.6	5.8	100.0
	.	3	2.8	Missing	
	Total	107	100.0	100.0	

Valid cases 104 Missing cases 3

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QUEST168 PROPER TOOL TRAINING RESPONSIBILITY 1ST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	31	29.0	36.0	36.0
SHOP SUP	2	13	12.1	15.1	51.2
MANAGEMT	3	23	21.5	26.7	77.9
PLANNING	4	3	2.8	3.5	81.4
TOOLROOM	5	1	.9	1.2	82.6
TRAINING	6	3	2.8	3.5	86.0
UNION	7	1	.9	1.2	87.2
SAFETY	8	8	7.5	9.3	96.5
TOOL CONTROL	9	3	2.8	3.5	100.0
	.	21	19.6	Missing	
	Total	107	100.0	100.0	

Valid cases 86 Missing cases 21

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CARDNO6

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	5	1	.9	.9	.9
	6	106	99.1	99.1	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

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JOBNO6

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	106	99.1	99.1	99.1
	2	1	.9	.9	100.0
	Total	107	100.0	100.0	

Valid cases 107 Missing cases 0

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QUEST169 PROPER TOOL TRAINING 2ND

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	23	21.5	26.1	26.1
SHOP SUP	2	39	36.4	44.3	70.5
MANAGEMT	3	10	9.3	11.4	81.8
PLANNING	4	4	3.7	4.5	86.4
TOOLROOM	5	2	1.9	2.3	88.6
TRAINING	6	3	2.8	3.4	92.0
UNION	7	1	.9	1.1	93.2
SAFETY	8	5	4.7	5.7	98.9
TOOL CONTROL	9	1	.9	1.1	100.0
	.	19	17.8	Missing	
	Total	107	100.0	100.0	

Valid cases 88 Missing cases 19

QUEST170 PROPER TOOL TRAINING 3RD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	16	15.0	19.5	19.5
SHOP SUP	2	15	14.0	18.3	37.8
MANAGEMT	3	24	22.4	29.3	67.1
PLANNING	4	7	6.5	8.5	75.6
TOOLROOM	5	4	3.7	4.9	80.5
TRAINING	6	11	10.3	13.4	93.9
SAFETY	8	4	3.7	4.9	98.8
TOOL CONTROL	9	1	.9	1.2	100.0
	.	25	23.4	Missing	
	Total	107	100.0	100.0	

Valid cases 82 Missing cases 25

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QUEST171 PROPER TOOL TRAINING 4TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	6	5.6	8.2	8.2
SHOP SUP	2	6	5.6	8.2	16.4
MANAGEMT	3	3	2.8	4.1	20.5
PLANNING	4	10	9.3	13.7	34.2
TOOLROOM	5	7	6.5	9.6	43.8
TRAINING	6	16	15.0	21.9	65.8
UNION	7	5	4.7	6.8	72.6
SAFETY	8	11	10.3	15.1	87.7
TOOL CONTROL	9	9	8.4	12.3	100.0
	.	34	31.8	Missing	
	Total	107	100.0	100.0	

Valid cases 73 Missing cases 34

QUEST172 PROPER TOOL TRAINING 5TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	4	3.7	5.8	5.8
SHOP SUP	2	5	4.7	7.2	13.0
MANAGEMT	3	8	7.5	11.6	24.6
PLANNING	4	7	6.5	10.1	34.8
TOOLROOM	5	11	10.3	15.9	50.7
TRAINING	6	10	9.3	14.5	65.2
UNION	7	6	5.6	8.7	73.9
SAFETY	8	13	12.1	18.8	92.8
TOOL CONTROL	9	5	4.7	7.2	100.0
	.	38	35.5	Missing	
	Total	107	100.0	100.0	

Valid cases 69 Missing cases 38

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QUEST173 PROPER TOOL TRAINING 6TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	1	.9	1.4	1.4
SHOP SUP	2	7	6.5	9.6	11.0
MANAGEMT	3	6	5.6	8.2	19.2
PLANNING	4	17	15.9	23.3	42.5
TOOLROOM	5	13	12.1	17.8	60.3
TRAINING	6	8	7.5	11.0	71.2
UNION	7	10	9.3	13.7	84.9
SAFETY	8	4	3.7	5.5	90.4
TOOL CONTROL	9	7	6.5	9.6	100.0
	.	34	31.8	Missing	
	Total	107	100.0	100.0	

Valid cases 73 Missing cases 34

QUEST174 PROPER TOOL TRAINING 7TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	2	1.9	3.0	3.0
MANAGEMT	3	2	1.9	3.0	6.1
PLANNING	4	10	9.3	15.2	21.2
TOOLROOM	5	5	4.7	7.6	28.8
TRAINING	6	3	2.8	4.5	33.3
UNION	7	8	7.5	12.1	45.5
SAFETY	8	12	11.2	18.2	63.6
TOOL CONTROL	9	24	22.4	36.4	100.0
	.	41	38.3	Missing	
	Total	107	100.0	100.0	

Valid cases 66 Missing cases 41

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QUEST175 PROPER TOOL TRAINING 8TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	4	3.7	5.9	5.9
SHOP SUP	2	4	3.7	5.9	11.8
MANAGEMT	3	4	3.7	5.9	17.6
PLANNING	4	6	5.6	8.8	26.5
TOOLROOM	5	16	15.0	23.5	50.0
TRAINING	6	7	6.5	10.3	60.3
UNION	7	12	11.2	17.6	77.9
SAFETY	8	8	7.5	11.8	89.7
TOOL CONTROL	9	7	6.5	10.3	100.0
	.	39	36.4	Missing	
	Total	107	100.0	100.0	

Valid cases 68 Missing cases 39

QUEST176 PROPER TOOL TRAINING 9TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	3	2.8	4.8	4.8
SHOP SUP	2	1	.9	1.6	6.5
MANAGEMT	3	3	2.8	4.8	11.3
PLANNING	4	3	2.8	4.8	16.1
TOOLROOM	5	10	9.3	16.1	32.3
TRAINING	6	10	9.3	16.1	48.4
UNION	7	19	17.8	30.6	79.0
SAFETY	8	5	4.7	8.1	87.1
TOOL CONTROL	9	8	7.5	12.9	100.0
	.	45	42.1	Missing	
	Total	107	100.0	100.0	

Valid cases 62 Missing cases 45

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QUEST177 GET TOOLS YOU NEED IN TIMELY MANNER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	11	10.3	10.7	10.7
DISAGREE	2	21	19.6	20.4	31.1
NEITHER	3	37	34.6	35.9	67.0
AGREE	4	32	29.9	31.1	98.1
STRONGLY AGREE	5	2	1.9	1.9	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

QUEST178 TIMELINESS OF TOOLS AFFECT QUALITY IN PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	6	5.6	5.8	5.8
DISAGREE	2	10	9.3	9.7	15.5
NEITHER	3	35	32.7	34.0	49.5
AGREE	4	46	43.0	44.7	94.2
STRONGLY AGREE	5	6	5.6	5.8	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

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QUEST179 HAVE VARIETY TOOLS YOU NEED TO DO JOB

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	4	3.7	3.9	3.9
DISAGREE	2	31	29.0	30.1	34.0
NEITHER	3	27	25.2	26.2	60.2
AGREE	4	40	37.4	38.8	99.0
STRONGLY AGREE	5	1	.9	1.0	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

QUEST180 MIX TOOLS ISSUED AFFECT QUALITY IN POSIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	5	4.7	4.9	4.9
DISAGREE	2	17	15.9	16.5	21.4
NEITHER	3	25	23.4	24.3	45.6
AGREE	4	51	47.7	49.5	95.1
STRONGLY AGREE	5	5	4.7	4.9	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

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QUEST181 HAVE QUALITY TOOLS YOU NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	11	10.3	10.7	10.7
DISAGREE	2	31	29.0	30.1	40.8
NEITHER	3	32	29.9	31.1	71.8
AGREE	4	28	26.2	27.2	99.0
STRONGLY AGREE	5	1	.9	1.0	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

QUEST182 TOOLS ISSUED AFFECT QUALITY IN POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	3	2.8	2.9	2.9
DISAGREE	2	12	11.2	11.7	14.6
NEITHER	3	27	25.2	26.2	40.8
AGREE	4	54	50.5	52.4	93.2
STRONGLY AGREE	5	7	6.5	6.8	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

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QUEST183 ENOUGH MONEY ALLOCATED FOR TOOLS AT NADE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	5	4.7	5.1	5.1
DISAGREE	2	9	8.4	9.1	14.1
NEITHER	3	63	58.9	63.6	77.8
AGREE	4	20	18.7	20.2	98.0
STRONGLY AGREE	5	2	1.9	2.0	100.0
	.	8	7.5	Missing	
	Total	107	100.0	100.0	

Valid cases 99 Missing cases 8

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QUEST184 HOW MUCH IS ENOUGH COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	13	12.1	14.3	14.3
NO	2	78	72.9	85.7	100.0
	.	16	15.0	Missing	
	Total	107	100.0	100.0	

Valid cases 91 Missing cases 16

QUEST185 SEE WASTE IN OUR TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	4	3.7	3.9	3.9
DISAGREE	2	7	6.5	6.8	10.7
NEITHER	3	33	30.8	32.0	42.7
AGREE	4	43	40.2	41.7	84.5
STRONGLY AGREE	5	16	15.0	15.5	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

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QUEST186 WHERE DO YOU SEE WASTE IN OUR TOOLS COMM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	24	22.4	25.8	25.8
NO	2	69	64.5	74.2	100.0
	.	14	13.1	Missing	
	Total	107	100.0	100.0	

Valid cases 93 Missing cases 14

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QUEST187 TOOLROOM PROVIDE SERVICE YOU NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	10	9.3	9.7	9.7
DISAGREE	2	14	13.1	13.6	23.3
NEITHER	3	33	30.8	32.0	55.3
AGREE	4	44	41.1	42.7	98.1
STRONGLY AGREE	5	2	1.9	1.9	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

.Valid cases 103 Missing cases 4

QUEST188 TOOLROOM SERVICE AFFECTS QUALITY IN POSI

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	4	3.7	3.9	3.9
DISAGREE	2	20	18.7	19.4	23.3
NEITHER	3	35	32.7	34.0	57.3
AGREE	4	37	34.6	35.9	93.2
STRONGLY AGREE	5	7	6.5	6.8	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

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QUEST189 NADEP DOES GOOD JOB PROVIDING TOOLS TO Y

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	6	5.6	5.9	5.9
DISAGREE	2	16	15.0	15.7	21.6
NEITHER	3	41	38.3	40.2	61.8
AGREE	4	38	35.5	37.3	99.0
STRONGLY AGREE	5	1	.9	1.0	100.0
	.	5	4.7	Missing	
	Total	107	100.0	100.0	

Valid cases 102 Missing cases 5

QUEST190 TOOLS PROGRAM AFFECT QUALITY IN POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	5	4.7	4.9	4.9
DISAGREE	2	15	14.0	14.6	19.4
NEITHER	3	27	25.2	26.2	45.6
AGREE	4	49	45.8	47.6	93.2
STRONGLY AGREE	5	7	6.5	6.8	100.0
	.	4	3.7	Missing	
	Total	107	100.0	100.0	

Valid cases 103 Missing cases 4

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QUEST191 HOW MUCH TIME SPENT USING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	7	6.5	6.9	6.9
.5 TO 1 HR	2	8	7.5	7.9	14.9
1 TO 4	3	10	9.3	9.9	24.8
4 TO 8	4	45	42.1	44.6	69.3
>8	5	31	29.0	30.7	100.0
	.	6	5.6	Missing	
	Total	107	100.0	100.0	

Valid cases 101 Missing cases 6

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QUEST192 FINAL COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	45	42.1	42.9	42.9
NO	2	60	56.1	57.1	100.0
	.	2	1.9	Missing	
	Total	107	100.0	100.0	

Valid cases 105 Missing cases 2

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Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	21	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

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QUEST1 SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NC SHOP	1	3	42.9	50.0	50.0
CONVENTIONAL SHOP	2	3	42.9	50.0	100.0
	.	1	14.3	Missing	
	Total	7	100.0	100.0	

Valid cases 6 Missing cases 1

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QUEST2 NAME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	7	100.0	Missing	
	Total	7	100.0	100.0	

Valid cases 0 Missing cases 7

QUEST3 BUILDING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	133	2	28.6	28.6	28.6
	137	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

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QUEST4 YEARS IN FIELD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	12	1	14.3	14.3	14.3
	14	1	14.3	14.3	28.6
	15	2	28.6	28.6	57.1
	22	1	14.3	14.3	71.4
	26	1	14.3	14.3	85.7
	39	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

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QUEST5 YEARS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	1	14.3	14.3	14.3
	4	1	14.3	14.3	28.6
	8	1	14.3	14.3	42.9
	9	1	14.3	14.3	57.1
	13	1	14.3	14.3	71.4
	18	1	14.3	14.3	85.7
	26	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST6 SHIFT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	4	57.1	57.1	57.1
	2	2	28.6	28.6	85.7
	3	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

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QUEST7 APPRENTICE GRAD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	4	57.1	57.1	57.1
NO	2	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

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QUEST8 TECH SCHOOL GRAD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	2	28.6	28.6	28.6
NO	2	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST9 SOME COLLEGE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	6	85.7	85.7	85.7
NO	2	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

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QUEST10 COLLEGE DEGREE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
BS	3	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

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QUEST11 JOB GRADE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	10	5	71.4	71.4	71.4
	11	2	28.6	28.6	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST12 SEX

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
FEMALE	1	1	14.3	14.3	14.3
MALE	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST13 SPEND TIME SEARCHING TOOLS IN TOOLBOX

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
DISAGREE	2	4	57.1	57.1	71.4
NEITHER	3	1	14.3	14.3	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST14 MYA; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	33.3	33.3
.5 TO 1HR	2	1	14.3	33.3	66.7
1 TO 2	3	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST15 OTHE; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	33.3	33.3
.5 TO 1HR	2	1	14.3	33.3	66.7
1 TO 2	3	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST16 MYA; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	66.7	66.7
1 TO 2	3	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST17 OTHE; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	33.3	33.3
.5 TO 1HR	2	1	14.3	33.3	66.7
1 TO 2	3	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST18 NUMBER INCIDENTS SEARCHING TOOLS IN TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	2	28.6	66.7	66.7
1 TO 5	2	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST19 SPEND TIME SEARCHING TOOLS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
DISAGREE	2	4	57.1	57.1	71.4
NEITHER	3	1	14.3	14.3	85.7
AGREE	4	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST20 MYB; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST21 OTHF; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST22 MYB; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	66.7	66.7
.5 TO 1HR	2	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST23 OTHF; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST24 NUMBER INCIDENTS SEARCHING TOOLS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	2	28.6	66.7	66.7
1 TO 5	2	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST25 SPEND TIME SEARCHING TOOLS AT TOOLROOM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	28.6	28.6
NEITHER	3	1	14.3	14.3	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST26 MYC; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	50.0	50.0
.5 TO 1HR	2	1	14.3	25.0	75.0
2 TO 4	4	1	14.3	25.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

QUEST27 OTHG; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	50.0	50.0
.5 TO 1HR	2	1	14.3	25.0	75.0
2 TO 4	4	1	14.3	25.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST28 MYC; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	50.0	50.0
.5 TO 1HR	2	1	14.3	25.0	75.0
>4	5	1	14.3	25.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

SUBJNO2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1108	1	14.3	14.3	14.3
	1109	1	14.3	14.3	28.6
	1110	1	14.3	14.3	42.9
	1111	1	14.3	14.3	57.1
	1112	1	14.3	14.3	71.4
	1113	1	14.3	14.3	85.7
	1114	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

CARDNO2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	2	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

JOBNO2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	21	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST29 OTHG; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	50.0	50.0
.5 TO 1HR	2	2	28.6	50.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

QUEST30 NUMBER INCIDENTS SEARCHING TOOLS AT TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	25.0	25.0
1 TO 5	2	3	42.9	75.0	100.0
.	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST31 SPEND TIME SEARCHING TOOLS NOT IN SHOP/T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	6	85.7	85.7	85.7
AGREE	4	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST32 MYD; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

QUEST33 OTHH; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST34 MYD; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST35 OTHH; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

QUEST36 NUMBER INCIDENTS SEARCHING TOOLS NOT SHO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST37 SPEND TIME SEARCHING ALTERNATE TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	4	57.1	57.1	57.1
AGREE	4	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST38 MYI; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	66.7	66.7
.5 TO 1HR	2	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST39 OTHK; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	66.7	66.7
.5 TO 1HR	2	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST40 MYI; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST41 OTHK; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	66.7	66.7
.5 TO 1HR	2	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST42 NUMBER INCIDENTS SEARCHING ALTERNATE TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST43 AFFCT ALTERNATE TOOLS ON QUALITY IS POSI

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	66.7	66.7
AGREE	4	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST44 AFFCT ALTERNATE TOOLS ON PRODCTVTY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	3	42.9	75.0	75.0
AGREE	4	1	14.3	25.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

QUEST45 WHY USE AN ALTERNATE TOOL COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	14.3	14.3	14.3
NO	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST46 HOW MUCH EXTRA WORK ALTERNATE TOOL CAUSE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	20.0	20.0
.5 TO 1HR	2	2	28.6	40.0	60.0
1 TO 2	3	1	14.3	20.0	80.0
2 TO 4	4	1	14.3	20.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

- -

QUEST47 HOW MUCH ADDTNL MATERIAL COST COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO	2	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST48 SPEND TIME SEARCHING MISPLACED TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	3	42.9	42.9	42.9
NEITHER	3	1	14.3	14.3	57.1
AGREE	4	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST49 MYJ; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	66.7	66.7
1 TO 2	3	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST50 OTHL; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	50.0	50.0
1 TO 2	3	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

QUEST51 MYJ; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST52 OTHL; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST53 NUMBER INCIDENTS SEARCHING MISPLACED TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST54 SPEND TIME REPLACING TOOLS CAUSE QUALITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	28.6	28.6
AGREE	4	4	57.1	57.1	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST55 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	60.0	60.0
.5 TO 1HR	2	1	14.3	20.0	80.0
1 TO 2	3	1	14.3	20.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

- -

QUEST56 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	4	57.1	80.0	80.0
1 TO 2	3	1	14.3	20.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

QUEST57 NUMBER OF INCIDENTS REPLACING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	20.0	20.0
1 TO 5	2	3	42.9	60.0	80.0
>10	4	1	14.3	20.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

- -

QUEST58 AFFECT POOR QUALITY TOOL ON QUALITY IS P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	25.0	25.0
AGREE	4	1	14.3	25.0	50.0
STRONGLY AGREE	5	2	28.6	50.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST59 PRODUCTION PARTS DAMAGED DUE POOR QUALIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	4	57.1	57.1	57.1
NEITHER	3	1	14.3	14.3	71.4
AGREE	4	2	28.6	28.6	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST60 MY TIME LOST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
.5 TO 1HR	2	2	28.6	100.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

- -

QUEST61 OTHERS TIME LOST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	50.0	50.0
.5 TO 1HR	2	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

- -

QUEST62 NUMBER INCIDENTS OF DAMAGED PARTS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	50.0	50.0
1 TO 5	2	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

QUEST63 ESTIMATED MATERIAL VALUE PER INCIDENT CO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	14.3	14.3	14.3
NO	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

SUBJNO3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1108	1	14.3	14.3	14.3
	1109	1	14.3	14.3	28.6
	1110	1	14.3	14.3	42.9
	1111	1	14.3	14.3	57.1
	1112	1	14.3	14.3	71.4
	1113	1	14.3	14.3	85.7
	1114	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

CARDNO3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	3	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

JOBNO3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	21	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST64 TIME LOST DUE TO OUTDATED TOOLING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	5	71.4	71.4	71.4
AGREE	4	2	28.6	28.6	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST65 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST66 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST67 NUMBER INCIDENTS TIME LOST DUE TO OUTDAT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	33.3	33.3
1 TO 5	2	1	14.3	33.3	66.7
>10	4	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST68 AFFECT OUTDATED TOOLING ON QUALITY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	20.0	20.0
AGREE	4	3	42.9	60.0	80.0
STRONGLY AGREE	5	1	14.3	20.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

QUEST69 TIME LOST EACH DAY REPAIRING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	4	57.1	57.1	57.1
AGREE	4	2	28.6	28.6	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST70 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	50.0	50.0
.5 TO 1HR	2	2	28.6	50.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST71 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	100.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

QUEST72 NUMBER INCIDENTS REPAIRING TOOLING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	25.0	25.0
1 TO 5	2	3	42.9	75.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST73 WHAT ORGANIZATION SHOULD MADE REPAIR COM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	2	28.6	28.6	28.6
NO	2	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST74 SPEND TIME AT TOOLRM MAKING TOOL TRANSAC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	3	42.9	42.9	42.9
AGREE	4	2	28.6	28.6	71.4
STRONGLY AGREE	5	2	28.6	28.6	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST75 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	66.7	66.7
2 TO 4	4	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST76 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	28.6	66.7	66.7
>4	5	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST77 NUMBER INCIDENTS AT TOOLRM MAKING TRANSA

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 TO 5	2	2	28.6	66.7	66.7
>10	4	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST78 SPEND TIME REWORKING ITEMS DUE POOR TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
DISAGREE	2	3	42.9	42.9	57.1
NEITHER	3	2	28.6	28.6	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST79 MYN; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
.5 TO 1HR	2	1	14.3	50.0	50.0
2 TO 4	4	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

- -

QUEST80 OTHR; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
.5 TO 1HR	2	2	28.6	100.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

QUEST81 MYN; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 TO 2	3	1	14.3	50.0	50.0
>4	5	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

- -

QUEST82 OTHR; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
.5 TO 1HR	2	1	14.3	50.0	50.0
1 TO 2	3	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

- -

QUEST83 NUMBER INCIDENTS REWORK DUE POOR TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	50.0	50.0
1 TO 5	2	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

QUEST84 AFFECT REWORK ON QUALITY IS POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	2	28.6	66.7	66.7
STRONGLY AGREE	5	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST85 AFFECT REWORK ON PRODUCTIVITY IS POSITIV

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	3	42.9	75.0	75.0
STRONGLY AGREE	5	1	14.3	25.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST86 COST ADDTNL MATERIALS PER INCIDENT COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO	2	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST87 SPEND TIME REWORKING ITEMS DUE IMPROPER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
DISAGREE	2	4	57.1	57.1	71.4
NEITHER	3	2	28.6	28.6	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST88 MYP; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST89 OTHT; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

QUEST90 MYP; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
.5 TO 1HR	2	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST91 OTHT; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST92 NUMBER INCIDENTS REWORK DUE IMPROPER USE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

QUEST93 AFFECT IMPROPER USE TOOLS ON QUALITY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	2	28.6	66.7	66.7
STRONGLY AGREE	5	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST94 AFFECT IMPROPER USE TOOLS ON PRODTVTY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	3	42.9	75.0	75.0
STRONGLY AGREE	5	1	14.3	25.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST95 COST MATERIALS DUE TO IMPROPER USE TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO	2	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST96 SPEND TIME REWORKING ITEMS DUE TOOL NOT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
DISAGREE	2	3	42.9	42.9	57.1
NEITHER	3	2	28.6	28.6	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST97 MYM; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
.5 TO 1HR	2	1	14.3	50.0	50.0
2 TO 4	4	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

- -

QUEST98 OTHQ; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
.5 TO 1HR	2	1	14.3	50.0	50.0
>4	5	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

SUBJNO4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1108	1	14.3	14.3	14.3
	1109	1	14.3	14.3	28.6
	1110	1	14.3	14.3	42.9
	1111	1	14.3	14.3	57.1
	1112	1	14.3	14.3	71.4
	1113	1	14.3	14.3	85.7
	1114	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

CARDNO4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	4	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

JOBNO4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	21	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST99 MYM; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
.5 TO 1HR	2	1	14.3	50.0	50.0
1 TO 2	3	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

- -

QUEST100 OTHQ; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	1	14.3	50.0	50.0
.5 TO 1HR	2	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

- -

QUEST101 NUMBER INCIDENTS REWORK DUE NONAVAILABIL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	14.3	50.0	50.0
1 TO 5	2	1	14.3	50.0	100.0
	.	5	71.4	Missing	
	Total	7	100.0	100.0	

Valid cases 2 Missing cases 5

QUEST102 AFFECT IMPROPER USE TOOLS ON QUALITY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	2	28.6	66.7	66.7
STRONGLY AGREE	5	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST103 AFFECT IMPROPER USE TOOLS ON PRODUCTIVIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	1	14.3	33.3	33.3
STRONGLY AGREE	5	2	28.6	66.7	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST104 COST MATERIALS PER INCIDENT IMPROPER USE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	14.3	14.3	14.3
NO	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST105 SPEND TIME REWORKING ITEMS DUE WRONG TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
DISAGREE	2	4	57.1	57.1	71.4
NEITHER	3	2	28.6	28.6	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST106 MYO; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	7	100.0	Missing	
	Total	7	100.0	100.0	

Valid cases 0 Missing cases 7

- -

QUEST107 OTHS; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	7	100.0	Missing	
	Total	7	100.0	100.0	

Valid cases 0 Missing cases 7

QUEST108 MYO; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	7	100.0	Missing	
	Total	7	100.0	100.0	

Valid cases 0 Missing cases 7

- -

QUEST109 OTHS; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	7	100.0	Missing	
	Total	7	100.0	100.0	

Valid cases 0 Missing cases 7

- -

QUEST110 NUMBER INCIDENTS REWORK DUE WRONG TOOL I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	7	100.0	Missing	
	Total	7	100.0	100.0	

Valid cases 0 Missing cases 7

QUEST111 AFFECT USING WRONG TOOL ON QUALITY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	3	42.9	100.0	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST112 AFFECT USING WRONG TOOL ON PRODUCTIVITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	2	28.6	66.7	66.7
STRONGLY AGREE	5	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST113 COST MATERIALS INCIDENT WRONG TOOL COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	14.3	14.3	14.3
NO	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST114 NADEP DOES GOOD JOB PROVIDING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	28.6	28.6	28.6
AGREE	4	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST115 COMMUNICATE WITH MANAGEMENT ABOUT TOOLIN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST116 COMMUNICATE DIFFENTLY WITH SUP VS. BRANC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	33.3	33.3
NEITHER	3	2	28.6	33.3	66.7
AGREE	4	2	28.6	33.3	100.0
	.	1	14.3	Missing	
	Total	7	100.0	100.0	

Valid cases 6 Missing cases 1

QUEST117 COMMUNICATION IMPROVED OVER LAST YEAR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	28.6	33.3	33.3
AGREE	4	3	42.9	50.0	83.3
STRONGLY AGREE	5	1	14.3	16.7	100.0
	.	1	14.3	Missing	
	Total	7	100.0	100.0	

Valid cases 6 Missing cases 1

- -

QUEST118 MY TIME COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	60.0	60.0
.5 TO 1HR	2	2	28.6	40.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

- -

QUEST119 OTHERS TIME COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	42.9	60.0	60.0
.5 TO 1HR	2	2	28.6	40.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

QUEST120 NUMBER OF INCIDENTS COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	3	42.9	60.0	60.0
1 TO 5	2	2	28.6	40.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

- -

QUEST121 SERVICE; TOOLROOM PROVIDES SERVICE FOR Y

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST122 TIMELY; GET TOOLS IN TIMELY MANNER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	4	57.1	57.1	57.1
AGREE	4	2	28.6	28.6	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST123 VARIETY; HAVE VARIETY OF TOOLS NEED TO D

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST124 HAVE QUALITY OF TOOLS TO DO JOB

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	28.6	28.6
NEITHER	3	2	28.6	28.6	57.1
AGREE	4	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST125 FEEL NADEP SPEND ENOUGH MONEY ON TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	28.6	28.6
NEITHER	3	2	28.6	28.6	57.1
AGREE	4	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST126 SEE WASTE IN NADEP TOOL PROGRAM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST127 WHERE DO SEE WASTE IN TOOL PROGRAM COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	3	42.9	42.9	42.9
NO	2	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST128 QUALITY; TOOLS ISSUED AFFCT QUALITY IN P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST129 QUANTITY; TOOLS ISSUED AFFCT QUANTITY IN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST130 EFFICNCY; TOOLS ISSUED AFFCT EFFICIENCY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	4	57.1	57.1	57.1
AGREE	4	2	28.6	28.6	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST131 SAFETY; TOOLS ISSUED AFFCT SAFETY IN POS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST132 HAVE SAY IN TYPES OF TOOLS NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	3	42.9	42.9	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST133 VARIETY; TOOLS RECEIVED AT TOOLROOM WHAT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	4	57.1	57.1	57.1
NEITHER	3	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

SUBJNO5

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1108	1	14.3	14.3	14.3
	1109	1	14.3	14.3	28.6
	1110	1	14.3	14.3	42.9
	1111	1	14.3	14.3	57.1
	1112	1	14.3	14.3	71.4
	1113	1	14.3	14.3	85.7
	1114	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

CARDNO5

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	5	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

JOBNO5

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	21	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST134 TOOLS RECEIVED AT TOOLROOM GOOD WORKING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST135 QUALITY OF SERVICE AT TOOLROOM IMPROVED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
NEITHER	3	1	14.3	14.3	28.6
AGREE	4	4	57.1	57.1	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST136 TOOLS RECEIVED AT TOOLROOM MAINTAINED PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST137 TOOLS RECEIVED AT TOOLROOM HIGH QUALITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	3	42.9	42.9	42.9
NEITHER	3	3	42.9	42.9	85.7
AGREE	4	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST138 TIMELY; TOOLS RECEIVED AT TOOLROOM TIMEL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	1	14.3	14.3	28.6
AGREE	4	4	57.1	57.1	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST139 TOOLS RECEIVED AT THE TOOLROOM CALIBRATE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	28.6	28.6	28.6
AGREE	4	4	57.1	57.1	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST140 SERVICE; TOOLROOM PROVIDE PROFESSIONAL S

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	1	14.3	14.3	28.6
AGREE	4	4	57.1	57.1	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST141 TOOLS RECEIVED AT TOOLROOM WITH SAFETY D

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST142 QUALITY; HIGH QUALTY TLS AFFCT QUALTY OF

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	28.6	28.6	28.6
AGREE	4	2	28.6	28.6	57.1
STRONGLY AGREE	5	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST143 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO	2	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST144 QUANTITY; HIGH QUALTY TLS AFFCT QUANTY I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	2	28.6	28.6	71.4
STRONGLY AGREE	5	2	28.6	28.6	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST145 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	14.3	14.3	14.3
NO	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST146 EFFICNCY; HIGH QUALTY TLS AFFCT EFFCNCY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST147 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	14.3	14.3	14.3
NO	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST148 SAFETY; HIGH QUALTY TLS AFFCT SAFETY IN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST149 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	14.3	14.3	14.3
NO	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST150 COMMUNICATIONS WITH SUP AFFECT QUALITY I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	28.6	28.6	28.6
AGREE	4	4	57.1	57.1	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST151 COMMUNICATIONS WITH SUP AFFECT PROD IN P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST152 UPPER MANAGEMENT RESPONSIBLE FOR PROPER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	28.6	28.6
AGREE	4	4	57.1	57.1	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST153 SUPERVISOR RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	28.6	28.6
NEITHER	3	1	14.3	14.3	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST154 TOOLROOM RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
AGREE	4	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST155 PRODUCTION CONTROLLER RESPONSIBLE FOR PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	6	85.7	85.7	85.7
NEITHER	3	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST156 I AM RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	5	71.4	71.4	71.4
NEITHER	3	1	14.3	14.3	85.7
AGREE	4	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST157 PLANNER AND ESTIMATOR RESPONSIBLE FOR PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	1	14.3	14.3	14.3
AGREE	4	5	71.4	71.4	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST158 HOW MUCH COMMUNICATE WITH MY SUPERVISOR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
>1	2	6	85.7	85.7	85.7
<1	3	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST159 AMOUNT NADEP SPENDS ON TOOLING EACH YEAR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
>1MILLION	7	1	14.3	100.0	100.0
	.	6	85.7	Missing	
	Total	7	100.0	100.0	

Valid cases 1 Missing cases 6

- -

QUEST160 NADEP SPENDS MORE ON TOOLING THAN YEAR A

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST161 NADEP SPENDS LESS ON TOOLING THAN YEAR A

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	4	57.1	57.1	57.1
NEITHER	3	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST162 TOOLING INFORMATION AVAILABLE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST163 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO	2	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST164 MANAGEMNET SUPPORT TOOLING NEEDS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	6	85.7	85.7	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST165 TOOLS PROPERLY PLANNED FOR JOBS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
DISAGREE	2	5	71.4	71.4	85.7
AGREE	4	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST166 NEW METHODS CONSIDERED FREELY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	14.3	14.3	14.3
DISAGREE	2	1	14.3	14.3	28.6
AGREE	4	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST167 RECEIVE ADEQUATE TRAINING IN USE OF TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST168 PROPER TOOL TRAINING RESPONSIBILITY 1ST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
SHOP SUP	2	1	14.3	20.0	20.0
PLANNING	4	2	28.6	40.0	60.0
TOOLROOM	5	2	28.6	40.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

- -

SUBJNO6

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1108	1	14.3	14.3	14.3
	1109	1	14.3	14.3	28.6
	1110	1	14.3	14.3	42.9
	1111	1	14.3	14.3	57.1
	1112	1	14.3	14.3	71.4
	1113	1	14.3	14.3	85.7
	1114	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

CARDNO6

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	6	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

JOBNO6

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	21	7	100.0	100.0	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST169 PROPER TOOL TRAINING 2ND

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	4	57.1	66.7	66.7
MANAGEMT	3	1	14.3	16.7	83.3
PLANNING	4	1	14.3	16.7	100.0
	.	1	14.3	Missing	
	Total	7	100.0	100.0	

Valid cases 6 Missing cases 1

- -

QUEST170 PROPER TOOL TRAINING 3RD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	1	14.3	20.0	20.0
SHOP SUP	2	2	28.6	40.0	60.0
MANAGEMT	3	1	14.3	20.0	80.0
PLANNING	4	1	14.3	20.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

QUEST171 PROPER TOOL TRAINING 4TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	1	14.3	20.0	20.0
MANAGEMT	3	1	14.3	20.0	40.0
TOOLROOM	5	1	14.3	20.0	60.0
UNION	7	1	14.3	20.0	80.0
SAFETY	8	1	14.3	20.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

- -

QUEST172 PROPER TOOL TRAINING 5TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
MANAGEMT	3	1	14.3	25.0	25.0
TOOLROOM	5	1	14.3	25.0	50.0
TRAINING	6	1	14.3	25.0	75.0
UNION	7	1	14.3	25.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST173 PROPER TOOL TRAINING 6TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
SHOP SUP	2	2	28.6	40.0	40.0
MANAGEMT	3	1	14.3	20.0	60.0
PLANNING	4	1	14.3	20.0	80.0
TRAINING	6	1	14.3	20.0	100.0
	.	2	28.6	Missing	
	Total	7	100.0	100.0	

Valid cases 5 Missing cases 2

QUEST174 PROPER TOOL TRAINING 7TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
SAFETY	8	1	14.3	33.3	33.3
TOOL CONTROL	9	2	28.6	66.7	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

- -

QUEST175 PROPER TOOL TRAINING 8TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
MANAGEMT	3	1	14.3	25.0	25.0
PLANNING	4	1	14.3	25.0	50.0
UNION	7	1	14.3	25.0	75.0
SAFETY	8	1	14.3	25.0	100.0
	.	3	42.9	Missing	
	Total	7	100.0	100.0	

Valid cases 4 Missing cases 3

- -

QUEST176 PROPER TOOL TRAINING 9TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
SHOP SUP	2	1	14.3	33.3	33.3
TRAINING	6	1	14.3	33.3	66.7
TOOL CONTROL	9	1	14.3	33.3	100.0
	.	4	57.1	Missing	
	Total	7	100.0	100.0	

Valid cases 3 Missing cases 4

QUEST177 GET TOOLS YOU NEED IN TIMELY MANNER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST178 TIMELINESS OF TOOLS AFFECT QUALITY IN PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	3	42.9	42.9	42.9
NEITHER	3	1	14.3	14.3	57.1
AGREE	4	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST179 HAVE VARIETY TOOLS YOU NEED TO DO JOB

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST180 MIX TOOLS ISSUED AFFECT QUALITY IN POSIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST181 HAVE QUALITY TOOLS YOU NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	28.6	28.6
NEITHER	3	2	28.6	28.6	57.1
AGREE	4	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST182 TOOLS ISSUED AFFECT QUALITY IN POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST183 ENOUGH MONEY ALLOCATED FOR TOOLS AT NADE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	3	42.9	42.9	57.1
AGREE	4	2	28.6	28.6	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST184 HOW MUCH IS ENOUGH COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	14.3	14.3	14.3
NO	2	6	85.7	85.7	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST185 SEE WASTE IN OUR TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	28.6	28.6	28.6
NEITHER	3	2	28.6	28.6	57.1
AGREE	4	3	42.9	42.9	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST186 WHERE DO YOU SEE WASTE IN OUR TOOLS COMM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	2	28.6	28.6	28.6
NO	2	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST187 TOOLROOM PROVIDE SERVICE YOU NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	3	42.9	42.9	57.1
AGREE	4	2	28.6	28.6	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST188 TOOLROOM SERVICE AFFECTS QUALITY IN POSI

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	14.3	14.3	14.3
NEITHER	3	2	28.6	28.6	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST189 NADEP DOES GOOD JOB PROVIDING TOOLS TO Y

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	4	57.1	57.1	57.1
AGREE	4	2	28.6	28.6	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST190 TOOLS PROGRAM AFFECT QUALITY IN POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	3	42.9	42.9	42.9
AGREE	4	3	42.9	42.9	85.7
STRONGLY AGREE	5	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

- -

QUEST191 HOW MUCH TIME SPENT USING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
4 TO 8	4	2	28.6	28.6	28.6
>8	5	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

QUEST192 FINAL COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	3	42.9	42.9	42.9
NO	2	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Valid cases 7 Missing cases 0

```
This procedure was completed at  8:01:04
FINISH.

End of Include file.
   Errors encountered:      0
   Warnings encountered  26
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ADMNORDR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	11	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST1 SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST2 NAME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST3 BUILDING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST4 YEARS IN FIELD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST5 YEARS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	3	3	37.5	37.5	37.5
	4	1	12.5	12.5	50.0
	10	1	12.5	12.5	62.5
	12	1	12.5	12.5	75.0
	15	1	12.5	12.5	87.5
	21	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST6 SHIFT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	4	50.0	50.0	50.0
	2	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST7 APPRENTICE GRAD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO	2	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST8 TECH SCHOOL GRAD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO	2	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST9 SOME COLLEGE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	5	62.5	62.5	62.5
NO	2	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST10 COLLEGE DEGREE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AA	2	1	12.5	100.0	100.0
	.	7	87.5	Missing	
	Total	8	100.0	100.0	

Valid cases 1 Missing cases 7

- -

QUEST11 JOB GRADE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	6	7	87.5	87.5	87.5
	7	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST12 SEX

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
MALE	2	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST13 SPEND TIME SEARCHING TOOLS IN TOOLBOX

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	4	50.0	50.0	50.0
DISAGREE	2	2	25.0	25.0	75.0
NEITHER	3	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST14 MYA; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST15 OTHE; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST16 MYA; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST17 OTHE; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST18 NUMBER INCIDENTS SEARCHING TOOLS IN TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST19 SPEND TIME SEARCHING TOOLS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	2	25.0	25.0	25.0
DISAGREE	2	1	12.5	12.5	37.5
NEITHER	3	2	25.0	25.0	62.5
AGREE	4	1	12.5	12.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST20 MYB; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST21 OTHF; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST22 MYB; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST23 OTHF; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST24 NUMBER INCIDENTS SEARCHING TOOLS IN SHOP

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST25 SPEND TIME SEARCHING TOOLS AT TOOLROOM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
NEITHER	3	1	12.5	12.5	50.0
AGREE	4	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST26 MYC; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	37.5	42.9	42.9
.5 TO 1HR	2	4	50.0	57.1	100.0
	.	1	12.5	Missing	
	Total	8	100.0	100.0	

Valid cases 7 Missing cases 1

QUEST27 OTHG; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST28 MYC; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	2	25.0	33.3	33.3
.5 TO 1HR	2	3	37.5	50.0	83.3
1 TO 2	3	1	12.5	16.7	100.0
	.	2	25.0	Missing	
	Total	8	100.0	100.0	

Valid cases 6 Missing cases 2

- -

SUBJNO2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1115	1	12.5	12.5	12.5
	1116	1	12.5	12.5	25.0
	1117	1	12.5	12.5	37.5
	1118	1	12.5	12.5	50.0
	1119	1	12.5	12.5	62.5
	1120	1	12.5	12.5	75.0
	1121	1	12.5	12.5	87.5
	1122	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

CARDNO2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	2	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

JOBNO2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	11	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST29 OTHG; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST30 NUMBER INCIDENTS SEARCHING TOOLS AT TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	2	25.0	28.6	28.6
1 TO 5	2	4	50.0	57.1	85.7
5 TO 10	3	1	12.5	14.3	100.0
	.	1	12.5	Missing	
	Total	8	100.0	100.0	

Valid cases 7 Missing cases 1

- -

QUEST31 SPEND TIME SEARCHING TOOLS NOT IN SHOP/T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	3	37.5	37.5	50.0
NEITHER	3	2	25.0	25.0	75.0
AGREE	4	1	12.5	12.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST32 MYD; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST33 OTHH; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST34 MYD; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST35 OTHH; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST36 NUMBER INCIDENTS SEARCHING TOOLS NOT SHO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST37 SPEND TIME SEARCHING ALTERNATE TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
NEITHER	3	2	25.0	25.0	50.0
AGREE	4	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST38 MYI; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST39 OTHK; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST40 MYI; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST41 OTHK; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST42 NUMBER INCIDENTS SEARCHING ALTERNATE TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST43 AFFCT ALTERNATE TOOLS ON QUALITY IS POSI

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST44 AFFCT ALTERNATE TOOLS ON PRODCTVTY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST45 WHY USE AN ALTERNATE TOOL COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST46 HOW MUCH EXTRA WORK ALTERNATE TOOL CAUSE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST47 HOW MUCH ADDTNL MATERIAL COST COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST48 SPEND TIME SEARCHING MISPLACED TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	12.5	12.5	12.5
NEITHER	3	4	50.0	50.0	62.5
AGREE	4	1	12.5	12.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST49 MYJ; TOOL FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST50 OTHL; TOOL FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST51 MYJ; TOOL NOT FOUND MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST52 OTHL; TOOL NOT FOUND OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST53 NUMBER INCIDENTS SEARCHING MISPLACED TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST54 SPEND TIME REPLACING TOOLS CAUSE QUALITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	4	50.0	50.0	50.0
AGREE	4	2	25.0	25.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST55 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST56 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST57 NUMBER OF INCIDENTS REPLACING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST58 AFFECT POOR QUALITY TOOL ON QUALITY IS P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST59 PRODUCTION PARTS DAMAGED DUE POOR QUALIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	3	37.5	37.5	37.5
NEITHER	3	2	25.0	25.0	62.5
AGREE	4	2	25.0	25.0	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST60 MY TIME LOST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST61 OTHERS TIME LOST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST62 NUMBER INCIDENTS OF DAMAGED PARTS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST63 ESTIMATED MATERIAL VALUE PER INCIDENT CO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

SUBJNO3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1115	1	12.5	12.5	12.5
	1116	1	12.5	12.5	25.0
	1117	1	12.5	12.5	37.5
	1118	1	12.5	12.5	50.0
	1119	1	12.5	12.5	62.5
	1120	1	12.5	12.5	75.0
	1121	1	12.5	12.5	87.5
	1122	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

CARDNO3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	3	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

JOBNO3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	11	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST64 TIME LOST DUE TO OUTDATED TOOLING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	3	37.5	37.5	37.5
NEITHER	3	2	25.0	25.0	62.5
AGREE	4	1	12.5	12.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST65 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST66 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST67 NUMBER INCIDENTS TIME LOST DUE TO OUTDAT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST68 AFFECT OUTDATED TOOLING ON QUALITY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST69 TIME LOST EACH DAY REPAIRING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	2	25.0	25.0	25.0
DISAGREE	2	2	25.0	25.0	50.0
AGREE	4	2	25.0	25.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST70 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST71 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST72 NUMBER INCIDENTS REPAIRING TOOLING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST73 WHAT ORGANIZATION SHOULD MADE REPAIR COM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	5	62.5	62.5	62.5
NO	2	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST74 SPEND TIME AT TOOLRM MAKING TOOL TRANSAC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
AGREE	4	4	50.0	50.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST75 MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<.5	1	3	37.5	42.9	42.9
.5 TO 1HR	2	3	37.5	42.9	85.7
1 TO 2	3	1	12.5	14.3	100.0
	.	1	12.5	Missing	
	Total	8	100.0	100.0	

Valid cases 7 Missing cases 1

- -

QUEST76 OTHERS TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST77 NUMBER INCIDENTS AT TOOLRM MAKING TRANSA

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	1	12.5	14.3	14.3
1 TO 5	2	4	50.0	57.1	71.4
5 TO 10	3	2	25.0	28.6	100.0
	.	1	12.5	Missing	
	Total	8	100.0	100.0	

Valid cases 7 Missing cases 1

QUEST78 SPEND TIME REWORKING ITEMS DUE POOR TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	4	50.0	50.0	50.0
NEITHER	3	2	25.0	25.0	75.0
AGREE	4	1	12.5	12.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST79 MYN; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST80 OTHR; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST81 MYN; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST82 OTHR; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST83 NUMBER INCIDENTS REWORK DUE POOR TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST84 AFFECT REWORK ON QUALITY IS POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST85 AFFECT REWORK ON PRODUCTIVITY IS POSITIV

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST86 COST ADDTNL MATERIALS PER INCIDENT COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST87 SPEND TIME REWORKING ITEMS DUE IMPROPER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	12.5	12.5	12.5
NEITHER	3	2	25.0	25.0	37.5
AGREE	4	4	50.0	50.0	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST88 MYP; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST89 OTHT; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST90 MYP; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST91 OTHT; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST92 NUMBER INCIDENTS REWORK DUE IMPROPER USE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST93 AFFECT IMPROPER USE TOOLS ON QUALITY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST94 AFFECT IMPROPER USE TOOLS ON PRODTVTY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST95 COST MATERIALS DUE TO IMPROPER USE TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST96 SPEND TIME REWORKING ITEMS DUE TOOL NOT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	4	50.0	50.0	50.0
NEITHER	3	1	12.5	12.5	62.5
AGREE	4	2	25.0	25.0	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST97 MYM; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST98 OTHQ; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

SUBJNO4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1115	1	12.5	12.5	12.5
	1116	1	12.5	12.5	25.0
	1117	1	12.5	12.5	37.5
	1118	1	12.5	12.5	50.0
	1119	1	12.5	12.5	62.5
	1120	1	12.5	12.5	75.0
	1121	1	12.5	12.5	87.5
	1122	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

CARDNO4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	4	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

JOBNO4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	11	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST99 MYM; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST100 OTHQ; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST101 NUMBER INCIDENTS REWORK DUE NONAVAILABIL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST102 AFFECT IMPROPER USE TOOLS ON QUALITY IS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST103 AFFECT IMPROPER USE TOOLS ON PRODUCTIVIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST104 COST MATERIALS PER INCIDENT IMPROPER USE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST105 SPEND TIME REWORKING ITEMS DUE WRONG TOO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	2	25.0	25.0	25.0
DISAGREE	2	3	37.5	37.5	62.5
NEITHER	3	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST106 MYO; PART REPAIRED SUCCESSFULLY MY TIME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST107 OTHS; PART REPAIRED SUCCESSFULLY OTHERS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST108 MYO; PART NOT REPAIRED SUCCESSFULLY MY T

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST109 OTHS; PART NOT REPAIRED SUCCESSFULLY OTH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST110 NUMBER INCIDENTS REWORK DUE WRONG TOOL I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST111 AFFECT USING WRONG TOOL ON QUALITY IS PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST112 AFFECT USING WRONG TOOL ON PRODUCTIVITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST113 COST MATERIALS INCIDENT WRONG TOOL COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST114 NADEP DOES GOOD JOB PROVIDING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
AGREE	4	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST115 COMMUNICATE WITH MANAGEMENT ABOUT TOOLIN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	6	75.0	75.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST116 COMMUNICATE DIFFENTLY WITH SUP VS. BRANC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST117 COMMUNICATION IMPROVED OVER LAST YEAR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	1	12.5	12.5	25.0
AGREE	4	5	62.5	62.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST118 MY TIME COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

- -

QUEST119 OTHERS TIME COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	.	8	100.0	Missing	
	Total	8	100.0	100.0	

Valid cases 0 Missing cases 8

QUEST120 NUMBER OF INCIDENTS COMMUNICATING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1 PER DAY	1	2	25.0	25.0	25.0
1 TO 5	2	4	50.0	50.0	75.0
5 TO 10	3	1	12.5	12.5	87.5
>10	4	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST121 SERVICE; TOOLROOM PROVIDES SERVICE FOR Y

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
AGREE	4	3	37.5	37.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST122 TIMELY; GET TOOLS IN TIMELY MANNER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
AGREE	4	5	62.5	62.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST123 VARIETY; HAVE VARIETY OF TOOLS NEED TO D

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	2	25.0	25.0	37.5
AGREE	4	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST124 HAVE QUALITY OF TOOLS TO DO JOB

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
NEITHER	3	3	37.5	37.5	75.0
AGREE	4	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST125 FEEL NADEP SPEND ENOUGH MONEY ON TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	2	25.0	25.0	25.0
DISAGREE	2	2	25.0	25.0	50.0
NEITHER	3	2	25.0	25.0	75.0
AGREE	4	1	12.5	12.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST126 SEE WASTE IN NADEP TOOL PROGRAM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	12.5	12.5	12.5
NEITHER	3	1	12.5	12.5	25.0
AGREE	4	3	37.5	37.5	62.5
STRONGLY AGREE	5	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST127 WHERE DO SEE WASTE IN TOOL PROGRAM COMME

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	4	50.0	50.0	50.0
NO	2	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST128 QUALITY; TOOLS ISSUED AFFCT QUALITY IN P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	1	12.5	12.5	12.5
AGREE	4	5	62.5	62.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST129 QUANTITY; TOOLS ISSUED AFFCT QUANTITY IN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	1	12.5	12.5	12.5
AGREE	4	5	62.5	62.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST130 EFFICNCY; TOOLS ISSUED AFFCT EFFICIENCY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	1	12.5	12.5	12.5
AGREE	4	5	62.5	62.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST131 SAFETY; TOOLS ISSUED AFFCT SAFETY IN POS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	25.0	25.0	25.0
AGREE	4	4	50.0	50.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST132 HAVE SAY IN TYPES OF TOOLS NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
NEITHER	3	1	12.5	12.5	50.0
AGREE	4	3	37.5	37.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST133 VARIETY; TOOLS RECEIVED AT TOOLROOM WHAT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
NEITHER	3	4	50.0	50.0	75.0
AGREE	4	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

SUBJNO5

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1115	1	12.5	12.5	12.5
	1116	1	12.5	12.5	25.0
	1117	1	12.5	12.5	37.5
	1118	1	12.5	12.5	50.0
	1119	1	12.5	12.5	62.5
	1120	1	12.5	12.5	75.0
	1121	1	12.5	12.5	87.5
	1122	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

CARDNO5

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	5	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

JOBNO5

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	11	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST134 TOOLS RECEIVED AT TOOLROOM GOOD WORKING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
NEITHER	3	2	25.0	25.0	50.0
AGREE	4	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST135 QUALITY OF SERVICE AT TOOLROOM IMPROVED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	1	12.5	12.5	25.0
AGREE	4	5	62.5	62.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST136 TOOLS RECEIVED AT TOOLROOM MAINTAINED PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
NEITHER	3	1	12.5	12.5	50.0
AGREE	4	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST137 TOOLS RECEIVED AT TOOLROOM HIGH QUALITY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
NEITHER	3	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST138 TIMELY; TOOLS RECEIVED AT TOOLROOM TIMEL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
AGREE	4	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST139 TOOLS RECEIVED AT THE TOOLROOM CALIBRATE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
AGREE	4	6	75.0	75.0	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST140 SERVICE; TOOLROOM PROVIDE PROFESSIONAL S

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	1	12.5	12.5	25.0
AGREE	4	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST141 TOOLS RECEIVED AT TOOLROOM WITH SAFETY D

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
NEITHER	3	2	25.0	25.0	50.0
AGREE	4	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST142 QUALITY; HIGH QUALTY TLS AFFCT QUALTY OF

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	12.5	12.5	12.5
NEITHER	3	2	25.0	25.0	37.5
AGREE	4	1	12.5	12.5	50.0
STRONGLY AGREE	5	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST143 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	12.5	12.5	12.5
NO	2	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST144 QUANTITY; HIGH QUALTY TLS AFFCT QUANTY I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	12.5	12.5	12.5
NEITHER	3	3	37.5	37.5	50.0
AGREE	4	2	25.0	25.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST145 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	12.5	12.5	12.5
NO	2	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST146 EFFICNCY; HIGH QUALTY TLS AFFCT EFFCNCY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	12.5	12.5	12.5
NEITHER	3	3	37.5	37.5	50.0
AGREE	4	2	25.0	25.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST147 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	12.5	12.5	12.5
NO	2	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST148 SAFETY; HIGH QUALTY TLS AFFCT SAFETY IN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	4	50.0	50.0	50.0
AGREE	4	2	25.0	25.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST149 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	2	25.0	25.0	25.0
NO	2	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST150 COMMUNICATIONS WITH SUP AFFECT QUALITY I

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	25.0	25.0	25.0
AGREE	4	5	62.5	62.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST151 COMMUNICATIONS WITH SUP AFFECT PROD IN P

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	1	12.5	12.5	12.5
AGREE	4	6	75.0	75.0	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST152 UPPER MANAGEMENT RESPONSIBLE FOR PROPER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	2	25.0	25.0	25.0
AGREE	4	3	37.5	37.5	62.5
STRONGLY AGREE	5	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST153 SUPERVISOR RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	6	75.0	75.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST154 TOOLROOM RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	1	12.5	12.5	12.5
AGREE	4	4	50.0	50.0	62.5
STRONGLY AGREE	5	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST155 PRODUCTION CONTROLLER RESPONSIBLE FOR PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	12.5	12.5	12.5
NEITHER	3	2	25.0	25.0	37.5
AGREE	4	3	37.5	37.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST156 I AM RESPONSIBLE FOR PROPER TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
NEITHER	3	3	37.5	37.5	75.0
AGREE	4	1	12.5	12.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST157 PLANNER AND ESTIMATOR RESPONSIBLE FOR PR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISAGREE	2	1	12.5	12.5	12.5
NEITHER	3	2	25.0	25.0	37.5
AGREE	4	3	37.5	37.5	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST158 HOW MUCH COMMUNICATE WITH MY SUPERVISOR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
>1	2	4	50.0	57.1	57.1
<1	3	1	12.5	14.3	71.4
1 PER WEEK	4	2	25.0	28.6	100.0
	.	1	12.5	Missing	
	Total	8	100.0	100.0	

Valid cases 7 Missing cases 1

QUEST159 AMOUNT NADEP SPENDS ON TOOLING EACH YEAR

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
10 TO 50	2	1	12.5	25.0	25.0
>1MILLION	7	3	37.5	75.0	100.0
	.	4	50.0	Missing	
	Total	8	100.0	100.0	

Valid cases 4 Missing cases 4

- -

QUEST160 NADEP SPENDS MORE ON TOOLING THAN YEAR A

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
NEITHER	3	2	25.0	25.0	50.0
AGREE	4	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST161 NADEP SPENDS LESS ON TOOLING THAN YEAR A

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	4	50.0	50.0	62.5
NEITHER	3	2	25.0	25.0	87.5
AGREE	4	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST162 TOOLING INFORMATION AVAILABLE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	1	12.5	12.5	25.0
AGREE	4	5	62.5	62.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST163 EXAMPLE COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	1	12.5	12.5	12.5
NO	2	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST164 MANAGEMNET SUPPORT TOOLING NEEDS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AGREE	4	5	62.5	62.5	62.5
STRONGLY AGREE	5	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST165 TOOLS PROPERLY PLANNED FOR JOBS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	2	25.0	25.0	25.0
DISAGREE	2	4	50.0	50.0	75.0
NEITHER	3	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST166 NEW METHODS CONSIDERED FREELY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
NEITHER	3	3	37.5	37.5	75.0
AGREE	4	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST167 RECEIVE ADEQUATE TRAINING IN USE OF TOOL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	2	25.0	25.0	25.0
DISAGREE	2	2	25.0	25.0	50.0
NEITHER	3	3	37.5	37.5	87.5
AGREE	4	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST168 PROPER TOOL TRAINING RESPONSIBILITY 1ST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	1	12.5	14.3	14.3
MANAGEMT	3	3	37.5	42.9	57.1
TOOLROOM	5	2	25.0	28.6	85.7
TRAINING	6	1	12.5	14.3	100.0
	.	1	12.5	Missing	
	Total	8	100.0	100.0	

Valid cases 7 Missing cases 1

- -

SUBJNO6

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1115	1	12.5	12.5	12.5
	1116	1	12.5	12.5	25.0
	1117	1	12.5	12.5	37.5
	1118	1	12.5	12.5	50.0
	1119	1	12.5	12.5	62.5
	1120	1	12.5	12.5	75.0
	1121	1	12.5	12.5	87.5
	1122	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

CARDNO6

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	6	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

JOBNO6

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	11	8	100.0	100.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST169 PROPER TOOL TRAINING 2ND

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	1	12.5	12.5	12.5
SHOP SUP	2	5	62.5	62.5	75.0
MANAGEMT	3	1	12.5	12.5	87.5
PLANNING	4	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST170 PROPER TOOL TRAINING 3RD

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	4	50.0	50.0	50.0
SHOP SUP	2	1	12.5	12.5	62.5
PLANNING	4	2	25.0	25.0	87.5
TOOLROOM	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST171 PROPER TOOL TRAINING 4TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	1	12.5	20.0	20.0
TOOLROOM	5	2	25.0	40.0	60.0
TRAINING	6	1	12.5	20.0	80.0
UNION	7	1	12.5	20.0	100.0
	.	3	37.5	Missing	
	Total	8	100.0	100.0	

Valid cases 5 Missing cases 3

- -

QUEST172 PROPER TOOL TRAINING 5TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
MANAGEMT	3	1	12.5	12.5	12.5
PLANNING	4	1	12.5	12.5	25.0
TOOLROOM	5	1	12.5	12.5	37.5
TRAINING	6	1	12.5	12.5	50.0
UNION	7	2	25.0	25.0	75.0
SAFETY	8	1	12.5	12.5	87.5
TOOL CONTROL	9	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST173 PROPER TOOL TRAINING 6TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
SHOP SUP	2	2	25.0	33.3	33.3
MANAGEMT	3	2	25.0	33.3	66.7
TOOLROOM	5	1	12.5	16.7	83.3
SAFETY	8	1	12.5	16.7	100.0
	.	2	25.0	Missing	
	Total	8	100.0	100.0	

Valid cases 6 Missing cases 2

QUEST174 PROPER TOOL TRAINING 7TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
TRAINING	6	2	25.0	50.0	50.0
TOOL CONTROL	9	2	25.0	50.0	100.0
	.	4	50.0	Missing	
	Total	8	100.0	100.0	

Valid cases 4 Missing cases 4

- -

QUEST175 PROPER TOOL TRAINING 8TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YOUR	1	1	12.5	20.0	20.0
MANAGEMT	3	1	12.5	20.0	40.0
PLANNING	4	1	12.5	20.0	60.0
UNION	7	2	25.0	40.0	100.0
	.	3	37.5	Missing	
	Total	8	100.0	100.0	

Valid cases 5 Missing cases 3

- -

QUEST176 PROPER TOOL TRAINING 9TH

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
PLANNING	4	3	37.5	50.0	50.0
SAFETY	8	2	25.0	33.3	83.3
TOOL CONTROL	9	1	12.5	16.7	100.0
	.	2	25.0	Missing	
	Total	8	100.0	100.0	

Valid cases 6 Missing cases 2

QUEST177 GET TOOLS YOU NEED IN TIMELY MANNER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
NEITHER	3	1	12.5	12.5	37.5
AGREE	4	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST178 TIMELINESS OF TOOLS AFFECT QUALITY IN PO

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	25.0	25.0	25.0
AGREE	4	5	62.5	62.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST179 HAVE VARIETY TOOLS YOU NEED TO DO JOB

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	1	12.5	12.5	25.0
AGREE	4	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST180 MIX TOOLS ISSUED AFFECT QUALITY IN POSIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	25.0	25.0	25.0
AGREE	4	5	62.5	62.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST181 HAVE QUALITY TOOLS YOU NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	3	37.5	37.5	50.0
NEITHER	3	2	25.0	25.0	75.0
AGREE	4	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST182 TOOLS ISSUED AFFECT QUALITY IN POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	1	12.5	12.5	25.0
AGREE	4	5	62.5	62.5	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST183 ENOUGH MONEY ALLOCATED FOR TOOLS AT NADE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	2	25.0	25.0	37.5
NEITHER	3	2	25.0	25.0	62.5
AGREE	4	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST184 HOW MUCH IS ENOUGH COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	3	37.5	37.5	37.5
NO	2	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST185 SEE WASTE IN OUR TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NEITHER	3	2	25.0	25.0	25.0
AGREE	4	4	50.0	50.0	75.0
STRONGLY AGREE	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST186 WHERE DO YOU SEE WASTE IN OUR TOOLS COMM

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	5	62.5	62.5	62.5
NO	2	3	37.5	37.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST187 TOOLROOM PROVIDE SERVICE YOU NEED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
DISAGREE	2	1	12.5	12.5	25.0
NEITHER	3	1	12.5	12.5	37.5
AGREE	4	4	50.0	50.0	87.5
STRONGLY AGREE	5	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST188 TOOLROOM SERVICE AFFECTS QUALITY IN POSI

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	1	12.5	12.5	25.0
AGREE	4	6	75.0	75.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST189 NADEP DOES GOOD JOB PROVIDING TOOLS TO Y

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
NEITHER	3	2	25.0	25.0	37.5
AGREE	4	5	62.5	62.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST190 TOOLS PROGRAM AFFECT QUALITY IN POSITIVE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISAGREE	1	1	12.5	12.5	12.5
AGREE	4	7	87.5	87.5	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

- -

QUEST191 HOW MUCH TIME SPENT USING TOOLS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
4 TO 8	4	6	75.0	75.0	75.0
>8	5	2	25.0	25.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

QUEST192 FINAL COMMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	4	50.0	50.0	50.0
NO	2	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Valid cases 8 Missing cases 0

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 1

number t1

70 We do not keep cutting tools in our toolboxes. We must go to the toolroom to get them.

78 Cutting tools are not to be left in toolboxes.

Question 2

number t2

54 Tools & fixtures aren't put back in proper place, depending on who use them

Question 3

number t3

48 Sometime the toolroom attendants are too lazy or do not want to look for certain tools or if not down below do not wish to go upstairs to insure whether or not it is available. We know for a fact they should have the item because it is a standard size.

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 5.h

number	5h
7	Tool was tool of choice years ago, but newer tools has increase productivity & quality
13	Because tool usually used is either checked out or can not be found
25	Get the job done. It was not the tool I needed.
26	Tool dull or out of place
27	Sometimes it's the only way.
31	Original broken or lost
34	Had to get job done!
40	Yes
46	Tool or machine for tool being used.
47	Did not have proper tool at NADEP. Takes months to get! Was not exactly in specification with requirements for job.
48	Had to choose alternate tool because one needed is not manufactured or unavailable such as certain ball end mills with flutes say up to 2" to finish an internal angle on a/c parts. Sometimes a tool has to be modified such as grinding part of shank.
49	Either I could not find the one I needed in a timely manner & the alternate did the job or the alternate was adequate for job
51	Not as accurate
55	Could not locate needed tool
56	Availability/non-availability
57	No other tool was available. Tool considered alternate because it was not the best choice.
59	If I chose an alternate tool it was due to unavailability or non existance of tool specified.
61	Nothing else to do the job
63	I felt like the tool was not issued
64	Because right tool was not available.
65	did (not) have the proper one
66	Because the tool I needed was not available.
67	No other choice, loss of quality and time.
69	To get the job done because it was not in the toolbox.
70	Because the one I wanted was not available
73	Do not have the real thing
78	Because required tool was not in toolroom or the ones they did have were unusable / useless.
83	Because maybe I couldn't find the tool I wanted. Because it's not the first choice
87	Requested tool was not available. Alternate may be different size or radius.
97	Could not get the proper tool
100	Modified for a pacific job
106	Substitute
107	The appropriate tool was not around

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 5.j

number	t5j
4	Great excess
7	More than $5.00. Depends on type of job & amount of parts run.
10	None
11	Wasted time - 1 hr to 2 hr
14	Double
18	$25.00
22	N/A
27	I don't know
29	too much
35	$0.00
46	Each job would be differ
47	Have to ask planners
49	N/A
51	40% labor cost
55	None
57	This can only be answered according to the job being done.
61	?
67	UK
69	Unknown
78	Not material cost but labor cost because of different setup & remake fixture to accomodate the alternate tool.
87	Dependent upon size of tool & type of material sometimes requires as much as 2X as much.
93	Cost of tooling to be made
103	N/A
107	$10,631.91

Question 7.d

number	t7d
59	Positively negative

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 8.d

number	t8d
3	Have no idea, all depends on item be worked or re-worked'
7	Depends on material value of the part a(t) that time.
11	Gain sharing lost because toolroom attendance people will not move to look for tools.
13	$25.00
22	N/A
27	Don t know
28	?
29	Impossible to estimate
34	Average of $250.00 @
44	Unknown
46	Unknown
47	Not known to us
51	0 to $50,000
57	A job situation would have to be present in order to answer this question.
61	?
63	about $32.48
66	?
67	UK
69	Tool repair shop
70	I do not know.
71	N/A
76	It depends on the job.
77	?
78	Not so much a material value loss but production time.
83	Est $5.00
92	Do not know
95	?
99	?
103	$100.00
107	The average cost of a 92 model AV-8B Harrier

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 10.d

number t10d
1 Toolroom

2 650 (division)

3 Toolroom!

4 Toolroom repair if not buy replacement

5 Die & toolmakers WG-13

6 95000 Div

7 Toolroom or 650

7 Toolroom

10 Maint.

11 Toolroom - Mr. Hale or whoever

12 NASA

14 Tool Room

17 Tool room, Calibration, Tool maker

18 Maintenance machine shop

19 Toolroom

22 Toolroom

25 Don't know

26 Cal Lab

28 Toolroom

29 Toolroom

34 Toolroom or maintenance machine shop

44 Cal Lab, Tool Room

48 Tools such as taper sleeves that have been used improperly, burred up. It do not fit properly. These type of repair made by user.
49 65203 (tool & die)

51 Home org

57 Tooling Shop

61 ?

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

62 Tool Room Mech.

63 The sorry ass toolroom

64 Tool Room

65 Tool Room

66 ?

71 650

72 The shop's own toolmaker

73 Toolroom/ Cal

76 Toolroom or maintanance

78 Toolroom or maintenance machine shp

79 ?

83 I feel the toolroom should make repairs.

84 Maint

87 650

89 Shop personal

Question 10.d

number t10d

92 Do not know

96 Toolroom

97 Tool cutter /grinder, Master gage room

99 Toolroom

102 Tool and die shops

103 Toolroom

104 Toolroom

105 Don't know

106 Toolroom

107 Management

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 11

number	t11
54	We have no access to the toolroom on 3rd shift except before 2400.

Question 12.h

number	t12h
7	$5. =<
14	$50.
18	$25.00
27	Don t know
31	?
47	Not known
49	Don't know
51	$100.00
61	?
67	UK
70	unknown
96	?
103	N/A

Question 13.h

number	t13h
7	$5. =<
18	$25.00 per part
27	Don't know
31	?
47	Not known to us
49	Don't know
51	0 - $200.00
61	?
62	The cost of a 1942 C-130
64	Stupid price questions
69	none
70	Unknown
72	N/A
96	?
103	N/A
107	The cost of a hamburger

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 14.h

Number t:4h
7 5 =<

10 45.00

28 ?

31 ?

44 Unknown

47 Not known to us

48 Costs of additional materials can run up to a couple thousand of dollars if a machinist misreads micrometer or other precision instrument and kills parts having to replace metal, etc.

49 Don't know

51 0 - $500.00

67 UK

77 high

86 ?

103 N/A

107 Cost of drink & pack Nabs

Question 15.h

Number t:5h
19 30.00
27 Don't know
28 ?
29 $50.00
31 ?
44 Unknown
49 Don't know
51 0 - $200.00
61 ?
63 The salary of a WG-11 machinist rocket siensist.
64 dumb
66 ?
67 UK
72 NA
77 ?
83 N/A
92 Do not know
103 N/A
107 How am I supposed to know answers when the toolroom is the one's that should be answering questions

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 17

number t17
48 Do not talk to anyone above supervisors about tool
70 I don't communicate with my branch head or above.
35 Agree but useless

Question 18

number t18
54 We have no access to the toolroom on 3rd shift except before 2400.

Question 19

number t19
54 If you know exactly what you need prior to 2400.

Question 20

number t20
48 Example radius end mills

Question 22

number t22
79 I think NADEP spends too much money for unnecessary tooling: Tools that will not be used again.

Question 23

number tT23
54 Buying small drills are cheaper than having them sharpened. If a new drill is cheaper to buy new, it should never be sent out
small drills are cheaper than having them sharpened. If a new drill is cheaper to buy new, it should never be sent out to re-sharpe
n.

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 23.a

number	t23a
5	Repairs of tooling
7	Poor quality cutting tools
10	Tools not kept up.
18	Throwing tooling away that could be repaired
22	Check surplus sales
25	Quality of tool
26	Buy off brand, Non USA tools.
27	Some people have tools they don't need and some people need tools they don't have
28	Buying too much of the wrong items
29	In cleaning out of the toolroom stocks, scrapping repairable tools, buying tools that serve the same purpose, from different manuf. This multiply parts that must be kept on hand for repairs & kills any chance on interchangeability
34	Use of lowest grade, drills and taps, endmills,
47	Buy lots of cheap junk over & over rather than spend money once on good quality tooling
48	Tool room used to have about 5 Vidmar cabinets full of different end mills. Now only a couple of drawers. Rest have been thrown away or disposed of as scrap.
49	Need better quality - would have to replace them less often
51	Buying cheap tooling instead of quality, longlasting tooling.
52	Tools disposed of that are better quality than new ones issued
61	all over
62	All Over Central Tool Rm.
65	Buying tool. Wrong tool.
67	Purchasing, Identifying
78	Tool Procurement
86	?
87	Quality of cutting tools. Better tools cost more but last longer so there is less down time changing tools.
97	Cheap carbide inserts. Limited number Optomikes
98	Time waiting on (toolroom) computer; Paper waste on (tool) receipt.
99	Toolroom
103	How can people that have no maching experience order what is needed?
104	Surveys like this.
106	Junk
107	I see waste in the way it is run

Question 31

number	t31
15	Can't stand listening to mouth and gets agravating too.
26	Too big of a turnover for good service.

Question 33

number	t33
1	The tools they give us are toys - junk.
26	Some are and some are not.
93	Lowest bidder as per SOP

Date: November 11, 1992

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 35

number	t35
79	The tools are not always calibrated entirely. (inside mics had extension out of cal. by 0.002 in.)

Question 36

number	t36
28	Everyone but Andy Sylvia.

Question 38.a

number	t38a
10	4 hrs.
18	Speeds & feeds metal removal
62	30% off
66	?
76	Less tool failure would mean better quality parts 30 min per failure
87	Less down time replacing worn tools.

Question 39.a

number	t39a
7	Cutting titanium, a high quality CO cutter last long by appox 250%
10	1 hr.
18	Speeds & feeds metal removal
49	Cobalt drill bit vs High speed. Carbide burr vs High speed
66	?
76	Less tool failure equals more running time better production
78	Tool would last longer and cut production time.
86	?
87	less down time breaking worn or broken tools.

Question 40.a

number	t40a
7	Same as 39
10	2 hrs.
62	30% TAT
72	.5 hours

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 41.a

number	t41a
7	Same as 39
10	1/2 hr.
49	Less chance of tool breakage when made of better material.
66	?
72	.5 hours
79	Wouldn't break as often

Question 42

number	t42
96	Useless (sup communica)

Question 43

number	t43
1	What? (to sup communica)

Question 44

number	t44
79	Upper management should be responsible but are not always.

Question 45

number	t45
79	Upper management should be responsible but are not always.

Question 48

number	t48
79	I shouldn't have to be responsible, but I should make sure and check that everyone above me is in check.
93	RIGHT!

Question 50

number	t50
70	When I have a question about the tools I am using.
86	Useless

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 51

number	t51
11	Not on quality tools though.
19	Smart caliber
67	Should spend more on better service than tooling. Too many dummies at the window.
77	I have no idea.
87	No idea. - have not seen budget.

Question 52.a

number	t52a
7	What is new tools on the market.
11	The people do not know where some Tools are at. Set up find them.
26	

Question 56

number	t56
48	Proper training on standard tools should have been learned prior to ever working in Machine Shop.

Question 57

number	t57
83	Ada programmers
94	DoMB

Question 64.a

number	t64a
9	Whatever it takes
11	Too much. The toolroom personel should ask the employees on what they need and the quality of parts.
18	How much do you spend? then double it
19	If you brought high quality tools to start with instead of cheap, they would last longer!
40	75,000,000,000
45	More of special tooling
46	Monies could be better spent.
51	Money amount is inmaterial - Quality of tools is everything
52	Double present
62	Get good tools regardless of price
68	I don't know
76	I do not have the information available to make the decision
77	I do not know.
78	Have no idea. But apparently not enough.
83	N/A
86	?
104	N/A
107	How are the workers at NADEP supposed to know this answer? Come on people get with it.

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 65

number t65

48 Proper training on standard tools should have been learned prior to ever working in Machine Shop.

Question 65.a

number t65a

10 Some cheaper brand tools break more often
11 The people survey new & used tools that we use every day. Then by more. Why?
14 Too many cheap tools
22 Check surplus sales
23 Each person should be able to select his on tools for the job he dose, & not have a standard toolbox
25 Quality of tool
26 Off brand non USA made tools
28 Buying tooling not right for the job intended.
31 Mishandling
33 Tools not used properly
34 Surveying of drills, mills, and other cutting tool
36 On shelf never used.
46 Repairs on some could be made.
48 See 23A above.
50 Buy better quality tools
51 Cheap tooling
62 Poor quality of tools
66 Everywhere, especially dril
67 Tools issued not needed, needed tools not issued
92 As far as tool sharping is concerned.
93 Lowest bidder syndrome
105 Sharpened tools
107 All-over

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 71

number t71
1 Buy better quality tooling
3 The lowest bidder is not always the best choice to make if you want quality parts to be sent to your customers'
4 Discuss the needs with artisans & journeyman who do the actual work, not with management.
8 Use people friendly personnel at (toolroom) window.
10 Suggest Machine shop, because of specialized and calibrated tools, be serviced by separate trained attendant, a machinist team assigned to that task.
10 Buy a higher quality cutting tools.
11 Train people properly identifying tools and quality.
12 Full Shit
15 Why should second shift, Bldg 133 have to call around to get someone to open up the toolroom. Wasted time.
18 Stop buying inferior products from inferior manufacturers of machine tooling. The rule of thumb should be "You get exactly what you pay for." You pay less you get less.
19 Contract out - Eliminate supervisor, W/L positions They only drink coffee and hang around up in the N/C Programming all night.
22 Get people in there that know tooling. Stop dumping perfectly good tools into surplus. Buy quality name brand tools. Get rid of the bueracracy in the toolroom. Get rid of the toolroom supervisor and start over.
23 Tooling you use on a daily basis, you should be allowed to keep in your toolbox, this way you know its condition and sharpness
24 Let the artisans get together when making up tool boxes to order what is needed. To do the job, not someone who sits in the office and doesn't know what is going on.
29 Improve selections of drills, mills, turning tools cobalt & carbide, odd size taps & dies, just because it isn't used much don't throw it away Doris, Increase inventory of metric and or unusual cutting tools.
30 These questions were very confusinga and seemed repetictious(??) I think the toolroom has improved dramatically over the past year. The people at the window are ourteous and try to do a good job. Most of the tooling for the NC shop comes from our toolroo
31 Don't buy cheap tools!!!
32 Continue to march
33 No
35 None what so ever!!! This survey was a waste of production time!!
39 Some people are not familiar with all the tool that a machinist may ask for at the toolroom. Idea may be a machinist MG-10 or MG-11 should have some say on the tool needed in a rollway.
40 Spend more money
44 No
45 NC
46 The shops should have input on the types of tool or monies spent on tools. Talk to the people that do the work not the people that think they could do it from behind a desk with a piece of paper & a pen!!
47 Question the production workers instead of wasting time on mindless surveys.
48 Let the shop keep its own tools such as radius end mills in shop tool box. Let the machinist in 93661 have drill index in tool box. It is believed that 93662 got tools that were intended for 93661's toolbox.
49 Let the individual machinist in 93661 and 93662 have the variety of special high speed lathe tools needed to do the variety of jobs. Grind one special turn it in and never get it again!
50 Buy better quality tools
51 Buy quality tools at all levels, from hand tools to the largest machines.
52 Communicate better with shop employees on tooling needs and methods of provision.

EMPLOYEE WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 71

number t71
53 Buy quality tools and quit buying cheap tools.
55 Toolroom availability on entire 3rd shift not merely 1-2 hrs of 3rd shift. Toolroom service for machine shop separated from se rvice to cleaning shops, line crew, etc. Too much time waiting for coveralls to be issued while my production stops.
61 This survey repeated too many questions.
62 Buy Snap-On Tools or Sears
63 Yes, we should have more prompt service than we do. Have better trained toolroom attends, and have 1 person working while four sit around where we have lines waiting 10 to 15 min a trip.
66 Get Primo & Tom out of the toolroom. Train all toolroom attendants what all of the tools are by name and sight. Put someone in the toolroom who is not rude and haves some sense. Bring Doris back to 137.
67 Listen and act upon tool box inventory requests by mechanics.
70 Yes, give me a toolbox that has the hand tool that I need. Also stop wasting my time with this damn stupid questionare.
77 ?
78 Yes! Buy better tooling and check with the machinist (all of them) to see what is needed.
79 Educate people in the toolroom to be more efficient and helpful. Stop wasting on mass evaluations of tools that aren't needed. Also, stop wasting time and money on these silly surveys. If you want input from the people sit down and talk to them.
83 No
89 Get rid of Andy.
91 Stop having questions and tests like this to save time.
92 This is hard to give correct answers on this quiz.
95 No
98 A. No; B. Yes
99 Better help in toolroom
102 None
103 Buy USA
104 Toolroom needs less conversation at the windows and speed up the toolroom process of issuing tools to employees.
105 Too much time wasted waiting on long discussions with line crew members over fittings, sizes, etc. Too much time wasted with t oolroom attendants who have no knowledge of the tool I want even with proper name, size, etc.
106 I don't think this survey applies to "our" problems.
107 Yes if people would realize how stupid this survey is & quit giving it, it might save a little money . to buy more tools.

SUPERVISOR WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 8.d

number t8d
006 $600.00

Question 10.d

number t10d
001 Employees should exchange the tools in the toolroom nearest the worksite and let the toolroom mechanics r
006 Cal lab, Tool Room

Question 15.h

number t15h
006 $200.00

Question 23.a

number t23a
001 Shops other than the toolroom are ordering tools and making unnecessary duplictions of orders.
004 Type of tools provided
006 Purchase a large volume of seldomly used tools, and purchase cheap measuring instruments.

Question 31

number t31
003 Waiting times seem to have decreased quite a bit.

Question 39.a

number t39a
001 Do not break, save time. better work conditions.

Question 40.a

number t40a
001 Do not break, save time.

Question 41.a

number t41a
001 Won't break as easily.

SUPERVISOR WRITTEN ANSWERS FOR TOOL MANAGEMENT SURVEY

Question 65.a

number t65a
001 Outlaying shops.
006 Purchasing poor quality tools.

Question 71

number t71
004 Would like to see 1st class tools such as Starrett, Browne & Sharpe, etc. Better Bore gages, inside calipers, outside mics. People can do a better job with better tools for their requirement. We do parts that cost in excess of a $100,000.00, and why take a chance of killing a part with a outdated bore gage when we can spend an extra $50.00 on a better bore gage.

006 Use tooling money to purchase higher quality tooling. Even if this means purchasing fewer tools. We also need more people working in the tool room. All toolroom attendents need more in depth training in the types and uses of tools.
007 Improve attitudes of the window personnel, helpful, don't have to beg.

APPENDIX M

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 1 Search for tools in toolbox.					
* Question Number: 1A					
0	29	0.00	4	0.00	3.41
* Question Number: 1B					
0	31	0.00	4	0.00	3.65
* Question Number: 1C					
0	35	0.00	4	0.00	4.12
* Question Number: 1D					
0	38	0.00	5	0.00	4.47
Total for Question 1:					
0	133	0.00	17	0.00	15.65

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 2 Search for tools in shop.					
* Question Number: 2A					
12	69	1.50	9	1.41	8.12
* Question Number: 2B					
16	86	2.00	11	1.88	10.12
* Question Number: 2C					
16	71	2.00	9	1.88	8.35
* Question Number: 2D					
18	82	2.25	10	2.12	9.65
Total for Question 2:					
62	308	7.75	38	7.29	36.24

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 3 Search for tools at toolroom.					
* Question Number: 3A					
8	68	1.00	8	0.94	8.00
* Question Number: 3B					
8	68	1.00	8	0.94	8.00
* Question Number: 3C					
10	70	1.25	9	1.18	8.24
* Question Number: 3D					
10	61	1.25	8	1.18	7.18
Total for Question 3:					
36	267	4.50	33	4.24	31.41

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 4 Search for tools not in shop or toolroom.					
* Question Number: 4A					
0	33	0.00	4	0.00	3.88
* Question Number: 4B					
0	34	0.00	4	0.00	4.00
* Question Number: 4C					
0	33	0.00	4	0.00	3.88
* Question Number: 4D					
0	28	0.00	4	0.00	3.29
Total for Question 4:					
0	128	0.00	16	0.00	15.06

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 5 Search for alternate tools.					
* Question Number: 5A					
8	70	1.00	9	0.94	8.24
* Question Number: 5B					
10	60	1.25	8	1.18	7.06
* Question Number: 5C					
10	64	1.25	8	1.18	7.53
* Question Number: 5D					
8	58	1.00	7	0.94	6.82
* Question Number: 5I					
10	75	1.25	9	1.18	8.82
Total for Question 5:					
46	327	5.75	41	5.41	38.47

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 6 Search for lost tools.					
* Question Number: 6A					
18	83	2.25	10	2.12	9.76
* Question Number: 6B					
20	72	2.50	9	2.35	8.47
* Question Number: 6C					
18	77	2.25	10	2.12	9.06
* Question Number: 6D					
19	74	2.38	9	2.24	8.71
Total for Question 6:					
75	306	9.38	38	8.82	36.00

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 7 Replacing poor quality tools.					
* Question Number: 7A					
6	61	0.75	8	0.71	7.18
* Question Number: 7B					
3	48	0.38	6	0.35	5.65
Total for Question 7:					
9	109	1.12	14	1.06	12.82

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 8 Production damaged due to tool quality.					
* Question Number: 8A					
12	69	1.50	9	1.41	8.12
* Question Number: 8B					
6	54	0.75	7	0.71	6.35
Total for Question 8:					
18	123	2.25	15	2.12	14.47

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 9 Outdated or inefficient tooling.					
* Question Number: 9A					
14	70	1.75	9	1.65	8.24
* Question Number: 9B					
12	63	1.50	8	1.41	7.41
Total for Question 9:					
26	133	3.25	17	3.06	15.65

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 10 Repairing tools.					
* Question Number: 10A					
4	51	0.50	6	0.47	6.00
* Question Number: 10B					
2	39	0.25	5	0.24	4.59
Total for Question 10:					
6	90	0.75	11	0.71	10.59

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 11 Spend time waiting at the toolroom window.					
* Question Number: 11A					
20	94	2.50	12	2.35	11.06
* Question Number: 11B					
27	85	3.38	11	3.18	10.00
Total for Question 11:					
47	179	5.88	22	5.53	21.06

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 12 Spend time repairing damaged production (poor quality tools.)					
* Question Number: 12A					
0	50	0.00	6	0.00	5.88
* Question Number: 12B					
0	42	0.00	5	0.00	4.94
* Question Number: 12C					
0	54	0.00	7	0.00	6.35
* Question Number: 12D					
0	46	0.00	6	0.00	5.41
Total for Question 12:					
0	192	0.00	24	0.00	22.59

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 13 Rework production (improper use of tools.)					
* Question Number: 13A					
0	28	0.00	4	0.00	3.29
* Question Number: 13B					
0	25	0.00	3	0.00	2.94
* Question Number: 13C					
0	33	0.00	4	0.00	3.88
* Question Number: 13D					
0	28	0.00	4	0.00	3.29
Total for Question 13:					
0	114	0.00	14	0.00	13.41

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 14 Rework production (nonavailability of proper tool.)					
* Question Number: 14A					
0	39	0.00	5	0.00	4.59
* Question Number: 14B					
0	40	0.00	5	0.00	4.71
* Question Number: 14C					
0	43	0.00	5	0.00	5.06
* Question Number: 14D					
0	36	0.00	4	0.00	4.24
Total for Question 14:					
0	158	0.00	20	0.00	18.59

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 15 Rework production (directed to use wrong tool.)					
* Question Number: 15A					
0	24	0.00	3	0.00	2.82
* Question Number: 15B					
0	24	0.00	3	0.00	2.82
* Question Number: 15C					
0	28	0.00	4	0.00	3.29
* Question Number: 15D					
0	26	0.00	3	0.00	3.06
Total for Question:					
0	102	0.00	13	0.00	12.00

ESTIMATED MACHINIST SURVEY DAILY LOSSES

Low Estimate of Daily Losses (Hours)	Max Estimate of Daily Losses (Hours)	Low Estimate of Daily Losses (Days)	High Estimate of Daily Losses (Days)	Low Percentage of Machinist Daily Workload	High Percentage of Machinist Daily Workload
** Question: 17 Communicate about tools.					
* Question Number: 17C					
0	47	0.00	6	0.00	5.53
* Question Number: 17D					
0	48	0.00	6	0.00	5.65
Total for Question 17:					
0	95	0.00	12	0.00	11.18
Total for ALL Question:					
325	2764	40.62	346	38.24	325.18