4-19-1993

A Study of the Manufacturing Costs of Grille and Side Screens on John Deere Tractors

John M. Beierschmitt
University of Northern Iowa

A Study of the Manufacturing Costs of Grille and Side Screens on John Deere Tractors

Abstract

The problem discussed in this paper was the development of a process for the manufacture of a new, low cost, quality grille screen that previously had been made on conventional tooling, and now can not be made with the conventional process or tooling. The research comparison in this paper was done to show the financial advantage of this type of tooling.

A STUDY OF THE MANUFACTURING COSTS OF GRILLE AND SIDE SCREENS ON JOHN DEERE TRACTORS

A Research Paper Presented
to the Graduate Faculty
of the Department of
Industrial Technology
University of Northern Iowa

In Partial Fulfillment
of the Requirements for the Non-Thesis
Master of Arts Degree
by
John M. Beierschmitt
Date: April 19, 1993

Approved by:

Dr. John Fecik, Advisor	May 5, 1993 Date
Dr. Rex Pershing, Faculty Reader	8-4-93 Date

ACKNOWLEDGMENT

This research paper has been accomplished because of the efforts of many individuals. To those, I express sincere thanks.

Specifically, I wish to thank the following.

To Carl Campbell, for his many hours of work in coordination of the Masters Degree Program, and his extremely positive attitude when goals looked unattainable.

To John Deere Company, for this opportunity and financial support for this Master Degree Program.

To the University of Northern Iowa, for their coordination of the Master Degree Program with John Deere Company.

To Dr. John Fecik and Dr. Rex Pershing, for their dedication to education and their help and guidance in the classroom.

To my parents, Neil and Dolores, for their unending positive attitude and drive to keep me going.

To my brother Pat, who carried the work load on the farm while I was in class and studying.

And lastly to my classmates, who have a positive attitude, and have always worked together for the benefit of the class.

TABLE OF CONTENTS

Chapter | Page

CHAPTER 1

INTRODUCTION

Background of the Problem

The grille screen and front enclosure for the new John Deere 7000 series tractor started out as a very simple group of parts. The new design turned into a major project, which required technologies and processes that are new to manufacturing at John Deere in Waterloo. The last two-wheel-drive tractors built by John Deere, that transferred air through the front grille assembly, were the two-cylinder tractors built during the 1960s. Since those days, the components within the tractor have become increasingly sophisticated, numerous, and technical. All types of testing have become more technical and comprehensive, and everything on the tractor has become more complex.

The styling of this new tractor was dictated by Henry Dreyfuss Associates. These styling engineers required automotive-type methods for fastening of the thin non-weldable materials and the need for non-exposed fastening within the new design. The new design presents many manufacturing challenges.

The upper and lower corrugated front screens and the corrugated right and left side screens that were glued into assemblies were the parts that were researched in this paper.

Statement of the Problem

The problem discussed in this paper was the development of a process for the manufacture of a new, low cost, quality grille screen that previously had been made on conventional tooling, and now can not be made with the conventional process or tooling. The research comparison in this paper was done to show the financial advantage of this type of tooling.

Statement of Purpose

The purpose of this paper was to evaluate the newly developed process, and compare it with the previous method of forming similar parts. The knowledge gained from this comparison should simplify future processing of parts similar to these.

Statement of Need

The need for this paper was based on the following factors:

1. The new grille screens have corrugations that are keystoned and can not be made on conventional tooling.
2. Material coatings decreased the forming ability of the perforated material.

3. A faster and more efficient method of manufacture is needed for the production of these parts.

Statement of Hypothesis

It was hypothesized that the production of all the John Deere corrugated screens could have been manufactured at a much lower part cost if the tooling used for their manufacture would have been similar to the tooling design and process utilized on the 7000 series tractor screens.

Assumptions

The following assumptions were made in pursuit of this paper:

1. That manufacturing costs must remain low in order to keep this work within the factory, and allow the John Deere employees the opportunity for continued employment.
2. That the quality of this product meet John Deere standards.
3. That all raw components be readily available in the quantities needed by John Deere.

Delimitations

The following delimitations were inherent in this paper.

1. Henry Dreyfuss Associates had settled on a final style and appearance design, and that design was not changeable.
2. John Deere was subject to all OSHA regulations.

Definition of Terms

The following terms were defined to clarify their usage within this paper.

Break-out side	The bottom side of the material that is die punched and contains a burr from the punching process.
Drawability	The capability of a material to stretch in multiple directions without fracturing, rupturing, or thinning beyond usable limits.
Forming	The process of material bending in multiple directions without the need for stretch of the material.
Hyson System	A gas spring system using nitrogen as the compression fluid.
In-mold coating	The process of paint being sprayed into the mold and adhering to the part as it is being formed under pressure and heat.
Keystoned	The non-parallelism of the corrugations. Tapered from top to bottom.
Sequential Nitrogen	The process of fluid springs working one-after-the-other and using nitrogen as the compression fluid.

CHAPTER 2

REVIEW OF THE LITERATURE

The new 7000 series of John Deere tractor has several new processes being used for the front enclosures. These processes are the use of plastic framing, an in-mold paint process, and fastening of unlike materials with an adhesive which is dispensed with a robot. The new designs of the 1990s required materials that were new to the tractor manufacturing industry. Because of the use of plastics, problems in fastening were encountered within the assembly process.

The corrugated screens are made of the same perforated material used on the larger four wheel-drive tractors. Diamond Manufacturing Company (no date), makes the following statement.

> Perforated materials are the solution to many design, engineering, and production problems. Their light weight, low cost, and attractive appearance make them the choice of industrial manufacturers and designers. (p. viii)

The material used at John Deere on the 7000 series has a larger hole size and is slightly harder to work with than the previously used material. Eary and Read (1974), make these statements about holes.

> When holes are cut in the blank or the product being manufactured, the operation is called punching. The size and

shape of the holes cut are almost unlimited as long as they are in the part. Holes may be punched in the scrap skeleton so that locating pilot pins may be used to position the sheet metal correctly in the progressive die. Holes may be punched in other products not made of sheet-metal. See the punched . . . .

Punching plays a very important role in the production of sheet-metal stampings.

Punching involves the cutting of clean holes with resulting scrap slugs. The term piercing is often misused for a punching operation. Note that a pierced hole is produced by the tearing action not typical of other cutting operations. The tearing condition is well defined by the jagged flange at the edge of the hole. Also notice the piercing punch is bullet-shaped rather than having cutting edges. No scrap slug is produced during piercing.

The term punching may be used to describe all die-cut holes regardless of size and shape. Some people prefer to call the cutting of elongated and rectangular holes by the term slotting.

For some product requirements, many holes must be punched in a specified pattern. The holes might be decorative or needed for the passage of light, gas, or a liquid. Sound deadening is another possible function. When many holes are punched, the operation is commonly called perforating. The punches used

> are then called perforators. Examples of standard perforated patterns are provided in . . . . (p. 46).

At John Deere perforated material is functional because it lets air pass through without larger particles of debris. According to Eary and Reed (1974), corrugating is done for several reasons.

> Flat sheet metal is corrugated to add stiffness or rigidity. In older airplanes, corrugated sheets were used for fuselage skins. Corrugated sheets are used for wall panels and roof panels on buildings such as barns, hangers, and sheds. Either galvanized steel or aluminum corrugated sheets are common. Round shapes may be corrugated also. (p. 80)

No information is available on forming perforated sheet metal, due to the low volume of processes requiring this material. Generally, perforated sheet is formed the same as sheet metal that is not perforated.

The American Society of Metals (1969), describes press-brake forming in this way.

> A process in which the work-piece is placed over the open die and is pressed down into the die by a punch that is actuated by the ram portion of a machine called a press brake. (p. 101)

The new perforated material has a galvanized surface coating which inhibits rust and corrosion, but it seems very hard and brittle. The American Society for Metals (1969), speak about coatings.

> Coated steel sheet or strip is formed in the same presses as are used for forming uncoated steel. Forming procedures,

however, must sometimes be modified, depending on the type of coating. During processing, scratching or breaking the coating must be avoided, because these defects may cause rejection of the finished part.

Resistance to forming forces varies directly with the thickness and hardness of the steel base, so that the coating on the thicker or harder steel is subjected to greater abrasion, surface shear, and die pressure. Most zinc-coated steel used in forming applications is hot dipped galvanized, low carbon steel sheet and strip. A layer of metallic zinc on the surface of the work metal prevents galling during forming by eliminating direct contact of the steel against the die, and generally increases the die life.

Formability is reduced to some extent by the brittle layer of iron-zinc alloy that is produced between the metallic zinc and the steel base during the hot dip galvanizing. (p. 137)

Experience has shown that the formability of perforated sheet metal is relatively good, but it has little or no drawability.

E. G. Hoffman (1984), describes drawing in the following way.

Drawing is a process of changing a flat, precut metal blank into a hollow vessel without excessive wrinkling, thinning, or fracturing. The various forms produced may be cylindrical or box-shaped with straight or tapered sides or a combination of straight, tapered, or curved sides. The size of the parts may vary from 0.250 diameter or smaller, to aircraft or automotive

> parts large enough to require the use of mechanical handling equipment. (p. 393)

The larger holes make the perforated material tear easily during a drawing process. Therefore a design that requires forming and no drawing was needed.

A process of forming the screens was settled upon after looking at the process used at the John Deere Horicon plant. The new process uses nitrogen cylinders to do the forming and allows the material to move in from each side to the respective corrugation. This process is called sequential nitrogen forming and is not used commonly in stamping shops. This process requires a particular application and need for it. To describe the operation Teledyne-Hyson (1992), states it the following way.

> Forming in two directions (up and down) is often desirable but difficult with the use of springs. The delicate balance between the two systems is hard to maintain with conventional methods.
>
> Nitrogen cylinders provide precise control between the upper and lower systems, assure consistent quality parts stroke after stroke.
>
> A well known manufactured of farm and garden equipment combined form operations into one by using cylinders with different length strokes. Twelve separate operations are now one with Super Nitro-dyne. As the ram strokes, form--collapse--form--collapse. . . . (p. 10)

This same process has been enlarged to meet the needs of the 7000 series agricultural tractor and is working beautifully. With this process, much time has been cut off the production standards, therefore, making parts more efficiently and at a lower cost per part.

CHAPTER 3

NEW MANUFACTURING PROCESS

History of the Process

The process chosen for the manufacture of the grille and side screens for the 7000 series John Deere tractor is new in some ways to the Waterloo Works. Back about 20 years age, a process was tried to manufacture grille screens in a faster and more economical way. The method used was very similar to the method chosen for today's new screens. At that time, the person processing the project, chose to use die-draulics as the compression medium. The die-draulic system uses hydraulic oil as the fluid to activate an accumulator. Since the hydraulic oil could not flow fast enough to accommodate the volume of the compression cylinders, the project didn't work and was considered a big failure. Since that time, little has been said or done to change the process that was used before and after the failure of a new method.

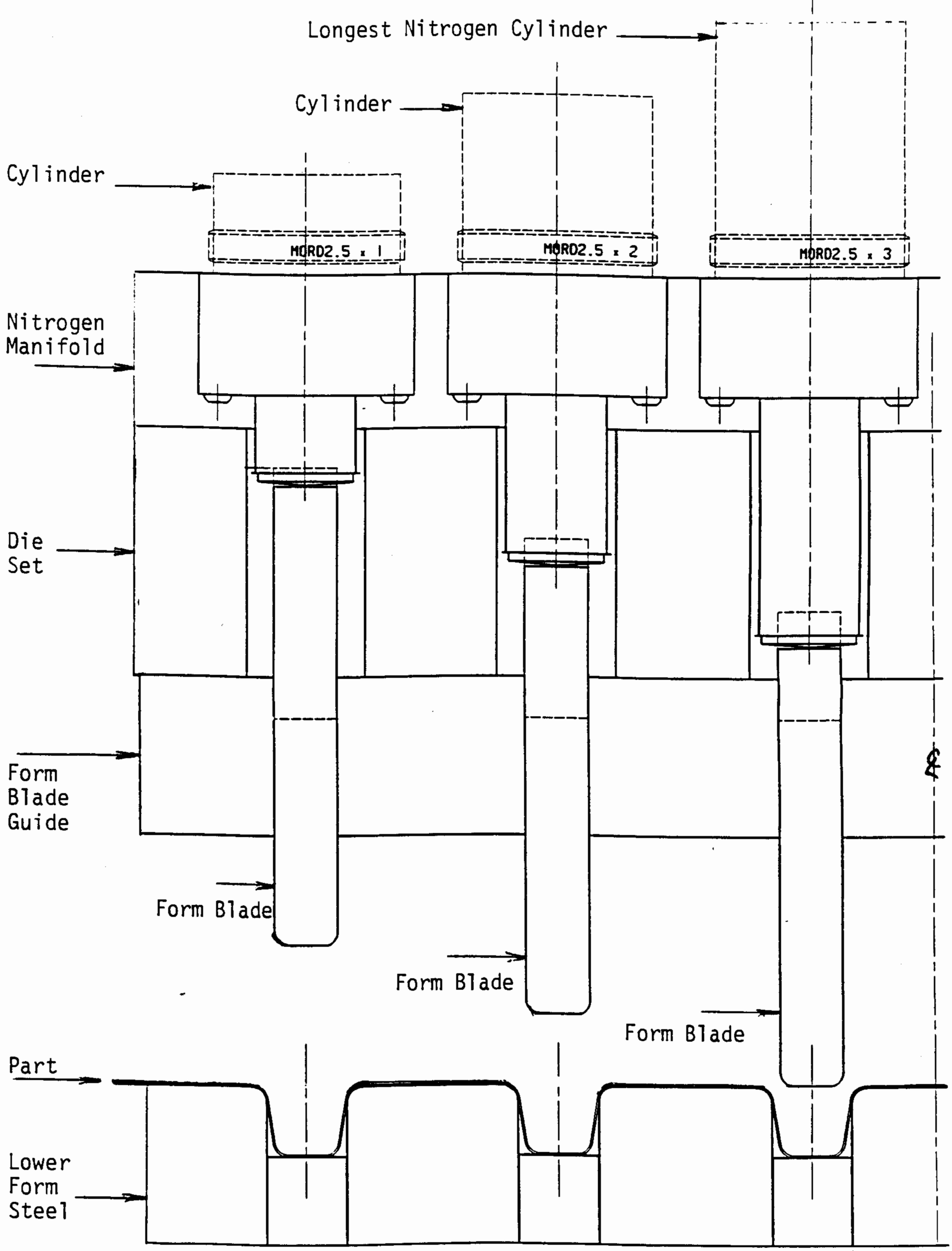
Description of the New Process

The new process chosen for the 7000 series tractor is almost the same as the one that failed 20 years ago. Investigation was made into the process used at the Horicon Plant, and it was found that they use the same method that failed for the Waterloo operations with the exception of using a Hysen Nitrogen System rather than the die-draulics system. The die-draulics system was good within many applications, but this is a case where technology and new systems made the difference between the process working or not working.

The new process uses a flat blank that has been developed to yield the proper perimeter shape after the forming of the part. To get the flat blank, a blanking die is used as the first sequence of operations for this part. This blanking die is a very standard type of die and is not explained further in this paper.

The second sequence of operations for this part is a sequential nitrogen forming die. This die does forming of the corrugations in the part. This is the die that is new to the manufacture of these parts. This die has the shape of the finished part machined into the bottom. Please follow the description by referring to the sketch on the next page. Any compensation for over-bend or any other variable is also included in this shape. The upper part of the die has nitrogen charged cylinders mounted to the upper die shoe in a manifold. The cylinders are of different lengths to allow the material to travel into the finished position before it is locked in the form of the next corrugation. The cylinders are sequentially shorter from the center of the die to the outside. The cylinders have a forming blade mounted on the end of them and the blade is aligned by guide blocks

SECTIONAL VIEW OF DIE



that hold the tolerance required by the part specification. When the part is formed, the cylinders collapse as the material reaches the bottom of the stroke. The first corrugation must be completely down before the next cylinder begins to touch the part. This is the procedure for all the corrugations in the part. The different length cylinders, typically, are longest at or near the center of the part. Therefore the material can flow into the part from both sides. By doing this, there may be two cylinders of each length, and less open height required of the press. The forming is actually done by the gas charged cylinder and the part is held into place by the compressed cylinder while the next cylinder is forming and compressing. This is not typical of nitrogen systems. Normally the nitrogen system holds a part in place while a solidly mounted punch performs the required work. Many times the nitrogen pad acts as a stripper to remove the part from the die cavity. The time that the die actually contacts the part during the forming process of the perforated material is about three fourths of a second. Knowing that explains why the timing and proper clearances are important in the build of this type of die.

CHAPTER 4

PART COST COMPARISON

Information About the Study

The research methodology used to collect data in this project was the descriptive research design method. This method was the most frequently used method, and was also the most reliable. This method allowed the observation and comparison of existing part data, and the opportunity to project "what if's" with new products and existing parts. This information was gathered from the computerized part costing and lead time analysis system and was documented with copies of the read out sheets, which are in Appendix A. The relationship of the labor cost recorded and the material cost was directly tied together. The table on page 17 shows labor costs for all the existing grille and side screen parts. Both the conventional process and the new process have been entered into the computer and the overheads and all other calculations and internal data have been incorporated into the part costs. The data was entered into the part routing system using the same part quantities, the same machine, and all other equal factors. This method will show consistency within the parts and from part to part. The labor cost was the only variable that was estimated, and the time used for this comparison was the highest timing of the four parts that are made on the new tooling. The four parts were timed by industrial engineering and those timings are officially recorded. Observation shows the labor costs are extremely close, therefore leaving almost no margin for error. Comparison of these figures gives insight into the amount of money that can be saved by implementation of the proper tooling. Conversely, the improper tooling was a major expense and although cheaper to purchase, is more expensive when calculating piece part cost.

Interpretation of the Data

A table shown on page 17 has been formulated to show the relationship of the labor costs invested in nine part numbers. These nine part numbers are all of the available corrugated parts made at John Deere Waterloo. The table was divided into six columns. The difference times the annual quantity shows the profit or loss for that part for a year. To justify new tooling, a part must pay back the tooling investment cost within one year.

Column 1 This column gives the part numbers and names of all the parts that are compared within this paper.

Column 2 This column gives the labor costs for the older parts as they are made today on the conventional tooling and process.

Table #1 Cost Comparison

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6
PART NUMBER & NAME	LABOR COST USING EXISTING TOOLING & PROCESS	LABOR COST W/ SEQUENTIAL NITROGEN FORMING	PART COST USING EXISTING TOOLING & PROCESS	PART COST W/ SEQUENTIAL NITROGEN FORMING	LABOR SAVNGS REALIZED FOR EACH PART
4WD FRONT GRILLE SCREEN R108823	$1.30	$0.20	$21.38	$18.71	$2.67
4WD FRONT GRILLE SCREEN R108822	$1.09	$0.20	$17.61	$15.70	$1.91
4WD SIDE GRILLE SCREEN R76112	$0.83	$0.20	$16.63	$15.42	$1.21
2WD SIDE GRILLE SCREEN R76269	$1.04	$0.20	$17.33	$15.60	$1.73
2WD SIDE GRILLE SCREEN R76270	$1.00	$0.20	$17.25	$15.60	$1.65
M-R UPPER GRILLE SCREEN R95590	*	$0.20	*	$4.38	*
M-R LOWER GRILLE SCREEN R95588	*	$0.20	*	$4.38	*
M-R RIGHT SIDE GRILLE SCREEN R95630	*	$0.20	*	$3.95	*
M-R LEFT SIDE GRILLE SCREEN R95562	*	$0.20	*	$3.94	*
ALL COSTS SHOWN ARE FOR EACH PIECE AND ARE ROUNDED TO THE NEAREST CENT					

Column 3 This column gives the labor costs for the new parts that are manufactured on the new sequential nitrogen forming die, and estimated costs for the older parts if they would be manufactured on the new type of tooling.

Column 4 This column gives the complete part cost of the parts manufactured by the old method.

Column 5 This column gives the complete cost for the new parts and the estimated cost of the older if they are manufactured on the sequential nitrogen tooling.

Column 6 This column shows the savings for each part if manufactured on the new type of tooling.

The first part on the list shows $1.10 in labor saving and with the departmental and machine overheads yields a saving of $2.67.

The second part on the list shows $0.89 in labor saving and with the departmental and machine overheads yields a saving of $1.91.

The third part on the list shows $0.63 in labor saving and with the departmental and machine overheads yields a saving of $1.21.

The fourth part on the list shows $0.84 in labor saving and with the departmental and machine overheads yields a saving of $1.73.

The fifth part on the list shows $0.80 in labor saving and with the departmental and machine overheads yields a saving of $1.65.

The last four parts on the list show no saving because they are the control group and never were manufactured on the old type tooling where there is saving to be had.

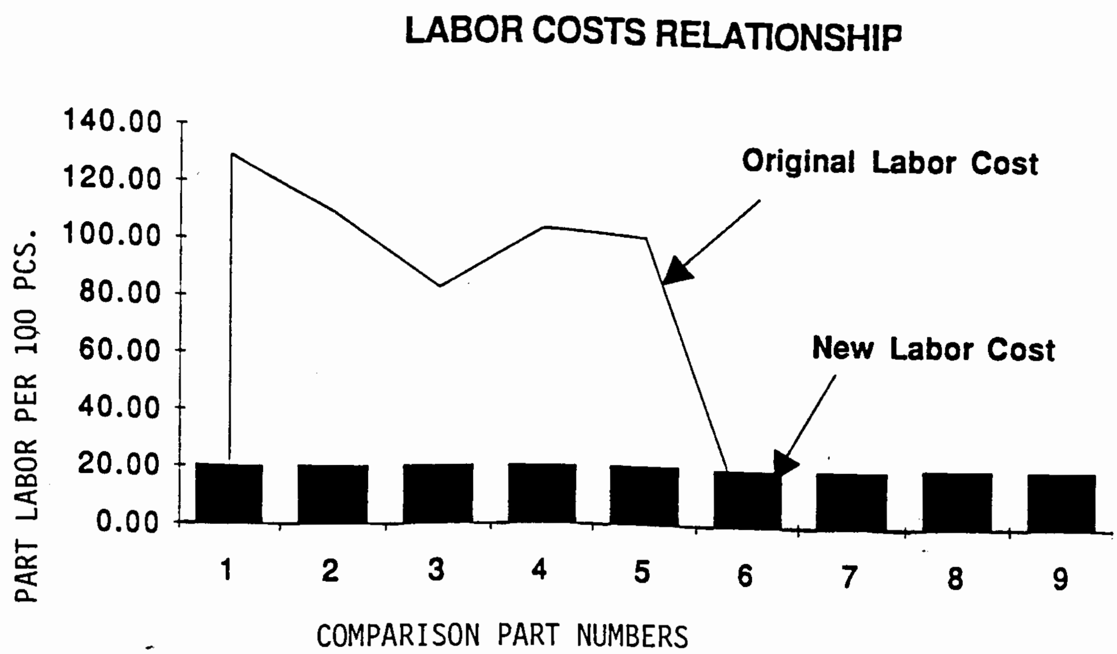
From observation, you can see that the new method of manufacture invests much less labor and is a constant and steady labor investment compared to the conventional method. Since the labor costs are stable, the presses are utilized better and scheduling of personnel is an easier job. Calculations show that if the part quantities are 7500 each, annually, and the five older parts are put on to new tooling, an annual savings of $68775.00 would be available.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

Conclusion

The front enclosure of the John Deere 7000 series tractor has many new features and the screens themselves are unique and require a new method of forming. A new method has been found and implemented for these parts.



As the above graph shows, part savings are substantial with this new style of tooling, and the time required for manufacture has been greatly reduced. The quantity, speed of manufacture, and part cost savings are consistent with the hypothesis and needs stated in this paper. The keystone corrugations are being made easily and consistently, the material coating does not appear to be retarding the forming process, and the speed and efficiency requirements have been met. The method chosen for the manufacture of these parts appears to be the best available and the tooling costs are acceptable. Long term maintenance on the dies is not known yet, but it appears that this tooling will be relatively low in maintenance.

Recommendations

Since the manufacture of the five parts used for examples in this paper will cease upon start-up of the next new series of tractors, it is recommended that the methods used today be continued for the duration of these part requirements. It is also recommended that any new parts that require corrugation be processed with the use of a sequential nitrogen forming die. This is a process that obtains the maximum efficiency and lowest part cost available for the manufacture of this type of part.

REFERENCES

Diamond Manufacturing Co. (no date). Designers, specifiers and buyers handbook for perforated metals. Wyoming, PA: Diamond Consolidated Industries.

Eary, D. F. and Reed, E. A. (1974). Techniques of pressworking sheet metal. (2nd ed.) Englewood Cliffs, NJ: Prentice-Hall Inc.

Hoffman, E. G. (1984). Fundamentals of tool design. (2nd ed). Dearborn, MI: SME.

Lyman, T. (ed.). (1969). Metals handbook. (Vol. 8). Metals Park, OH: American Society for Metals.

Paquin, J. R. and Crowley, R. E. (1986). Die design fundamentals. New York, NY: Industrial Press, Inc.

Teledyne-Hyson. (1990). The nitrogen die system. Cleveland, OH: Teledyne-Hyson Inc.

APPENDIX A

Computer Part Costing and Lead Time Analysis Sheets

04MAR93

Part: R108823 LS: A CL: 000 desc: GRILLE SCREEN, FRONT Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST 93 Matl/C: 1693.03 Calc LT: 3
Project: JB CHAS Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.000 PCS/LD: 35 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	______	.0000	.000	_	_			$1,814.96
0010	602	8.4000	02G	06	3434	6.4470	1.000	Y	_	5.8	2.7	$574.75
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
TOTAL:		8.40				6.45	1.00					$2,389.71

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary

04MAR93

Part: R108823 A 000 Desc: GRILLE SCREEN, FRONT

Decision: Project: JB CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,693.03	1,693.03
Labor Cost	129.70	129.70
Direct Mfg. Overhead	310.83	310.83
Period Mfg. Overhead	256.15	
Total Mfg. Cost	2,389.71	2,133.56
Direct General Overhead	4.06	4.06
Period General Overhead	69.30	
Total Mfg Cost + GNL	2,463.07	2,137.62
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	2,463.07	2,137.62

Press PF7 for short cost details

Press PF5 for long cost details

Press ENTER for re-calculation

Press PF3 to return

04MAR93

Part: R108823 LS: A CL: 000 desc: GRILLE SCREEN, FRONT Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST 93 Matl/C: 1693.03 Calc LT: 2
Project: JB CHAS 'Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.000 PCS/LD: 35 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$1,814.96
0010	604	1.3400	04E	06	3792	1.0500	1.000	Y	_	5.2	0.4	$246.08
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		1.34				1.05	1.00					$2,061.04

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R108823 A 000 Desc: GRILLE SCREEN, FRONT
Decision: Project: JB CHAS
Cost Volume: 7500 Runs: 20 AOQ: 375
CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,693.03	1,693.03
Labor Cost	20.69	20.69
Direct Mfg. Overhead	153.43	153.43
Period Mfg. Overhead	193.89	
Total Mfg. Cost	2,061.04	1,867.15
Direct General Overhead	3.51	3.51
Period General Overhead	59.76	
Total Mfg Cost + GNL	2,124.31	1,870.66
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	2,124.31	1,870.66

Press PF7 for short cost details
Press PF5 for long cost details
Press ENTER for re-calculation
Press PF3 to return

04MAR93

Part: R108822 LS: A CL: 000 desc: GRILLE SCREEN, FRONT Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST 93 Matl/C: 1417.23 Calc LT: 3
Project: JB CHAS Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.000 PCS/LD: 77 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$1,519.60
0010	602	7.0800	02G	06	3434	5.4370	1.000	Y	_	5.8	2.3	$441.02
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		7.08				5.44	1.00					$1,960.62

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R108822 A 000 Desc: GRILLE SCREEN, FRONT

Decision: Project: JB CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,417.23	1,417.23
Labor Cost	109.32	109.32
Direct Mfg. Overhead	231.03	231.03
Period Mfg. Overhead	203.04	
Total Mfg. Cost	1,960.62	1,757.58
Direct General Overhead	3.33	3.33
Period General Overhead	56.86	
Total Mfg Cost + GNL	2,020.81	1,760.91
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	2,020.81	1,760.91

Press PF7 for short cost details Press ENTER for re-calculation
Press PF5 for long cost details Press PF3 to return

04MAR93

Part: R108822 LS: A CL: 000 desc: GRILLE SCREEN, FRONT Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST 93 Matl/C: 1417.23 Calc LT: 2
Project: JB CHAS Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.000 PCS/LD: 77 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$1,519.60
0010	604	1.3400	04E	06	3792	1.0500	1.000	Y	_	5.2	0.4	$220.88
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		1.34				1.05	1.00					$1,740.48

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R108822 A 000 Desc: GRILLE SCREEN, FRONT

Decision: Project: JB CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,417.23	1,417.23
Labor Cost	20.69	20.69
Direct Mfg. Overhead	128.73	128.73
Period Mfg. Overhead	173.83	
Total Mfg. Cost	1,740.48	1,566.65
Direct General Overhead	2.96	2.96
Period General Overhead	50.47	
Total Mfg Cost + GNL	1,793.91	1,569.61
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	1,793.91	1,569.61

Press PF7 for short cost details
Press PF5 for long cost details

Press ENTER for re-calculation
Press PF3 to return

04MAR93

Part: R76112 LS: A CL: 000 desc: GRILLE SCREEN, SIDE Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST 93 Matl/C: 1393.36 Calc LT: 3
Project: JB CHAS 'Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.000 PCS/LD: 99 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$1,494.04
0010	602	5.3600	02G	06	3434	4.1210	1.000	Y	_	5.8	1.7	$339.17
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		5.36				4.12	1.00					$1,833.21

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R76112 A 000 Desc: GRILLE SCREEN, SIDE
Decision: Project: JB CHAS
Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,393.36	1,393.36
Labor Cost	82.76	82.76
Direct Mfg. Overhead	184.08	184.08
Period Mfg. Overhead	173.01	
Total Mfg. Cost	1,833.21	1,660.20
Direct General Overhead	3.12	3.12
Period General Overhead	53.16	
Total Mfg Cost + GNL	1,889.49	1,663.32
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	1,889.49	1,663.32

Press PF7 for short cost details Press ENTER for re-calculation
Press PF5 for long cost details Press PF3 to return

```
                                                                                    04MAR93
Part: R76112        LS: A CL: 000 desc: GRILLE SCREEN, SIDE          Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts:     7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST    93 Matl/C:     1393.36 Calc LT:    2
Project: JB CHAS  Freight/C:        0.00 Outside Labor/C:        0.00 Audited: N
Fin Wght/KG:     1.000 PCS/LD:        99    Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs:        20    AOQ:         375         HELP:(H-Needs HELPER, E-is HELPER)
 Oper Dept Std Hr  PC  LG  Mach    ACTS SetupHr MCO HELP CurrLD Add-LD     Cost/C
 0000  ___   .0000 001 __ _____    .0000   .000  _    _                  $1,494.04
 0010  604  1.3400 04E 06  3792   1.0500  1.000  Y    _     5.2    0.4     $216.69
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 _____ ___         ___ __ _____                  _    _
 TOTAL:        1.34                1.05    1.00                          $1,710.73
 Enter Next page                 PF3 End         PF4 Calculate    PF5 First Page
 PF6 Lead Time    PF7 Cost Detail PF8 Desc/Inv$  PF9 Save         PF10 Merge
```

Manufacturing Cost Summary 04MAR93

Part: R76112 A 000 Desc: GRILLE SCREEN, SIDE

Decision: Project: JB CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,393.36	1,393.36
Labor Cost	20.69	20.69
Direct Mfg. Overhead	125.03	125.03
Period Mfg. Overhead	171.65	
Total Mfg. Cost	1,710.73	1,539.08
Direct General Overhead	2.91	2.91
Period General Overhead	49.61	
Total Mfg Cost + GNL	1,763.25	1,541.99
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	1,763.25	1,541.99

Press PF7 for short cost details Press ENTER for re-calculation

Press PF5 for long cost details Press PF3 to return

```
                                                                                   04MAR93
Part: R76269         LS: A CL: 000 desc: GRILLE SCREEN, SIDE          Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts:     7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST     93 Matl/C:     1410.70 Calc LT:     3
Project: JB CHAS  Freight/C:          0.00 Outside Labor/C:        0.00 Audited: N
Fin Wght/KG:     1.000 PCS/LD:         99    Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs:        20    AOQ:          375        HELP:(H-Needs HELPER, E-is HELPER)
 Oper Dept Std Hr   PC   LG  Mach    ACTS SetupHr MCO HELP CurrLD Add-LD     Cost/C
 0000  ___   .0000 001  __  _____   .0000    .000  _    _                   $1,512.61
 0010  602  6.7100 02G  06   3434  5.1530   1.000  Y    _    5.8    2.1       $410.74
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 _____ ___         ___  __  _____                  _    _
 TOTAL:       6.71                   5.15    1.00                           $1,923.35
 Enter Next page                    PF3 End         PF4 Calculate    PF5 First Page
 PF6 Lead Time     PF7 Cost Detail  PF8 Desc/Inv$   PF9 Save         PF10 Merge
```

Manufacturing Cost Summary 04MAR93

Part: R76269 A 000 Desc: GRILLE SCREEN, SIDE

Decision: Project: JB CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,410.70	1,410.70
Labor Cost	103.60	103.60
Direct Mfg. Overhead	215.03	215.03
Period Mfg. Overhead	194.02	
Total Mfg. Cost	1,923.35	1,729.33
Direct General Overhead	3.27	3.27
Period General Overhead	55.78	
Total Mfg Cost + GNL	1,982.40	1,732.60
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	1,982.40	1,732.60

Press PF7 for short cost details

Press PF5 for long cost details

Press ENTER for re-calculation

Press PF3 to return

04MAR93

Part: R76269 LS: A CL: 000 desc: GRILLE SCREEN, SIDE Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST 93 Matl/C: 1410.70 Calc LT: 2
Project: JB CHAS 'Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.000 PCS/LD: 99 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	______	.0000	.000	_	_			$1,512.61
0010	604	1.3400	04E	06	3792	1.0500	1.000	Y	_	5.2	0.4	$216.69
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
_____	___		___	__	______			_	_			
TOTAL:		1.34				1.05	1.00					$1,729.30

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R76269 A 000 Desc: GRILLE SCREEN, SIDE
Decision: Project: JB CHAS
Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,410.70	1,410.70
Labor Cost	20.69	20.69
Direct Mfg. Overhead	125.35	125.35
Period Mfg. Overhead	172.56	
Total Mfg. Cost	1,729.30	1,556.74
Direct General Overhead	2.94	2.94
Period General Overhead	50.15	
Total Mfg Cost + GNL	1,782.39	1,559.68
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	1,782.39	1,559.68

Press PF7 for short cost details
Press PF5 for long cost details

Press ENTER for re-calculation
Press PF3 to return

04MAR93

Part: R76270 LS: A CL: 000 desc: GRILLE SCREEN, SIDE Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST 93 Matl/C: 1410.70 Calc LT: 3
Project: JB CHAS Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.000 PCS/LD: 100 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$1,512.61
0010	602	6.5000	02G	06	3434	4.9980	1.000	Y	_	5.8	2.1	$399.74
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		6.50				5.00	1.00					$1,912.35

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R76270 A 000 Desc: GRILLE SCREEN, SIDE

Decision: Project: JB CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,410.70	1,410.70
Labor Cost	100.36	100.36
Direct Mfg. Overhead	210.30	210.30
Period Mfg. Overhead	190.99	
Total Mfg. Cost	1,912.35	1,721.36
Direct General Overhead	3.25	3.25
Period General Overhead	55.46	
Total Mfg Cost + GNL	1,971.06	1,724.61
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	1,971.06	1,724.61

Press PF7 for short cost details

Press PF5 for long cost details

Press ENTER for re-calculation

Press PF3 to return

04MAR93

Part: R76270 LS: A CL: 000 desc: GRILLE SCREEN, SIDE Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: EE
Ref Part: ____________ Freight Acct: EST 93 Matl/C: 1410.70 Calc LT: 2
Project: JB CHAS Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.000 PCS/LD: 100 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$1,512.61
0010	604	1.3400	04E	06	3792	1.0500	1.000	Y	_	5.2	0.4	$216.69
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		1.34				1.05	1.00					$1,729.30

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R76270 A 000 Desc: GRILLE SCREEN, SIDE

Decision: Project: JB CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	1,410.70	1,410.70
Labor Cost	20.69	20.69
Direct Mfg. Overhead	125.35	125.35
Period Mfg. Overhead	172.56	
Total Mfg. Cost	1,729.30	1,556.74
Direct General Overhead	2.94	2.94
Period General Overhead	50.15	
Total Mfg Cost + GNL	1,782.39	1,559.68
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	1,782.39	1,559.68

Press PF7 for short cost details

Press PF5 for long cost details

Press ENTER for re-calculation

Press PF3 to return

04MAR93

Part: R95590 LS: E CL: 004 desc: GRILLE SCREEN,LOWER FRONT Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: ACBA
Ref Part: ____________ Freight Acct: 10570 93 Matl/C: 320.00 Calc LT: 2
Project: MR CHAS 'Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.210 PCS/LD: 0 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$344.58
0010	604	1.2900	04E	06	3792	.9900	1.500	Y	_	5.2	0.4	$201.06
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		1.29				0.99	1.50					$545.64

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R95590 E 004 Desc: GRILLE SCREEN,LOWER FRONT
Decision: Project: MR CHAS
Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	320.00	320.00
Labor Cost	19.92	19.92
Direct Mfg. Overhead	96.94	96.94
Period Mfg. Overhead	108.78	
Total Mfg. Cost	545.64	436.86
Direct General Overhead	.93	.93
Period General Overhead	15.82	
Total Mfg Cost + GNL	562.39	437.79
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	562.39	437.79

Press PF7 for short cost details
Press PF5 for long cost details

Press ENTER for re-calculation
Press PF3 to return

04MAR93

Part: R95588 LS: E CL: 004 desc: GRILLE SCREEN,UPPER FRONT Dec: ________

Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: ACBA

Ref Part: ____________ Freight Acct: 10570 93 Matl/C: 320.00 Calc LT: 2

Project: MR CHAS Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N

Fin Wght/KG: 1.210 PCS/LD: 0 Div: W (D,G,H,W) Spec Cd: 1 MFG

Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)

Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$344.58
0010	604	1.2900	04E	06	3792	.9900	1.500	Y	_	5.2	0.4	$201.06
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		1.29				0.99	1.50					$545.64

Enter Next page PF3 End PF4 Calculate PF5 First Page

PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary

04MAR93

Part: R95588 E 004 Desc: GRILLE SCREEN,UPPER FRONT
Decision: Project: MR CHAS
Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	320.00	320.00
Labor Cost	19.92	19.92
Direct Mfg. Overhead	96.94	96.94
Period Mfg. Overhead	108.78	
Total Mfg. Cost	545.64	436.86
Direct General Overhead	.93	.93
Period General Overhead	15.82	
Total Mfg Cost + GNL	562.39	437.79
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	562.39	437.79

Press PF7 for short cost details
Press PF5 for long cost details

Press ENTER for re-calculation
Press PF3 to return

04MAR93

Part: R95630 LS: F CL: 005 desc: GRILLE SCREEN,SIDE RH Dec: ________
Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: ACBA
Ref Part: ____________ Freight Acct: 10570 93 Matl/C: 274.00 Calc LT: 2
Project: MR CHAS 'Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N
Fin Wght/KG: 1.035 PCS/LD: 0 Div: W (D,G,H,W) Spec Cd: 1 MFG
Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)
Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$295.32
0010	604	1.3400	04E	06	3792	1.0500	1.500	Y	_	5.2	0.4	$210.28
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		1.34				1.05	1.50					$505.60

Enter Next page PF3 End PF4 Calculate PF5 First Page
PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R95630 F 005 Desc: GRILLE SCREEN,SIDE RH

Decision: Project: MR CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	274.00	274.00
Labor Cost	20.69	20.69
Direct Mfg. Overhead	99.87	99.87
Period Mfg. Overhead	111.04	
Total Mfg. Cost	505.60	394.56
Direct General Overhead	.86	.86
Period General Overhead	14.66	
Total Mfg Cost + GNL	521.12	395.42
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	521.12	395.42

Press PF7 for short cost details

Press PF5 for long cost details

Press ENTER for re-calculation

Press PF3 to return

04MAR93

Part: R95562 LS: E CL: 004 desc: GRILLE SCREEN,SIDE LH Dec: ________

Oper Eff Date: 04 MAR 93 Yearly Reqts: 7500 Capacity Yr: 1993 Cost ST: ACBA

Ref Part: ____________ Freight Acct: 10570 93 Matl/C: 274.00 Calc LT: 2

Project: MR CHAS ' Freight/C: 0.00 Outside Labor/C: 0.00 Audited: N

Fin Wght/KG: 1.035 PCS/LD: 0 Div: W (D,G,H,W) Spec Cd: 1 MFG

Matl Code: 01 (01,02,03,05,06,07,08) Steel/Cast/Other: S (S/C/O)

Annual Runs: 20 AOQ: 375 HELP:(H-Needs HELPER, E-is HELPER)

Oper	Dept	Std Hr	PC	LG	Mach	ACTS	SetupHr	MCO	HELP	CurrLD	Add-LD	Cost/C
0000	___	.0000	001	__	_____	.0000	.000	_	_			$295.32
0010	604	1.3200	04E	06	3792	1.0400	1.500	Y	_	5.2	0.4	$208.31
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
_____	___		___	__	_____			_	_			
TOTAL:		1.32				1.04	1.50					$503.63

Enter Next page PF3 End PF4 Calculate PF5 First Page

PF6 Lead Time PF7 Cost Detail PF8 Desc/Inv$ PF9 Save PF10 Merge

Manufacturing Cost Summary 04MAR93

Part: R95562 E 004 Desc: GRILLE SCREEN,SIDE LH

Decision: Project: MR CHAS

Cost Volume: 7500 Runs: 20 AOQ: 375

CAUTION: COST FIQURES FOR THIS PART/PROJECT WERE NOT AUDITED

(All costs per 100 pieces)	Total	Direct
Material Cost	274.00	274.00
Labor Cost	20.38	20.38
Direct Mfg. Overhead	99.03	99.03
Period Mfg. Overhead	110.22	
Total Mfg. Cost	503.63	393.41
Direct General Overhead	.86	.86
Period General Overhead	14.60	
Total Mfg Cost + GNL	519.09	394.27
Direct W & E Overhead	.00	.00
Period W & E Overhead	.00	
Total Fcty Whse Cost	519.09	394.27

Press PF7 for short cost details Press ENTER for re-calculation

Press PF5 for long cost details Press PF3 to return