



UNIVERSITI PUTRA MALAYSIA

**METAL FORMERS SENDIRIAN BERHAD
A CASE STUDY IN THE AREA OF PRODUCTION AND
INVENTORY PLANNING AND CONTROL SYSTEM
(MANUALIZED MRP SYSTEM)**

Abdul Apet bin Hassan

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By

Abdul Apet bin Hassan

A case study submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Faculty of Economics and Management, Universiti Pertanian Malaysia

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF EXHIBITS	vii
LIST OF TABLES	ix
LIST OF FIGURES	x
EXECUTIVE HIGHLIGHTS	xi
RINGKASAN EKSEKUTIF	xii
SECTION A CASE TEXT	1
SECTION B CASE ANALYSIS	47
CHAPTER I INTRODUCTION	48
1.1 Objectives	48
1.2 Approach	49
1.3 Scope And Limitations	50
CHAPTER II PRESENT STATUS: SYMPTOMS AND PROBLEMS	52
2.1 Management Objectives and Strategies..	52
2.2 Managerial Style and Competence.....	54
2.3 Human Resources and Organization Structure	56
2.4 Marketing Activities	59
2.5 Marketing Information System	61
2.6 Financial Performance	63
2.7 Accounting Information System	66
2.8 Manufacturing Activities	68
2.9 Production Information System	71

	Page
2.10 Summary of Symptoms and Problems and Their Causal Relationships.....	74
 CHAPTER III SWOT ANALYSIS AND KEY SUCCESS FACTORS	76
3.1 Strengths	76
3.2 Weaknesses	77
3.3 Opportunities	78
3.4 Threats	79
3.5 Key/Critical Success Factors	80
 CHAPTER IV EVALUATION OF ALTERNATIVES	81
4.1 Generic Business Strategic Alternatives.....	81
4.1.1 Overall Cost Leadership Strategy	82
4.1.2 Differentiation Strategy.....	83
4.1.3 Focus Strategy	85
4.1.4 Combination Strategy.....	86
4.2 Inventory Control System Alternatives	87
4.2.1 Computerized Inventory Control System	89
4.2.2 Semi-computerized Inventory Control System	91
4.2.3 Manual Inventory Control System	91
4.3 Production Planning and Control Alternatives	93
4.3.1 Material Requirements Planning System	95
4.3.2 Manufacturing Resource Planning System	104

			Page
	4.3.3	Stockless/Just - In - Time System	106
	4.3.4	Kanban System	112
	4.3.5	Synchro MRP System	114
	4.4	Other Alternatives Considered.....	117
	4.4.1	Formal Business Plan	118
	4.4.2	Improving Management Information System.....	119
	4.4.3	Restructuring Organization Set up	120
CHAPTER	V	RECOMMENDATIONS	122
CHAPTER	VI	ACTION PLAN.....	125
	6.1	Objectives	125
	6.2	Alternatives	125
	6.3	Actions to be Taken	125
	6.4	Intended Results	125
CHAPTER	VII	IMPLICATIONS OF THE ACTION PLAN	129
CHAPTER	VIII	CONCLUSION AND RECOMMENDATIONS FOR FUTURE STUDY	131
	8.1	Conclusion	131
	8.2	Recommendations for Future Studies.....	133
APPENDIX	A	Manual Production and Inventory Planning and Control System	134
APPENDIX	B	Framework for Management Information System....	142
APPENDIX	C	Strategic Management and Strategic Planning Process....	150

LIST OF EXHIBITS

EXHIBIT		Page
I	BOARD OF DIRECTORS AND EQUITY STRUCTURE	4
II	PRESENT ORGANIZATIONAL STRUCTURE OF MFSB	5
III	MALAYSIAN FABRICATION INDUSTRY	31
IV	LIST OF MACHINES AND EQUIPMENT IN MFSB	7
V	STATEMENT OF PROFIT AND LOSS ACCOUNTS FOR THE PERIOD ENDING 31st. JANUARY 1985 TO 1988	10
VI	CONSOLIDATED BALANCE SHEET AS AT 31st JANUARY 1985 TO 1988	10
VII	STATEMENT OF PROFIT AND LOSS ACCOUNTS ACCOUNTS BY PRODUCT FOR THE PERIOD ENDING 31st. JANUARY 1987 AND 1988	11
VIII	MANUFACTURING ACCOUNTS FOR THE PERIOD ENDING 31st. JANUARY 1987 AND 1988	11
IX	BREAKDOWN OF FINANCIAL EXPENSES AS AT 31st. JANUARY 1987 AND 1988	11
X	MALAYSIAN ECONOMY IN 1987 AND PROSPECTS FOR 1988/89	34
XI	TOTAL MARKET SIZE AND SALES POTENTIAL FROM 1988 TO 1993	13
XII	SIMPLIFIED FLOWCHART FOR MARKETING INFORMATION SYSTEM	17
XIII	SIMPLIFIED FLOWCHART FOR PRODUCTION INFORMATION SYSTEM	18
XIV(A)	MFSB'S WEEKLY DELIVERY SCHEDULE	35
XIV(B)	MFSB'S DAILY PRODUCTION REPORT	36
XV(A)	MFSB'S FINISHED GOODS INVENTORY CONTROL FORM	37



EXHIBIT**Page**

XV(B)	MFSB'S WORK IN PROCESS INVENTORY CONTROL FORM	38
XV(C)	MFSB'S RAW MATERIALS INVENTORY CONTROL FORM	39
XVI	CLOSING STOCK AS AT 31st. JANUARY 1985 TO 1988	22
XVII	PARTS COMBINATION LIST FOR CLARIONS' PRODUCTS	25
XVIII	LIST OF COMPONENT PARTS CURRENTLY PRODUCED BY MFSB	25
XIX(A)	SCHEMATIC LAYOUT OF CONVERSION PROCESS FOR CLARION PART, MODEL PE 9242 - AA	40
XIX(B)	BILL OF MATERIALS FOR CLARION'S PART, MODEL PE 9242 - AA	40
XIX(C)	PRODUCT STRUCTURE TREE FOR CLARION'S PART, MODEL PE 9242 - AA	41
XX(A)	SCHEMATIC LAYOUT OF CONVERSION PROCESS FOR SHARP-ROXY'S CABINET ASSEMBLY	41
XX(B)	BILL OF MATERIALS FOR SHARP-ROXY'S CABINET ASSEMBLY	42
XX(C)	PRODUCT STRUCTURE TREE FOR SHARP-ROXY'S CABINET ASSEMBLY.....	42
XXI(A)	DELIVERY REQUIREMENTS FOR CLARION'S PART AND SHARP-ROXY'S CABINT ASSEMBLY	43
XXI(B)	DELIVERY REQUIREMENTS FOR SHARP-ROXY'S CABINET ASSEMBLY FOR WEEK 19 TO 21	43
XXII	SUMMARIES OF MARKETING ACTIVITIES IN MFSB AND BACKGROUND OF MARKETING PERSONNEL	44

LIST OF TABLES

TABLE	Page
2.1 STATEMENT OF PROFIT AND LOSS ACCOUNTS FOR THE PERIOD ENDING 31st. JANUARY 1987 AND 1988	63
2.2 MANUFACTURING ACCOUNTS FOR 1986 AND 1987	64
2.3 BREAKDOWN OF FINANCIAL EXPENSES AS AT 31st. JANUARY 1987 AND 1988	64
2.4 CLOSING INVENTORY AS AT 31st. JANUARY 1987 AND 1988	72
3.1 THE MALAYSIAN FABRICATION INDUSTRY ESTIMATED TOTAL SALES AND PROJECTED DEMAND FROM 1983 TO 1986 (IN MILLION RINGGIT)	32
3.2 MALAYSIAN OFFSHORE STRUCTURES PROJECTED DEMAND FROM 1987 TO 1995	32

LIST OF FIGURES

FIGURE	Page
2.1 CAUSAL RELATIONSHIP OF PROBLEMS CREATED BY INSUFFICIENT FUNDS, LACK OF TECHNICAL AND ENGINEERING PERSONNEL, MANAGERIAL COMPETENCE AND TECHNOLOGICAL CAPABILITIES	75
4.1 BATCH INVENTORY ACCOUNTING SYSTEM	90
4.2 REAL-TIME INVENTORY ACCOUNTING SYSTEM	90
4.3 CLOSED-LOOP MRP SYSTEM	97
4.4 MRP II SYSTEM : AN INTEGRATED SYSTEM FOR PLANNING AND CONTROL	104
4.5 JIT SYSTEM	111
4.6 LAYOUT OF KANBAN CONTROL TICKET	113
4.7 THE KANBAN PROCESS	113
4.8 PROPOSED ORGANIZATIONAL CHART	121

EXECUTIVE HIGHLIGHTS

This case report had identified the organizational and operational problem(s) and issue(s) of Metal Formers Sendirian Berhad, in particular its production and inventory planning and control system.

At present, Metal Formers Sdn. Bhd. is plagued by the shortage of cash that caused it to operate far below normal productive level. The problem of lack of funds indirectly had caused the company to suffer from incompetence and unskilled personnel, lack of technical personnel, and lack of technological capabilities to operate an efficient and effective marketing and manufacturing functions. These problems had allowed the company to operate without proper control systems thus resulting in high production costs, low productivity and profitability, low quality and uncompetitive products, high selling price, and slow introduction of new product. Due to these causal effects, the company was not able to achieve high sales volume and high market share. If this situation perpetuates, the company will continue to operate below capacity, and will never be able to realize a positive return on investment (ROI).

An evaluation of the possible alternatives showed that there is room for improving the current situation provided Metal Formers Sendirian Berhad take immediate steps in resolving the problems.

The suggested proposals to be implemented are quite simple. The company should start with the manual inventory control system, and then proceed with the implementation of the "manualized" Material Requirements Planning system. The study showed that a proper execution of production and inventory planning and control system will help to reduce misdeliveries and inventory, which in turn will reduce money tied-up in these items. This will minimize if not totally eliminate the existing tight cash flow problem.

RINGKASAN EKSEKUTIF

Laporan kajian kes ini telah dapat mengenalpasti beberapa masalaah dan isu organisasi dan operasi yang wujud di syarikat Metal Formers Sendirian Berhad, terutamanya di dalam sistem perancangan dan kawalan pengeluaran dan inventories.

Pada masa ini, Syarikat Metal Formers Sdn. Bhd. sedang mengalami kekurangan wang yang agak runcing, menyebabkan ianya beroperasi di bawah paras produktif yang normal. Masalaah kekurangan wang ini, secara tak langsung telah menyebabkan syarikat ini mengalami kekurangan pegawai-pegawai yang cekap dan mahir, kekurangan kakitangan teknikal dan juga tidak mempunyai kebolehan teknologi yang tinggi untuk mengelolakan fungsi pemasaran dan pengeluaran yang licin dan berkesan. Masalaah-masalaah tersebut telah juga menyebabkan syarikat ini beroperasi tanpa mempunyai satu sistem kawalan yang sesuai yang mana telah menyebabkan kos pengeluaran yang tinggi, produktiviti dan keuntungan yang rendah, mutu keluaran yang tidak sekata dan keluaran yang tidak setanding. Ia juga menyebabkan harga jualan terpaksa ditetapkan pada paras yang agak tinggi, dan selalunya lambat untuk melancarkan keluaran-keluaran baru. Hasil dari sebab-sebab yang berkait ini, maka syarikat ini tidak berkemampuan untuk mencapai jumlah jualan dan kongsi pasaran yang tinggi. Jika keadaan ini berterusan, syarikat ini akan terus beroperasi di bawah paras keupayaan, dan tidak akan dapat memperolehi pulangan ke atas pelaburan yang positif.

Penilaian ke atas beberapa pilihan yang ada jelas menunjukkan masih terdapat beberapa peluang bagi memperbaiki keadaan sekarang dengan syarat syarikat Metal Formers Sdn. Bhd. mengambil langkah-langkah dengan segera untuk menyelesaikan masalaah ini.

Cadangan-cadangan yang telah dikemukakan untuk dilaksanakan adalah agak mudah. Syarikat Metal Formers Sdn. Bhd. hendaklah pertamanya melaksanakan sistem inventori manual, dan kemudiannya perlu diikuti dengan sistem "Manualized Material Requirements Planning". Kajian telah menunjukkan, bahawa satu pelaksanaan sistem perancangan dan kawalan pengeluaran dan inventori yang betul boleh menolong mengurangkan wang yang terikat pada barang-barang tersebut. Ini dengan sendirinya akan dapat mengurangkan, jika tidak menghapuskan keseluruhan, masalaah kekurangan wang yang genting itu.

SECTION A

CASE TEXT

In one evening on February 1988, Encik Mohd Mydin, the General Manager of Metal Formers Sendirian Berhad, (hereafter referred as MFSB), while sitting alone in management room(1), was analyzing last year's company performance and pondering about some issues discussed during the morning meeting he had had with his staff. He was not satisfied at all with the overall company performance for the financial year ended January 1988. He was very concerned with the net loss the company had experienced for the second consecutive year. There were a lot of reasons and excuses given by the marketing personnel for not achieving the budgeted sales. The gross margin was so small that it cannot help to reduce the deficit even with the commendable sales turnover of about \$3.3 million considering the small number of staffs it had and the low scale of operation in which it was engaged.

The GM murmured and asked himself a number of questions; "Was there anything wrong? Was it because of my managerial style? Can it be our pricing policy, product costing or manufacturing inefficiency? Was it due to mismanagement? There must be some kind of measures or strategies that can be formulated and implemented to correct these problems. This state of affair somehow has to be stopped and the company should adopt...."

(1) The management team comprising of the GM, Mohd Mydin Nordin, the OM, Faisal Haji Ismail and the marketing coordinator, Naburo Maeda. They share one common room.

"Hey! are you dreaming?" shouted Faisal, the operation manager as he enters the room. "Oh no! I was just pondering about our last year's performance and some issues raised during this morning meeting" replied Mydin. "I am very concern about everything. Don't you feel so?" "Of course I do" replied Faisal. "That was past, and we can't do anything about it now. We should look ahead. I hope 1988 will be a good year judging from the confirmed sales that we have received so far. My concern right now is how can we manage to fulfill our customers' orders on time and manage our operation without so many problems? I know we are going to face a hell of a lot of problems. We have to do something on our production scheduling. May be we ought to computerize our production planning and scheduling and probably we should try an integrated MRP system".

"Anyway we need to get things done and come out with strategies and report before our board meeting next week" added Mydin. "Can you ensure that whatever programs you are thinking of, MRP or what not, can be ready by the end of March as our delivery of Clarion job(2) will commence 'n May? We need to order the materials and issue the work orders now. At the same time we have Sharp-Roxy job(3) to take care of" said Mydin.

(2) Clarion job is the job awarded by the Clarion Sdn. Bhd. a company engaging in assembling and manufacturing of automotive radio cassette players.

(3) Sharp-Roxy job involves metal stamping of parts and subassembly of washing machine cabinet.

COMPANY BACKGROUND

MFSB was established on April 25, 1984 as a subsidiary of Sapura Holdings Sendirian Berhad with 100,000 authorised share of \$1 each and initial paid up capital of \$100,000. During the period from April 25, 1984 until the end of financial year 1986 (31st. January 1987), the authorised share capital was increased to \$250,000. Paid up capital was also increased from \$100,000 to \$240,000. Half of the paid up capital came through bonus issue of 1:1 out of retained profits brought forward from 1986. The major shareholders of the company make up the board of directors. It is chaired by Datuk Shamsuddin Bin Abdul Kadir. The shareholders of MFSB and their share of the equity is shown in Exhibit I.

EXHIBIT I BOARD OF DIRECTOR AND EQUITY STRUCTURE

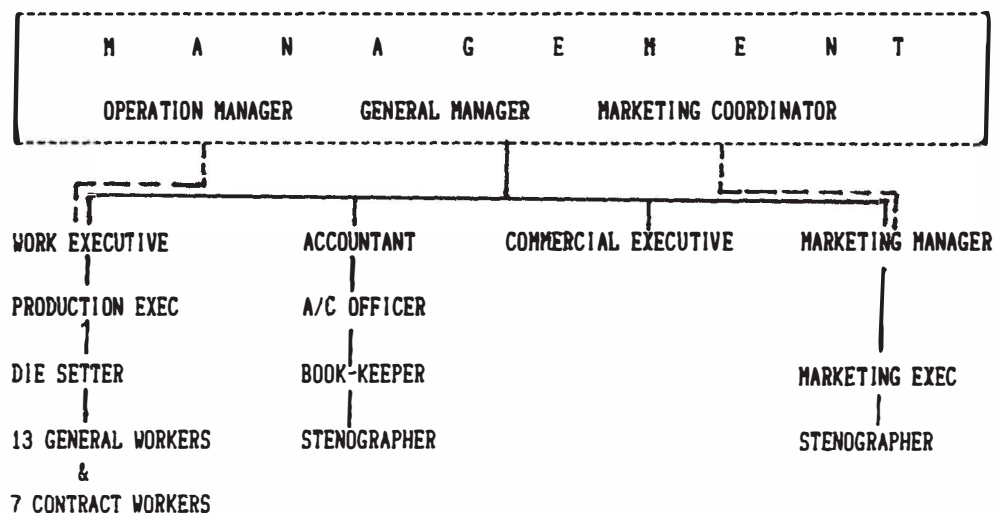
The Directors	Company	Paid-up	Equity
Dato' Shamsuddin Abd Kadir	Sapura	122,399	51.0%
Rameli Bin Musa	Sapura	1	-
Mohd Mydin Bin Mohd Nordin	MFSB	58,800	24.5%
Faisal Bin Haji Ismail	MFSB	58,800	24.5%

In an attempt to pursue growth strategy and to take advantage of the opportunities available during that time, the company in 1985 acquired 49 percent of the unquoted shares of Tubular Metal Forms Sdn. Bhd. (TMF), a company incorporated in Malaysia. The principal activity of TMF is fabrication of telephone and transmission poles and

tubular street lighting columns. TMF only carries out the fabrication works and it depends entirely on MFSB for the sales. In the following year, the company acquired a 75 percent interest in a newly incorporated subsidiary, Peninsular Steel Galvanizing Sdn. Bhd. (PSG). PSG provides hot dip galvanizing services for MFSB's products as well as outsiders. It sometimes provides services to local contractors competing indirectly with MFSB.

At present, the company has a total of 33 employees headed by a management team. Production department has 13 permanent and 7 temporary workers. The operation manager is assisted by work executive Abdul Razak Omar and production executive, Fauzi Nuruddin for day to day operation. The production workers are located either in main plant in Petaling Jaya or in the Shah Alam factory. The latest organization structure showing the three functional areas is shown in Exhibit II.

EXHIBIT II
PRESENT ORGANIZATIONAL STRUCTURE OF MFSB.



PRODUCTS AND MANUFACTURING ACTIVITIES

The company is principally engaged in the manufacture and marketing of galvanized metal products and accessories. The company has sufficient skilled and unskilled workers to carry out steel fabrication and hot dip galvanizing as well as precision metal works to fulfill both quality and economic requirements. Refer Exhibit III for short description and definition of metal fabrication industry. It is currently engaged in the production of;

- i. Highway furniture products;
 - "Pagaraya" (highway guardrails) - late 1986.
 - Galvanized street lighting columns - 1985.
 - Road Signs - mid 1987.
- ii. Hot dip galvanizing service - early 1986.
- iii. Steel fabrication and engineering - 1985.
 - Power transmission poles.
- iv. Metal stamping parts - since incorporation.

The company is operating in a rented building at Jalan 227B, Petaling Jaya. The building comprises an office and machine shop in which all the press works are carried out. The making of road signs and the associated works are carried out in a rented factory at Padang Jawa. Hot dip galvanizing and steel fabrication are performed in a separate factory owned by the company at Jalan Bukit Kemuning, Kelang, nearby HICOM Industrial Estate. The list of machines and equipment located in the main plant and those at Padang Jawa factory are listed in Exhibit IV.

EXHIBIT IV
LIST OF MACHINES AND EQUIPMENT IN MFSB

Item	Equipment Descriptions	QTY.	Make	Capacity
1.	35 ton press machine	2	Komatsu	100 stroke/s
2.	60 ton press machine	2	Komatsu	70 stroke/s
3.	80 ton press machine	1	Komatsu	60 stroke/s
4.	80 ton press machine	1	Aida	60 stroke/s
5.	30 ton auto through punch	1	Miyagi	>= 0.3mm t.
6.	160 ton press brake m/c	1	Komatsu	30 - 50 s/s
7.	200 ton press brake m/c	1	Komatsu	30 - 50 s/s
8.	Spot welding machine	2	Aromatic.	
9.	Shearing machine (200 ton)	1	Komatsu	0.6-10mm th.
10.	MIG welding machine	5	Toaseki, MIG 250	
11.	Drilling machine	2	Hitachi	
12.	Hand drill	2	Hitachi	
13.	Grinder	1	Hitachi	
14.	Abrasive cutter, 480 RPM	1		
15.	Oxy-acetylene set	1		
16.	Vacuum machine (4' by 12')	1	3M, HLVA	

With the exception of highway guardrails, the rest of the company's products are made internally. The fabrication of highway guardrails are subcontracted to a private company, Oriental Metal Industries Sdn. Bhd., located in Section 16, Shah Alam before sending for galvanizing at PSG. The company imports mother coil steel from Korea as a raw material for the fabrication of guardrail. The lead time for this raw material is normally 3 months.

FINANCIAL PERFORMANCE

For the past four years, the sales turnover of the company has been fluctuating. Sales were good in the first year and this continued on the second year of operation. In the first nine months of operation in 1984, the company achieved sales of about \$900,000 and increased by more than 400 percent over the 1984 figures to about \$4,600,000 in 1985. This has contributed to hefty profits of about \$250,000 in 1985 despite its newness in the industry. The company goal was then to build up a strong foundation and continue to grow through vertical integration. The loss in the first trading year was expected.

The main contribution to the company's growth comes from the sales of telephone and telecommunication accessories to Jabatan Telekom Malaysia (JTM). It is interesting to note that during those two years, Uniphone Sdn. Bhd., a subsidiary of Sapura Holding Sdn. Bhd. together with Binafon Telecommunications, Sri Communication and Electroscon Telecommunications was given a multi-billion ringgits turnkey project by JTM for the construction of exchange buildings and modernization of telecommunications system in Malaysia. Uniphone purchased most of their requirements from MFSB.

However, in the third year of operation, the company made a substantial loss of about \$1 million from the sales of about \$2,600,000. The main reason behind this big loss

was due to the privatization of JTM. Privatization of JTM has brought the fabrication of telecommunication accessories almost to a standstill. There was a huge inventory of accessories in MFSB stock which had to be written down and subsequently written off. Most of the company's sales then came from Jabatan Kerja Raya (JKR), Local Municipals for street lighting columns, and from private companies for precision metal stamping parts and subassemblies. 1987 can be said to be a turning year despite incurring operation loss of about \$250,000. Their highway furniture products which were introduced between end of 1986 to middle of 1987 had been recognized and accepted by JKR. Tender businesses for highway guardrails and road signs started flowing in and with a few long term contracts for the supply of metal stamping parts to Clarion Sdn Bhd. and Sharp-Roxy Appliances Sdn. Bhd. The turnover improved by about 25 percent from 1986 and projected to improve substantially in 1988.

MFSB's Statement of profit and loss accounts for the period ending 31st January 1985 to 1988 and consolidated balance sheets as at 31st of January 1985 to 1988 are shown in Exhibits V and VI. Exhibits VII and VIII show the statement of profit and loss accounts by product and the manufacturing accounts for the year ending 31st. January 1987 and 1988. The breakdown of the financial expenses for the same periods are also shown in Exhibit IX.

EXHIBIT V
STATEMENT OF PROFIT AND LOSS ACCOUNTS
FOR THE PERIOD ENDING 31st. JANUARY

	1985	1986	1987	1988(**)
TURNOVER	\$897,939	\$4,609,996	\$2,667,427	\$3,290,999
PROFIT/(LOSS) BEFORE TAX	(\$31,236)	\$260,473	(\$820,813)	(\$254,271)
SHARE OF PROFIT/(LOSS) IN ASSOCIATED COMPANY	-	-	(\$227,078)	-
TOTAL PROFIT/(LOSS)	(\$31,236)	\$260,473	(\$1,047,891)	(\$254,271)
ACCUMULATED PROFIT/(LOSS) CARRIED FORWARD (*)	(\$31,236)	\$229,237	(\$818,654)	(\$1,072,925)

Note:(*) The figures do not take into account of minority interest, taxes loss or profits attributable to or from the group and bonus issue.

(**) Unaudited accounts.

EXHIBIT VI
CONSOLIDATED BALANCE SHEET AS AT 31-1-85 TO 88

	1985	1986	1987	1988(**)
CURRENT ASSETS				
Cash and bank balances	\$110,209	\$41,628	\$3,247	\$7,637
Trade debtors	\$372,039	\$1,087,582	\$680,835	\$1,196,525
Other dabtors	\$19,211	\$254,094	\$59,575	\$73,572
Stocks	\$288,067	\$449,287	\$428,199	\$790,946
Due from associated co.	-	\$260,356	\$243,331	\$564,521
	\$789,526	\$2,092,947	\$1,415,187	\$2,633,201
CURRENT LIABILITIES				
Bank overdrafts	-	\$47,359	\$115,321	\$129,902
Trade creditors	\$118,960	\$842,165	\$626,280	\$724,693
Other creditors	\$75,011	\$442,151	\$225,423	\$605,954
Term loans	\$23,331	\$70,552	\$130,733	\$64,749
Due to associated co.	\$520,363	\$712,212	\$1,491,111	\$2,380,323
	\$737,665	\$2,114,439	\$2,588,868	\$3,905,621
NET CURRENT LIABILITIES	\$51,861	(\$21,492)	(\$1,173,681)	(\$1,272,420)
INVESTMENTS	-	\$117,600	\$297,598	\$297,598
FIXED ASSETS	\$144,573	\$409,244	\$588,077	\$454,149
TERM LOANS	(\$176,669)	(\$156,115)	(\$201,640)	(\$223,246)
DEFERRED TAXATION	-	(\$103,000)	(\$103,000)	(\$103,000)
	\$19,765	\$246,237	(\$592,646)	(\$846,919)
Represented by:				
SHARE CAPITAL	\$51,001	\$120,000	\$240,000	\$240,000
ACCUMULATED PROFIT/(LOSS)	(\$31,236)	\$126,236	(\$832,646)	(\$1,086,919)
note:	\$19,765	\$246,236	(\$592,646)	(\$846,919)
(**) Unaudited accounts				

EXHIBIT VII
STATEMENT OF PROFIT AND LOSS ACCOUNTS BY PRODUCT
FOR THE PERIOD ENDING 31st. JANUARY 1987 - 1988

	1987	1988 **
GUARDRAILS	-	\$1,483,182
METAL STAMPINGS	-	\$963,522
ROAD SIGNS	-	\$721,257
OTHERS	-	\$123,037
SALES	\$2,667,427	\$3,290,998
COST OF GOODS SOLD	\$2,323,769	\$2,980,221
GROSS PROFIT/(LOSS)	\$343,658	\$310,777
LESS: GENERAL AND ADMIN.	\$317,098	\$427,798
MARKETING EXPENSES	\$32,560	\$47,929
FINANCIAL EXPENSES	\$313,614	\$257,156
TOTAL EXPENSES	\$663,272	\$732,883
NET PROFIT/(LOSS)	(\$319,614)	(\$422,106)

EXHIBIT VIII
MANUFACTURING ACCOUNTS FOR THE PERIOD
ENDING 31st. JANUARY 1987 AND 1988

	1987	1988 **
DIRECT MATERIALS	\$1,296,668	\$1,754,429
DIRECT LABOUR	\$59,631	\$80,756
FACTORY OVERHEADS	\$622,692	\$667,699
OTHER EXPENSES	\$71,788	\$477,337
	\$2,050,779	\$2,980,221

EXHIBIT IX
BREAKDOWN OF FINANCIAL EXPENSES AS AT 31-1-87 & 88

ITEMS	1987	1988 **
LOAN INTEREST	31,801	35,120
INTER-COMPANY INTEREST	67,867	128,035
INTEREST ON OVERDUE A/C.	18,149	44,257
FACTORING CHARGES	0	17,200
H/P AND OTHERS ***	195,841	35,544
Total	313,658	257,156

Note: *** High financial charges for others was due to \$143,771 loss on foreign exchange.