# HIDDEN TREASURE

## or just a load of old junk?

David Lansdowne and Peter Woodward

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# FORWARD

by Ron Sewell

## An invaluable book

This is an invaluable book on a topic close to my heart. Early in my career the DTI asked me to write a book on 'stock control'. My eventual book was entitled 'Profitable Stock Management' since I felt, and still feel, that the parts operation is, or should be, a highly professionally managed operation.

This is an invaluable book because it is written by two acknowledged experts who started at the sharp end of the business and ended up running sizeable parts operations. They then started their own highly respected consultancy specialising primarily in Parts and in the year 2000 developed a unique piece of software which my colleagues at Sewells described as 'the best consultancy idea for Parts departments for a long time'. It is called SMA or Stock Management Appraisal which has given them a unique insight into the levels of performance being achieved by over two hundred franchised dealers across ten franchises in the UK and Ireland.

When they say that it should be possible to achieve a stock turn of 15 times a year, it is not a figure plucked from mid-air. It is a level of performance being achieved regularly by the best franchised dealers in their analyses. During my career I started and chaired 'profit clinics'. I know from this experience that there is a vast difference between the performance achieved by an 'average' manager, and the outstandingly high, sometimes unbelievably high levels of performance achieved by the truly superb, totally committed, totally professional manager.

**My concern**

My concern is that this book will not receive the attention it deserves. Most dealerships are fighting to achieve reasonable levels of profitability and need to optimise the performance of every single activity in their dealership. Yet, all too often, the Parts department is something of a 'Cinderella'.

**My dream**

I would like every Dealer Principal to buy at least three copies of this book.

One for themselves

One for their Financial Director

and

One, at least, for their Parts Director, plus one or two extra copies if there are other senior colleagues.

I would then like the Dealer Principal to call the Parts executive into his office and say something along the following lines:

> I want you to disappear for a day or two to a place where you will not be disturbed, without a phone, and without any possibility of being disrupted. Your task is to read this book I'm giving you, from cover to cover. I suggest you have an initial read through to get the sense of what its about, but I then want you to go through making notes on how far we are doing what the authors recommend, or, what we need to do.
>
> They talk about achieving a stock turn of 15 times a year which would save us a lot of space, cut down if not cut out our write-offs, and enable us to give far better customer satisfaction.

If, having read the book, you feel you need the help of your team, then buy extra copies, and organise an off-site meeting with your team where they can help you come up with a plan to implement every one of the recommendations in the book.

Let me tell you, I have bought a copy of this book for myself which I intend to read from cover to cover. I have also bought a copy for our Finance Director and I will be asking him/her to make the time to read it more thoroughly particularly with regard to how we can improve the ways in which we measure the efficiencies of your operation.

When you tell me that you have mastered the book, and prepared your report, I will arrange a one day off-site meeting for you to give a presentation to me and our Finance Director. Hopefully, we will be able to accept all your recommendations, but we may possibly have our own suggestions on how your plans might be fine tuned.

Once we have agreed your plans with you, we will then ask you to give a presentation to the next senior management meeting.

In other words, this is serious. We need to optimise the performance of every department in the company, starting with your own.

When you, and your team, can achieve a stock turn of 15 times a year, then we will give you an all expenses paid weekend in a luxury hotel of your choice for you and your partner, and for those members of your senior management team and their partners, who have helped you to achieve this target.

**The reality**

The probable reality is that this book will be given to a somewhat overworked Parts executive who will take it home to read and, possibly, have the first few enthusiastic reading sessions but then other work pressures and home life will intrude and the book will collect dust in the corner.

I hope not.

I urge you to see what lessons can be applied to making your own Parts operation a real success.

# PART 1

# OVERVIEW

# Chapter 1

## PARTS STOCK – a treasure trove or a load of old junk?

| **Designed for:** | All managers in any business, at any level, who depend, in some way, on Parts stock |
|---|---|

| **Summary:** | Parts stock must be managed wisely like any other asset. It should be a platform for a strong aftersales business. |
|---|---|

Close your eyes and think of Parts stock …….

Please, do just that. What's going through your mind?

We suspect that there are some confused images. They probably depend on your specific role but there is a strong chance that "boring necessity", "too much junk" or "always out of stock" will appear. We doubt if there are many positive thoughts.

It does not have to be like this. Parts stock should be a valuable asset that gives you a platform for a strong aftersales business.

Ambitiously, we have set out to show in this book:

- Why Parts stock is such an important asset
- How you can improve customer service
- How you can reduce space, cash and the risk of obsolescence
- Exactly how to get the most out of your system

  and, overall

- How to make a far better return on your Parts investment

In the final chapter we will speculate on the changes we see happening in the industry with particular emphasis on Parts distribution and the effects on stock.

We think there are strong learning points for all system users engaged in the buying, selling and stocking of parts regardless of their links to one or several suppliers.

# Chapter 2

# DEALER MANAGEMENT SYSTEMS

| **Designed for:** | All managers in any business, at any level, who depend, in some way, on Parts stock |
|---|---|

| **Summary:** | Know the system well. Then experiment to achieve better results. |
|---|---|

The 1970s witnessed a gradual transition from stock cards to electronic systems. For some, this was a reluctant step. As a young field rep, David's best (and most profitable) stockist used the "shoe box" method, essentially stock cards in boxes. The legend was "If Wrights don't have it, the factory is pending". Charlie – the Parts Manager - had the knowledge in his head. It was a family firm and it worked well but it was unique: the exception that proved the rule.

No doubt a few still hanker after a return to good old stock cards and some Parts Managers still manage their stock in their head. It works for them but at a heavy price – the company is dependent on that one person and that one person usually lives and breathes only Parts.

Today, there can be few who do not recognise the enabling powers of a dealer management system (DMS).

The Parts element of the DMS integrates with the rest of the business and allows staff to carry out transactions, manage stock and analyse activities in several ways.

We believe that, in general, dealers are satisfied with the day to day transactional elements of their system and the way that Parts integrates with other departments. In fact, we are making the assumption that Parts staff are familiar with day to day transactions – they can invoice, book in and place orders on the supplier. That is necessary if the business is to operate but it is not sufficient if you want to manage stock wisely.

Our SMA research indicates that there is too little understanding of how to manage and analyse stock effectively. To a large extent, this is explained by:

- some system design shortcomings
- insufficient training

- no objectives or poorly defined ones

Despite this, some dealers are achieving good results from their system.

As independent aftermarket consultants, with a particular interest in Parts stock management, we do not recommend any specific DMS. Our aim is to help Parts users to get the best out of their system. We want to give you an understanding of what you need to do to manage stock wisely.

Furthermore, we want to enthuse you so much that you know how to achieve a high stock turn, low obsolescence and high levels of customer service.

It’s as simple as that.

# Chapter 3

# RUNNING A BETTER PARTS BUSINESS

| **Designed for:** | All managers in the retail motor industry |
|---|---|

| **Summary:** | Judge the success of Parts like you would any other business |
|---|---|

## 1 MEASURING BUSINESS SUCCESS

### 1.1 For any business

As a basic principle and assuming a positive cash flow, the ultimate measure of any business is its return on investment (ROI).

### 1.2 Profit centres

Individual profit centres, within a company, should also be judged by their return on investment although the benchmark will differ depending on the nature of the activity and the accounting principles. For an individual department to be considered as a profit centre it should have assets, revenue, costs and expenses. When all of these are present, it can be judged by its return on investment.

Historically, the franchised retail motor industry has had strong financial controls together with the vehicle manufacturers' detailed inter-firm comparisons (IFCs). The achievements, though, of individual departments are often assessed only by traditional key performance indicators (KPIs). These KPIs often lack coherence, with equal weight being given to each one. Few dealers adopt the concept of looking at the "return on investment" of an individual profit centre.

### 1.3 Parts – a profit centre

Our particular interest is in Parts, a department that can certainly be regarded as a profit centre. There is revenue, cost of sale and expenses. Additionally, there are assets – stock and equipment (such as binning and racking) together with cash and receivables.

We recognise that there can be "complications" if we take this approach. First of all, Parts usually has two roles in a dealership – supporting Service and Sales plus selling into the external market (trade and retail). Different skills are needed for each. Additionally, traditional accounting typically has the Service department paying full retail for its parts and

accessories while trade customers receive a discount. On top of this financial practice, all Parts expenses are treated as if they were incurred across the whole activity. Whilst it is not a completely stand alone business, that does not rule out measuring return on investment.

### 1.4 A specific measure – Parts ROI

To make comparisons meaningful across different franchises and dealerships, we favour looking at a Parts ROI as follows:

| | |
|---|---|
| Return | Because the vast majority of companies measure Parts profit in a similar way down to the direct (or operating) level we regard this as the Return. If we went beyond this to net profit then we would have to include indirect expenses, which are accounted for in so many different (and often arbitrary) ways. |
| Investment | Stock is the only asset that all Parts Managers have control of day to day. The other assets are either fixed or semi-fixed - equipment to store and display parts, systems to manage their movement - or are generally outside the immediate control of the Parts Manager (receivables, for example). |
| ROI | Consequently, we measure Parts ROI by expressing a full year's direct profit as a percentage of the average net stock for that year. |

This is the ultimate KPI for a Parts operation. Over many years, though, we have found that few franchised dealers use it and the vehicle manufacturers seem to give it insufficient prominence.

### 1.5 Stock is your major asset

We will look at the profit side of this measure in another publication.

The subject of this book is that major asset – STOCK.

Parts stock is not, of course, an end in itself. It is the platform to build a strong aftersales business.

## 2 STOCK SHOULD BE YOUR GREATEST ASSET

### 2.1 Parts stock gets insufficient attention

In general, the retail motor industry has paid little attention to Parts stock. As a result, opportunities have been missed and extra costs incurred.

A good Parts stock should be the platform for attacking the aftermarket. Good, though, does not have to mean "loads of". As always, it's quality that counts.

Having the wrong stock is likely to mean:

- Poor use of space
- Poor use of working capital
- Higher obsolescence
- Risk of customer disloyalty

## 2.2 Why the neglect?

We have tried to understand why there is this apparent neglect. We are puzzled by how few Dealer Principals (DPs) take an active interest in Parts stock. We know that if we substituted Used Cars for Parts then most DPs would be hyperactively interested.

Some years ago, Sewells Aftersales Management published an article by one of the authors – Opportunities for Inventory Management. The main points at the time were:

- Across the UK retail industry, approximately £170 million of stock is surplus (either obsolete or excess)
- Stock turns were low, i.e. too much stock
- Eliminating this surplus would free up around 80 acres of space
- That space could be filled by 11,000 new service bays (which would generate labour and parts profits)
- £170 million might fund, say, 30,000 used cars (dependent on the franchise)

(Even if divided amongst 6,000 franchised dealers there were - and still are - huge opportunities.)

We believe that little has changed since we wrote that article. It is reprinted as Appendix 2.

Since 2001 we have been carrying out some very detailed analyses of franchised dealer stock with our SMA programme. Across almost 200 dealers and 10 franchises we have found that:

- the average stock turn ratio is around 7 times p.a., i.e. 52 days cover
- *at least* 25% of stock has not moved for 6 months
- fewer than 50% of dealers have a target for obsolescence
- only 26% of Parts Managers are set *any sort of* target for customer service

SMA appraises performance and knowledge (based on a self-complete questionnaire) and then produces a written and graphic analysis plus detailed recommendations on how to get the best out of the system.

## 2.3 Reputation

What does your stock say about your overall reputation? How likely are customers (retail or trade) to be unpaid advocates of your business? Without advocates, the vital loyalty that sustains a business is just not there.

## 2.4 Seize the opportunities

As well as revenue growth, better stock management provides opportunities to reduce costs – space, working capital, obsolescence and, possibly, staff.

So, in chapters 4 and 5 we want to explain the essentials of Part stock management. Later, in Part 2, we will show you in detail how to manage that stock wisely. Then you really will have the knowledge to create a strong platform for an aftersales business - with a lower investment and reduced operating costs.

# Chapter 4

# WHAT A PARTS MANAGER NEEDS TO KNOW AND DO

| **Designed for:** | Parts Managers, Aftersales Managers, Dealer Principals and Finance Directors |
|---|---|

| **Summary:** | Understand the three key measures and the critical success factors that make it easier to achieve them |
|---|---|

## 1 RESPONSIBILITY FOR MANAGING PARTS STOCK

This chapter gives an overview of precisely what it means to manage Parts stock wisely. So, we recommend that Aftersales Managers, Dealer Principals and Finance Directors read this chapter as well as Parts Managers.

## 2 THE THREE KEY MEASURES OF GOOD STOCK MANAGEMENT

### 2.1 Overview

The *results* of managing Parts stock wisely should be:

- High stock turn

  and

- Low obsolescence

  and

- High levels of customer service

Essentially, these measure WHAT you should be achieving. Each can be quantified. The skill is to achieve all three even though they might *seem* like trade-offs. Some people, will claim, for example, that if you want a good stock turn then customer service will suffer but we have seen enough Parts operations to *know* that both are achievable.

Whatever detailed actions we recommend will always come back to achieving the three key measures. See the graphic in section 4 showing the "hierarchy".

Let's look at the business benefits that each of the three key measures deliver.

## 2.2 High stock turn

If you have a stock turn of less than 15 times p.a. then there are definitely opportunities to improve. A better stock turn brings several benefits:

### 2.2.1 Space saving

To start with, you will need less space.

With modern binning and racking it is possible to save 1 square metre for every £750 you can take out of stock. Regard that as a rough rule of thumb. So, you can either grow the business without necessarily looking for more room or – keeping the same level of business - you can free up space for other uses (subject to the building's configuration). For example, try calculating just how much annual gross profit the *dealership* might earn if you could fit in and fill one extra Service bay. It will depend on several factors but *start* in the region of £100,000. We have set out an example below.

**HOW TO CALCULATE THE GROSS PROFIT FROM A SERVICE BAY**

| | TYPICAL DEALER | | YOUR FIGURES |
|---|---|---|---|
| **Assumptions** | | | |
| Hours sold by one mechanic operating from one service bay | 1,732 | a | |
| Average labour rate (£/labour hour) | £ 70.00 | b | |
| Average labour gross profit (% of sales) | 78.00% | c | |
| Average value of parts sold per labour hour (£/labour hour) | £ 30.00 | d | |
| Average service parts gross profit (% of sales) | 26.00% | e | |
| **Total Labour G.P.** | **£ 94,567** | a x b x c | **£ -** |
| **Total Parts G.P.** | **£ 13,510** | a x d x e | **£ -** |
| **TOTAL LABOUR & PARTS GROSS PROFIT** | **£ 108,077** | | **£ -** |

### 2.2.2 Reduced cash requirement

In addition to space, you will also reduce cash requirements.

### 2.2.3 Reduced risk of obsolescence

A lower stock figure (resulting from a higher stock turn) will reduce the risk of parts becoming excess or obsolete.

2.2.4 Faster stock checks

You will also be grateful for holding less stock when it is time for a stock check.

We think these benefits offer you compelling reasons to seek to improve your stock turn.

## 2.3 Low obsolescence

If more than 5% of your gross stock has not moved for at least 6 months then there are definitely opportunities for improvement.

2.3.1 Improved gross profit

Lower obsolescence will mean fewer financial write-offs. In other words, there is less of a dent in your gross profit.

2.3.2 Operational benefits

You will also spend less time weeding out obsolete parts from their current bin locations and relocating them for, say, another year before you finally make a physical disposal.

## 2.4 High levels of customer service

2.4.1 Think better stock not bigger stock.

If you have the right parts in stock then not only are you more likely to sell them and (we hope) make a profit but also you are more likely to promote loyalty.

2.4.2 Look after internal customers

You might have just a few external customers (trade) and regard your internal customers – Service and Sales – as captive. On occasions, Parts staff might think (subconsciously), "They can wait". Perhaps, relationships are a little strained from time to time. How often do Service "want it yesterday"? How often have Service not collected a part ordered on VOR? We will show you how to overcome these concerns in chapter 10. Remember, Service only *represents* the end customer. It is the end customer who we really want to satisfy.

Think about these points:

- Your internal customers are much cheaper to maintain than your external ones.

- For the dealership as a whole, the total profit made on Service sales is considerable.

- A satisfied Service customer is more likely to purchase another car from you.

- A satisfied Service customer is less likely to "defect" to a competitor.

- It is better for a Sales customer to buy accessories from you than elsewhere – you might make only a small profit but the customer is more likely to regard your dealership as a "one-stop shop".

2.4.3 Satisfied customers will act as unpaid advocates for your business

In more general terms, high levels of customer service enhance the company's reputation with internal and external customers. A strong reputation means that customers will become unpaid advocates on your behalf, telling others about their positive experiences. As a result, you will not only retain their business but will encourage them to be *loyal* to you. Loyalty is much more than retention. A loyal customer will regard your company as the natural place they choose for all their motoring needs and recommend you to others as well.

# 3 THE CRITICAL SUCCESS FACTORS

So, the three key measures are WHAT you need to achieve: high stock turn, low obsolescence and high levels of customer service. They are the essential start and finish points.

## 3.1 An overview of HOW to achieve the three key measures

In some ways, it is unimportant HOW they are achieved. There will always be "star performers" who get results without obvious explanations. They just seem to have a magic touch. In reality, they are probably doing many of the basics naturally (and extraordinarily well) but not communicating this to anyone else.

Our observation is that there are, invariably, six critical success factors present when managers achieve a high stock turn, low obsolescence and high levels of customer service. Even if you consider yourself a "star performer" with the magic touch we believe that you can reach even greater heights by following the recommendations we make.

We describe below what we regard as the critical success factors. In Part 2 (chapter 6 onwards) we will examine these in greater detail. In section 4 of this chapter, we describe the detailed actions, parameters or measures that make the difference – we call these *the drivers*. Also included is a graphic that shows the hierarchical structure of the key measures, the critical success factors and the drivers.

The six critical success factors are:

- Deciding what to stock for the first time
- Categorising stock into manageable chunks
- Deciding what to reorder
- Analysis
- Having confidence to make changes
- The physical management of stock

## 3.2 Deciding what to stock for the first time

If you started a brand new Parts operation – a "greenfield" site – there would be several factors to take into account when deciding what to stock for the first time. Most of these will apply also to an existing business.

## 3.3 Categorising stock into manageable chunks

Whether you are starting a brand new operation or developing an existing one, you will need to organise stock into categories of some kind – manageable chunks. Managing each part number separately is both inefficient and unnecessary.

## 3.4 Deciding what to reorder

Having decided what stock you want to hold and how to categorise it you will need to make daily decisions about reordering. Your system will have parameters built in – the Parts Manager can amend many of them. So, it is important to know the parameters and how you can manipulate them to influence the three key measures.

## 3.5 Analysis

Analysis reports are designed to help you to improve your stock profile. There are many ways to analyse stock but the aim is common – to develop the quality rather than the quantity.

## 3.6 Having confidence to make changes

No matter how much you know about the system, making changes to it can be a daunting task. We have met Parts Managers on training courses who had absorbed enthusiastically all of the "theory". Meeting them later, they admitted that they had found it hard to actually make changes. They were worried that they might make some giant mistake and end up with too much or too little stock.

Our aim is to give you the confidence you need to make changes and manage stock wisely.

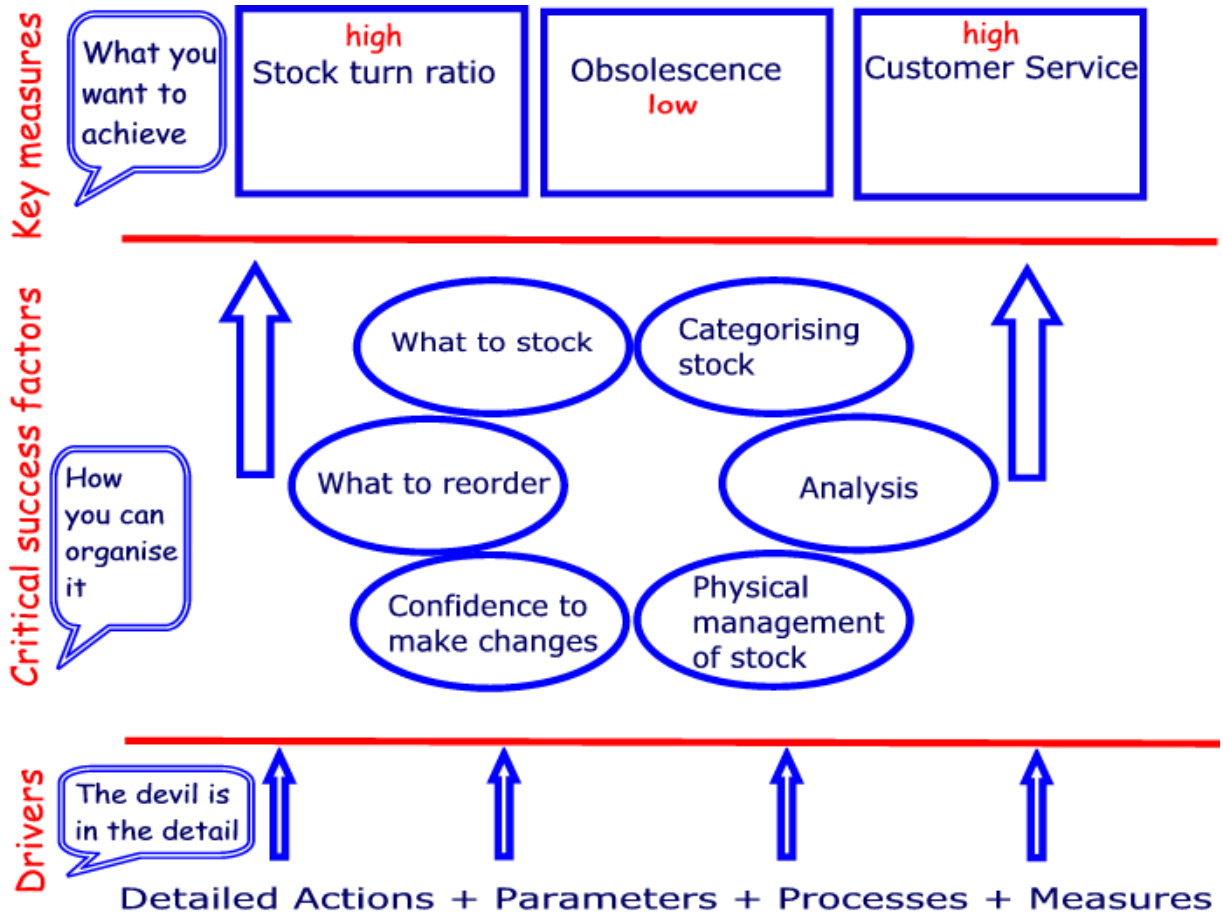
## 3.7 The physical management of stock

Whatever the dependence on systems to manage Parts stock wisely, you must always remember that you are dealing with real items made of metal, glass, rubber, plastic etc. Because of this, you need to ensure that you also have a good physical management; receiving, storing, selecting and despatch. It is no good the computer declaring one in stock if it physically is not.

# 4 THE DRIVERS

We have defined drivers as detailed actions, parameters, processes or measures that influence the critical success factors. Individually, they can influence several. Two examples: the number of days you set for lead time in the system and the definition of obsolescence. The devil is in the detail.

Look at the graphic below to see how the key measures, critical success factors and drivers relate to each other. We have set this out as a "hierarchy".

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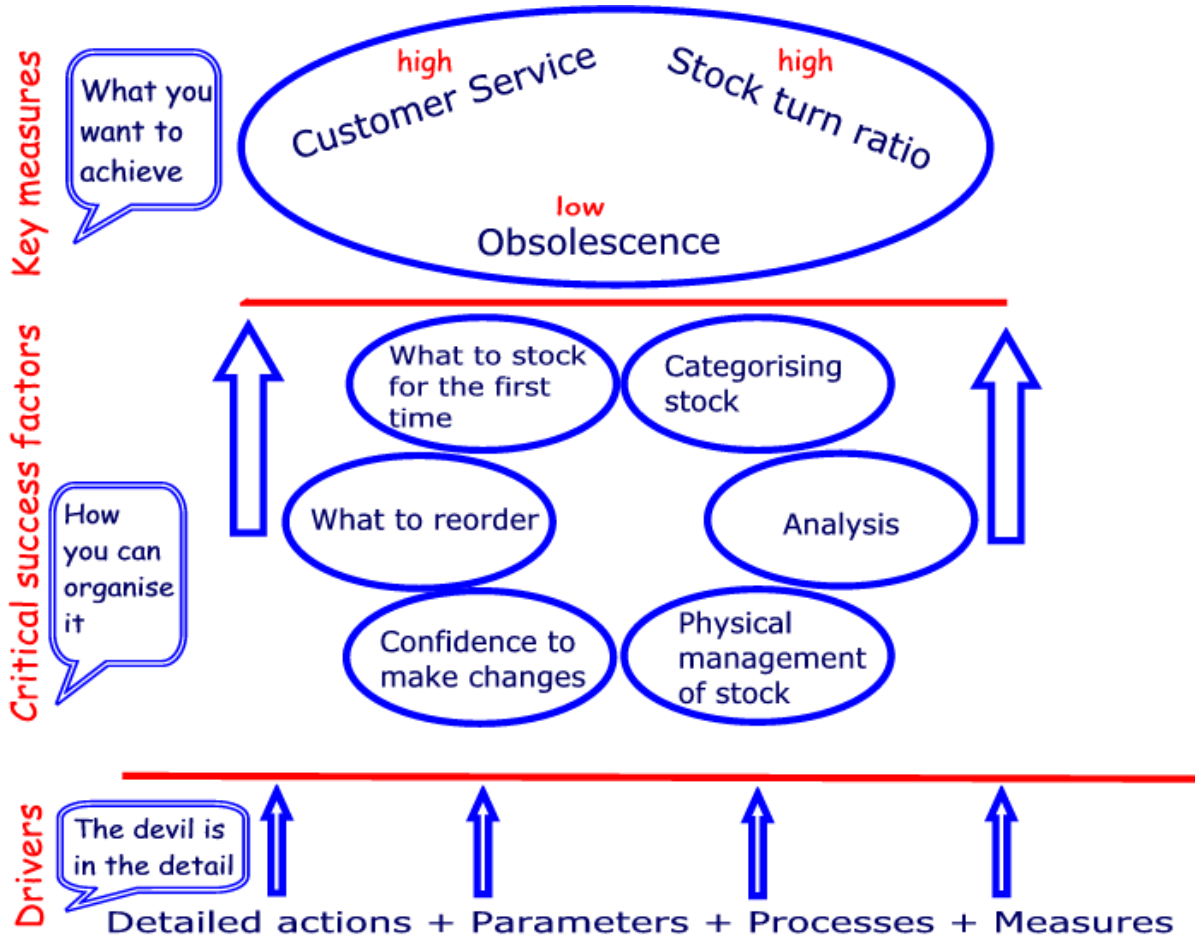

Key measures
What you want to achieve
high
Customer Service
high
Stock turn ratio
low
Obsolescence
Critical success factors
How you can organise it
What to stock for the first time
Categorising stock
What to reorder
Analysis
Confidence to make changes
Physical management of stock
Drivers
The devil is in the detail
Detailed actions + Parameters + Processes + Measures

# 5 CONCLUSION

This chapter has been an overview. The detail will follow.

Our aim is to show what you should be achieving and, in broad terms, how best to do it. The graphic shows how everything fits together. Whatever the detail, it all comes back to stock turn, obsolescence and customer service. Even then, wisely managing stock is not an end in itself but it is the foundation for a superior Parts business.

# Chapter 5

# SETTING TARGETS FOR THE THREE KEY MEASURES

| **Designed for:** | Dealer Principals, Finance Directors, Aftersales Managers and Parts Managers |
|---|---|

| **Summary:** | Use a SMART framework to set targets for the three key measures. Be realistic, especially with timings. Nevertheless, be ambitious. |
|---|---|

## 1 TARGETS ARE ESSENTIAL

Targets are essential for the three key measures. Actual targets will depend on where you start from and how speedily you can make changes.

To avoid confusion and ambiguity, all targets need to be SMART:

**S**pecific
**M**easurable
**A**chievable
**R**ealistic

and

**T**imed

It is straightforward to set targets for two of the three key measures – stock turn and obsolescence. Setting a target for customer service, however, is less easy. In fact, we will recommend a range of measures that cover customer service.

## 2 STOCK TURN RATIO

### 2.1 Understanding the term

2.1.1 A physical measure

Essentially, stock turn is a physical measure. If you sold only one product (one part number) and, say, kept 100 on the shelf (on average) and sold 1,000 in a full year then you would have turned that stock 10 times. It is a ratio of sales to stock over a one year period.

2.1.2 Easier to measure financially

Of course, the reality is that Parts operations sell a mixture of fan belts, washers, gearboxes, spark plugs etc. so we measure stock turn by converting the items into a common currency, i.e. money. Because different parts/accessories have different profit margins we need to use a common base. That could be either cost or retail. Most systems and franchises use cost.

So, stock turn ratio is a measure of how often you turn your stock over in a year using sales at cost (but *could be* retail) and net stock at cost (but *could be* retail). We need to be consistent in using only cost or retail. All of our examples will be based on cost.

Gross stock is the value before deducting any write downs that result from your company's obsolescence policy. When these deductions have been made, the value is then expressed as net stock. We will examine writing down stock in Chapter 10 and explain why it is important.

2.1.3 Definition

There are two definitions of stock turn ratio. Ideally, we recommend using True Stock Turn because it is a *true* measure of how efficiently stock rotates.

## 2.2 True Stock Turn

Our preferred definition is:

Sales (at cost) for the last 12 months (less local purchases and VOR)

divided by

Net stock (at cost, based on the average for the same 12 months)

This ratio is commonly expressed as a number of times per annum, usually to one decimal place.

The advantage of using true stock turn is that it shows how well you sell from the stock you hold. It is harsher than the "traditional" method but does not disguise sales from parts that simply come in and go out.

If you cannot measure in exactly this way – i.e. if you cannot measure an average net stock - it is acceptable to use last month's end value. It will still show the trend provided there is no sudden rise or fall from one month to the next.

## 2.3 Traditional method

The only way that the traditional method differs from the true is that the sales figure includes all sources - VOR and local purchases are included rather than just sales from stock.

Most dealers measure their stock turn ratio in this way. Whilst this is simple and convenient to measure, it has the drawback that it does not give a full picture of what is happening to the stock on the shelf.

As an example, some years ago we visited a franchised dealer in the North West who thought he had a stock turn of around 3 times. Even with weekly stock ordering (at that time) this was unimpressive. Probing further, it turned out that the VOR content of purchases was just over 75%. So, the *true* stock turn was less than once a year. That was an extreme case but we have come across many dealers with 50% VOR purchases and stock turns of less than 5 times – a true stock turn of 2.5.

The lower your VOR purchases then the closer the traditional method is to the true.

## 2.4 Calculating sales and stock

There are several ways, though, to calculate sales and stock.

Taking sales first, the alternatives are:

- Last 12 months actual (preferred)
- Year end forecast, based on year to date; ideally, calendarised according to days in the year and seasonal factors rather than a simple multiplication.

For net stock, the alternatives are:

- An average of the last 12 months – generally based on each month end and taking 1/12 of each (preferred)
- An average for each of the months in the year to date
- Actual stock at last month end

## 2.5 Another way of looking at stock turn

A ratio is a measure of one thing to another. So, a stock turn of 4 times is stating that there are 4 sales (in a year) to one piece of stock (on the

shelf). Most dealers are used to this way of measuring and it means that we can all "speak the same language".

Now look at it another way. Based on 365 days in a year, a stock turn of 4 times is equivalent to holding just over 91 days of stock. Even a reasonable stock turn of 10 times equates to 36.5 days of stock being held. We can refer to this as days' cover.

## 2.6 Setting a target for stock turn ratio

For franchised dealers in the UK, the average traditional stock turn is approximately 7.0. Based on days' cover, that is just over 52 days of net stock sitting on the shelves. True stock turn is likely to be between 5.0 and 6.0.

Take a look at the table below to see how you can "convert" a traditional stock turn ratio into a true one and how stock turn equates to the number of days' cover.

**CONVERSION OF "TRADITIONAL" STOCK TURN TO "TRUE" STOCK TURN**

| Stock turn p.a. | 4.0 | 6.0 | 8.0 | 10.0 | 12.0 |
|---|---|---|---|---|---|
| Days cover | 91 | 61 | 46 | 37 | 30 |

**TRUE STOCK TURN**

| VOR % | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover |
|---|---|---|---|---|---|---|---|---|---|---|
| 5% | 3.8 | 96 | 5.7 | 64 | 7.6 | 48 | 9.5 | 38 | 11.4 | 32 |
| 10% | 3.6 | 101 | 5.4 | 68 | 7.2 | 51 | 9.0 | 41 | 10.8 | 34 |
| 15% | 3.4 | 107 | 5.1 | 72 | 6.8 | 54 | 8.5 | 43 | 10.2 | 36 |
| 20% | 3.2 | 114 | 4.8 | 76 | 6.4 | 57 | 8.0 | 46 | 9.6 | 38 |
| 25% | 3.0 | 122 | 4.5 | 81 | 6.0 | 61 | 7.5 | 49 | 9.0 | 41 |
| 30% | 2.8 | 130 | 4.2 | 87 | 5.6 | 65 | 7.0 | 52 | 8.4 | 43 |
| 35% | 2.6 | 140 | 3.9 | 94 | 5.2 | 70 | 6.5 | 56 | 7.8 | 47 |
| 40% | 2.4 | 152 | 3.6 | 101 | 4.8 | 76 | 6.0 | 61 | 7.2 | 51 |
| 45% | 2.2 | 166 | 3.3 | 111 | 4.4 | 83 | 5.5 | 66 | 6.6 | 55 |
| 50% | 2.0 | 183 | 3.0 | 122 | 4.0 | 91 | 5.0 | 73 | 6.0 | 61 |

A more detailed version of this table is shown as Appendix 4.

We believe that dealers on daily stock orders should aim to achieve an absolute minimum *true* stock turn of 10.0 (= 36.5 days). We have set this as a minimum because we do not want to risk losing your attention by raising it to 15.0 (just yet).

Our SMA research suggests that around 20% of UK dealers are either achieving or exceeding a *traditional* stock turn 10.0. Indeed, we know of one dealer in Glasgow consistently achieving 48.0. Yes, it is exceptional but it makes 7.0 look extremely "unambitious".

When setting your own target follow the SMART approach. Where are you now? Where do you want to go? If you follow our recommendations in Part 2, how soon do you think you will get there?

Whatever your answers, set the *true* target at 10.0 minimum and *try to* get there within six months. Then think about 15.0. That is still over 24 days' cover.

## 2.7 The benefits from achieving a better stock turn

"So what," you might be thinking. "As a Parts Manager, what's in it for me?" Apart from any possible personal remuneration, there are several benefits:

### 2.7.1 Better use of space

If you can reduce stock by, say, £30,000 then you will free up 40 square metres (assuming £750 per square metre stocking density - rule of thumb only). That *could mean* two Service bays. Did you manage to complete the calculation we suggested in chapter 4, section 2.2.1?

Alternatively, if you want to grow the Parts business you might well have sufficient space once you have eliminated unnecessary stock.

Look at the table below to how much space can be saved:

| Reductions | |
|---|---|
| **Stock £** | **Space sq.m.** |
| 50,000 | 67 |
| 100,000 | 133 |
| 150,000 | 200 |
| 200,000 | 267 |
| 250,000 | 333 |
| 300,000 | 400 |
| 350,000 | 480 |
| 400,000 | 533 |

(assumes a stocking density of £750 per sq. m.)

### 2.7.2 Cash

Apart from space savings, the reduction in working capital will mean a lower overdraft for the company or higher interest earned (if it does not borrow). Alternatively, the cash can be applied elsewhere in the business, including extra resources for Parts.

2.7.3 Reduced risk of obsolescence

The less you stock, the lower the risk of parts becoming obsolete. That means an improved gross profit.

2.7.4 Faster stock checks

Fewer parts to count must mean you can carry out a full stock check much quicker (and pay out less on overtime).

2.7.5 Lower investment in binning and racking

This will probably apply only if you are re-equipping but you will reduce the investment by *around* £90 for each square metre saved.

2.7.6 Other savings

Less stock will also mean:

- lower insurance
- lower heating and lighting bills
- less risk of damage

## 2.8 Compelling reasons to improve stock turn

So, improving the stock turn will bring tremendous benefits to the Parts operation and to the company as a whole. The skill is to achieve a better stock turn without compromising customer service.

# 3 OBSOLESCENCE

By its very nature, Parts will always generate some obsolescence. Later on, we will examine why this happens and recommend ways to keep it low.

## 3.1 Definitions

3.1.1 Obsolete

The most common definition of an obsolete part is one that has not moved for X months. Companies differ on what X should be. From our research, it ranges from a low of 6 months up to a "luxurious" 48 months. In general, though, most companies will write off stock completely at 24 months. Some do this at 12 months. Most companies will make a partial write off – often called a write *down* – at an earlier period than the full write off.

Occasionally, the definition is based on date of last purchase rather than sale. We can see some merits in adopting this, i.e. the clock starts ticking from the moment it arrives in stock. It also avoids the risk that a "fake sale" distorts the picture. From a purely financial point of view, there are likely to be tax benefits when using date of last purchase.

Nevertheless, we have concluded that there might be anomalies if date of last purchase were used. For example, you might have sold the part in the last month but it becomes obsolete in the following month because the last *purchase* date was much earlier. If, for example, you measure at six months such anomalies will occur frequently and, most likely, be ignored. The date of last purchase definition only seems to work if the elapsed time is at least twelve months.

Our conclusion is to stick with the "no sale" definition. It also recognises that this is what the vast majority of companies base their obsolescence on.

The real point about obsolescence is to think preventively.

### 3.1.2 Excess

In addition to obsolete parts, there are those that are moving very slowly and where the stock is far too high. We define these as *excess*. Few companies are measuring excess stock which we believe is dangerous – today's excess will be tomorrow's obsolete. Our definition of an excess part is one where the stock exceeds X months' demands. As an example:

> Example 5-1
>
> X = 12 months
> Sales = 1 per month
> Stock = 20
>
> So the excess stock = 20 – (12 x 1) = 8

### 3.1.3 Surplus = obsolete plus excess stock

Obsolete plus excess stock should be regarded as surplus stock. We strongly recommend that companies adopt this rather than the limited definition of obsolete stock only.

Arithmetically, if you calculate excess stock without excluding parts with zero demands in X months you will, by definition, include obsolete parts as well. Adopting our recommendation could mean just one calculation. Nevertheless, because the actions you take should be different for excess and obsolete, we will continue to refer to them separately. The early identification of excess stock will help you to reduce the occurrence of obsolete.

### 3.1.4 What should X be?

Before we give you our recommendation, consider the following scenario.

You start with a "greenfield" site – no baggage from the past. You can place daily stock orders and receive them in two days. You have a reasonable understanding of the way your system works and believe that you are using it correctly. You are aware that because a part is written off financially, it does not have to be physically scrapped at the same time. You appreciate that setting a fairly short period of time to define Surplus stock will focus your mind on *prevention*.

Based on this scenario, we recommend that you measure both obsolete and excess stock at **6** months. That means that the value of those parts will be written off at this point and their value will be charged against gross profit – a sobering thought for some if it happened overnight.

Being practical, most companies will find it unrealistic to switch from their current, say, 24 months to 6. To do so would depress profits significantly. Yet, your company should make the change even if it is phased over two to three years. Measuring early is as important as including both obsolete and excess stock in the definition of Surplus.

We have heard many stories along the lines of " … only last week, I sold that widget for a [insert old model]". Yes, it happens but rarely and it is no basis to formulate an obsolescence policy.

## 3.2 Setting a target for Surplus Stock

From now on we will base our recommendations on surplus stock – not just obsolete.

We recommend a target for Surplus Stock that equates to 7.5% of gross stock. We would start measuring at 6 months. So, as an example:

> Example 5-2
>
> Gross stock = £100,000
> Excess stock = £5,000, i.e. above six months' demand
> Obsolete stock = £2,500, i.e. no sales for six months
>
> So, Surplus stock = £5,000 + £2,500 = £7,500 = 7.5% of gross stock

### 3.3 The benefits from achieving a lower surplus stock

- Better gross profit through fewer write downs
- More space for good stock or less space overall (or both)
- Quicker stock checks
- Fewer staff involved in stock checking

### 3.4 Preventing the build up of surplus stock

Today's excess will become tomorrow's obsolete. So, measure both.

Start measuring surplus stock early. That way, you will focus on prevention.

As a rule of thumb, you are lucky if you recover 5p in the £ when you dispose of obsolete stock. So, spend time *preventing* surplus stock. We will give some precise recommendations of how to do this in chapter 10.

## 4 CUSTOMER SERVICE

### 4.1 A broad definition

Unlike our recommendations for stock turn and surplus stock, there is no single measure for customer service. Some people argue that customer retention is the only real measure – they keep coming back – but it does not always tell us *why* or *whether* they will continue to do so. That said, customer retention is still a useful measure.

We recommend looking at several specific measures:

- First pick availability through the DMS system
- Availability at the point of need
- Lost sales
- Customer surveys
- Complaints
- Stock/VOR order mix
- Customer retention

Use these in combination rather than see any one of them as supreme. It is the trends that are important.

### 4.2 First pick availability

Most dealer management systems offer an analysis known as first pick availability.

Such an analysis will tell you the percentage of lines ordered that are filled at the point of initial request. However, it is only accurate if:

- All lines ordered are entered in the system
- Lost sales are recorded on all occasions

From our SMA research we know that this rarely happens. Most first pick reports, therefore, are useless.

### 4.3 Availability at the point of need

In some circumstances it might not matter if first pick is low *provided* fulfilment at the point of need is high. Here are two examples of when this might apply:

- A bodyshop order not required for a further three days
- A Service job planned for next week

In both instances there is time to order – probably on Stock - and deliver on time.

So, our advice is to seek a way of measuring availability at the point of need as a more reliable indicator of customer service than first pick.

## 4.4 Lost sales

We strongly recommend that all staff record lost sales on all occasions. They are another indicator of customer service. A simple measure would be to look at the number of lost sales lines recorded in a month as a % of the total order lines you sell.

Divide the total number of lost sales lines in a month by the total number of lines sold.

Example:

Lost sales lines recorded in month = 125
Lines sold = 5,000

So, lost sales lines = 2.5% of lines sold

The important point regarding this measure is that you monitor the trend and that you take action to decide whether a part should be stocked.

## 4.5 Customer surveys

These work particularly well with external customers. We recommend surveying twice a year, using the same questions so that comparisons can be made with previous surveys. It is important to use a numeric scoring system and to ask the customer to weight each question – that means you can see how well you perform on what is important.

Although subject areas should cover telephone skills, stock and delivering right first time on time (RFTOT), we believe that you should devise a survey that fits your own business. Try to use questions that require a score rather than open-ended ones. For example, "on a scale of 1 to 5 (1 = poor, 5 = excellent) how do you rate the helpfulness of our telephone staff?" That way, you can more easily compare the results of one survey with another.

## 4.6 Complaints

Most dealers have a complaints log, particularly if they are ISO 9000 registered. Entries will not be limited to Parts but can still provide an indicator of customer service. The aim is to achieve zero. Analyse monthly, particularly to see if the root causes were internal and,

therefore, avoidable. Measure the number of complaints recorded each month as a % of the total number of invoices raised.

### 4.7 Stock/VOR order mix

This should be seen as an indicator. As a very general point, the higher the level of VOR lines being ordered then the poorer the customer service. Some might try to argue that a high VOR level shows how much they care for the customer. We think that this is unlikely – they are just poor stockists.

Regard 80/20 as the minimum mix.

### 4.8 Retention

Each month, we recommend looking at the revenue overall, the external revenue plus the number of active external accounts – each to be compared with the previous month. Remember, it is the external customers who have the choice of staying with you.

## 5 SET TARGETS FOR THE KEY MEASURES

We recommend you follow these guidelines when setting targets for the three key measures:

- Look at current performance; regard it as an anchor point
- Allowing for current circumstances, what would be reasonable targets to achieve in six months time?
- What do you need to do differently to get there?
- Do you need help from others?
- Feel stretched but not unrealistically
- Go public – you will work harder to achieve these targets if they are not secrets, known only to you

## PART 2

## THE DEVIL IS IN THE DETAIL

# Chapter 6

# DECIDING WHAT AND WHEN TO STOCK FOR THE FIRST TIME

| **Designed for:** | Parts Managers |
|---|---|

| **Summary:** | Whether it's a "greenfield" site, looking at a new model or stocking a part that has just started to move, you need a set of rules to make the right decision about stocking a part for the first time. Otherwise, you will find it hard to achieve the three key measures. |
|---|---|

## 1 THERE IS ALWAYS A FIRST TIME

Each part number you hold had to be created on your system at some point. Someone made a decision.

We want to examine how those decisions should be made.

## 2 GREENFIELD SITE

Imagine a "greenfield" site with space allocated for Parts stock but completely empty. You are the Parts Manager and have been asked to draw up an initial stock list for a newly franchised site. This is a rare scenario: you are starting from scratch with absolutely no "baggage" from any existing operation.

Even though most of you will not experience setting up a "greenfield" site, the recommendations we are making still apply to your existing business.

Consider the following:

### 2.1 The local car parc

The vehicle manufacturer (VM) can almost certainly tell you local registrations by both post code and model and, probably, derivative, engine size, year of registration and the owner.

Armed with this data, decide on the range of vehicles you will cover. This depends, of course, on your approach to the market.

### 2.2 Approach to market

Essentially, this is a marketing question and the answers are not wholly for Parts to decide. Base the decision on the following.

2.2.1 What is the role of Parts?

Is the role of Parts simply to support Sales and Service? If so, then you will need to know the marketing stance that Service (in particular) is taking so that you can stock accordingly.

Do you plan to actively market to retail customers – for example, with a shop – or are you going to simply wait for orders?

2.2.2 Accessories sold through Sales

How active will Sales be in promoting accessories? Will there be sufficient time to order as required or should you hold (and display) some accessory stock?

2.2.3 Fast-fit

Will the site have a fast-fit operation? If so, what types of job will be promoted?

2.2.4 MOT station

Will the site have an MOT station?

2.2.5 Dealer-operated bodyshop

Will it be own franchise only? How much will parts purchases be influenced by insurance companies?

2.2.6 Trade

Are you planning to actively market to Trade customers? If so, are you likely to specialise in, say, bodyshop or other specific customer types?

2.2.7 Is there a Group role?

For example, will you be serving satellite operations?

We are not seeking to make any marketing recommendations in *this* book, merely to point out that your approach to the market should play a key role in determining what you choose to stock.

## 2.3 Space available

There are some practicalities, whatever your marketing approach.

2.3.1 Stock density

There will be a limit to the space you have available. Work on a stocking density (rule of thumb only) of £750 per square metre.

2.3.2 Building configuration

Take account of the configuration of the building. What shape is it? How easy is it to access via goods inwards? Is there a "mezzanine" floor and how easy is this to access? Will you have a fork lift truck?

2.3.3 Storage equipment

It might be a new building but how flexible is the binning and racking? Not all parts are in neat boxes. Does the binning have adjustable shelving? This will have an impact on stocking density and, therefore, the amount/type of stock you will carry.

## 2.4 Finance

How much funding is available? There will always be a limit.

## 2.5 Recommendations from the VM

Most VMs will have a recommended initial stock list. We know of at least one making it mandatory.

However, if the VM does make a recommendation, treat it with caution. Often, the list is based on broad, national, *historical* demands. It might well be unsuitable for your own situation. Use it as a guide but do not follow it slavishly.

VMs introduce new models frequently. Often, they will make stocking recommendations. Again, treat these with caution.

Check, also, the VM's returns policy. For example, can stock be returned after X months if it has not moved, at what price and is there a limit to the total amount that can be returned?

## 2.6 Taking over from a previous dealer

If your "greenfield" site is replacing a previous dealer (and the transfer was amicable) then it is possible to take their recommendations. Nevertheless, treat with caution. Find out their

stock turn and the level of stock that you will inherit and how much of that is surplus. Apart from the price you will have paid for it, there might not be room for all of this plus the stock you have chosen yourself.

### 2.7 Routine maintenance parts

You should be able to forecast parts required for scheduled services for recent model vehicles. Discuss with Service.

## 3 AN EXISTING BUSINESS

The vast majority of readers will not be starting with a "greenfield" site. For you, stock will be determined by historical demands and lost sales. So, the recommendations above *might* seem irrelevant.

However, the principles that guide initial stock on a "greenfield" site are equally applicable to existing stock. Also, circumstances can change – for example, space and funding. These same principles will help you to review the quality of what you currently hold and for your stock to evolve rather than simply adding to what might have been right years ago.

We will examine reordering based on historical demands and lost sales in chapter 8.

### 3.1 Lost sales

We think it is important to look at lost sales before going on to chapter 8.

Recording all lost sales and reviewing them frequently is crucial to deciding whether an existing business should stock a part for the first time.

### 3.2 Definition of a lost sale

Using the broadest possible definition, a lost sale is an unfulfilled demand (or enquiry) from whatever source.

### 3.3 Follow a disciplined approach

Almost everyone agrees that recording lost sales is "a good thing". Yet, our SMA research shows that few dealers practise this. As a checklist, you should ensure that:

- you give staff a clear idea of what counts as a lost sale, i.e. any demand or enquiry

- *all* staff record lost sales
- they do this on *every* occasion
- you review the lost sales weekly

Let's examine these one by one.

3.3.1 What counts as a lost sale?

Consider the following scenarios. How many of these do you regard as a lost sale? Would all of your staff treat them in the same way as you do?

(a) Service department enquire whether a non safety-related part is in stock. The part is currently out of stock and is not ordered for the customer. The service is completed and the customer takes away his/her vehicle.

(b) Three demands in one day are received over the telephone for a part normally selling three per annum. You are out of stock.

(c) A telephone enquiry is received for a stocked part, currently out of stock. The potential customer does not order the part and, presumably, gets it elsewhere.

(d) A telephone enquiry is received for a stocked part. On being informed of the price, the customer chooses not to order.

We believe that <u>all</u> of the above should be regarded as lost sales.

You might not agree with us completely but by using the widest definition you will cover all possibilities. You can always eliminate doubtful lost sales at the review stage but if you do not record them initially you are likely to miss many genuine ones.

3.3.2 All staff should record lost sales and on every occasion

You might be thinking, "That's fine, in theory, but in the real world….." and we have some sympathy with this view. Yes, the pace in a busy sales office is fast and there is a temptation not to go through the routine every time.

Yet it is no good *most* staff recording lost sales. The benefits of recording them outweigh the inconvenience.

When you know that a part is on backorder it is tempting not even to look it up on the system. You are busy enough as it is. All we can say is, "Just try, make a note on a piece of paper. You can always enter it later."

Most systems make it easy to record a lost sale. Make sure that all staff know how to do this and understand the benefits. See Appendix 3 for possible questions to ask your DMS supplier.

Above all, make sure that all customer-serving staff follow the discipline of recording lost sales on every occasion – a manual system is better than nothing.

Remember, whatever the hassle in recording lost sales, it is much less than the hassle of being out of stock.

### 3.3.3 Reviewing lost sales

Having recorded lost sales, you need to make use of the data.

We recommend that you do this every week. If you do it any earlier there is a risk of a knee-jerk reaction; any longer than a week and you might miss something.

*As a general rule*, if there have been two separate demands in less than five months, stock the part. Some systems will do this for you, provided you have put in the right parameters. You will find reference to this in your own system under "phase in" or a similar expression. You can "take a chance" on low value items if you believe they will enhance customer service. On the other hand, be cautious about bringing high value parts into stock as these will have a bigger impact should they become surplus.

Some systems classify all new parts as "nursery" or "new" and will not allow them to come up for automatic reordering for (often) 180 days. We understand the caution being applied but believe that 180 days is too restrictive. We prefer a maximum of 90 days, with the option of the user overriding this if a firm demand pattern has emerged. It is important to know your own system well. See possible questions for the DMS supplier in Appendix 3.

### 3.3.4 Making decisions

When reviewing lost sales, you need to decide whether to:

- bring a new part into stock for the first time

- adjust the quantity on the next stock order (for existing parts)

A word of caution: because you should have a budget for total stock value (or stock turn or, perhaps, both) have a strict discipline about whether or not to bring a part into stock.

## 3.4 Lost sales caused by too high a price

### 3.4.1 Get some benefit

Here's an example of how to make good use from the recording of a lost sale caused by price:

> Example 6-1
>
> If the part is a slow mover and you want to get something for it (rather than nothing when it is scrapped) then why not set a minimum price and incentivise staff to sell at any figure above that. For example:
>
> Retail = £16.00
> Cost = £10.00
> No demands for 12 months
>
> Written down value (say by 50% but will differ for each company) after 12 months no demand = £5
>
> Set a minimum selling price of £5, i.e. the written down value
>
> Staff incentive = half difference between sold price and minimum selling price. So, if it is sold for £8 the company keeps £6.50 and the employee £1.50.

### 3.4.2 A caution

It is important to record all lost sales. However, it is also important to make a distinction between those caused by insufficient stock and those caused by a price objection (where there is stock). Some systems – for example, Autoline – allow you to record lost sales caused by price but eliminate these from the forecast demand calculation. This avoids the risk of ordering parts unnecessarily. We recommend that you check exactly how your own system handles this – see Appendix 3.

We want to encourage all staff to record all lost sales on every occasion. When you review lost sales, your decisions about taking parts into stock should be based on demands. Treat price objections as "enquiries".

## 3.5 Summary of benefits

Here is a reminder of how important it is to take lost sales seriously. Only by recording all lost sales will you know the demand for a part. Only by knowing all demands will you have more accurate forecasting and know when to bring a new part into stock for the first time. Additionally, lost sales are an indication of the level of service you are providing to customers.

In many cases a "lost sale" is just that – lost revenue, lost profit.

Lost sales are critical and must be taken seriously.

# Chapter 7

# CATEGORISING STOCK INTO MANAGEABLE CHUNKS

| **Designed for:** | Parts Managers |
|---|---|

| **Summary:** | You will be able to manage stock more flexibly if you break it down into categories. This applies particularly when you reorder. |
|---|---|

In Chapter 6 we considered how to decide which parts to stock. Having made the original stocking decision, we are now going to look at how you manage the stock you have.

## 1 RATIONALE FOR CATEGORISING STOCK

### 1.1 Managing thousands of part numbers

No matter how small your Parts operation, it is likely that you will be stocking a *minimum* of a thousand different part numbers. Some franchised dealers will exceed ten thousand. Regardless of the actual count, you have to make choices about the way you manage your stock.

### 1.2 Making a choice

We think there are three fundamentally different ways to manage stock:

1.2.1 Line by line

If you choose this method – setting up rules for each part number – you will find it an exhausting process that will leave you no time to manage all the other aspects of Parts. Also, the rules will need to be flexible enough to allow for changing demand patterns.

1.2.2 As a lump

Treat every part number in the same way? This might seem tempting if you want to save some time but if you choose to treat engines the same way as washers then it will produce appalling results.

1.2.3 Separating into categories

We recommend breaking the whole range of parts numbers you stock into manageable chunks. Because many part numbers have similar characteristics they can be categorised similarly. In general, categories are best based on cost and movement. With categories, you have the ability to apply different reordering rules for each.

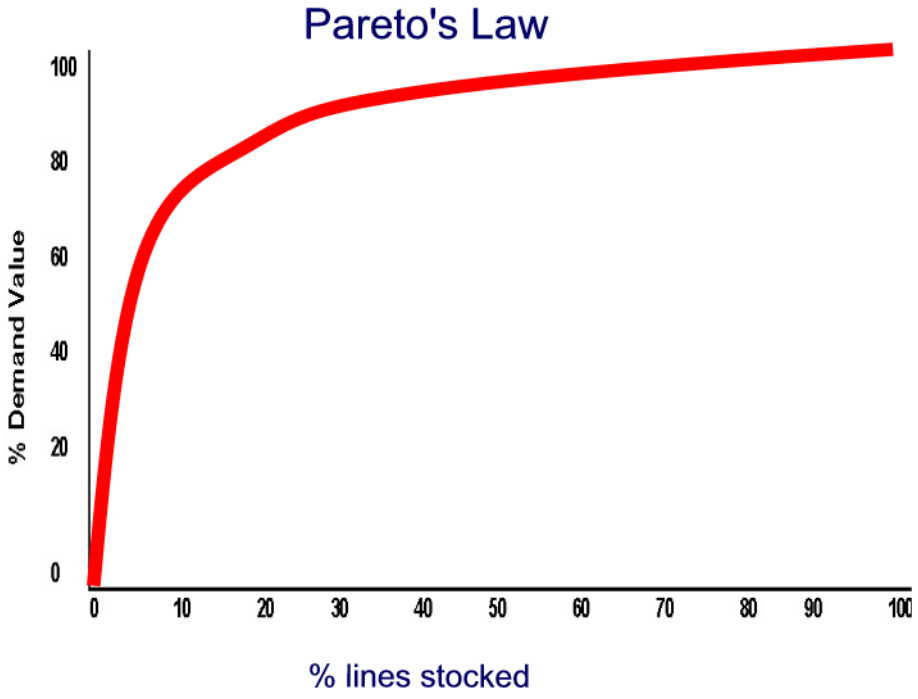
Using an analogy, if you are a golfer, imagine trying to play a good round with only three clubs (or even just one). Now imagine playing with nine clubs. Which is likely to produce better results? It is like that with categories.

## 1.3 Pareto's Law

Let us take a look at how you can categorise parts based on their similar characteristics.

### 1.3.1 Who is Pareto?

Vilfredo Pareto (1848 to 1923) was an Italian economist. He was particularly interested in wealth being in the hands of a minority and from his observations came what has become universally known as the 80/20 rule. It is probably best demonstrated by the graph below. Graph might need improving




### 1.3.2 Applies throughout business

If we take a consumer scenario: imagine you are sitting in a bar and watching the drinks that people order. Over the course of an evening, you will observe that the majority of orders come from

relatively few types of drink (lager, bitter, wine, whisky and vodka) with the remainder from the large number of alternative spirits, cocktails etc. The bar might stock it but how often will someone ask for a Drambuie, Pernod or sherry?

### 1.3.3 Applies to Parts

It is a similar picture when you examine the demands for parts.

As a general rule, a typical dealer's stock will have a demand profile similar to the following:

| % of lines stocked | % of all demands satisfied from stock |
|---|---|
| 5 | 60 |
| 20 | 80 |
| 40 | 95 |
| 100 | 100 |

For a typical dealer stock of around 5,000 lines, the actual lines compared with total demands from stock would look *something* like this:

| lines stocked | % of all demands satisfied from stock |
|---|---|
| 250 | 60 |
| 1,000 | 80 |
| 2,000 | 95 |
| 5,000 | 100 |

### 1.3.4 Lessons from Pareto

A little stock produces a lot of business.

If you are typical, your availability is heavily influenced by less than half of the total lines stocked – 95% of demands coming from just 40% of the lines.

Your obsolescence is most likely to arise from the slowest moving 60% of the total lines stocked. We are not recommending that you dump 60% of the stocked lines but want to emphasise that you need to think carefully about continuing to reorder these slow movers. If you convince yourself that you do need to reorder then keep the stock to just one per line – any more will risk perpetuating the 60% of stock making up the slow movers.

Working on that final 60% is one of the keys to improving stock turn and reducing obsolescence. See chapters 8, 9 and 10.

# 2 CATEGORIES BASED ON COST AND MOVEMENT

## 2.1 Categorising by movement

Based on Pareto's Law, we suggest that you create three movement categories – Fast, Medium and Slow. Do not be tempted to include too many lines in Fast.

Have another look at the graph. Because the lines normally stocked differ dealer by dealer, you will need to adapt the recommendations below to your own situation.

| % of lines stocked | Category |
|---|---|
| 0 to 5 | FAST MOVING |
| 6 to 40 | MEDIUM MOVING |
| 41 to 100 | SLOW MOVING |

Most systems require you to specify actual movements to define the category. You will need to adapt the actual demands to your own situation. You can experiment.

## 2.2 Categorising by cost

Using movement alone to categorise parts is very restricting. For example, when you reorder, would you want to treat these two examples identically?

| | Movement each month | Cost price |
|---|---|---|
| Part A | 20 | £0.65 |
| Part B | 20 | £50.00 |

It is likely that you would want to order Part A in bulk because it costs more to handle it frequently than to stock it. The reverse is true for Part B. Also, if, say, 10 of Part A became obsolete the write off cost is relatively small. On the other hand, if you were left with just 1 of Part B then the obsolescence cost is much higher. We will look into this further in chapter 10.

Setting the cost breakpoints is less "scientific" than for movement. However, as a starting point, we suggest:

| Cost breakpoints £ | Category |
|---|---|
| 0.00 to 3.00 | LOW VALUE |
| 3.01 to 30.00 | MEDIUM VALUE |
| 30.01 to 9999.99 | HIGH VALUE |

Again, you can experiment. We have, though, based these suggestions on research across hundreds of dealers so we believe they are worth adopting *as a starting position*. The average cost price for parts will vary by franchise so you might need to adjust the breakpoints upwards if you are a truck or premium car franchise.

## 2.3 Combining cost and movement to create cost movement categories

Excluding parts that are "manual", "new", and "obsolete" we can now categorise all the rest of the stock by a combination of cost and movement.

As an example:

| Cat'y | Desc'n | Cost breakpoints | | Annual demand | |
|---|---|---|---|---|---|
| | | from | to | from | to |
| A | LV/SM | £0.00 | £3.00 | 0 | 6 |
| B | LV/MM | £0.00 | £3.00 | 7 | 26 |
| C | LV/FM | £0.00 | £3.00 | 27 | 99,999 |
| D | MV/SM | £3.01 | £30.00 | 0 | 6 |
| E | MV/MM | £3.01 | £30.00 | 7 | 26 |
| F | MV/FM | £3.01 | £30.00 | 27 | 99,999 |
| G | HV/SM | £30.00 | £9999.99 | 0 | 6 |
| H | HV/MM | £30.00 | £9999.99 | 7 | 26 |
| I | HV/FM | £30.00 | £9999.99 | 27 | 99,999 |

There are several points to make:

- the above cost movement matrix should be used as a guide only
- the categories in your own system might be identified numerically
- the category descriptions are abbreviated; for example, LV/MM = Low Value/Medium Moving
- some systems require a monthly (or four weeks) demand figure; ours are annual; monthly ones will almost certainly go to at least one decimal place

- regardless of the size of the parts operation, base the movement breakpoints on the table in section 2.1

- make sure that all breakpoints are continuous; otherwise, some parts will not be categorised

It is possible to have more than 9 cost movement categories. For example, it might be feasible to add an extra category for very slow moving parts (regardless of cost) but we see this as a refinement rather than an essential requirement. See chapter 8, section 7.3.

We have seen one system where some users had set up 31 categories. Only a few of these were being used effectively. Our recommendation is to stick to 9 unless there is a very good reason to go above this. Even then, we believe that you should make sure that you are getting the best out of the 9 before thinking about additions.

Most systems have a modelling capability, i.e. you can simulate before implementing the changes. This will give you the confidence to experiment.

There is a further category that you will find included in all systems: for manually controlled parts. Treat it with caution. For that reason, we have given it a separate section.

## 2.4 Manually controlled parts.

These parts are ignored by the recategorisation routine and will not show on a recommended stock order no matter how the demand changes.

There are several reasons why you might *consider* placing a part under manual control:

- it is a "recall" item so any demand will be abnormal for a short period only; when demand returns to normal it will need to go back to a moving category

- it is very expensive

- it is in a promotion so will have a high demand for the duration but then return to normal

- it is subject to volume purchasing terms

- there is an alternative source but the part number is different when using that source

- it is for other franchised vehicles
- it is a special order
- it is highly seasonal

There could be other reasons. Whilst all of them seem reasonable at the time the part is moved into Manual, there is a great risk that parts stay there and are forgotten. As a general rule, avoid using Manual.

When you run a recommended stock order you need to review separately the parts under manual control and make decisions about reordering. That might *seem* like an easy task, especially when there are, say, only fifty part numbers involved. Of course, you will still need to have "rules" for manually reordering. If you do have "rules" then ask yourself why the part is not in one of the moving categories where there are already rules.

In our SMA research, we noticed that many system users had hundreds of part numbers under manual control - perhaps that should be reworded as under *virtually no control*. Our strong recommendation is to restrict Manual to no more than 2% of lines stocked, equivalent to 100 part numbers for a file of 5,000 part numbers.

We will return to this in chapter 8 – Deciding What to Reorder.

# 3 MAKING USE OF COST MOVEMENT CATEGORIES

Assuming that you have set up the categories correctly, you need to use them to manage stock better.

## 3.1 Generating a recommended order

With cost movement categories, you can apply different parameters to each one for the purpose of triggering a recommended order (when) and a reorder quantity (how many). The aim is to produce a recommended order that is "perfect". In other words, if you took each line manually, worked out the quantity you required at that point in time then the system should produce exactly what you want.

By inputting parameters, the system needs to become a slave obeying your instructions.

## 3.2 Reviewing the recommended order

If the parameters are correct, you *should* find that very few of the lines need editing when you review the recommended order. This is because

the system has used the parameters you entered to decide when and how many to reorder. For most systems, you can set up reorder points (= when) and reorder levels (= how many) by cost movement category. We will look at how to do this and give recommendations in Chapter 8 - Deciding What To Reorder.

As a rule of thumb, editing more than 10% of the recommended order lines indicates "something is wrong".

### 3.3 Put it to test

Here's a self-test for those of you who are editing *more than 10%* of the recommended order lines. Ask these questions:

> a) Do I change more than 10% because I consider my system is not very good at making a recommendation? YES/NO
>
> b) Do I change more than 10% because I have little faith in <u>any</u> system to produce a correct order? YES/NO
>
> c) Would I rely on my system to produce a decent recommendation if only I could get the parameters right? YES/NO

Because this is a test for those who <u>are</u> editing more than 10% of the recommended order lines, we hope that you have answered YES to question a) and then skipped b) and gone on to answer YES to question c).

If your answer to question b) is YES and to c) is NO then we have still to persuade you that a well set up system can give you a reliable recommended order. Either that or stock management has taken control of your life.

# Chapter 8

# DECIDING WHAT TO REORDER

| **Designed for:** | Parts Managers |
|---|---|

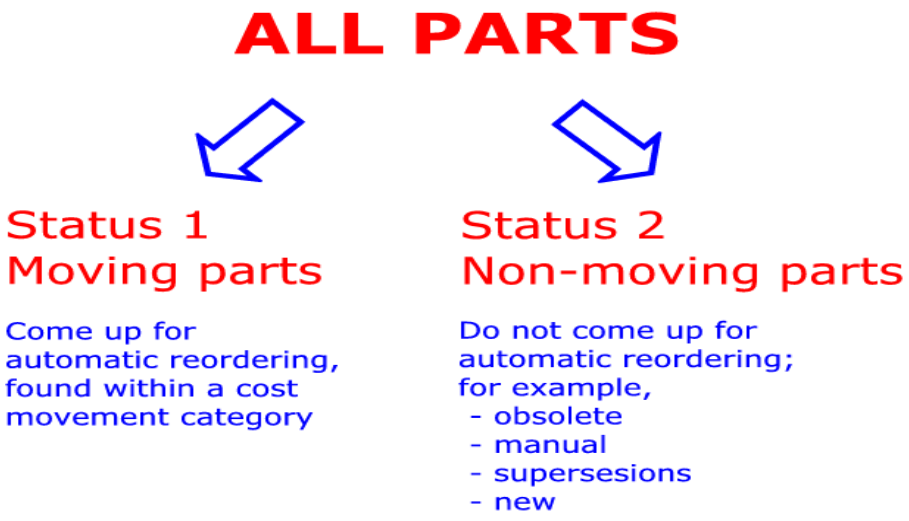
| **Summary:** | This chapter will help you to understand how to reorder parts once you have decided to stock them. You will also learn how to make changes that lead to improved performance in the three key measures. There are numerous examples to explain what might appear to be complex topics. Make sure that you fully understand how your own system works and its capabilities. |
|---|---|

## 1 MOVING AND NON-MOVING PARTS

This chapter will deal with parts that need to be reordered – essentially, moving parts. Behind the scenes, most systems classify parts into moving and non-moving.

For simplicity, we will adopt the term "status codes" and use just two.

Each part number will still fall within a cost movement category. The status simply decides whether a part comes up for automatic reordering and recategorisation when demand changes.




### 1.1 Status 1 – moving parts

This includes all parts that are likely to be reordered at some time. Within this status code, part numbers will be categorised by cost and movement; for example, medium value/fast moving.

### 1.2 Status 2 – non-moving parts

This includes all other parts - those that should not be automatically reordered. Examples are: new parts (with insufficient demand), obsolete, supersessions and special orders.

## 2 AN OVERVIEW OF WHAT NEEDS TO BE TAKEN INTO ACCOUNT WHEN REORDERING

This section is an overview. We will look later at each one in greater detail.

### 2.1 Forecasting

In general, future demands will be forecast from historical demands but there are several ways to forecast. The results will differ depending on the period of time you use to look back at demands – the review period - and the weighting applied to the most recent demands, i.e. the forecasting method.

### 2.2 When to reorder

Each cost movement category needs to have a point when a part comes up for reordering based on a demand level. This can be expressed as a period of time – for example, days or weeks - or a quantity.

The reorder point will be set using several parameters (depending on the sophistication of the system). The two most common parameters are:

- lead time (based on order frequency and turnround)

  and

- safety stock (based on supplier reliability and the incidence of erratic demands)

The reorder point is often referred to as the "min", recognising the minimum stock level before reordering.

### 2.3 How much to reorder

Each cost movement category will also have a "max". This is the point the system will order up to, i.e. a maximum stock figure. This level recognises an "economic quantity" to order, taking into account the cost of processing an order and the cost of holding it in stock.

The simplified formula for reordering is:

Order quantity = Maximum stock - (stock on hand + stock on order - backorders)

where

Maximum stock = (Lead time + Safety stock + Economic quantity) x Forecast Demand

Example 8-1

Assume:

Lead time = 3 days
Safety stock = 12 days
So, "min" = 15 days
Economic quantity = 10 days
So, "max" = 25 days
Forecast demand = 0.20 per day
Stock on hand = 2
Stock on order = 1
Backorders = 0

So, Maximum stock = (3 + 12 + 10) x 0.20 = 5.0

Order quantity = 5 – (2 + 1 – 0) = 2

## 2.4 Lead time

The lead time is the total time from when you placed an order to when the parts on that order have been binned and are ready for sale. You will need to establish a lead time for each supplier.

## 2.5 Safety stock

Safety stock is a buffer to cover erratic demands and, possibly, unreliable supply.

If you knew exactly what the demands would be and you had a perfect supplier then safety stock could be eliminated. Pie in the sky? To an extent, it is. Yet, there might be more predictability than you think. We will look at this in section 4.

## 2.6 Economic quantity

The difference between the "min" and "max" is the economic quantity. The aim is to take account of the demand and the cost of a part by creating an economic quantity that optimises the balance between the cost of holding a part and the expense of ordering and handling it. For example, low value items cost very little to hold relative to the cost of ordering, receiving and putting into stock.

In section 7 of this chapter you will see a generic example of a reordering table. This demonstrates the way we have applied economic quantities to each cost movement category.

Some systems, though, have a refinement that will override the recommended order quantity for an *individual part number* – up or down – depending on the cost price and demand. See section 6 on economic order quantities (EOQs).

### 2.7 Miscellaneous

Individual systems might have parameters additional to the essential ones described above. Sometimes they are "quirky" in that they offer little, if anything, to improving stock management. Nevertheless, it is important to understand every parameter in your own system and then judge its value. See Appendix 3 for possible questions to put to your system supplier.

Examples of different terms used for reordering parameters (but without comment on their usefulness, nor linking them to a specific system) are:

Safety coefficients – similar to (but not exactly the same as) safety stock; in effect, a way to create a higher "min"

Purchase factor – a method to modify the quantities on a recommended stock order; apply with great caution

Order level – another term for Maximum Stock

Best stocking level - another term for Maximum Stock

Strategy codes – similar to our status codes

As a reminder, ensure that you fully understand each parameter in your own system. Simulate changes to ensure you understand the effects.

## 3 FORECASTING

In general, forecasting is predicting the future based on historical demands but there are some occasions when you should not do this. Examples are:

- seasonal items
- erratic demands
- warranty/recall items
- clothing/fashion items
- all-round shortages that have caused false demands

## 3.1 Importance of recording demands

3.1.1 Demands for parts held on the VM's master file

If we rely on sales only (rather than demands) then predicting the future from the past will be inaccurate. Following on from the examination of lost sales in chapter 6, section 3:

Demands = sales + lost sales

Systems that use sales only will produce inaccurate forecasts. If your system falls short, ask the provider why? See Appendix 3.

As we pointed out in chapter 6, recording lost sales can be inconvenient. We know, also, that there is sometimes a fear that if you record a lost sale and subsequently sell the part because the customer still placed an order then there will be double counting. This is not the case. Only one demand will be recorded.

We hope we have persuaded the doubters that lost sales recording – every time, by everyone – is an essential element of good stock management. With particular relevance to forecasting, the benefits are threefold:

- customer service will improve because you are likely to stock parts that are in demand
- profits will improve because you are more likely to sell from the shelf rather than buying at VOR terms
- you might avoid losing a sale altogether

3.1.2 Locally created part numbers

Sometimes you will want to create your own part numbers. This is likely to be when you order a part that you normally hold under a VM number from a local source or when you buy in parts that are not normally stocked – for example, for other franchise vehicles.

Often, dealers create their own part numbers. If you do this, ensure that you take a disciplined approach. In particular, do not use a different part number for the same part purchased on different occasions. Otherwise, you will not record demands correctly. Two adverse results will follow - your forecasting will be inaccurate (for parts you normally stock) and you will miss phasing in a new part (based on lost sales) if demands for the same part are spread across more than one part number.

## 3.2 The review period

When we consider historical demands we need to decide how far back we ought to look. If we go back too far then the data is unlikely to reflect recent demand patterns. Likewise, if we look only at the last few weeks we will probably end up with "knee jerk" forecasts.

You will achieve a reasonably good forecast if you use a review period of four months. There will be exceptions, of course, but our experience suggests that this length of time works best.

The most common exception will probably be seasonal parts but there are fewer of these than a couple of decades ago. For example, we now sell all-year-round coolant instead of antifreeze. Batteries, though, tend to need replacing in winter months. We think it is best to include seasonal parts within the exceptions you look for when reviewing a recommended stock order – see section 8.2.

Some systems have a review period that is "hard coded" – the user has no input – so check yours out. The length of the review period will affect the forecast. See the check list of possible question to put to your system supplier in Appendix 3.

An additional consideration is whether or not the current month is included in the review period. Some systems go back in 30-day blocks so it does not matter how far you are into a calendar month. Others stick to calendar months. When this happens there need to be rules for taking account of demands in the current month. As the month progresses, some notice should be taken. This is particularly important when demand is changing – either up or down – and you need to take this into account when forecasting. As before, check out your own system. If necessary, challenge the system provider. See Appendix 3.

Remember, the aim of forecasting is quite simple: to predict the future accurately. We know that this will never be achieved 100% but the closer you can get the better.

Special note: a forecast can be for any period of time. For simplicity, we have used monthly forecasts in our examples unless stated otherwise.

## 3.3 Applying a weighting to historical demands

To produce a forecast, we could treat all historical demands equally or we could apply some sort of weighting that reflects the most recent demands and is, therefore, more likely to produce a better forecast.

There are four main ways to produce a forecast:

- use demands based on a simple arithmetic average, i.e. treat all demands equally
- use weighted demands – two sub-methods
- use exponential smoothing (a form of weighting)
- use regression (line of best fit)

We will look at these separately, using worked examples.

### 3.3.1 Simple arithmetic average

Essentially, this method adds up all of the demands during the review period and divides by the number of months in the review period. For simplicity, our examples ignore the current month. Month 1 refers to the most recent complete month.

Example 8-2

| Month | Demands |
|---|---|
| 4 | 5 |
| 3 | 3 |
| 2 | 4 |
| 1 | 4 |

| | |
|---|---|
| TOTAL | 16 |
| Simple arithmetic average | 4 |

In this example, the average seems to be a fair reflection of the actual demands. Without any other knowledge, our best guess is that there will be 4 demands in the next month. So, using a simple arithmetic average is quite safe. Or is it? Not really. If the demands had been rising (or falling) then continuing with this method would give us an unsatisfactory result.

Look at the next two examples:

Example 8-3: a rising demand

| Month | Demands |
|---|---|
| 4 | 2 |
| 3 | 3 |
| 2 | 5 |
| 1 | 6 |

| | |
|---|---|
| TOTAL | 16 |
| Simple arithmetic average | 4 |

Example 8-4: a falling demand

| Month | Demands |
|---|---|
| 4 | 6 |
| 3 | 5 |
| 2 | 3 |
| 1 | 2 |

| | |
|---|---|
| TOTAL | 16 |
| Simple arithmetic average | 4 |

In both examples, the simple arithmetic average (based on the only data we have) gives a poor forecast. If followed, we would order too few in example 8-3 (and, therefore, be understocked) and too many in example 8-4 (running the risk of being overstocked and possibly building up future obsolescence).

The conclusion: the simple arithmetic average method only works when demands are "flat" but gives an unsatisfactory result otherwise. Does your system use this method? See Appendix 3 for possible questions to put to your supplier.

Still using the simple arithmetic average, the next two examples (based on 8-3 and 8-4) compare review periods of 6 and 4 months. They demonstrate the influence of the review period and how too long a period adversely affects the forecast when demands are rising and falling.

Example 8-5: a rising demand; 6 vs. 4 months review period

| Month | Demands | |
|---|---|---|
| | 6 months | 4 months |
| 6 | 1 | X |
| 5 | 1 | X |
| 4 | 2 | 2 |
| 3 | 3 | 3 |
| 2 | 5 | 5 |
| 1 | 6 | 6 |

| | | |
|---|---|---|
| TOTAL | 18 | 16 |
| Simple arithmetic average | 3 | 4 |

Example 8-6: a falling demand; 6 vs. 4 months review period

| Month | Demands | |
|---|---|---|
| | 6 months | 4 months |
| 6 | 6 | X |
| 5 | 5 | X |
| 4 | 3 | 3 |
| 3 | 2 | 2 |
| 2 | 1 | 1 |
| 1 | 1 | 1 |

| | | |
|---|---|---|
| TOTAL | 18 | 7 |
| Simple arithmetic average | 3 | 1.75 |

In both examples, you will see a greater distortion when using six months: the longer the review period, the slower the response to actual demands.

### 3.3.2 Weighted demands

In order to have a more responsive forecast, we should give a weighting to the most recent demands. This can be done either by a "progressive" weighting or by weighting only the most recent month.

The method is to apply a weighting to the actual demand and then add up the weighted demands. We will explain later why we have used these weightings but, for now, just look through the examples. From now on, we will use a four month review period only.

The first two examples demonstrate progressive weighting.

Example 8-7: rising demand

| Month | Demands | Weighting | Weighted demand |
|---|---|---|---|
| 4 | 2 | 10% | 0.2 |
| 3 | 3 | 20% | 0.6 |
| 2 | 5 | 30% | 1.5 |
| 1 | 6 | 40% | 2.4 |

| | | | |
|---|---|---|---|
| TOTAL | 16 | | |
| Simple arithmetic ave. | 4 | Weighted ave. | 4.7 |

Example 8-8: falling demand

| Month | Demands | Weighting | Weighted demand |
|---|---|---|---|
| 4 | 6 | 10% | 0.6 |
| 3 | 5 | 20% | 1.0 |
| 2 | 3 | 30% | 0.9 |
| 1 | 2 | 40% | 0.8 |

| | | | |
|---|---|---|---|
| TOTAL | 16 | | |
| Simple arithmetic ave. | 4 | Weighted ave. | 3.3 |

In examples 8-7 and 8-8 the weighted average better reflects the demand trend and produces an improved forecast. Of course, the amount of weighting is not "set in stone". You can experiment. We have taken a slightly conservative approach. If we use a more aggressive approach (heavily weighting the most recent month) then the forecast produces a different result – see the next two examples.

Example 8-9: rising demand (aggressive approach)

| Month | Demands | Weighting | Weighted demand |
|---|---|---|---|
| 4 | 2 | 7% | 0.14 |
| 3 | 3 | 13% | 0.39 |
| 2 | 5 | 25% | 1.25 |
| 1 | 6 | 55% | 3.30 |

| | | | |
|---|---|---|---|
| TOTAL | 16 | | |
| Simple arithmetic ave. | 4 | Weighted ave. | 5.08 |

Example 8-10: falling demand (aggressive approach)

| Month | Demands | Weighting | Weighted demand |
|---|---|---|---|
| 4 | 6 | 7% | 0.42 |
| 3 | 5 | 13% | 0.65 |
| 2 | 3 | 25% | 0.75 |
| 1 | 2 | 55% | 1.10 |

| | | | |
|---|---|---|---|
| TOTAL | 16 | | |
| Simple arithmetic ave. | 4 | Weighted ave. | 2.92 |

An aggressive approach works well when the rise (or fall) is a steady trend but might run the risk of producing a "knee jerk" forecast if demand is volatile.

Simulate the effects before making definite changes. We hope, though, that we have demonstrated that different weighting factors produce different forecasts. As a starting point, we recommend

using 10/20/30/40 as percentage weightings. Check what your own system offers and experiment.

As an alternative to the progressive weighting method, we could simply weight the most recent month by a percentage and then apply an equal weighting to all previous months. The next two examples demonstrate this.

Example 8-11: rising demand, weighting applied to most recent month

| Month | Demands | Weighting | Weighted demand |
|---|---|---|---|
| 4 | 2 | 20% | 0.4 |
| 3 | 3 | 20% | 0.6 |
| 2 | 5 | 20% | 1.0 |
| 1 | 6 | 40% | 2.4 |

| | | | |
|---|---|---|---|
| TOTAL | 16 | | |
| Simple arithmetic ave. | 4 | Weighted ave. | 4.4 |

Example 8-12: falling demand, weighting applied to most recent month

| Month | Demands | Weighting | Weighted demand |
|---|---|---|---|
| 4 | 6 | 20% | 1.2 |
| 3 | 5 | 20% | 1.0 |
| 2 | 3 | 20% | 0.6 |
| 1 | 2 | 40% | 0.8 |

| | | | |
|---|---|---|---|
| TOTAL | 16 | | |
| Simple arithmetic ave. | 4 | Weighted ave. | 3.6 |

Compared with progressive weighting, this method results in a slower response to the most recent demands.

Examples 8-13 and 8-14 compare the results of weighting recent demands in different ways. The first example is when demand is falling; the second when demand is rising.

Example 8-14: a comparison of forecasting methods

Falling demand

| Month | Demands | Simple arithmetic average | Progressive weighting | Aggressive progressive weighting | Most recent month weighting |
|---|---|---|---|---|---|
| 4 | 6 | 25% | 10% | 7% | 20% |
| 3 | 5 | 25% | 20% | 13% | 20% |
| 2 | 3 | 25% | 30% | 25% | 20% |
| 1 | 2 | 25% | 40% | 55% | 40% |
| Demand forecast | | 4 | 3.3 | 2.92 | 3.6 |

Example 8-13: a comparison of forecasting methods

Rising demand

| Month | Demands | Simple arithmetic average | Progressive weighting | Aggressive progressive weighting | Most recent month weighting |
|---|---|---|---|---|---|
| 4 | 2 | 25% | 10% | 7% | 20% |
| 3 | 3 | 25% | 20% | 13% | 20% |
| 2 | 5 | 25% | 30% | 25% | 20% |
| 1 | 6 | 25% | 40% | 55% | 40% |
| Demand forecast | | 4 | 4.7 | 5.08 | 4.4 |

In the comparisons above, none of the forecasts matches exactly actual demand. The progressive method, though, matches most closely.

So, regard these examples as exactly that - examples. Demands can often be erratic with no clear trend. However, we regard the progressive method as the best all round way to forecast.

You should now be feeling confident that you understand the importance of the review period and weightings. Find out exactly how your own system works. See Appendix 3 for possible questions to put to your supplier.

### 3.3.3 Exponential smoothing

We are uncertain about the number of dealer systems that use this forecasting method but have included it to ensure readers can refer to it if necessary.

Exponential smoothing resembles the weighted average (most recent month) method – except the name seems more daunting. In brief, it corrects the "error" between the previous forecast and actual monthly demand. It does this by applying a smoothing factor - sometimes referred to as an alpha factor – to the difference between the two.

The general formula is:

New Forecast = Old forecast + (smoothing factor x [actual demands - old forecast])

As before, examples should make this clearer.

Example 8-15

| | |
|---|---|
| Old forecast | 10 |
| Actual demands | 15 |
| Error | 5 |
| Smoothing factor | 0.4 |

| | |
|---|---|
| New forecast | 12 |

Example 8-16

| | |
|---|---|
| Old forecast | 10 |
| Actual demands | 5 |
| Error | 5 |
| Smoothing factor | 0.4 |

| | |
|---|---|
| New forecast | 8 |

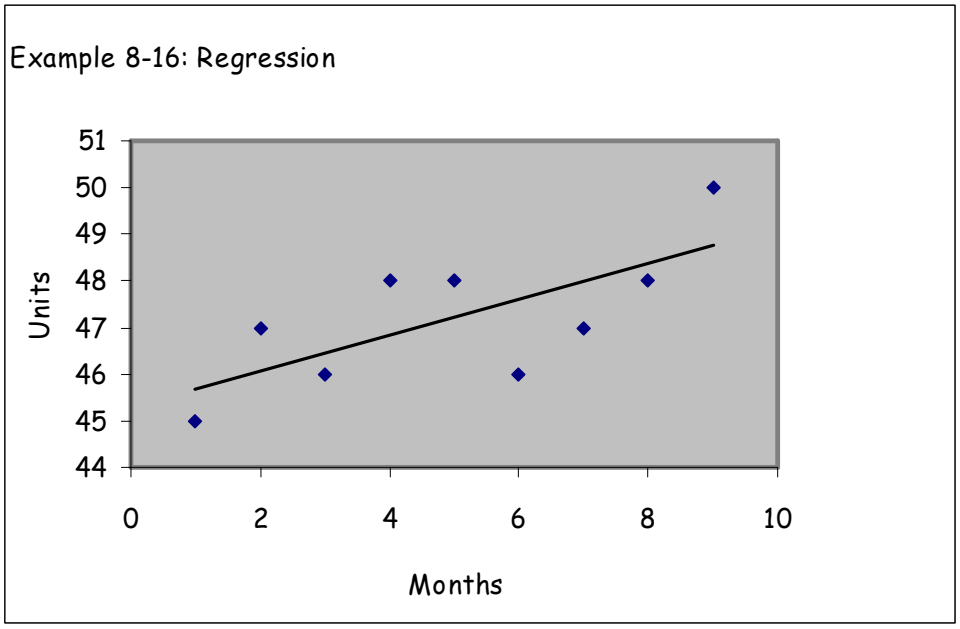
We have used a smoothing factor of 0.4 purely for demonstration purposes. If we had used 0.2, for example, the adjustment would have been much smaller. Where the demand trend is generally flat it is not so important to respond quickly but where the demand trend is rising or falling using 0.2 will be too slow to match actual demands.

Because many automotive users operate Autoline rev 7 or rev 8, we have included as Appendix 5 an adapted version of exponential smoothing used to forecast future demand. Also, in Appendix 5, we have shown the calculations for determining reorder quantities.

### 3.3.4 Regression

This forecasting technique works well but in a very narrow set of circumstances: fast moving parts with a steady demand. However, we believe that few, if any, dealer systems use it. We include it for the record.

Regression will fit a line through demand history using the least squares method. Again, an example will best illustrate this.




In this example, there is a slightly rising demand and the trend line varies very little from actual demand each month. So, the trend line is a safe way to forecast future demands.

However, we are not sure that this technique offers any practical advantages for a dealer with daily stock ordering.

### 3.3.5 Rounding up or down?

If you look again at the techniques we have described you will see that the forecast is likely not to be a whole number - see the examples in section 3.3.2.

So, when it is applied to the reordering formula the resulting order quantity will not be a whole number. See a rework of example 8-1 (shown in section 2.3). We have changed the forecast from 0.2 to 0.25 in order to produce a decimal order quantity.

Example 8-17 (based on 8-1)

Lead time = 3 days
Safety stock = 12 days
So, "min" = 15 days
Economic quantity = 10
So, "max" = 25 days
Forecast demand = 0.25 per day
Stock on hand = 2
Stock on order = 1
Backorders = 0

So, Maximum stock = (3 + 12 + 10) x 0.25 = 6.25

Order quantity = 6.25 - (2 + 1 – 0) = 3.25

Clearly, the *order quantity* must be a whole number. So will the order quantity be 4 or 3? This depends on the rounding parameter set in the system. There appears to be no consistency from the various systems providers. With daily stock order submissions, we believe that rounding *down* should be the default. However, this might not be appropriate for low cost items or where demand for a part is climbing rapidly. Rounding is not significant for high volume parts. For example, does it matter if you order 11 or 12 today? Often, these fast movers have to be ordered in pack quantities anyway.

Where rounding becomes particularly relevant is for slow moving parts where, say, the choice is between ordering 1 or 2. In chapter 10 you will see that this is often a cause of obsolescence.

Take a look at example 8-17 again and see what would have been the recommended order quantity if rounding *up* had taken place *before* applying it to the reordering formula, i.e. to the forecast demand. The maximum stock would have become 25 so the order quantity would be 22. We think it is unlikely that any system actually does this but it is *possible*. So, check out what yours does.

If you are unhappy then challenge the system provider to explain the logic. See Appendix 3 for possible questions to ask.

What is most likely to happen is that the forecast demand will stay in decimals, be applied to the maximum stock calculation and the resultant order quantity will be rounded up if it is 0.5 or above or down if it is below 0.5. This is simple and straightforward but we still have reservations when applied to slow moving parts. However, our reservations will only apply if the reorder parameters are not as tight as the ones we recommend in section 7.3.

3.3.6 Some other points about forecasting

As a reminder, the aim of forecasting is to predict the future as accurately as possible based on historic demands. Different techniques will give different results, as will different review periods.

In an ideal system, demand trends for individual part numbers would be classified depending on the rate of climb or fall and the most appropriate technique would be applied. There might be dozens of profiles as a result. Our view is that this level of sophistication is unnecessary for a dealer system where orders can be placed daily with one major supplier. For most dealers, an effective system should be ordering "little and often". Our recommendations in section 7 will reflect this.

# 4 LEAD TIME

## 4.1 Definition

The lead time is the total time from when you placed an order to when the parts on that order have been binned and are ready for sale.

## 4.2 Exploiting daily stock orders

Daily stock orders - offered by almost all suppliers - have helped enormously to reduce lead times.

However, you might be able to reduce the lead time further by doing the following.

4.2.1 Reviewing and placing your stock order as late as possible

From our SMA research, we are surprised how many dealers review their recommended stock order in the morning when cut off time is

late afternoon. By minimising the gap between generation and actual submission will enable you to pick up more demands thus producing a better forecast and, ultimately, improving customer service.

4.2.2 Binning order receipts more quickly – ideally, before opening time. Most of the VMs deliver during the night so why not have someone start early, thus ensuring stock is available at the start of normal working hours for internal and external sales. This *could* lead to a day coming off lead time. It might give you a competitive edge as well – see chapter 11 dealing with the physical management of stock.

## 4.3 Calculating lead time

We recommend that you calculate the lead time starting at the point you last placed a stock order to when the parts you order *today* are in the bin ready for sale. Essentially, you are seeking to cover a gap.

> Example 8-18
>
> Parts ordered today at 1700 (Day 1)
>
> These parts arrive on Day 3 at 0600
>
> Parts in bin, ready for sale at 0800 Day 3
>
> So, lead time is 2 days and 13 hours, which we will round up to 3 days.

## 4.4 How it is applied in a system

Each system will have its own way of inputting the lead time parameter.

Theoretically, all systems should use the lead time parameter plus safety stock to set a point at which reordering is triggered. In general terms, this is often referred to as the "min", i.e. the minimum stock figure before reordering. In practice, several systems simply allow you to input a "min" and "max" in days of stock cover. That means you need to judge the amount of safety stock you think should be added to the lead time to arrive at the "min". We will look at this method in section 7.

# 5 SAFETY STOCK

To recap, safety stock is a buffer to cover erratic demands and, possibly, unreliable supply.

## 5.1 The rationale for keeping safety stock

If the demand for a part were entirely predictable – for example, one a day, every day – then there would be no need for safety stock. Also, if you did not care about losing sales (or keeping customers waiting) then there would be no need for safety stock. Neither of these scenarios, though, is likely to exist in any automotive business so you will need to keep safety stock.

In addition to the lead time between the last order you placed and its arrival in the bin, you will need to keep a safety stock to cover the risk that stock will be exhausted by erratic demands and/or supplier unreliability. Let us look at how you can influence safety stock and the effects this will have on the three key measures: stock turn, surplus stock and customer service.

## 5.2 It's all Greek to me

There is a classic formula for calculating safety stock.

$$\text{Safety stock} = \sigma.\kappa\sqrt{(L + T)}$$

Before you skip this section, let us explain what this means as it will help to understand the importance of safety stock and how it can be kept to a minimum.

The symbol $\sigma$ is the Greek letter sigma and represents the variability of demand for an individual part number. It is because of this variability of demand that you should be looking at applying safety stock in a selective way rather than using a single blanket level to cover all stock.

The symbol $\kappa$ is the Greek letter Kappa and represents the level of customer service you want to give. Both $\sigma$ and $\kappa$, therefore, will influence the level of safety stock.

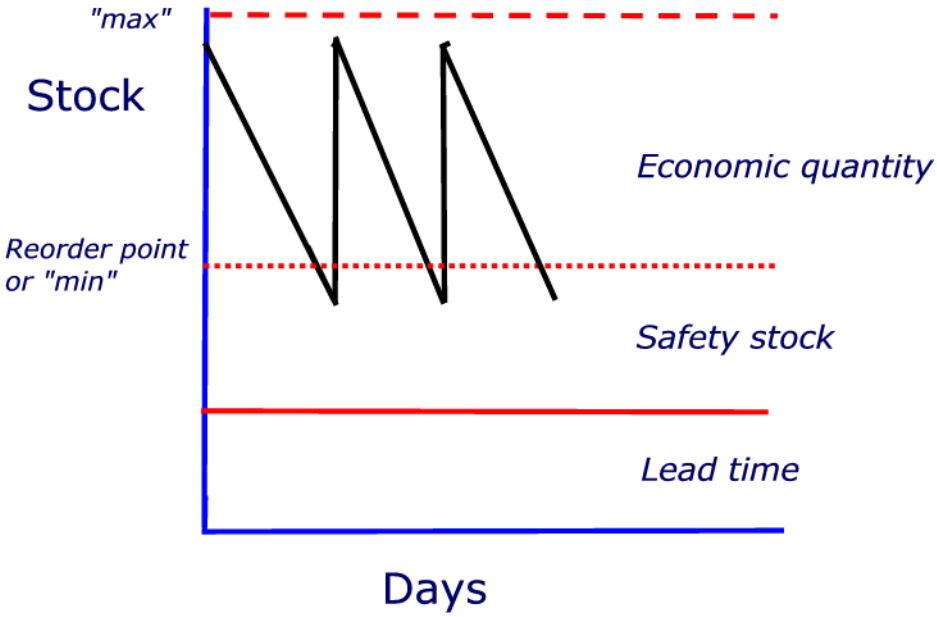
The rest of the formula – $\sqrt{(L + T)}$ – applies to lead time. See section 4.

## 5.3 Applying safety stocks

The main learning point from examining the mathematical formula in section 5.2 is to use safety stock in a flexible way. The graphic below gives the impression that you apply it to all stock in the same way. In practice, you make use of the cost movement categories (chapter 7) – a

workable compromise between individual part numbers and the whole stock.

**Stock held - lead time, safety stock and economic quantity (should vary by cost movement category)**




This graphic is not drawn to scale but *illustrates* the way stock moves:

- sales decrease the stock
- an order is triggered at the reorder point
- stock increases as new stock arrives from a previous order

We have found that most dealers have too much safety stock, particularly for slow moving parts. Take a look at the Pareto curve in Chapter 7. Ask yourself why you need any safety stock for the slow moving 60%.

Safety stocks can be both a curse and a blessing: unnecessary on many occasions but essential on others.

## 6 ECONOMIC QUANTITIES

To recap, the economic quantity is the difference between the "min" and "max".

## 6.1 Rationale

When we looked at stock categories in Chapter 7 we stressed how important it is to use both movement and cost. It enables selective reordering that minimises the risk of overstocking high value parts and yet avoids wasteful handling of low value parts.

The economic quantity balances the cost of holding stock and the cost of handling it. Our generic table in section 7.3 has built in an economic quantity based on these principles.

## 6.2 EOQs - another mathematical formula

It is possible in some systems to calculate economic quantities at the part number level. Where applied, this relies on a mathematical formula that seeks to adjust quantities to ensure minimum stocking costs – high value parts – and minimum handling costs – low value parts.

If your own system calculates in this way then the formula for an economic order quantity (EOQ) will be calculated as follows:

$$EOQ = \sqrt{\frac{2 \times \text{annual demand} \times \text{ordering cost}}{\text{cost price} \times \text{holding cost}}}$$

- the annual demand is the number of pieces demanded; a figure the system can extract
- the ordering cost is the expense of placing each order line; potentially, a user input – in £ (or a fraction of)
- the cost price is also a figure the system can extract
- the holding cost is the % of the cost price that should be charged each year for sitting in stock; potentially, a user input

We are unaware of any dealer system that asks the user to input the two parameters – ordering and holding costs – so this formula is shown as an explanation of the theory behind economic order quantities. Although the concept of EOQs is sound, we believe that with daily stock orders and the tight min/max levels we will recommend (in section 7) there is little added value in overriding the order quantity at the part number level.

Also, most VMs have minimum order quantities/pack quantities in an attempt to reduce their own handling and for the dealers. There are, though, always differences of opinion on the suitability of some of the quantities.

Furthermore, it is quite difficult to calculate the ordering cost per line. Unless there is a real choice of reducing staff – the major cost – then how do you calculate the actual cost of ordering (and receiving) each line? It might be possible to calculate a notional figure on the basis that staff could do something else with their time but this seems a little contrived. Check with your DMS supplier - see Appendix 3.

# 7 SETTING REORDER POINTS AND REORDER QUANTITIES

## 7.1 A critical area

This is one of the most critical areas for achieving good stock management. At what point do you reorder and what should the quantity be?

## 7.2 The simplified formula for reordering

Up to now the simplified formula (see section 2.3) for calculating a "max" has explained how an order quantity is calculated. As a reminder:

> Order quantity = Maximum stock - (stock on hand + stock on order - backorders)
>
> where
>
> Maximum stock = (Lead time + Safety stock + Economic quantity) x Forecast Demand

However, the formula falls short in two ways: not telling us *when* to reorder plus it lacks any refinement based on cost movement categories. If you relied on the simplified formula you would have the same level of safety stock regardless of its contribution to customer service:

## 7.3 Refining the simplified formula

Different systems use different ways to calculate the reorder point and the reorder quantity. Some are difficult to understand and operate.

So, we are showing a generalised version that is easy to understand and works well in a dealership. Essentially, it is based on cost movement categories, the stock level when the system will recommend you reorder

and the stock level up to which it will reorder - the "min" and the "max" if you prefer. They are expressed in the number of days of stock cover.

Look at the table below.

| Cat'y | Desc'n | Cost breakpoints | | Annual demand (pieces) | | Reordering (days) | |
|---|---|---|---|---|---|---|---|
| | | From | to | from | to | Point | Up to |
| A | LV/SM | £0.00 | £3.00 | 0 | 6 | 20 | 35 |
| B | LV/MM | £0.00 | £3.00 | 7 | 26 | 20 | 40 |
| C | LV/FM | £0.00 | £3.00 | 27 | 99,999 | 20 | 40 |
| D | MV/SM | £3.01 | £30.00 | 0 | 6 | 20 | 30 |
| E | MV/MM | £3.01 | £30.00 | 7 | 26 | 20 | 30 |
| F | MV/FM | £3.01 | £30.00 | 27 | 99,999 | 15 | 30 |
| G | HV/SM | £30.00 | £9999.99 | 0 | 6 | 15 | 30 |
| H | HV/MM | £30.00 | £9999.99 | 7 | 26 | 15 | 25 |
| I | HV/FM | £30.00 | £9999.99 | 27 | 99,999 | 10 | 20 |

This table is designed to *demonstrate* a common way to set the reorder point and the quantity to reorder. We will show worked examples in section 7.4.

From our experience, the days we have shown work well for dealers submitting daily stock orders. We recommend using them as a starting point but it is worthwhile experimenting. Simulate the results before committing to a change. Always keep a record of the originals in case the experiment does not give you the result you want.

We mentioned in chapter 7, section 2.3 that it might be possible to add a further category for very slow moving stock – J. Category J, if applied, would cover parts with, say, an annual demand of less than 3 regardless of cost. Our recommendation is that the "min" and "max" be set at 0 and 1 respectively. In practice, category J parts will never reorder automatically but you will have the ability to isolate them and review from time to time.

You will need to check how your own system gives access to reorder parameters. We know that some systems will only permit access at a high level or even insist that only the system provider can make the changes. Apart from the question of who owns the system, we think such an approach discourages a manager from taking responsibility for achieving the three key measures. It should always be a user input. Check this out - see Appendix 3 for possible questions to put to your system supplier.

## 7.4 Making use of the table

If you study the table in section 7.3, you will see that it combines lead time and safety stock into the reorder point for each category. The "up to" stock level is based on the economic quantity.

We will look at some examples to show how this might work.

Example 8-19 (a medium value/fast moving part)

Stock on hand (SOH) = 14
On order (OO) = 0
Backorders (BO) = 0
Forecast demand (FD) = 1.0 per day, i.e. 365 p.a.
Cost movement category (CMC) = F (medium value/fast moving)
When stock drops to FD x 15 (or lower) the part will come up for reordering
Reorder point = 1.0 x 15 = 15
The "up to" stock figure = FD x 30 = 30

So, reorder quantity = "up to" – (SOH + OO - BO) = 30 – (14 + 0 - 0) = 16

In the above example – a rear wiper blade for a current model, say – you would want to carry sufficient stock to cover all eventualities. Customers expect it. Because it is a medium value part it is not too expensive to hold. Furthermore, because it is fast moving there is almost zero likelihood that it will suddenly stop moving and you will be left with obsolescence.

Example 8-20 (a high value/medium moving part)

Stock on hand (SOH) = 0
On order (OO) = 0
Backorders (BO) = 0
Forecast demand (FD) = 0.03 per day, i.e. 11 p.a.
Cost movement category (CMC) = H (high value/medium moving)
When stock drops to FD x 15 (or lower) the part will come up for reordering
Reorder point = 0.03 x 15 = 0.45
The "up to" stock figure = FD x 25 = 0.75

So, reorder quantity = "up to" - SOH - (OO + BO) = 0.75 – (0 + 0 - 0) = 0.75

This is an interesting example. An FD of 0.03 is just less than 1 each month. Unless there is a rounding up of the reorder quantity – i.e. 0.75 goes up to 1.0 – then this part will only reorder if there is a backorder. As

a general rule, we suggest rounding up if the quantity is 0.5 or above. So, in this case the reorder quantity would be 1.

So, are we recommending that you never stock some slow moving parts but just order them as required? The answer is, "Most definitely". You will see why we take this stance when we cover the ways to prevent the build up of surplus stock in chapter 10.

Example 8-21 is based on a similarly priced part moving about once every two months.

Example 8-21 (a high value/slow moving part)

Stock on hand (*SOH*) = 0
*On order* (*OO*) = 0
Backorders (*BO*) = 0
Forecast demand (FD) = 0.016 per day, i.e. 6 p.a.
Cost movement category (*CMC*) = *G* (high value/slow moving)
When stock drops to FD x 15 (or lower) the part will come up for reordering
Reorder point = 0.016 x 15 = 0.24
The "up to" stock figure = FD x 30 = 0.48

So, reorder quantity = "up to" – (*SOH* + *OO* - *BO*) = 0.48 – (0 + 0 -0) = 0.48

Because this is an expensive part and has now fallen into the slow moving category – i.e. 0 to 6 demands per year – it will be reviewed for reordering but the order quantity will be rounded down to zero so it will not show up on a recommended stock order. In practice, you will order as required. Depending on the urgency, this might be a stock or VOR order.

The next example is based on a low value/fast moving part.

Example 8-22 (a low value/fast moving part)

Stock on hand (*SOH*) = 6
*On order* (*OO*) = 10
Backorders (*BO*) = 0
Forecast demand (FD) = 0.8 per day, i.e. 292 p.a.
Cost movement category (*CMC*) = *C* (low value/fast moving)
When stock drops to FD x 20 (or lower) the part will come up for reordering
Reorder point = 0.8 x 20 = 16
The "up to" stock figure = FD x 40 = 32

So, reorder quantity = "up to" – (*SOH* + *OO* - *BO*) = 32 – (6 + 10 - 0) = 16

It is possible that the supplier insists on pack quantities so the actual order might need to be rounded up or down. That aside, it is more economic to order in quantity less often than to handle small amounts frequently. The cost of holding low value items is relatively low.

We hope that we have demonstrated the value of cost movement categories and how they allow you to achieve high levels of customer service plus a good stock turn and minimal surplus stock. The table in section 7.3 – albeit a generalised one – gives you the flexibility to manage stock successfully.

If you follow our recommendations (or develop your own through experimenting) you should be well on the way to controlling your stock.

# 8 THE RECOMMENDED STOCK ORDER

The system will generate a recommended stock order (RSO) any time you want to call one off. For most dealers, this will be daily.

## 8.1 Restricting which parts come up for reordering

In most systems, you can restrict the parts that come up for automatic reordering. In general, these will be "status 1" as described in section 1 of this chapter. However, you might be able also to eliminate some cost movement categories. In Autoline 8.3, for example, this is done via Reports and Enquiries then find Stock Order. In Autoline, again, you will find options regarding "Wait until minimum is reached" or "Top up to maximum". If you select "top up" then an order will be recommended whenever stock goes below maximum rather than waiting until the minimum is reached. We recommend choosing "Wait until minimum is reached" otherwise you will increase the number of lines you handle each day and increase stock overall.

## 8.2 Editing the recommended stock order

Ideally, the RSO will be exactly what you need without any editing required. Of course, this assumes that all the reordering parameters are correct and that there are no strange, unexpected demands. As that is unlikely to be the case then some editing will be required.

We believe that the percentage of lines that you edit is an indicator of one, some or all of the following:

- The design of the system itself and your understanding of it

- How well the system has been set up, i.e. correct parameters
- Your confidence in the system
- Your inclination to meddle

8.2.1 Design of the system and your understanding of it

You might think that there is nothing at all that can be done about the design of the system. To large extent, this is true but it is important to make sure that you fully understand its capabilities.

Often, we have found that a system has far more functionality than is realised by the user. Sometimes, the user has not received adequate training, especially in the *management* of stock. For example, in our SMA research we found that many Parts Managers were unaware of the details of stock categories – a fundamental requirement if you want to achieve the three key measures. When these were explained, it was pleasing that scepticism on achieving a stock turn of, say, 10 withered away. It helps to have a good manual and it helps to be shown how. Whenever there is change, there needs to be training to cover it. Change might come in the form of: a promoted member of staff; an enhancement to the existing system; or, even, a new system

Even if your system does seem to have shortcomings the provider might have off the shelf modifications available or be prepared to make changes to ensure the system is "state of the art". Just ask.

8.2.2 Your confidence in the system

If the reordering parameters have been set up correctly – and are reviewed, say, every "Second Tuesday" – then you should have confidence in the RSO. (We use the term "Second Tuesday" as a process for reviewing parameters from time to time – see Glossary.) We think that you should aim to edit *no more than* 10% of the recommended lines. When you go through the RSO look for:

- high value items – to avoid the risk of expensive items ending up on the shelf it is better to order small quantities more frequently
- erratic demands
- seasonal items
- recall parts with a short life

- where normal usage is greater than one – for example, spark plugs

If in doubt, strike it out. For those on a daily stock order, there is always tomorrow.

8.2.3 The Van Royan syndrome (or meddling)

Now we come to a common affliction known as the Van Royan syndrome. This manifests itself as editing gone mad. The quantity on almost every line is altered, usually by a trivial amount.

This is what happened when one of the authors watched Mr Van Royan edit a stock order some twenty plus years ago. He cast his "expert" eye over the demand history for each part number. The first line had a recommended quantity of 8. His brain went into gear and decided that it should be reduced to 7. On the next line the order quantity was 10 but Mr Van Royan decided it should be 11. And so it went on. Meddling. Were there formulae in his head that were producing these results? If there were then he should have transferred them to the system and let it make the recommendations. The suspicion, though, is that even if there were formulae then they were not used in a consistent way.

We believe that the % of the lines you need (or, perhaps, choose) to edit is a good indicator of your confidence in the system to produce a recommended order and/or the degree that you want to "meddle". We mentioned in chapter 7 that we had found 27% of our research sample changing more than 20% of the recommended order lines. If you feel you might be editing too many lines, decide the reason why. The Van Royan syndrome can be cured.

# 9 AUTOMATIC REPLENISHMENT

## 9.1 Outline

Several VMs offer a form of stock replenishment for their dealers. In brief, the VM will interrogate the dealer system – usually overnight – to find out what demands there have been then make up an order to bring stock back to an "agreed" position.

## 9.2 Evolution

In the mid-90s, Volkswagen (VW) introduced Parts National Stock (PNS). The vast majority of dealers allow VW to interrogate their stock during the

night. Any part numbers that need topping up (according to VW parameters) are shipped to the dealer, arriving a couple of days later. If any parts supplied fail to move then VW will buy them back after 6 months. The dealers can submit their own orders as well.

Toyota, Vauxhall and Volvo offer a *similar* top up scheme to their dealers.

We know that DaimlerChrysler and Honda are actively examining stock replenishment schemes. The details of each will differ but the aims are the same: remove much of the complexity of dealer stock management and improve national parts availability.

### 9.3 The way to go?

If this trend of VM involvement in dealer stock management continues then several areas will need clarifying. Amongst these are: agreement on software, no-quibble buy-backs, possible stock ownership by the VM, dealer commitments on space allocation, ownership risk for "emergency" purchases.

There *can be* advantages for all parties and we will comment further in chapter 13 – A Look into The Future.

## 10 SUPPLIER'S TERMS

### 10.1 Scope

Each supplier will offer terms that cover:

- order submission (frequency and cut off time)
- order types
- planned order turnround time
- delivery charges (if any)
- minimum quantities
- returns
- the price paid
- a purchase incentive scheme

These will influence the way you purchase.

For franchised dealers (including approved repairers) the VM is likely to be the main supplier. We want to pick out two of the above for special attention.

## 10.2 Returns

There are several types of return but broadly they are: when the supplier makes a mistake; when the purchaser makes a mistake; core ("dirty units"); general buybacks; parts no longer on a recommended list.

From our research – based on SMA and benchmarking – we know that each VM has a slightly different approach. Some are "generous" whilst a few are "restrictive". So, it is important to make sure that you fully understand what is on offer from your supplier.

Our research, SMA in particular, shows that many dealers are not sure what they can return and are not taking advantage of what is on offer. As a result, they probably have stock they cannot sell and their cost of sale is higher than it need be, i.e. gross profit could be improved simply by paying full attention to returns.

## 10.3 Purchase incentive schemes

Again, these will vary depending on the supplier. Under New Block Exemption Rules, these schemes will have to be aimed at genuinely incentivising purchasers. In this sense, they can no longer be regarded as "loyalty" schemes.

However, they will influence your purchasing decisions. Often the bonus is substantial. As the end of the year approaches, it is tempting to buy extra stock. Indeed, the Dealer Principal might need the bonus to "prop up" other areas of the business.

This can be a very shortsighted approach, unfortunately. Yet, based on our SMA research, it is quite prevalent. When asked about their policy on purchasing extra stock at year-end to meet rebate targets, 37% responded with "whatever it takes". There are, of course, occasions when it makes sense to buy extra stock; for example, if the bonus is greater than the extra purchases.

Our strong recommendation, though, is to avoid chasing bonus unless there is a good commercial reason to do so. The risk is that your target will go up plus you might well be building up future obsolescence. If you feel compelled to buy extra stock then make sure that what you buy is extremely saleable.

# 11 TO STOCK OR NOT TO STOCK?

That really is the question.

In many ways we can regard these last three chapters – 6, 7 and 8 – as central to good stock management. We started with bringing a part into stock for the first time. Then we looked at how to categorise stock and in this chapter we have examined reordering. The theme running through these three chapters is:

> "To stock or not to stock?"

There has to be a balance between the breadth of stock you hold – essentially, lines – and the quantity for each line (depth). It seems to be "fashionable" for VMs to encourage their dealers to take advantage of daily stock orders to *decrease* depth but *increase* breadth. Certainly, there is little financial risk in increasing breadth by adding in low value items. We think, though, that there is a risk that "increasing breadth" becomes a mantra and the rules of good stock management are ignored. Most surplus stock results from holding a quantity of just one when the better decision would be to make the part a non-stock item altogether.

Chapters 6, 7 and 8 should have demonstrated that there is no "quick fix" to achieving the three key measures – high stock turn, low surplus stock and high customer service. You will need to consider a whole series of actions. Experiment. Find out what is right for you. Above all, remember the three key measures.

# Chapter 9

# ANALYSING STOCK TO ACHIEVE A BETTER PROFILE

| **Designed for:** | Parts Managers |
|---|---|

| **Summary:** | Stock can be analysed in several ways. Use analysis reports to achieve a better stock profile. |
|---|---|

In chapter 4, section 2.2.1, we urged you to "Think better stock not bigger stock". Analysis reports are designed to help you to improve your stock profile. They show the results of how you have organised stock.

Analysis, though, is not just an observation. It can also be a tool to improve stock. There are several types of analysis. We regard the following as essential but the list is not exhaustive:

- based on cost movement categories
- RIM
- based on ageing
- based on movement
- based on line depth

Analysis reports enable you to isolate and focus on problem areas. You can then investigate – possibly at the part number level.

## 1 ANALYSIS BASED ON COST MOVEMENT CATEGORIES

In some systems you can analyse stock by cost movement category. The table below is a generic example.

| CMC | Category breakpoints | | | | Stock value | S T R x |
|---|---|---|---|---|---|---|
| | Cost | | Movement | | | |
| | from | to | from | to | £ | p.a. |
| A | £0.00 | £3.00 | 0 | 6 | 7,605 | 3.8 |
| B | £0.00 | £3.00 | 7 | 26 | 10,469 | 5.2 |
| C | £0.00 | £3.00 | 27 | 99,999 | 6,912 | 15.5 |
| D | £3.01 | £30.00 | 0 | 6 | 21,001 | 2.8 |
| E | £3.01 | £30.00 | 7 | 26 | 28,778 | 6.2 |
| F | £3.01 | £30.00 | 27 | 99,999 | 20,556 | 13.4 |
| G | £30.00 | £9,999.99 | 0 | 6 | 35,615 | 1.4 |
| H | £30.00 | £9,999.99 | 7 | 26 | 26,306 | 4.9 |
| I | £30.00 | £9,999.99 | 27 | 99,999 | 25,985 | 7.7 |
| | | | | TOTAL | 183,227 | 5.9 |

Note: we have excluded parts outside of the moving categories; for example, Manual, New and Obsolete

If you look at the stock categories you can identify those needing attention. For example, categories A, D and G have very poor stock turns and account for 35% of total stock. Each needs investigating. Can the order parameters be tightened? Are the category definitions correct? You might conclude that this is the best possible achievement. The important point, though, is that you examined potential problem areas.

Separately, how might you improve H and I's stock turn ratio?

## 2 RIM REPORT

In 1996 several systems suppliers responded to a request from Vauxhall and created a "RIM" report. This report is based on cost movement categories but includes more data. We are particularly keen on it because it offers a one-page summary covering the three key measures – customer service (first pick), stock turn and obsolescence. It allows you to identify where you need to take action to improve performance. Check your own system to see if it is there. We have shown a sample below.

RIM report

| Category | Lines | % total | Sales @ cost | % total | Stock value | % total | S T R | Tgt. S T R | % ach't | First pick |
|---|---|---|---|---|---|---|---|---|---|---|
| **A** LV/SM | 942 | 15.4% | 28,908 | 2.5% | 7,605 | 3.4% | 3.8 | 8.0 | 47.5% | 87.2% |
| **B** LV/MM | 865 | 14.1% | 54,333 | 4.8% | 10,469 | 4.6% | 5.2 | 8.0 | 64.9% | 84.0% |
| **C** LV/FM | 432 | 7.0% | 107,008 | 9.4% | 6,912 | 3.1% | 15.5 | 20.0 | 77.4% | 91.3% |
| **D** MV/SM | 956 | 15.6% | 58,799 | 5.2% | 21,001 | 9.3% | 2.8 | 8.0 | 35.0% | 94.4% |
| **E** MV/MM | 731 | 11.9% | 178,422 | 15.7% | 28,778 | 12.8% | 6.2 | 8.0 | 77.5% | 91.6% |
| **F** MV/FM | 269 | 4.4% | 275,443 | 24.2% | 20,556 | 9.1% | 13.4 | 20.0 | 67.0% | 90.5% |
| **G** HV/SM | 589 | 9.6% | 48,898 | 4.3% | 35,615 | 15.8% | 1.4 | 8.0 | 17.2% | 78.2% |
| **H** HV/MM | 308 | 5.0% | 128,907 | 11.3% | 26,306 | 11.7% | 4.9 | 8.0 | 61.3% | 81.7% |
| **I** HV/FM | 53 | 0.9% | 199,876 | 17.6% | 25,985 | 11.5% | 7.7 | 20.0 | 38.5% | 85.2% |
| **J** Obsolete | 809 | 13.2% | 0 | 0.0% | 35,777 | 15.9% | 0.0 | 0.0 | n/a | 0.0% |
| **K** New | 178 | 2.9% | 55,413 | 4.9% | 6,324 | 2.8% | 8.8 | 15.0 | 58.4% | 87.2% |
| TOTALS | 6,132 | 100.0% | 1,136,007 | 100.0% | 225,328 | 100.0% | 5.0 | 11.9 | 42.2% | 88.3% |

Although this is just a sample – to give you a look at the layout – you might find it interesting to do some analysis. Note, for example, that fast moving parts account for 12% of total lines and 51% of sales. Categories A, D and G have very poor stock turns. To achieve the overall target for stock turn, around £130,000 of stock must come out or sales need to increase by over £1.5 million.

## 3 AGEING ANALYSIS

This analysis is based on when stock last had a demand. As a generic example (and excluding Obsolete and New):

| Last demand | Lines | % total | Stock value £ | % total | Ann. demands £ | % total |
|---|---|---|---|---|---|---|
| 0 - 4 weeks | 602 | 11.7% | 45,322 | 24.7% | 774,719 | 71.7% |
| 5 - 8 weeks | 1,615 | 31.4% | 47,666 | 26.0% | 207,876 | 19.2% |
| 9 - 12 weeks | 1,556 | 30.2% | 38,960 | 21.3% | 64,912 | 6.0% |
| 12 - 25 weeks | 713 | 13.9% | 22,508 | 12.3% | 32,492 | 3.0% |
| 26+ weeks | 659 | 12.8% | 28,771 | 15.7% | 595 | 0.1% |
| Total | 5,145 | 100.0% | 183,227 | 100.0% | 1,080,594 | 100.0% |

Our example uses very short ageing periods. Most systems start their analysis at 6 months but we feel that this is far too late when daily stock orders are the norm. Once again, you can see that a small number of lines produce most of the business. Conversely, most of the lines produce very little business. In the example, look at stock that has not moved for at least 26 weeks: 15.7% of the value yet only 0.1% of the total demands. Stock in the 0 to 4 weeks category, though, is 24.7% by value and 71.7% of total demands. This type of analysis emphasises that you need to pay particular attention to slow moving stock. Doing this means you have a good chance of preventing *slow* moving becoming *no* moving – provided you measure it early enough and take appropriate action.

## 4 MOVEMENT (OR DEMANDS)

Sometimes this is referred to as an ABC analysis, probably because it was originally based on movement categories. This is our generic example:

| | Pieces sold p.a. | Lines | % total | Stock value £ | % total | Ann. demands £ | % total |
|---|---|---|---|---|---|---|---|
| A | 250+ | 61 | 1.0% | 11,457 | 5.1% | 127,098 | 11.2% |
| B | 100 to 249 | 207 | 3.4% | 50,238 | 22.3% | 452,787 | 39.9% |
| C | 50 to 99 | 357 | 5.8% | 24,954 | 11.1% | 157,538 | 13.9% |
| D | 25 to 49 | 649 | 10.6% | 21,212 | 9.4% | 115,939 | 10.2% |
| E | 10 to 24 | 1,147 | 18.7% | 27,639 | 12.3% | 105,986 | 9.3% |
| F | 6 to 9 | 1,208 | 19.7% | 20,748 | 9.2% | 40,054 | 3.5% |
| G | 1 to 5 | 1,656 | 27.0% | 34,683 | 15.4% | 103,249 | 9.1% |
| H | < 1 | 847 | 13.8% | 34,397 | 15.3% | 33,356 | 2.9% |
| | Total | 6,132 | 100.0% | 225,328 | 100.0% | 1,136,007 | 100.0% |

This analysis shows just how much high demand parts contribute to total sales. For example, parts selling at least 50 pieces p.a. account for 65% of all sales. Look at the contribution made by parts selling less than 10 pieces p.a. – 60% of the lines account for only 15.5% of the sales in our example. This is a valuable analysis that you should use to examine your own stock. Look for "lumps", i.e. stock that is disproportionate to sales. Check the reorder parameters and take action.

## 5 LINE DEPTH

Average line depth - i.e. the quantity held for each part number - is also an indicator of good stock management. We have emphasised throughout that it is not the amount of stock you hold that will determine stock turn and availability but the quality of that stock. This means having a good breadth – essentially, the number of lines you carry – and sufficient but not excessive depth. Take these examples, each with a stock value of £100,000:

| | Dealer A | Dealer B | Dealer C |
|---|---|---|---|
| Total Stock £ | 100,000 | 100,000 | 100,000 |
| Lines | 2,500 | 3,333 | 4,000 |
| Depth (£ per line) | 40 | 30 | 25 |

The total value of stock held is a combination of the lines and depth per line. Although these are simple examples, you can see that the profiles are different. As a rule of thumb, we think that an average line value of

£25 is about right. If you can achieve a lower figure and still provide good customer service then keep going.

## 6 RUNNING ANALYSIS REPORTS

We recommend that you run analysis reports every "Second Tuesday" and use them to see if you should be revising the cost movement categories, adjusting the reorder points/levels and other parameters – see Chapter 8. Additionally, these reports should identify areas that need your attention before there are serious stock problems.

## 7 SUMMARY

The important messages from this chapter are:

- analyses will tell you if you have achieved a good profile
- analyses are also tools to help improve the profile
- improving the profile will improve the three key measures

# Chapter 10

# PREVENTING THE BUILD UP OF SURPLUS STOCK

| **Designed for:** | Parts Managers, Aftersales Managers, Dealer Principals, Finance Directors |
|---|---|

| **Summary:** | Aim to prevent the build up of surplus stock. Do this by understanding its causes and following some simple processes that will minimise the risk in the future. Focus on prevention not disposal. |
|---|---|

## 1 WHY SURPLUS STOCK IS ONE OF THE THREE KEY MEASURES

In chapter 5 we looked at setting targets for the three key measures.

In section 3.1.3 of that chapter we introduced the concept of Surplus stock. It covers both obsolete and excess. As a reminder, obsolete describes stock that has not moved for X months. Excess describes moving stock but where there is more than X months' demand.

We aim high for two of the three key measures – customer service and stock turn – but low for surplus. There will always be *some* surplus stock because the demand for parts can never be completely predictable. That is why it would be unrealistic to set a target of zero.

From our SMA research we believe that far too little attention is being paid to minimising surplus stock. Some of this is explained by measuring it too late. How realistic is it to have an obsolescence clock that does not start ticking until 24 months when almost all dealers can place daily stock orders? We often describe such an approach as "luxurious". Even 12 months as the first measuring point seems far too late. Regarding excess stock, less than 7% of our sample claimed to measure it.

We have serious difficulty in understanding exactly why this key measure is largely ignored. Looking again at our SMA research we find that only 41% of the sample had a target for obsolescence. (We did not ask if a *surplus* target existed.) Of those who had an obsolescence target, only 39% quantified it. That works out at approximately 16% of the total having a quantified target.

Surplus stock:

- takes up space

- has to be written down (partially then fully) at some stage; this reduces gross profit

- has to be counted *at least* once a year

- consumes cash that could have been deployed in other areas of the business (including Parts)

- reduces your return on investment because the gross profit will be lower and the stock higher

Often, a misguided senior manager will insist that you must sell off the obsolete stock and "get a good price for it". So, time is wasted organising lists, mailing them out and so on. The reality is that, on average, you will be lucky to recover 5p in the £.

Surplus stock is a waste. The real challenge is to prevent it building up in the first place. That is where you should spend time. Without a realistic target, though, there will be a great temptation to ignore it.

## 2 CAUSES OF SURPLUS STOCK

There are many causes of surplus stock. Most of them can be prevented or, at least, minimised. We will examine them separately. We will not put them in any priority sequence because each one will impact different businesses in different ways. In section 3, we will explain ways to prevent surplus stock building up.

### 2.1 Demand tails off

There is a natural life cycle for all parts. Some tail off gradually; some come to a sudden halt. Items such as trim often stop moving as soon as a vehicle is out of warranty. The demand for body-related parts for older vehicles will fall very quickly when it becomes uneconomic to fix – usually determined by an insurance company. A driver with third-party (only) insurance is often happy to live with a minor dent.

If the price for a part is too high – especially for older model parts – then it is easy to lose sales. In some cases, a high price will dry up demand completely.

### 2.2 Service "fix", recalls or warranty campaign

These actions can end at short notice. If there is insufficient control on the parts involved it is quite easy to end up with stock you do not need.

## 2.3 Supersessions

When part A supersedes to part B the important question is whether it is a compatible supersession. If it is compatible then you can use up part A before part B. Yet there are many anecdotes that suggest that with compatible supersessions older parts are not being used first.

## 2.4 Sales promotions that did not succeed

Let's assume that you have ordered in extra stock for a sales promotion. You set an over-ambitious target and are left with a few months' stock. In most cases it is likely that you will eventually sell it; after all, you are not going to promote slow moving parts (are you?). So, the stock is unlikely to become obsolete but might well be excess.

## 2.5 Service orders not collected

This seems to be the most common reason put forward for surplus stock. "Get it on VOR." "It's absolutely essential." "We must have it." These are just some of ways in which Service colleagues typically express their needs. Whenever non-stock parts are ordered there is a serious possibility that they will become excess or obsolete.

## 2.6 Trade orders not collected or returned as "not required"

It is often difficult to force a good trade customer to keep a part that they have ordered in error. Also, bodyshops frequently send back parts not required. Often, they will "double order" to cover an either/or situation.

## 2.7 Retail orders not collected

Although less frequent than for trade, it happens.

## 2.8 The recommended stock order is inaccurate

In chapter 8 we looked at how this can occur: poor forecasting, using sales not demands, inappropriate categories, wrong lead times, safety stock being applied uniformly, basic structure of the system.

## 2.9 Wrongly editing the recommended stock order

Even when the system has been set up to produce a decent recommended stock order there is often a temptation to meddle.

## 2.10 Poor part number interpretation

Modern interpretation methods – EPC and web-based, for example – have helped to drive down the incidence of this. Nevertheless, it was the second most common reason given in our SMA research, after "Service orders not being collected".

### 2.11 Not taking advantage of VM returns policy

All VMs allow returns when they make a mistake themselves; for example: damage, wrong part in box, shortages, wrong part altogether or over-supply.

When the dealer makes the error the VMs are generally less understanding (with some justification). The terms offered by each VM, though, differ.

### 2.12 Recommended stock list from the VM or other main supplier

We suggest you treat any "recommended" stock list with caution. In some instances, a VM will insist that specific part numbers are stocked in order to achieve a basic level of customer service throughout its network. There is a rationale for this but it *can* be imposed in a heavy-handed way. In general, though, there are take-back arrangements where a part has no demand in, say, 12 months.

### 2.13 Accessories and fashion items

To support Sales colleagues and improve Parts profits it is important to stock accessories and fashion items. Yet, there are risks as well. Alloy wheels, for example, are expensive and there might be several styles. Clothing can often appear to be overpriced and goes out of fashion quickly.

### 2.14 Change of franchise

You might well be lumbered with huge amounts of stock if you change franchises unexpectedly or in disagreeable circumstances. Alternatively, you might take over another franchise, inheriting stock without carrying out full "due diligence".

### 2.15 Being the "dump site" within a group

Within a group, slow moving stock is often moved to one branch considered to be the most capable of shifting it or because there is plenty of space. In practice, it rarely succeeds.

### 2.16 Poor control on non-VM purchases

Franchised dealers currently buy most of their requirements from the VM. There will, of course, be occasions when they need to purchase elsewhere. Examples are: for other franchise used vehicle reconditioning; consumables not stocked by the VM; when the part is for an older vehicle and the customer requests a cheaper version; local sourcing when there is a supply constraint.

In our SMA research, when we asked about controls on local purchasing, we found that often any member of staff could make the purchasing decision and, in many instances, there was no approved supplier list. Also, there were instances where non-Parts staff made the purchasing decision.

In extreme cases, this might be putting temptation in someone's path. In most cases, though, without adequate controls it can be just another way to build up surplus stock.

### 2.17 Buying extra stock to earn bonus

We referred to this in chapter 8, section 10.3. Even if you buy only fast moving parts they will still inflate your stock.

### 2.18 Other causes

You can probably add other causes of a build up of surplus stock. The ones above, though, should cover the most likely ones.

### 2.19 Exercise

Here is a suggestion to help find the major *causes* in your own business.

First of all, define surplus stock. Remember, that should include both excess and obsolete. To start with, use the definition we recommended in chapter 5, section 3.1.4. You can refine this later if you want.

Then generate a printout of all the part numbers within the definition. Include the description, the quantity and the extended line value (quantity x cost price) and, if possible, a cumulative extended line value. Sort it in descending order of extended line value, i.e. the worst comes first.

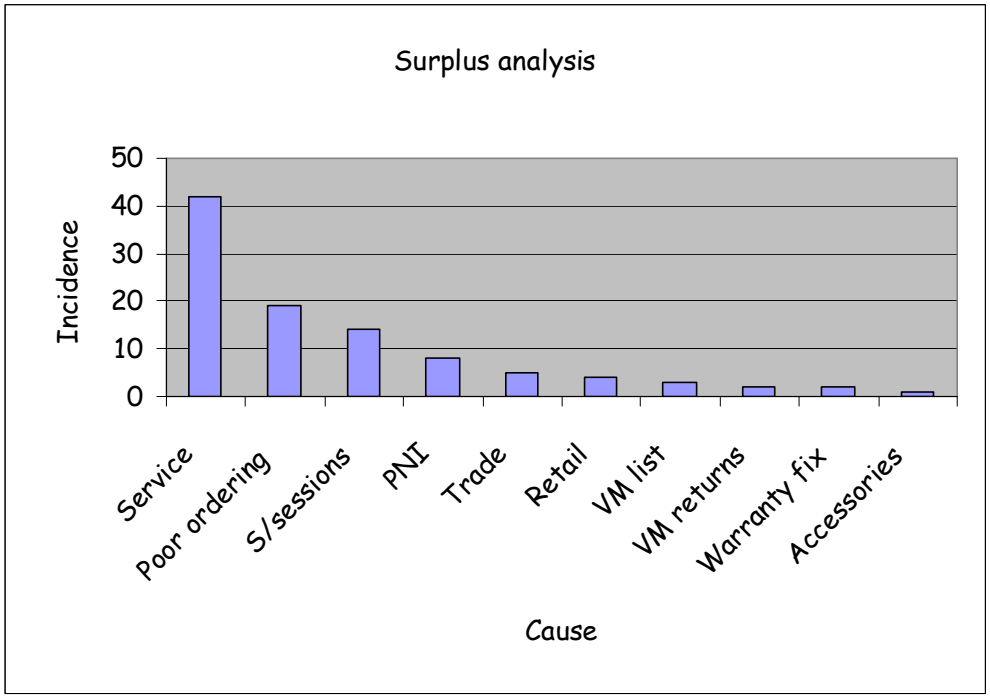
You can do this as a printout or find a way of exporting it into an Excel spreadsheet. Most systems have this facility and it means you can "play with it" off system if, say, you later want to sort by description.

Now go through the list, line by line. Put a brief note against each part number as to why you believe it became surplus. (Look at the list above if

you are stuck for ideas.) Do not be put off by the length of the printout. Because you have sorted it in descending value and Pareto's Law will apply – 80/20 – you will probably only need to review less than 100 part numbers to establish the main causes.

Add up the incidences of each cause. For example, Service orders not collected = 42; poor ordering = 19; supersessions = 14 etc.

Plot the results as a simple bar graph. We give an example below.




Bear in mind that this is *an example*. Your own situation might be quite different. In this example, the Parts Manager should concentrate on improving:

- Service orders not collected
- Poor ordering
- Supersessions
- Part number interpretation

Together, they amount to 83% of the problem.

We hope that this exercise will make it easier for you to identify the causes of surplus stock and then make changes in your processes to

prevent future incidents occurring – or, at least, occurring a lot less frequently.

# 3 WAYS TO PREVENT SURPLUS STOCK

Many of the recommendations we are making in this section will have been covered already, particularly in chapters 7, 8 and 9. Get the category definitions right. Get the reordering parameters right. Analyse. Together, they will go a long way towards preventing the build up of surplus stock.

However, it is better to repeat these recommendations in a focussed way so that you can refer to them easily. If you follow them you will not only be preventing the build up of surplus stock. You will also be improving your stock turn.

## 3.1 Measuring

This will seem so obvious but make sure you actually measure surplus stock.

### 3.1.1 Measuring both excess and obsolete

From our SMA research we are surprised just how few Parts Managers are aware of their obsolescence policy. When asked what the policy was, 24% could not provide any intelligible response. We suspect, though, that this is more a communication problem within a dealership rather than completely ignorant Parts Managers. It certainly ties in with the low incidence of having a target for obsolescence – see section 1 above.

Just 7% of our sample measured excess stock. If you are serious about treating surplus stock as one of the three key measures of good stock management then you must measure <u>both</u> excess and obsolete.

Remember, "If it isn't measured, it isn't managed".

### 3.1.2 When to start measuring excess and obsolete

So, measuring <u>both</u> excess and obsolete is an extremely important starting point. Having made that decision, though, you must establish at what point you will consider writing down the value of parts. As a general rule, the sooner you start writing stock down then the more attention you will pay to *preventing* the build up of surplus stock. Bear in mind that writing down stock (partially or

fully) is a financial action; physical disposal need not take place until later.

Our research shows that only 17% have completely written off stock after 12 months no sale. At 24 months, this figure climbs to 80% but that means one in five dealers still wait even longer. Our conclusion is that most dealers do not take the prevention of surplus stock very seriously.

You might recall from chapter 5 that we recommended starting to measure surplus stock at 6 months – a massive jump from current practice. With daily stock orders, though, we can see no reason to wait any longer. Daily stock orders offer big opportunities - lower safety stocks, smaller quantities per order and deciding not to stock slow movers. If you continue to measure at 24 months then you are unlikely to exploit those opportunities fully.

Our strong recommendation in chapter 5 was to write off at 6 months, i.e. *take the full hit* not simply write down by, say, 50% then take the rest at, say 12 months.

There is always an argument against change. To an extent we understand why accountants want to leave things as they are:

- the desire to make comparisons with "prior year"

- the one-off, immediate effect on the profit and loss account if write offs start much earlier

We believe that both of these concerns can be addressed. Taken separately:

- annual reports can show comparisons on a "restated" basis – it happens all the time when there are acquisitions and disposals of businesses

- the change in write down policy can be phased (to ease the immediate impact)

  or

- the company can suffer a one-off "loss" that is explained in the accounts - it happens on property revaluations and pension contributions, for example

We are amazed that auditors continue to accept 24 months as a measuring point for obsolete stock and, indeed, to exclude excess

stock from any write down. After all, the term "resaleable value" should be an accurate description not one that seems to be nodded through.

Even if the company as a whole is slow to adopt our recommendations then there is no reason why Parts Managers cannot measure both excess and obsolete at 6 months. Then take the necessary preventive actions.

3.1.3 Strict measurement is essential

We believe that we have made a strong case for measuring both excess and obsolete and doing so at an early point in time, reflecting daily stock orders. It will focus the mind on prevention.

Surplus stock is a waste.

## 3.2 Phasing out slow movers

This might be a good time to have another look at chapter 7. In particular, read through section 1.3 covering Pareto's Law.

In chapter 7, section 1.3, we pointed out that roughly 60% of the stock you hold is likely to be slow moving. It contributes very little to customer service or revenue but has a high risk of becoming obsolete. Some of it will certainly be excess. If you did the exercise in section 2.19 of this chapter you might well have noticed that many of the parts on your list had low quantities. Many were probably "ones". Just imagine if you had stopped reordering a little bit earlier.

With daily stock orders – and overnight VOR – you can be harsher when it comes to reordering slow moving stock. We believe that phasing out slow movers at the right time will help enormously to prevent the build up of surplus stock. Let's look at ways to minimise the build up of surplus stock.

3.2.1 Obsolete category definition

Most systems allow you to define a category that stops slow moving stock being reordered. Often this is called O (for Obsolete). However, category O is unlikely to be defined in the same way that we use it. For example, in Autoline 8.3 the default definition for O is:

average monthly demand (AMD) drops to 0.5

and

the part has not sold in the last three months

and

has sold less than 4 times in the last 12 months

Other systems might define O by when the demand drops to X over the last Y months. If your system works this way then we recommend 3 demands in 9 months. If possible, the 3 demands should be on 3 occasions not one demand for 3 pieces. As always, treat our recommendation as experimental.

Once a part drops into O it will not reorder. Most systems recategorise should a part in O start moving again. There might, though, be exceptions so check. See Appendix 3 regarding questions to ask your systems supplier.

### 3.2.2 The moving category definitions

In chapter 8, section 7, we suggested some generalised cost and demand breakpoints for the moving categories. With our usual caveat – treat them as experimental – we believe that the tightness we have applied will ensure that parts are phased out at the right time. Take the two examples shown below:

Example 10-1

Annual demand = 3; cost = £8.90
So, falls into cost movement category D
Reordering point when stock drops to 20 days
Orders up to 30 days

20 days stock = 3/365 x 20 = 0.164
So, will reorder when stock = 0 (assuming system rounds *down*)

30 days stock = 3/365 x 30 = 0.247
So, recommended order quantity = 0 (assuming system rounds *down*)

Example 10-2

Annual demand = 8; cost = £8.90
So, falls into cost movement category E
Reordering point when stock drops to 20 days
Orders up to 30 days

15 days stock = 8/365 x 20 = 0.438
So, will reorder when stock = 0 (assuming system rounds *down*)

30 days stock = 8/365 x 30 = 0.658
So, recommended order quantity = 1 (assuming system rounds *up*)

In both examples, we have assumed that the system will round down if the quantity is less than 0.5 and up when greater then 0.5. It is important that you understand if your system actually does this. If it only rounds up then there is considerable risk of overstocking. If you are unsure what your own system does then see Appendix 3 for possible questions to ask your supplier.

You can make up your own examples and see how the system would reorder. Look at high value items, in particular. At what level of annual demand will there be a recommended order quantity? Do you regard this level as too high or does it offer protection against the risk of being left with one on the shelf?

3.2.3 How long do phased out parts stay on file?

There are several reasons why you need to know this:

- Old part numbers might drop off the system automatically. If so, what are the parameters?

- Non-stock parts might drop off the system in the same way. This could be too early to ensure that a non-stock part with subsequent demands is phased in later.

- You might need to re-create an obsolete part if it suddenly has a "new lease of life"

We make the assumption that parts with stock will always remain on file.

We recommend that you check all of these points with the systems supplier. See Appendix 3.

## 3.3 Lead times

If your system deals with lead time separately from the generalised table we have shown in chapter 8, section 4, then ensure that you set the appropriate level.

### 3.4 Safety stocks

Again, if your system deals with safety stocks separately then ensure you have set appropriate levels. This means that you balance the need to provide good customer service and the risk of overstocking. Slow moving parts do not need safety stock. See chapter 8, section 5.

### 3.5 Economic quantities

If your system has economic quantities – the difference between "min" and "max" – then ensure that the appropriate levels have been set. See chapter 8, section 6.

It is *possible* that your own system uses EOQs. If so, then check the parameters for ordering cost and holding cost.

### 3.6 Supersessions

Wherever possible, use up superseded parts first. (See section 2.3 of this chapter.) Locate the compatible superseded parts in the same bin as the new parts but try to ensure that the superseded ones are used first.

Compatible supersessions should not be a cause of surplus stock. If they are then regard this as "an own goal". Following a training course run by one of the authors some years ago, a dealer discovered £6,000 of superseded parts lying in the bins untouched since the new part arrived. Fortunately, almost all of these were compatible supersessions so could still be sold.

### 3.7 Cost movement category reviews

In chapters 7 and 8 we looked at setting up categories and making use of them. You might well have revised your own definitions as a result of the recommendations we have made.

However, it is important not to regard them as "set in stone". We think it is good practice to review the categories *at least* every six months. Are the break points still right for your business? Do the categories generate a decent recommended stock order or do you have to make too many changes? Why not include in a "Second Tuesday" routine?

Earlier in this chapter, we asked you to think about when a high value part would come up for reordering – section 3.2.2. Try looking at that again but with different movement breakpoints. For example, if the fast moving definition started at 13 instead of 27 would the result be better or worse? What would happen if the reorder point went down by, say, 5 days? Simulate changes – as recommended in chapter 8 – to see if you can produce better results.

## 3.8 Service department – ordering processes

Many Parts operations have a good working relationship with their Service colleagues. Yet, it seems that many do not. We want to suggest several ways to ensure that orders you place for Service meet their needs but do not add to surplus stock - a burden for the whole company not just Parts.

### 3.8.1 Pre-order/pick

Together with Service, look at the jobs coming in during the next few days. You do not literally have to pick all the parts required but you can check if you have the stock already on the shelf or you need to place an order. This will improve the support you are giving to your best single customer and, almost certainly, reduce the stock you are carrying.

If you know the jobs coming in, it is more likely you will not need to order VOR.

### 3.8.2 Checking for genuine VORs

"It's urgent!" For some technicians, everything is "urgent".

Often, expensive parts are ordered this way but are not always required. We recommend that someone at supervisory level within Service authorises VOR requests. Likewise, junior Parts staff should not normally be allowed to order VOR.

This recommendation also applies to non-stock requests.

### 3.8.3 Jobs not completed – will the customer return?

Sometimes additional work is identified during a service or repair. If the vehicle is not immobilised then the customer is usually asked to return later for the job to be completed. If a non-stocked part is needed then Parts will be expected to place an order for it. It is at this point that we have found practices differ.

It seems that most Parts operations order the part. When it arrives they inform Service. Service then calls the customer to arrange an appointment. This might mean that the part in question is lying around for a while. It can happen also that the customer never returns (for a variety of reasons).

The practice we like is for Parts to ask for the date the customer is booked in before ordering the part. With daily stock orders this need only be about three days ahead. If it is urgent then a VOR order should arrive next day. The objection to following this recommendation is that the part might not arrive. That's true, it *might* not but most VMs advise availability at time of order and there's usually a 99%+ chance that once ordered it will *actually* arrive. So, at worst, the customer is asked to rebook but we think this tiny risk is worth taking compared with waiting for the part to arrive before making the booking.

Keep separate shelves for non-stock parts ordered for Service. Ensure that these parts are identified by a job reference and that the shelves are visible to Service. Review daily with Service.

Remember, we are trying to cut down on surplus stock but still offer a good customer service.

3.8.4 Just talk to each other

This will seem obvious but is worth a reminder.

It is surprising – sometimes – how little Service knows about the objectives of a Parts operation. Equally surprising is the reverse. On many occasions, we have asked what drives Service (or Parts). Just how much do you know about Service efficiencies? Just how much does Service know about stock turn ratio (for example)?

3.8.5 Consider a contract

What do you think Service wants from Parts? Their immediate response will be 100% availability and no delay in delivering it to the technician. Putting the question that way, it is a fair response.

Now let's think about it in a commercial way and try to strike an agreement between two departments of the same company. To some, this might seem too formal but it has been tried and it does work. It ensures that there are no false expectations. It also eliminates any chance of a "let 'em wait" attitude creeping in.

The points to consider are:

- an off-the-shelf availability figure for different types of part
- a delivery time for VOR and special order parts
- immediate advice (within a specified period) when a part is not available at the supplier
- a verification process that ensures VOR orders are genuine
- advance notice of all jobs coming in (to help pre-order/pick)
- full information on service fixes, recalls and warranty campaigns - especially the number of vehicles involved, the actual number likely to be fixed and timings
- early warning on new model problem parts

We have not tried to draw up a draft contract, simply to put forward some of the main points that need covering. After all, you need to make the contract exactly right for your own business.

3.8.6 Service should be charged for parts not collected?

We have some sympathy with the view that Service should be charged for parts not collected. Why should Parts have to bear the cost? If a part can be returned to the VM (or other supplier) then the cost to Service will be reduced to the handling charge of, say, 20%. See section 3.15 on taking full advantage of the supplier's returns policy. However, if it is a non-stock or special order part (for the VM) then there is little chance of it being returned so a full charge to Service would apply.

If you have followed the recommendations above then there should be very few cases of parts not being collected by Service. We have a concern that by being able to charge Service for every part not collected there will be little incentive to order "sensibly". What does it matter if there is no charge to Parts?

Bear in mind that charging Service is a "wooden dollar" transaction. The company as a whole still picks up the cost. Our considered opinion is that Service should be charged at, say, 14 days. If all of the processes we have listed above are in place then this is not going to happen on a large scale. It is still "wooden dollars" but it should help to minimise unnecessary ordering.

If you have a bodyshop within the dealership then adopt similar practices.

### 3.9 Trade and bodyshop orders not collected (or returned)

Just as it is good to charge Service for parts not collected so it would be good to charge trade customers. In many ways, this is a commercial decision. Can you afford to antagonise important customers and how big is the problem?

The best advice is to understand how the trade customers operate, i.e. IMT, bodyshops etc. Are the right processes in place to minimise the causes of not needing the parts? Who interprets the part numbers? Is there an experienced member of your staff dealing with bodyshop requirements? If you can reduce "mistakes" to a very low level through better processes then you might consider such returns to be just part of the cost of doing business with a particular trade customer.

Make a judgement about the value of the customer's business. Look at: the gross profit you make, the costs incurred – for example, time spent by telephone staff dealing with this customer – and decide if the terms you offer are too generous. Also decide how badly you want to keep the customer.

### 3.10 Retail orders not collected

Ask for a deposit – ideally for the full amount. This might, though, need to be tempered by its impact on good customer relations.

Also, a word of caution: if you have taken the full price as a "deposit" then the customer technically owns the product. Should the customer not bother to collect the item, it is worth checking whether you are legally entitled to dispose of it without reasonable notification.

### 3.11 Sales orders not collected

In most cases, these will be accessories and fashion items - probably expensive. The suggestions we made in section 3.8 can apply to Sales as well as Service.

### 3.12 Analyses

Stock can be analysed in several different ways. The purpose of the analyses is to isolate stock that is likely to become surplus. You will then need to examine all the parts and take preventive action. If the list of parts seems excessive then sort into a Pareto ranking and look at the

worst ones – usually the highest line value. In addition to the analyses described in chapter 9, we also recommend the following:

3.12.1 By first create date

This might require some imagination – for example, exporting the masterfile into Excel. In Autoline rev 8 it is possible to use the report generator. Other systems may have similar facilities.

The aim is to list all parts that were created on the system more than, say, 8 years ago. (You can experiment.) From the list, decide which parts should become non-stock parts regardless of whether they fall into a moving category. Remember, this is about prevention.

3.12.2 By cost price

Follow the same method as in 3.12.1 but this time use the cost price. We suggest starting with all parts having a cost price that exceeds £75. You are trying to "weed out" expensive risks.

3.12.3 Parts under manual control

In chapter 7, section 2.4, we pointed out the pitfalls of having too many parts under manual control. We recommend looking at these every "Second Tuesday". Remember, most manually controlled parts are for service fixes, recalls and warranty campaigns so need careful monitoring.

3.12.4 Excess stock

Follow the same method as in 3.12.1 but use stock in excess of 6 months. Understand why it is there. Can you take action now to prevent reordering? Today's excess is tomorrow's obsolete.

3.12.5 By model code

To be effective this analysis will require reliable model coding by the VM. The aim is to identify parts applicable to a particular (older) model. Choose the model – for example, Vauxhall Carlton – and examine all parts unique to it. Should you be stocking any of these? Go through as many older models as possible. Eliminate parts that look like they will tail off suddenly; for example, trim and body parts.

3.12.6 By description

Again, this will require reliable descriptions. Assuming you have them, examine the types of part that are likely to have a "sudden death". We have already mentioned trim and body parts as examples.

3.12.7 By average line depth

In chapter 9, section 5, we drew attention to average line depth. Overall, we think that franchised car dealers should be achieving around £25 per line stocked. If your own figure is greater than £30 then we recommend you examine (Pareto fashion) the whole stock by extended line value to gain some idea of possible over-ordering. If possible, include the cost movement category so that you can see if there is a common thread to excessive line values. This will lead you back to reordering parameters – see chapter 8.

3.12.8 Analyses in general

You can invent your own analyses. The ones we have suggested might appear to be overlapping in many ways but they will all help to prevent surplus stock building up. We want to cover all the angles. It is a relentless pursuit.

Include these analyses in your "second Tuesday" routine.

## 3.13 Sell by dates

Make sure you remind staff that some parts have a "sell by" date. Ensure that the earliest ones are at the front of the bin.

## 3.14 Try selling them cheaply before they become obsolete

If a part becomes obsolete then you will need to make a financial provision of 100% of its cost price. That is charged against gross profit. If you subsequently sell the part then the price you charge is, in effect, credited back to gross profit.

Back in chapter 6, section 3.4, we suggested a way to avoid losing the sale of an overpriced part. Earlier in this chapter – section 3.12.2 – we recommended analysing stock with a cost price in excess of, say, £75.

You can try to prevent parts that are excess from becoming obsolete by either giving extra discount or permitting staff to sell at whatever price they can get. If you wait until the part becomes obsolete, it could be too late.

In these situations it is worth recalling some advice given to one of the authors by an Irish-Canadian colleague. We will call it George's rule:

Your first loss is your cheapest

Over the years, that has proved to be true on so many occasions.

## 3.15 Take full advantage of the supplier's returns policy

Know exactly what the supplier's returns policy is.

3.15.1 Where you have made the error

We know that a *typical* VM, for example, might offer:

- Permission to return if request is made within 20 days
- A minimum line value of £20
- A handling charge of 15%
- Not to accept special order parts

Of course, actual terms differ by supplier but by understanding the policy you will reduce the risk of an unwanted part becoming obsolete and you should recoup *most* of the cost.

3.15.2 When "recommended" parts become slow moving

Know the returns policy when automatic replenishment parts or those on a "recommended" list become slow moving.

3.15.3 Franchise change

What terms apply if you change franchise – taking on a new one or leaving your current one?

## 3.16 Stock locators

3.16.1 VM's stock locator

Most of the VMs have a stock locator system. You list the parts you want to get rid of and if another dealer wants them some kind of deal is arranged. We know that some of these systems work well but others are often out of date. Still, it is another way to either prevent or dispose of surplus stock. Do not forget George's rule.

3.16.2 Other stock locators

> We know that there are also other stock locator services independent of any particular VM.

## 4 IF ALL ELSE FAILS ….

Early on in this chapter we wrote:

> Often, a misguided senior manager will insist that you must sell off the obsolete stock and "get a good price for it". So, time is wasted organising lists, mailing them out and so on. The reality is that, on average, you will be lucky to recover 5p in the £.

We have emphasised that prevention - not disposal - is the aim. However, it is the nature of the Parts business that there will always be some obsolete stock. So, there will always be the need to dispose of it. Just don't spend too much time on an activity that produces so little.

### 4.1 Earning *something* from obsolete stock

Here are some suggestions:

- Isolate obsolete stock so that you free up bin space for good stock
- Send lists to trade customers
- Send lists to specialist parts stockists – each franchise will have at least one of these
- Use stock locators
- Contact breakers' yards
- Use "dump bins" near the counters – any item at, say, £1
- Try car boot sales
- Donate selected parts to colleges – no financial benefit but should be good PR

None of these suggestions will bring much reward but you have tried. Just remember, whilst an individual part can be sold off for a good price the overall return is 5p in the £ (maximum).

### 4.2 Scrapping

Finally, assuming that you need the space, scrap obsolete stock. Ensure you do this in an environmentally friendly way and that you conform to all legal requirements.

We recommend waiting for 12 months after the part has been financially written off before you physically dispose of it. This allows “others” to feel you have given it a chance but it is not so long that you are clogging up your warehouse space.

# Chapter 11

# THE PHYSICAL MANAGEMENT OF STOCK

| **Designed for:** | Parts Managers |
|---|---|

| **Summary:** | Managing stock wisely is not only about having a finely tuned system. You need to balance this with good physical processes. After all, it is physical items that customers actually receive. |
|---|---|

## 1 GETTING THE SYSTEM RIGHT IS NOT ENOUGH

Up to now, we have looked at managing stock better through a deeper understanding of the system and being prepared to experiment. With a few exceptions, we have ignored the physical management of stock.

Yet it is physical stock that the customer receives and it is physical stock that needs to match book stock. In this chapter, we will examine good practices and explain why the physical management of stock is one of the critical success factors.

## 2 EFFICIENT LAYOUT

Layout of a warehouse depends on the configuration of the building. Ideally, you will have a "greenfield" site where a sympathetic architect has designed the Parts department exactly as you requested it. Most operations are not "greenfield" and you have to make do with the space you are given.

So, treat what follows as "aspirational". The aims should be clear but you might have to compromise.

### 2.1 Principles of setting up an efficient layout

You need to consider:

- movement of parts and people
- space constraints
- safety
- security

- flexibility – not stocking fresh air

## 2.2 Movement of parts and people

Consider how frequently a part moves; more precisely, the number of bin demands. For example, the annual demand might be 200 but that was for 4 pieces, 50 times. So, in that instance, there were fifty bin visits or movements. If each bin visit had been for just one piece then there would have been 200 movements.

So, when locating parts it is more efficient to have the ones with highest movements being the most easily accessible. Ideally, you should locate them nearest to where they are needed. Remembering that most dealers have separate workshop and retail/trade counters, that can occasionally mean having more than one location. For example, spark plugs sell well at the retail counter and are also in great demand at the back counter. It will cut down walking distances if you can locate them near both locations. Be aware that not all systems permit a part to have more than one location so you will need to check this out with your system supplier.

## 2.3 Space constraints

For practical reasons, movement alone cannot determine all locations. The size, shape and weight of some parts means that they will need to be stored in customised locations. Heavy items such as engines and gearboxes should be located close to Goods Inwards to minimise the distances those parts have to be moved. Even if an oil filter has the same bin demands in a year as, say, an exhaust, it would clearly be foolish to try to locate them close together. The filter should fit neatly into "normal" binning but the exhaust should be located in specialist racking.

So, shape, size and weight are exceptions to the rule when locating parts.

## 2.4 Safety

There are serious safety issues relating to certain parts. Also, in a wider context, a warehouse can be a hazardous place to work if you do not follow good safety practices.

### 2.4.1 Individual parts

Airbags are probably the most prominent example of a part that needs to be stored and handled in the safest of conditions. In less than 1/20 of a second, the bag inflates. To do this, there is a rapid expansion of a gas - so rapid that it is classed as a controlled

explosion, which will require you to have an explosives licence and a special location.

Less dramatic examples are glass, body panels and acid batteries. These parts need care when being stored and handled. Unprotected body panels should only be handled if you are wearing leather gloves. They need to be located safely so that, for example, they do not stick out into gangways.

Remember, safety related parts might also be ones that damage easily. Taking good care of them will minimise costs.

2.4.2 Good practice

Regardless of any legal reasons for operating a safe warehouse it makes good sense for two other reasons:

- morale will be higher if staff feel safe
- staff absences will be lower if there are fewer avoidable injuries

Here are some examples of what will ensure a safer working environment:

- gangways that are clear of parts or rubbish - especially combustible material
- adequate lighting – no dark corners
- speedy clearance of any hazardous material – for example: oil spills, broken glass
- locating heavy, hand picked items close to floor level to avoid stretching or, even worse, the risk of them falling
- marking hazardous substances clearly
- using safety gloves and shoes in appropriate circumstances
- using safety equipment on certain tasks e.g. key cutting, handling panel work
- plenty of well located fire extinguishers
- clear identification of fire exits

- frequent and properly conducted fire drills

- a well-stocked first aid kit plus the correct number of qualified first-aiders

The Health & Safety Executive can offer comprehensive advice. This is not, though, simply about complying with health and safety laws. It is good management.

## 2.5 Security

Some parts and accessories, such as CD players, can be described as "attractive". So, they need looking after. They need to be protected in a secure storage area with approved access. Remember, parts that disappear will increase your costs and, therefore, reduce your gross profit.

Do not to put temptation in someone's way.

## 2.6 Flexibility – not stocking fresh air

It is important that you use parts storage space efficiently.

Efficient binning will reduce overall space requirements and minimise distances to be moved by people and parts. We would recommend using binning with adjustable shelf depths and adjustable shelf dividers to create variable bin location widths within each shelf.

If you believe that you have inadequate storage space you should quantify this by using a stock density measure that allows a meaningful discussion with others. Our recommended measure is detailed in section 3.1 below. If you are short of space (based on the measure) then you have two possibilities to consider:

- you genuinely need more space

- you are achieving a poor stock turn so no wonder it's tight

If your stock turn is less than 10x, we think it is probable that you can "create" significant additional space by improving stock turn.

The flexibility of your parts binning area should also include:

- designated shelving for service orders and warranty returns

- an area for van pre-picks

- areas for storage of obsolete and excess stock

## 3 MEASURING EFFICIENCY

The efficiency of the physical management of stock will impact on costs and customer service. As a minimum, we recommend that you use the following efficiency measures.

### 3.1 Stock density

You should be minimising the fresh air that you stock. One simple efficiency measure is relating the value of stock to the area it occupies. We call this measure stock density.

> Stock density = Total value of stock at cost price divided by the number of square metres it occupies

Include only storage space. Exclude offices, counters, good inwards and any other non-storage areas. If you have isolated written off stock into a separate location then also ignore this space (and its stock).

Look at the example below.

Example 11-1: How to calculate stock density

Stock value at cost = £167,000
Written down stock that has been isolated into a separate location = £17,000
So, stock value = £150,000

Total Parts department area = 350 square metres
Deduct offices, counter areas, good inwards and isolated stock area (for written down stock); in total, say, 150 square metres
So, storage area = 200 square metres

So, stock density = £150,000/200 square metres = £750 per square metre

Whilst this example is simply to demonstrate how to calculate your stock density, the result – £750 per square metre – is a good use of space. Use it as a rule of thumb indicator. We have come across isolated examples of more than £1,000 per square metre.

We suspect that many dealer operations are not measuring stock density and, therefore, do not focus on organising stock efficiently.

Modern storage equipment makes better use of fresh air. So, if you are relocating and buying new binning and racking you can expect to achieve a much higher density – probably up to £1,000 per square metre.

## 3.2 Errors

There are several indicators of the efficiency of the physical management of stock. We know that it is unrealistic to think that there will never be errors in a working environment, but if you measure them you will be more likely to minimise them.

### 3.2.1 Book versus physical stock

The computer shows one in stock but when you go to pick it there is none. Why? These incidents of a "stock out" need to be recorded and reviewed each day. Something has gone wrong and the reason(s) needs to be understood. Is there a pattern? Does it nearly always happen after X has binned or Y has picked? Or is it often on unit of issue parts – issued as one but packed as, say, ten.

### 3.2.2 Stock adjustments

The necessity of making stock adjustments is often a reflection of the way stock is managed physically but sometimes they result from commercial decisions; for example, returned trade orders or service orders not collected – see chapter 10.

Other reasons for making stock adjustments will result from physical management. They include:

- damaged parts
- wrong part numbers
- short-shipped parts
- over-shipped parts (ever get any of those?)
- missing parts from bin location
- right part number but wrong part in the box

Again, measure these errors and review daily. They add to the cost of sale (lowering gross profit) and are likely to cause customer dissatisfaction.

### 3.2.3 Parts with no bin location

When a part is stocked for the first time, how do you locate them? How many parts currently have no location? Again, measure to ensure that in future you can locate the part and fulfil the demand.

3.2.4 Stock check results

The results of a stock check can provide valuable indicators of how good the physical management of stock is. We will go through these in section 4.

# 4 STOCK CHECKS

## 4.1 Why carry out stock checks?

There are several reasons why you need to carry out stock checks.

4.1.1 A legal requirement

Every business must report its profit (or loss) to the Inland Revenue each year and PLCs and limited companies must provide a balance sheet when delivering their annual accounts to Companies House. The balance sheet will include a stock valuation.

4.1.2 To accurately measure gross profit

If you want to calculate gross profit accurately then you need to know sales and cost of sales. An accurate stock check is particularly relevant when calculating the cost of sales.

To calculate the cost of sales for any period, you need to have figures for sales, purchases and the values of the opening and closing stock. The calculation is:

Gross profit = sales minus cost of sales

where

Cost of sales = purchases + (opening stock – closing stock)

If you only sold exactly what you purchased during the period (month, year etc.) then there would be no need to calculate the change in stock. However, this is unlikely to be the case. Furthermore, there are going to be errors of some kind – see section 3.2 above. A stock check, therefore, is essential.

Let us look at a worked example covering a full year's trading.

Example 11-2

Sales = £950,000
Purchases = £700,000
Opening stock = £110,000
Closing Stock = £100,000

Cost of sales = purchases + (opening stock – closing stock)
Cost of sales = £700,000 + (£110,000 – £100,000) = £710,000

Gross profit = sales – cost of sales
Gross profit = £950,000 - £710,000 = £240,000

If the stock had increased during the period then the cost of sales would have been lower i.e. you bought more than you sold.

4.1.3 To reconcile physical stock to computer stock

Any discrepancy between physical and computer stock will result in a number of potential problems:

- possible customer dissatisfaction if the actual quantity in the bin is less than shown on the computer resulting in a failure to supply
- possible future obsolescence if there is more stock in the bin than is recorded on the system
- a lost sale if there is no stock when the system believed there to be stock on hand
- increased VOR orders (with less discount, less gross profit and a delay for the customer)
- additional cost of sale
- an inaccurate balance sheet
- wasted time searching for something you are "sure is there"
- reduced confidence in the system when taking telephone orders

4.1.4 To verify locations

A stock check gives you the chance to verify that parts are correctly located.

4.1.4 To check the quality of stock

Similarly, a stock check gives you the chance to check the quality of stock. Are all parts in a saleable condition – is there damage to the part or the packaging? Is there a sell-by date that has passed?

We have met very few Parts people – but yes, there are some –who enjoy stock checks. However, there are solid reasons why stock checks are an essential element of good stock management.

## 4.2 Frequency

We recommend the following:

- full check annually (a must for all - but see comments under perpetual checks)
- additional full check half-yearly (if you do not carry out perpetual checks)
- perpetual checks (whole stock covered at least once a year outside of the annual check but faster moving parts might be checked as frequently as monthly); if implemented successfully over several years, we believe that auditors will agree to drop a full annual check
- spot checks (on "attractive" items or ones giving concern)

## 4.3 Preparation

Everyone wants to complete a full stock check as quickly and as accurately as possible. There are many things that can be done beforehand to help achieve this. We suggest the following:

- start your forward planning about two months before the actual count
- decide the staff who will be involved; this might well include non-Parts staff. It might involve the pre-arranging of overtime working

- decide on a training plan for all involved; remember, some helpers may be "conscripts" so be sure they know exactly what is expected and why

- small items – washers, nuts, clips etc. – can be pre-bagged and counted beforehand, leaving just a few loose items that will need counting on the day

- weigh small items rather than count them – just like the banks weigh small change.

- do housekeeping in advance – bins correctly identified; all parts in a location

- ensure that all transactions during a stock take period are designated pre or post count

- isolate obsolete stock into a special location – you can count this beforehand. On the rare occasion that there is a movement, keep a note.

- if the auditors are supervising the count, ensure they are fully aware (and approve of) activities outside of the count such as pre-bagging and counting small items

At the end of the stock take, we recommend that all parts that are financially written off are stored in a sealed box with the part numbers written on the outside of the box. If you do this then (provided the box has remained sealed during the following year) you will not have to re-count these parts at any subsequent stock take.

## 4.4 Counting

We recognise that each company – and especially its auditors – will have processes for the actual count. So, rather than offer another one we just want to pass on a few tips to make it go smoother.

- avoid ins/outs during count; if you must release stock for emergencies then document it thoroughly

- spot check for accuracy and to keep everyone on their toes

- do not work excessively long hours whatever the temptation to "finish it" – fatigue leads to inaccuracies

- assuming there is a counter and a recorder working as a pair, make sure the counter reads out the whole part number

- make sure the recorder writes NIL instead of 0 – it avoids any risk of confusion

- consider using electronic means to capture the part number and quantity; for example, bar coding or RFID.

## 4.5 Analysing results

It would probably be unique to find that after a full check the physical and book stock exactly matched on every part. There will always be some discrepancy.

When analysing the results most Parts people and, indeed, auditors take what we call a "net" approach. They look at the value of the physical stock and compare it with the value of book (or computer) stock. The result often seems quite respectable. For example, "We were only £500 out (on a stock of £100,000)". At first sight, this may seem very good – a discrepancy of just 0.5%.

Financially, the "net" method is correct but operationally it is an illusion.

We prefer the "gross" method of analysing errors. Let us examine what might have been the case in the following example.

Example 11-3: Stock check analysis

Lines to be counted = 5,000; stock value = £100,000
Lines with positive errors = 450; value = £9,500
Lines with negative errors = 490; value = £10,000

Using the "net" method, value of errors = £500 or 0.5% of stock value

Using the "gross" method, value of errors = £9,500 + £10,000 = £19,500 = 19.5%
Using the "gross" method, number of line errors = 450 + 490 = 940 = 18.8%

The advantage of using the "gross" method is that it gives an excellent indication of how good your physical warehouse processes are. The "net" method hides the truth. With a "net" error of 0.5%, the assumption could be that everything was OK. The reality is that there are nearly 20% errors. As a result, you should want to find out why the error rate is so high and thoroughly check day-to-day processes such as binning, picking, returns etc.

Over the years, we have been amazed how rarely stock checks are analysed using the "gross" method. Is it because it is too tough and everyone prefers an easy ride?

## 5 SUMMARY

The physical management of stock probably warrants a book on its own so we have only covered the essentials. Our aim is to ensure that there is a balance between a finely tuned system and a well-run physical operation. The measures we have recommended should help you to gauge how well you are doing.

# Chapter 12

# THE MOST USEFUL KEY PERFORMANCE INDICATORS

| **Designed for:** | Dealer Principals, Finance Directors, Aftersales Managers and Parts Managers |
|---|---|

| **Summary:** | We have selected the most useful KPIs that enable you to see how wisely stock is being managed. |
|---|---|

## 1 MEASURE, MONITOR, MANAGE

Key performance indicators (KPIs) are measures that enable you to get a fix on the health of your business. They take several forms: percentages, ratios and value per unit being the most common. Just as a doctor will test your blood pressure, temperature, cholesterol high density lipoproteins, white blood cells etc. and form an opinion about the state of your health so KPIs will do the same for a business.

Measuring, though, is only the start. You need to monitor – daily, weekly, monthly – to spot the trends. Then you can start to manage, i.e. do something different if you are not satisfied with the trend.

Throughout this book we have endeavoured to suggest measures that will indicate how well stock is being managed. In this chapter, we will recommend the ones that we believe are crucial and show how they relate to others.

One word of caution – KPIs are *indicators*, no more. For example, you cannot put a stock turn ratio in the bank. What we can say, though, is that it is extremely unlikely (but not impossible) that a Parts operation with a poor stock turn is going to be a commercial success.

## 2 THE THREE KEY MEASURES

In chapter 4 we introduced the three key measures – stock turn, surplus stock and customer service. In section 4 of that chapter you can see how these key measures sit at the top of the "hierarchy". In chapter 5 we recommended precisely what the three key measures should be.

These are the KPIs that all senior management should be looking at, not simply the Parts Manager. The following is a summary of the more detailed points we made in chapter 5.

## 2.1 Stock turn ratio

We recommend measuring *true* stock turn – see chapter 5, section 2.2.

If you submit daily stock orders, set 10x as the *minimum* stock turn ratio. We believe that 20x is achievable.

## 2.2 Surplus stock (excess + obsolete)

Set a target of 7.5%. This might take some while to reach if you have not previously been focusing on prevention.

## 2.3 Customer service

As we wrote in chapter 5, there is no single measure. We recommend using a broad range:

### 2.3.1 First pick availability

Most systems offer this measurement but it has little meaning if you do not record all lost sales (caused by non-availability). We suggest that a franchised dealer receiving a daily stock order should set a target of 92% first pick. However, it is the trend that matters more than the actual figure.

### 2.3.2 Lost sales

Assuming you record all lost sales, calculate performance as in chapter 5, section 4.4 – repeated below.

> Divide the total number of lost sales lines in a month by the total number of lines sold.
>
> Example:
>
> Lost sales lines recorded in month = 125
> Lines sold = 5,000
>
> So, lost sales lines = 2.5% of lines sold

Again the actual figure is of less importance than the trend.

### 2.3.3 Customer surveys

Work on the areas that the customer says are important and where there is greatest dissatisfaction. Look for an improving trend.

#### 2.3.4 Complaints

Investigate each one. Aim for zero complaints where the root cause is internal. Measure the number of complaints monthly as a % of the invoices raised. Differentiate between internal and external sales.

#### 2.3.5 Stock/VOR order mix

Assuming that you can submit a daily stock order, aim for a *minimum* stock order percentage (by lines) of 80%. We think 95% might be too high but it depends on how you achieve this. Remember, stock mix should be achieved as a *support* to customer service.

#### 2.3.6 Customer retention

Set targets for the overall revenue and the number of customers (trade, in particular) retained month on month.

# 3 ENABLERS

There are many KPIs that will enable you to see what progress you are making towards achieving the three key measures. Our list is not exhaustive but we think it will give you an excellent feel for the quality of the stock you hold. We will explain how each of these enabling KPIs contributes to achieving the three key measures. They are in no particular order. In some cases we will state that it is difficult to recommend precise targets so the important point is to measure and establish your own. Watch the trends. Take action as necessary.

Measure, monitor, manage.

## 3.1 Recommended stock order - % lines edited

This is a good indicator of how confident you are for the system to generate a recommended stock order. If you change too much then either the system parameters need amending or you suffer from the Van Royan syndrome. See chapter 8, section 8.2.

We regard "too much" as anything exceeding 10%. Aim for 5% but if you can genuinely achieve a lower figure that's fine.

If the system parameters are set badly then there is likely to be an adverse effect on each of the three key measures.

## 3.2 Stock density

This KPI shows how effectively you use space. Modern binning and racking together with a good layout will help. So, also, will being fanatical about the amount of fresh air you stock.

We covered this in detail in chapter 11, section 3.1.

Aim to exceed £750 per square metre.

## 3.3 Line depth

This will be a good indicator of how "fat" the stock lines are. See chapter 9, section 5. With daily stock orders, it is quite safe to be a lean stockist.

Aim for £25 per line stocked. This can be higher if you deal in high cost parts - for example, trucks or premium car brands.

## 3.4 Manually controlled parts

We recommend setting a *threshold* figure equal to 1% of lines stocked. Even if you are below this, it is worth reviewing each part number under manual control every "Second Tuesday". How many can be included in a cost movement category? The upper limit for manually controlled parts should be 2%. See chapter 7, section 2.4.

## 3.5 Stock check results

Provided you carry out a full stock check twice a year and have perpetual inventory checks of fast moving parts, we suggest setting a target of 2% for "gross" errors. See chapter 11, section 4.5.

## 3.6 Stock that has not moved for six months

You can look at deeper analyses – see chapter 9 – but this is one that provides a quick understanding of how fresh the stock is.

The calculation is straightforward:

Stock with no demands for at least 6 months

divided by

Total stock x 100%

If you have tuned up the system, undertaken extensive surplus stock prevention measures and taken full advantage of daily stock orders then

we would set the target at 5%. Remember this is measuring stock with *no* movement.

If you include all surplus stock (excess and obsolete) then set the target at 7.5%.

### 3.7 Others

You can devise your own KPIs. When you do, ask yourself, "Do they enable me to achieve the three key measures?"

# PART 3

# THE FUTURE

Chapter 13 – A look into the future

# Chapter 13

# A LOOK INTO THE FUTURE

| **Designed for:** | All who have an interest in the future of Parts distribution in the retail motor industry |
|---|---|

| **Summary:** | To an extent, the future has already arrived. Stock management is simply a platform for Parts distribution. The systems will need to support the distribution in a cost effective way. |
|---|---|

## 1 CURRENT DISTRIBUTION AND THE SUPPORTING SYSTEMS

### 1.1 Distribution overview

Parts and accessories find their way on to end user vehicles through a complex but orderly distribution network. Other than for obscure or elderly vehicles, it is a straightforward process. The following is a broad summary of current distribution.

1.1.1 The major channels to market are:

- The franchised networks
- The independent installers – service, repair and collision
- The national/regional chains of installers – service, repair and collision

1.1.2 The minor installers are:

- Rescue services
- Fleets
- Self installers (DIY)

1.1.3 Suppliers

The installers have several supply sources:

- The VMs supply direct to their own franchised networks and some others such as large fleets and MOD

- The franchised networks actively supply to installers (but the extent varies)

- Original equipment manufacturers (OEMs) supply the VMs plus independent distributors (sometimes these are their own aftermarket operations)

- Independent parts manufacturers generally supply in the same way as the OEMs

- Remanufacturers – same as the independents

- Motor factors (independent or in a chain) who will have purchased from OEMs, independent manufacturers or remanufacturers – either directly or through a buying group - and then supplied to installers

## 1.2 Systems to support the distribution

To explain the current systems in place, we have split distribution into two broad headings – franchised and independent.

### 1.2.1 Systems that support franchised distribution

Franchised outlets place orders, make enquiries and receive information via a dedicated VM system – often referred to generically as the DCS (dealer communication system). So, if you are multi-franchised you will connect separately for each franchise.

In the main, franchised outlets operate their own management system – usually from a recognised supplier such as Autoline and generically known as the DMS (dealer management system). Dealer groups are keen to have all branches on the same system – it ensures consistent reporting and accounting at the very least. However, from our SMA research, we have found far less group influence on Parts than we would have expected. 55% of dealers described group influence as "not at all" and a further 34% described it as "a little". So, from a Parts viewpoint, groups rarely use a common system as a way to influence local stock management. (Approximately two thirds of the dealers in the SMA research were in a group.)

A minority of dealers participate in VM operated top-up systems. See chapter 8, section 9. Toyota, Volkswagen, Volvo and Vauxhall offer this service to varying extents and degrees of success. Also, we believe that both Honda and DaimlerChrysler are currently piloting a top up system. In all cases, though, the dealer can order

additional stock outside of the range covered by the VM. At this stage, therefore, we cannot describe this as centrally *managed* inventory – more descriptive would be centrally *assisted* inventory management.

1.2.2 Systems that support independent distribution

The independents have their equivalent of a DMS to manage inventory and accounts. The system providers seem to be different from those supplying the franchised networks. For example, MAM figures prominently amongst ADF members but is almost unknown elsewhere.

Independent service outlets handle far more "walk in" customers so are more reliant on quick deliveries for unexpected parts requirements. Consequently, stock orders account for about 60% of order lines compared with an average of 75% for franchised dealers.

There are several ways for independents to communicate with suppliers:

- TecCom – an electronic network linking subscribers to many suppliers
- eparts – another electronic network linking subscribers to many suppliers; supported by the UK Parts Alliance and several buying groups (for example)
- soft franchise dedicated electronic links, also offering a DMS; for example, Unipart and their Car Care Centres
- the telephone

It seems that the use of electronic links to suppliers (the DCS) is growing rapidly but the DMS largely remains a user choice.

# 2 INFLUENCES FOR THE FUTURE

## 2.1 New Block Exemption Rules

The New Block Exemption Rules (New BER) came into force in October 2003. In brief:

- Franchised dealers may opt for separate contracts on sales and aftersales, one not being dependent on the other

- Some franchises have split aftersales in to Service and Parts, i.e. three separate contracts

- Franchise access is easier in that applicants must meet "objective" standards that are transparent

- Multifranchising on the same site is permitted although there might need to be distinct showroom areas

- Independents may apply to become Authorised Repairers, i.e. franchised by the VMs for Service and Parts (or separately where there are three contracts)

- Franchised outlets are obligated to purchase at least 30% of their Parts requirements from the VM

- Independents are entitled to access technical data (and training) from the VM at the same terms as a franchised outlet

- From October 2005, a franchise holder may open a sales point in any market area outside of their own

- Parts incentive programmes must enable purchasers to make commercial judgements and not be "all or nothing"

- Customers may use any service outlet during the warranty period for maintenance provided the VM's scheduled service routine is followed and any parts used are of a "matching" (as opposed to original) quality

- It seems that the onus is on the VMs to prove that a part is not of a "matching" quality rather than for the independent supplier to prove it is – so far, no case history to see if this is a correct assumption

The above is only a summary *and* as it might impact on Parts.

So far, there have been few obvious changes in the way that the market operates. We carried out a survey in July 2005 and found that for franchised dealers:

- Aftersales revenue was, largely, unchanged

- There was a slight aftersales profit drop but only where the VM had encouraged programmes to retain and win back the 4+ market

- Some dealers had increased their aftersales marketing efforts but this did not seem to be directly related to New BER

Regarding the appointment of Authorised Repairers, few had been appointed – subsequent research *suggests* a total of less than 300. We believe that most of these are Service only. Indeed, one high profile Parts only appointment has now resigned.

Component manufacturers have not increased their aftermarket activities.

This "inactivity" might simply be disguising a slow start rather than reflect on the impact of New BER.

## 2.2 Commercial influences

### 2.2.1 The franchised sector

Although New BER has changed the legal framework, several of the apparent "freedoms" have been there since 1995 at least. For example, franchised dealers were not obliged to purchase all (or, almost all) of their Parts requirements from the VM. The reality was that it was probably convenient to do so because supply was (and remains) good. Also, bonus schemes generally encouraged so-called loyalty.

We could describe this as inertia, i.e. no real reason to change. However, we believe that franchised dealers – groups, in particular – have started to examine the source of their profits based on separate franchise contracts; at the very least, by sales and aftersales. As a result, there is a slow realisation that Parts needs to be examined more closely.

Our views on franchised Parts operations can be summarised as follows:

- The role of Parts is often confused – support Service/Sales or Trade or both?

- With correct accounting, *most* Trade selling is only marginally profitable

- Dealer Principals (generally) do not know how to achieve the right return on their Parts operation

- Stock is poorly managed

- VM bonuses have often "seduced" dealers into Parts activities that are commercially unwise

These views are, of course, generalised but based on considerable research. Some franchised dealers are running highly successful Parts operations. Indeed, some have expanded out of the franchised sector. They are, though, the exception.

If our views are well-founded then it follows that franchised Parts distribution will change. It is likely that:

- Many dealers will concentrate on Service; after all, the profits are greater than from wholesaling Parts

- A minority of dealers will continue to wholesale Parts but to make a decent return will need to have a minimum annual revenue of, probably, £2 million and become more market oriented

- VMs will recognise that they need a dedicated network of wholesalers if they are to maintain their current revenues; consequently, distribution will mirror this

- Dealer groups will drastically reduce the cost of running a Parts operation by centralising as many functions as possible – this will also free up space in smaller outlets for alternative use

- Multifranchising will grow, especially in the volume sector

2.2.2 The independent sector

As with the franchised sector, little has changed since New BER came in. We think that there are other influences at work:

- Likelihood of tighter regulation for technicians

- Many small independent operators will sell up – there is a lack of succession; they are sitting on a valuable property that will fund their retirement

2.2.3 The whole aftersales market

- End of Life Vehicle Directive (starting in 2007) will lead to a greater use of remanufactured parts

- Lighter cars – lower servicing costs, less fuel consumed

- An increase in the 4 to 6 parc; traditionally outside of the franchised sector but unlikely to stay that way with competitive pressures – the new battleground?

# 3 SO, WHAT MIGHT HAPPEN TO STOCK MANAGEMENT?

We have looked at this in three stages:

- What is technically feasible?
- What the suppliers (VMs and other aftermarket suppliers) want
- What the distributors (franchised and independent) want

## 3.1 What is technically feasible?

### 3.1.1 VM automatic replenishment

We touched on some of the new developments in section 1.2. In the franchised sector, automatic replenishment is available but on a limited range of parts and with, so far, limited acceptance. Technically, the whole range of parts could be covered. Effectively, the VM would take full control of a dealer's stock – a push inventory management system based on complete transparency. There would be opportunities for local purchasing for emergencies or other franchise parts needed for the workshop. If the VM owns the stock then appropriate audit processes will need to be in place.

So far, we are only aware of DaimlerChrysler in South Africa taking complete control but we know that for other VMs that is certainly an aim. The key issue is unlikely to be a technical one but will revolve around the commercial arrangements.

Coping with multifranchised outlets does not seem to be a problem. After all, every VM has its own ordering system and automatic replenishment is simply an advanced version of this.

### 3.1.2 Aftermarket suppliers

In a similar way, aftermarket suppliers could introduce automatic replenishment. The independent sector, though, rarely has a dominant supplier unless it is a wholly owned subsidiary. So, although it is feasible for each supplier to "top up" there might need to be a simple way to do this. One possibility is a "gateway" that connects to multiple suppliers. This could be a development of the systems described in section 1.2.2.

### 3.1.3 Disregarding the type of supplier

Regardless of any current contractual arrangements, it is feasible to adopt the "gateway" approach and apply it to both franchised and independent distributors. However, because the benefits are likely to accrue to the user, we feel that any initiative is unlikely to be supplier driven.

## 3.2 What the suppliers want

### 3.2.1 What the VMs want from Parts

Looked at clinically, all the VMs need is:

- To gain a competitive edge for the brand as a whole through ensuring a superior service to the end user
- To maximise the profit
- To minimise inventory costs throughout the supply chain

How these are achieved is secondary and simply trying harder with the current methods might no longer be an option in a globally competitive market.

More than ever before, the customer's ownership experience will have a major impact on retention and advocacy to friends and relatives.

Many VMs derive a huge portion of their overall net profits from Parts revenues. Yet these revenues are under threat from better quality/reliability, increased competition that will probably arise from New BER, dealer networks that are finding it less attractive to sell into the independent trade or want to expand into independent wholesaling. The VMs need to retain their Parts profits and are likely to find a distribution model that allows them to do this whether it be a modification of the existing one or something more radical.

We believe that the cost of the supply chain is enormous – for the VM and its distribution network. One way of holding on to current profits is to cut their own distribution costs – both operating and the funding of the assets employed. Also, if revenues are to be maintained (or improved) there needs to be an attractive network proposition.

Because of these drivers, we are convinced that VMs will have to make changes that, in some instances, will eliminate traditional distribution.

3.2.2 What aftermarket suppliers want

As with the VMs, aftermarket suppliers want to maximise profits and keep supply chain costs down. Where they differ is on the ownership experience. We feel it is of less importance to them although a strong *brand* is crucial when selling to trade customers and, perhaps, to end-users.

## 3.3 What the distributors want

3.3.1 Franchised distributors

The following is a broad summary of what franchised networks *should* want from aftersales:

- the benefits of identifying with a strong brand
- excellent supply
- lower costs
- an acceptable return on assets

We have purposely avoided being specific about Parts and Service because we are convinced that "traditional" splits are outdated. For example, is there is a commercial reason for most dealers to sell parts to trade customers? If there were an alternative, why have your own Parts operation?

Dealers need to examine what they do now and test it as a *business* proposition. When this is done, we believe that the role of Parts will change radically.

3.3.2 Independent distributors

Independent distributors will also want excellent supply, lower costs and a decent return on their assets. Their own brand, though, will be more important than any individual supplier brand.

# 4 CONCLUSION

We are finally going to be specific. What will happen?

Parts distribution will change for several reasons. The VMs must protect their profits and will seek to use automatic replenishment as a win/win

way to do this. If they offer their distributors a compelling commercial proposition then we will see what is now a gradual roll out becoming almost universal. Our assumption is that VMs will need to construct an offer along these lines:

- VMs own the stock they put in
- VMs pay the distributor a commission on sales of their product, recognising space, staff, equipment and a reasonable return
- VMs remove slow moving stock, linked to a targeted stock turn/days' cover
- VMs provide a facility for the distributor to purchase, hold and sell stock supplied by others

From what we know of existing automatic replenishment, where not all of the above are yet in place, this would be an attractive proposition. One VM is aiming to reduce a dealer's stock to just 10 days' cover, assisted by improvements in aftersales processes such as pre-diagnosis and pre-ordering. On average, that's an 80% reduction.

We see no reason why similar arrangements cannot be applied to the independent sector, albeit at a slower pace.

Independents who choose to become Parts distributors for a VM are likely to jump at automatic replenishment provided it is a commercially compelling proposition.

So, there are many positive reasons to make the case for automatic replenishment. Putting those to one side, though, our SMA research has convinced us that – in general – franchised dealers are not very good at managing Parts stock. Unless that changes – this book notwithstanding – then automatic replenishment will become an economic necessity.

However, if users improve their skills and get to grips with their system they could achieve startlingly good key measures: a high stock turn, high levels of customer service and very low surplus stock. As a result, VM automatic replenishment will not seem much of an improvement unless the terms are attractive.

# PART 4

# APPENDICES



## INDEX

Page numbers can be added after print set up.

# Appendix 1

# GLOSSARY OF THE TERMS WE USE

To ensure clarity, we have selected all the terms that we think might need explaining. Although we have tried to explain terms in the text, we believe that the glossary will serve as a useful reference. It might be helpful to use it in conjunction with the index.

### ADF

The Automotive Distribution Federation is the trade body representing independent Parts distributors.

### Algorithm

This is a set of mathematical steps to achieve a defined end. Algorithms can be exceedingly complex. However, in the context of this book an algorithm is best regarded as a simple mathematical formula.

### Arithmetic average

This is a method of forecasting future demands that gives equal weight to each of the time periods. It adds up the total demands in, say, six months and divides them by six to arrive at the forecast.

### Automatic replenishment

Some VMs deliver to their dealers based on an interrogation of the dealer's demands. The dealer does not have to place an order but is automatically replenished. Each VM will have its own terms regarding the range of parts covered and the buy back of those that subsequently do not move.

### Availability

In general terms, this is a measure comparing the number of parts supplied against the number ordered, expressed as a percentage. Although it *can* be measured in pieces – for example, six washers, three fan belts etc. – it is invariably based on lines. VMs use this measure as one of the indicators of their performance to their direct customers. It is less commonly used by dealers. To be an effective measure, it is essential to record all lost sales. Availability can be measured at the order/enquiry stage or at the point of need.

### Average buying margin

The buying margin is the difference between the retail price of the parts and the net price paid to the supplier. It can be expressed as a monetary figure or, more commonly, as a percentage off the retail price. VMs often publish the average buying margin (ABM) monthly for each dealer. It reflects the mix of purchases based on order type (stock, VOR etc.) and the type of part (different discounts). As such, it influences gross profit. A dealer buying, say, £500,000 each year can improve gross profit by £5,000 if the ABM improves by 1%.

**Average (monthly) demand**

This term is used in forecasting to express the expected demand in the next period, usually a month. It *need not* be based on an arithmetic average. Often, it is written as AMD. You may come across the term forecast monthly demand (FMD). This is a forecast *based on* historical demands – covered separately.

**Backorder**

This is an order from a customer for a part that is not in stock but for which an order has been placed with the supplier.

**BO**

This is an abbreviation of backorder.

**Book (stock)**

This is the stock that is "on the books" – an accounting term – rather than actual stock. It is the stock held on the computer. In an ideal world, book stock and actual stock would be the same.

**Breadth (of stock)**

This describes the number of stocking lines you hold.

**Car parc**

This is the number of vehicles registered in a defined geographic area. The origin of the word parc is unclear but is probably an acronym coming from "postal area registered cars". It is useful when defining the market size for Service and Parts. Many VMs will provide dealers with data for each postal code in their market area. Most can provide details of model, derivative and age.

**Category**

In broad terms, a category is a grouping of parts with similar characteristics. Usually, a category is defined by cost, movement (demands) or both. Its most common use in this book is cost movement category.

**Closing stock**

See Opening stock.

**CMC**

This is an abbreviation for cost movement category.

**Cost movement category**

See Category and CMC.

**Cost of sale(s)**

Cost of sale over a period = Opening Stock + Purchases – Closing Stock.

It is used to calculate gross profit by deducting it from the price of parts sold in that period. Cost of sale can be calculated for an individual transaction but is most commonly used over a period of time. It might differ from the purchase price for two main reasons: stock adjustments (various causes) and the method of accounting - for example: average cost price, LIFO, FIFO. Operationally, for Parts Managers, it is the stock adjustments that need to be managed.

**Cover**

This is an alternative way of expressing how much stock you hold compared with the rate at which you are selling it. Stock turn ratio is the other. A simple definition of cover is to divide the number of days in the year by the stock turn ratio. So, for example, if the stock turn ratio is 7 then the cover is 52 days (rounded to the nearest whole number). In some ways, it can be more telling to measure cover.

**Critical success factors**

We have used this term in a specific way to describe the broad areas of stock management that, if done well, are *likely* to produce outstanding key measure performance. Our critical success factors are: deciding what to stock for the first time, categorising stock, deciding what to reorder, stock analysis, managerial confidence and the physical management of stock. See these as HOW to achieve the key measures.

**Customer satisfaction**

This is a very broad term to describe an aim of any business. Achieving high customer satisfaction – however defined – is likely to lead to customers returning to your business plus telling others about their experience. As a result, the business should prosper. VMs tend to use a customer satisfaction index (CSI) based on several questions but often they restrict these measurements to a narrow band of customers and at points immediately after contact such as buying a new car or having it serviced.

**Customer service**

Customer service is also a broad term but we have used it more specifically as one of the three key measures of good stock management. For Parts, it covers first pick availability, availability at the point of need, lost sales, customer surveys, complaints, stock/VOR order mix and retention. Each of these can be quantified. Together, they can be described as customer service.

**Dealer**

Out of convenience, the term dealer is applied to all system users engaged in the buying, selling and stocking of parts regardless of their links to one or several suppliers.

**Depth (of stock)**

A term used to describe the overall quantity of stock you hold per part number. See Line depth. Often, breadth and depth are regarded as the two "dimensions" of total stock value.

**DCS**

Dealer Communication System (DCS) refers to the system used by a VM (usually) to enable dealers to order electronically.

**Demand**

This is a request for a part – an actual order or an enquiry – regardless of whether it is ultimately supplied. A lost sale is a demand.

**Density (of stock)**

Sometimes referred to as stock density, this relates the value of stock (at cost) to the space occupied – usually written as £ per square metre. When making the calculation, include only storage space.

**Description**

The way a part is described in everyday language, although the actual wording might not be so common. Descriptions such as wiper blade or door mirror are easily understood but escutcheon, for example, less so.

**DMS**

This is an abbreviation for Dealer Management System, the software that manages almost all activities in a dealership. Most dealers buy their DMS from a proprietary supplier.

**Drivers**

Our specific use of this term is for detailed actions, parameters, processes or measures that influence the critical success factors.

**Due diligence**

A process that companies should undertake before buying another business. Often, you will read of a takeover that is subject to due diligence. Due diligence allows a company to study what otherwise would have been confidential information but which has a significant influence on the price being paid for the new business. Occasionally, a deal will break down as a result of due diligence.

**Economic order quantity (EOQ)**

This specialised term – economic order quantity - is used by some systems to calculate an economic quantity at the part number level. Where applied, an EOQ relies on a mathematical formula that seeks to adjust quantities to ensure minimum stocking costs for high value parts and minimum handling costs for low value parts. An EOQ formula requires a user input for two parameters: holding cost (a percentage) and a line ordering cost (a £ value).

**Economic quantity**

This is the difference between the "min" and max" that optimises the balance between holding a part and the expenses of handling it. Without an economic quantity, reordering would be for a quantity of one every time (plus any backorders).

**Enablers**

These are actions, parameters, processes or measures that influence results. Essentially, these are our "drivers".

**Error**

We have used this when describing operational activities such as counting, binning and picking. In almost all cases, an error is the difference between book and physical stock.

The term "error" is also used when explaining exponential smoothing. It is the difference between a forecast demand and actual demands.

**Excess**

This term describes stock that is selling but when the quantity is above a specified number of months' sales. It is one of the two elements of Surplus stock, the other being obsolete.

**Exponential smoothing**

This is a method of forecasting that adjusts the "error" between the forecast demand over a specified period of time – for example, a month – with actual demands.

**Fake sale**

This term describes a sale that is not a true sale – for example, sold to another branch as a way of disposing of surplus stock or purposely sold only to be returned but with the intention of creating a demand.

**False demands**

These demands are created when there are general shortages and do not reflect the true demand in the market.

**FD**

This abbreviation stands for forecast demand.

**Financial provision**

We have used this specifically to describe an accounting action that reduces the value of a part (partially or fully) because it is either in excess or has had no movement for a specified period of time. A financial provision is usually charged against gross profit – lowering it. Good

practice is to make a monthly provision in anticipation of calculating actual excess and obsolete. Financial provisions can be adjusted if actual surplus stock is higher or lower than expected.

**First pick availability**

This measure of customer service is the percentage of lines ordered that are filled at the point of *initial* request. However, it is only accurate if all lines ordered are entered in the system and lost sales are recorded on all occasions.

**Forecast (monthly) demand**

This is a forecast demand (FD) covering one month. This abbreviates to FMD.

**George's rule**

When disposing of surplus stock, experience shows that it pays to sell at almost at any price rather than holding out for a high price. You will lose money compared with the original buying price but "Your first loss is your cheapest". In other words, take whatever you can get for it.

**Generic examples**

Such examples are intended to demonstrate a learning point and might not relate to any specific system. Nevertheless, they have been chosen carefully and should be easy to follow.

**Greenfield**

This term describes a situation that is starting from scratch, without any inherited "baggage". Most commonly, we have used it when considering a new Parts operation.

**Gross profit**

An accounting term describing the difference between the price a part is sold at and its cost – see Cost of Sale. There are other levels of profit.

**Gross stock**

Gross stock is the value before deducting any write downs that result from a company's obsolescence policy. When these deductions have been made, the value is net stock.

**Hardwired**

This term means that the user has no control over a feature in the system. If what *should* be a user-controlled parameter is "hardwired" then it's tough luck because only a system redesign will change it. An example could be the length of time that a newly introduced part remains in the "New" category. Of course, not all hardwiring is unwelcome. Often, features need protecting.

**IFC**

This is an abbreviation for Inter Firm Comparison, a term used by VMs to describe a composite service. Dealers send in data confidentially to a processing company that produces performance comparisons within a franchise. For Parts, this is likely to cover stock turn ratio, gross profit and several other KPIs.

**Key measures**

We use this term to describe the three ways of judging good stock management: stock turn ratio, surplus stock and customer service. Essentially, WHAT needs to be achieved.

**Key performance measures (KPIs)**

KPIs are measures that provide an *indication* of how well a business is doing. They should not be regarded as ends in themselves. Also, KPIs should be restricted to essential measures - thus the word *key*.

**Layout**

This describes the design of a warehouse; essentially, where binning, racking, counters, goods inwards, fire exits, administration offices and equipment are located.

**Lead time**

The lead time is the total time from when you placed an order to when the parts on that order have been binned and are available for sale.

**Line depth/value**

This is the stock value for each part number. It can be expressed for individual part numbers or for the stock as a whole (average line value).

**Lines**

This term originates from the lines on a page. When asked how many part numbers you have on file, for example, you might say you carry 5,000 lines, i.e. separate part numbers. However, in all other contexts – placing or receiving orders, for example – a line refers literally to a line on a page (hard copy or electronic). An order line will consist of the part number, possibly the description and a quantity. A very large VM, for example, might receive 25,000 order lines each day from dealers but there might be, say, only 5,000 separate part numbers involved.

**Locations**

A location is a specific "address" or bin reference where a part is stored within a warehouse.

**Lost sale**

A lost sale is an unfulfilled demand from whatever source

**Manually (controlled)**

Manually controlled parts will not be recategorised when demand changes. They have been placed in a special category – Manual – and will not come up on a recommended stock order. All management of these parts is manual.

**Max**

This term describes the highest stock figure for an individual part number. When an order is triggered the quantity to be ordered will bring the stock figure up to the "max". This is a general term, as individual systems will usually use their own favoured term.

**Meddle**

We have used this term to describe the actions of someone who compulsively alters more than 20% of the lines on a recommended stock order. See Van Royan syndrome.

**Min**

This term is used to describe the stock level at which a part number comes up for reordering. As with "max", this is a general term, as individual systems will usually use their own favoured term.

**Model code**

This is a notation used by most VMs to identify which vehicle model (and, possibly derivative) a part number fits.

**MOT**

This term refers to the annual test required by all passenger cars once they have been registered for three years. When introduced almost 50 years ago, it was called an M(inistry) O(f) T(ransport) test.

**Movement**

This refers to any transaction on a part number – for example, when a part is put into stock. Its most common use, though, is when there are sales.

**Net stock**

See Gross stock

**New BER**

This term describes the European Commission Regulation 1400/2002, designed to increase competition in motor vehicle distribution and repair – the New Block Exemption Regulations.

**Not set in stone**

In general, we have used this term when something need not be permanent and can be changed in the light of experience. Where we say that a recommendation is "not set in stone" regard it as a good starting point.

**Obsolescence/Obsolete**

Obsolescence is a general term used to describe parts that have had no sales for at least X months. Each company will determine what X will be in its obsolescence policy (see below).

**Obsolescence policy**

To ensure that stock is valued in a way that reflects its resale value, a company will establish an obsolescence policy. A good policy will cover both excess and obsolete parts although many companies seem to restrict their policy to obsolete only. A *typical* obsolescence policy might be to write down by 50% all stock that has had no sales for 12 months then take a 100% write off at 24 months. If excess stock is included then similar write downs/offs will apply to stock that exceeds X months'

demand. In accounting terms, write downs/offs are usually charged against gross profit.

**OO**

This is an abbreviation for on order.

**Opening stock**

Opening stock is the value of stock at the beginning of an accounting period – for example, at the beginning of a month or year. Closing stock is the value at the end of an accounting period.

**Parameter**

In general terms, a parameter is a rule. In stock management, specific parameters include: the number of days for lead time, the demand range for a part to be classified into a movement category and the weightings to apply to demand history when forecasting.

**Parc**

See Car Parc.

**Pareto**

Vilfredo Pareto was an Italian economist whose observations gave rise to the 80/20 rule – Pareto's Law.

**Parts**

We have used the term Parts (rather than parts) when we wish to describe a department, activity or operation.

**Part number**

This is a unique "number" used by suppliers to identify a specific part or accessory. It might be made up of both alphas and numerics. The original supplier most commonly issues part numbers but, in some circumstances, business customers might create their own.

**Part number interpretation**

This term describes the act of identifying exactly which part number is required for a specific application. Interpretation is usually supported by a supplier's CD-ROM, an interactive website or a microfiche.

**Perpetual inventory**

This is usually an additional method of stock checking. In general, the whole stock is checked at least once a year outside of the annual check but faster moving parts will be checked much more frequently.

**Phase in/out**

The decision-making process surrounding bringing parts into stock for the first time is commonly referred to as phasing in. When the demand for a part drops and it should no longer be stocked it is phased out.

**Physical management**

This term applies to activities such as binning, picking, delivering and locating parts, i.e. processes that are not electronic.

**Pre-pick**

This term applies to the picking of parts in anticipation of jobs coming in – usually based on advice from Service. This leads to better availability at the point of need and helps to smooth the workflow.

**Pre-order**

This refers to the processing orders of from customers – checking if stock is available and ordering it on the supplier if not - before the parts are required, usually some days ahead. The parts can then be pre-picked.

**Process**

A process is a "map" showing activities and decision-making points within a business.

**Recalls**

These are actions by a VM to ensure that specific vehicles are brought back to a franchised dealer for inspection where there is a known fault and, if necessary, repaired at no charge to the customer.

**Recommended stock**

This term is applied by suppliers (usually VMs) to stock that they want their dealers to hold. The strength of the recommendation can range from being a mere suggestion to mandatory.

**Regression**

This is a term to describe a way to forecast future demand, usually for very fast moving parts.

**Reorder point**

This is the stock level at which a part comes up for reordering. See "min".

**Reorder quantity**

The quantity for an individual part number that will bring stock up to the "max" when an order is placed.

**Returns**

This term describes parts that are sent back to a supplier for several reasons – for example: damaged on receipt, wrong part received, excess quantity compared with the order. Generally, suppliers have a policy to cover returns. However, dealers, as suppliers, will sometimes take back parts from a valued customer regardless of any published policy.

**Review period**

This is the chosen historical period of time you use to look at demands when calculating a forecast.

**RFID**

This abbreviation stands for Radio Frequency Identification. Increasingly, this is being used in warehousing and distribution to improve accuracy and efficiency by making use of an active or passive identification tag that responds to radio frequencies. It is likely to make bar coding obsolete.

**RFTOT**

This is an abbreviation for right first time on time – an aspiration to achieve excellent quality.

**RIM**

Originally, this term was used in 1996 by Vauxhall to describe a programme to improve retailer inventory management. Some systems suppliers developed a RIM analysis report which they offered to all users, regardless of franchise.

**ROI**

This is an abbreviation for return on investment, a financial measure that relates profit to assets.

**Rounding**

This is a mathematical term whereby calculated numbers with decimal places are increased or decreased to a whole number depending on the rules set. *Traditionally*, where the decimal place is 0.5 or greater the number is rounded up. Below 0.5, it is rounded down.

**RSO**

This abbreviation stands for recommended stock order, one that is generated by the system based on the stock position, demands and the parameters set. If the system has been set up wisely, then only a few of the recommended lines will need editing.

**Rule of thumb**

A guideline to help with decision-making. A rule of thumb can be regarded as "rough and ready" but is still useful.

**Safety stock**

This is the level of stock to cover supplier (un)reliability and the incidence of erratic demands. Safety stock can be zero for slow moving parts where the risk of becoming overstocked is judged to be greater than the risk of a lost sale.

**Sale**

A transaction where money changes hands for a supplied part.

**Sales**

We have used the term Sales (rather than sales) where we refer to a department, activity or operation involved in the selling of new and used vehicles.

**Scrap**

This is the physical disposal of an obsolete or excess part.

**Second Tuesday**

We use this term to describe a regular review of parameters and processes. It need not be carried out literally on the second Tuesday of

every month but time ought to be set aside in the diary to ensure the review is a feature of good stock management.

**Sell by**

This is a date by which some parts need to be sold or destroyed. The supplier should inform customers of any parts that are classified as "sell by".

**Service**

We have used the term Service (rather than service) where we refer to a department, activity or operation involved in the service and repair of vehicles.

**Service fix**

This term has a similar meaning to Recalls but might be carried out without customers being informed.

**SKU**

Although we have not used this term, it is an abbreviation for stock keeping unit. It means a part number and is used commonly in other industries.

**SMA research**

Our research from almost 200 dealers in 10 franchises has provided data about stock management that has enabled us to identify levels of performance and skills.

**SMART**

This acronym applies to setting objectives. They need to be specific, measurable, achievable, realistic and timed.

**Smoothing factor**

See exponential smoothing.

**SOH**

This is an abbreviation for stock on hand.

**Spot checks**

This is a way of supplementing full stock checks by selecting specific parts at any time that might be vulnerable to theft, damage or mispicking.

**State of the art**

This term is used to describe something that is very advanced or the best available.

**Status (codes)**

This term is used as a broad classification of parts into moving and non-moving.

**Stock locator**

This is a service provided mainly (but not exclusively) by VMs for their dealers. The aim is to help dealers find and dispose of slow moving stock without involving the VM directly. Independents are beginning to offer similar, multifranchised services.

**Stock order**

This is a specific order type offered by suppliers. In general, it offers the best buying terms but the slowest delivery. A typical VM offers a daily order input before 1800 on Day 1 with delivery before 0800 on Day 3.

**Stock profile**

This is a broad term looking at the quality of stock judged by its width and depth. Width is the number of lines held. Depth is the value of stock for each line. Additionally, you can judge the quality of stock by its ageing – looking at the profile based on demands in specified time periods such as 0 to 4 weeks, 5 to 8 weeks etc.

**Stock turn**

This measures the ratio of sales to stock.

**Supersession**

This usually describes a new part number for a product that is functionally identical to the one it has replaced. If the supersession is "compatible" then it is good practice to use up the old part number first. In such a case, the change might be merely cosmetic or the supplier has changed. Sometimes, a supersession will involve a single part number replacing several – a kit, for example – or the reverse where several part numbers replace one – an "explode".

**Supplier**

This broad term describes a business from which you purchase goods or services. For parts, it will mean a VM, proprietary manufacturer or independent distributor. For services, it will include (amongst others) the systems provider.

**Supplier returns policy**

See Returns.

**Surplus stock**

This is one of the three key measures for good stock management. Surplus stock covers both excess and obsolete parts.

**System**

We have used this to describe any electronic means to assist the management of a business. See DCS and DMS.

**Top up systems**

See Automatic Replenishment.

**Van Royan syndrome**

This term - based on a real situation - describes unnecessary editing of a system-generated recommended stock order. See Meddle.

**VOR**

This is an abbreviation for vehicle off road. Originally, it served as a special order type when parts were urgently required for immobilised vehicles and stock orders were, at best, weekly. VOR has remained an order type but is rarely restricted to "vehicles off road". A typical VM offers a cut off time of 1800, delivery before 0800 next day but with a reduced discount compared with a stock order. Some VMs use other terms such as Top Priority, Urgent and Rush but the order type is the same.

**VM**

This is an abbreviation for vehicle manufacturer but also covers importers and distributors selling vehicles and parts to dealers on behalf of the original manufacturer.

**Warranty campaigns**

This term is used in a similar way to Recall and Service Fix; essentially, an action by a VM to repair, replace or adjust a known problem without charge to the customer.

**Weighting**

This is a method of applying a bias to historical demands in order to produce a better forecast.

**Write down/off**

This is an accounting device to reduce the value of a slow (or no) moving part. Its original value is partially reduced (written down) or reduced to zero (written off). See Financial Provision and Obsolescence Policy.

# Appendix 2

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## OPPORTUNITIES FOR PARTS INVENTORY MANAGEMENT

If it works, don't fix it! Is that progress? It seems to me like a recipe for ending up with the same old thing, getting the same old results.

I am a parts specialist and this piece is about a core activity - inventory management. Making improvements will benefit the whole dealership, not just parts. So, what is so exciting about parts inventory management?

Recently, I carried out some research on parts stocks held by all UK franchised dealers. The headline findings are that the total inventory is probably around half a billion pounds. Of this, approximately £170 million is surplus in some way. That is an awful lot of wasted assets.

Some franchises have not just recognised the problem but have taken serious action to turn it into an opportunity. During 1996 and 1997, I was part of a team set up by a volume franchise to make major improvements to their aftersales performance. There are others, mainly smaller, who have also grasped the nettle and are leading their dealers along a slow but very rewarding route.

For most franchises, though, Parts is rarely given sufficient attention. Somehow, its built-in profitability shields it from attention. When it comes down to individual dealers, the picture is usually direr. Is it because it has a poor relation image? It should not be because it is invariably a profit generator. Is it because there are lots of part numbers and transactions thus seeming impenetrable to the uninitiated? Maybe. Perhaps it is just taken for granted? Regardless, Parts is an investment. It has assets: it makes a return. Do you know what return it should make? Is it sufficient or is simply having a department with black ink good enough for you?

Let's go back to that national surplus of £170 million. If we could redeploy those wasted assets then:

- 80 acres of space would be freed up
- this could be filled by around 11,000 new service bays that will generate labour and parts sales
- £170 million would fund about 30,000 used cars

Dealers can translate this macro picture into their own individual opportunities. How can they be exploited? I want to look at improving parts inventory management in four stages.

## How do we define good inventory management?

In broad terms, it centres on "two highs and a low". Customer service and stock turn ratio must be high but obsolescence needs to be low. Setting targets for each of these is the beginning of the improvement process.

How many dealer principals have reached this stage?

## Current performance

The easiest to measure is stock turn. Or, rather, it should be. Is it with "obsolescence" or without? Does it include sales made from non-stocking parts? To get started, it probably does not matter too much, as long as there is a consistency. Refinements can come later.

Measuring obsolescence is probably not so difficult although there are many ways to define it. For example, when does obsolescence cut in - 24 months, 12 months or even earlier? Also, what about parts that are moving but stock is in excess of, say, six months' demand? Should we include them? Again, start with something even if later on you choose to refine it.

Measuring customer service is more difficult unless the manufacturer has a method and/or the systems provider has one. If neither of these is a possibility then there are some crude ways of doing it - better than nothing.

## Critical success factors when making improvements

There are five main critical success factors:

- control of the initial stocking decision
- appropriate stock categorisation
- definition of safety stocks
- efficient ordering processes and parameter setting

*and, lastly, but probably most importantly*

- creating the real belief among staff that stock reductions can be achieved without affecting availability or creating other problems

Often, dealer parts managers understand all the theory from training courses or from their software supplier. However, very few, in practice, actually dare to believe it can work for them when they return to their dealerships. Consequently, they make little attempt to change the inventory management process in an active and effective way.

**Homing in on challenging targets**

If we look at the three target areas - customer service, stock turn and obsolescence - we can see what an "average" dealer might be achieving.

Customer service can be measured in so many different ways that it is almost impossible to arrive at a typical result. However, if we take all parts demands and measure the percent fulfilled from stock, then it is probably no better than 85%. I suspect, though, that for many this figure could be as low as 60%. Yet, there are dealers who achieve almost 100%. Certainly, 90% should be the lowest acceptable figure.

Less than a decade ago, when weekly stock orders were the norm, most manufacturers were happy if their dealers achieved a stock turn of four times a year. We have certainly moved on from that. Now that most franchises have a daily stock order anything less than six is considered sluggish. My research suggests that seven and a half is probably considered respectable. But then so was four just ten years ago. With daily stock orders, we need to be looking at ten times a year and even that seems modest when compared with the best.

The current level of obsolescence (or what I prefer to call surplus parts) is approximately 30% of dealer inventories. The nature of the parts business is such that we will always have some surplus but it does not need to be anywhere near that figure. The maximum level should be set at 10%. Again, the best have figures much lower than this.

To achieve these challenging targets, dealers will probably need help on site. Once the process begins, though, it should be become self-sustaining.

Summarising, every business needs to get better returns on its assets and every business has to provide the maximum level of customer service. Better parts inventory management will achieve both of these strategic aims. It is truly a WIN/WIN proposition.

# Appendix 3

# POINTS TO CHECK WITH YOUR DMS SUPPLIER

It is possible that you find the documentation provided by the system supplier is unclear or inadequate. If so, seek explanations on the points you do not understand. We consider the following could be possible questions for you to ask.

### Access to reorder parameters and category definition

As a manager responsible for Parts stock, do you have authority to make changes to reorder parameters and changes to CMC definitions?

If you are unsure, check with senior management first as to whether any limitation is a company decision (and why). If the DMS supplier has placed restrictions then find out why. Was it in the original contract? How can you take responsibility for managing your own stock?

### Calculation of first pick availability

Does this calculation exist in your own system? If it does, can it be split into internal – essentially Service if you are a franchised dealer - and external demands? Clarify if the calculation is made at the time of order or at the point of demand.

### Current month included in the review period?

How does your system handle demands in the current month when calculating forecast demands?

### Definition of category O

If there is a category O, does it literally mean Obsolete, i.e. no demands in X months? Or, is it a more complex definition that covers slow moving parts that should not be reordered?

### Demands or sales

When calculating a forecast demand, does the system use just sales or does it include demands (sales plus lost sales)?

### EOQ in your system

Is the economic quantity calculated at the part number level (EOQ)? If so, what control do you have over the two parameters – cost of ordering and cost of holding? Have they been "hardwired" or are they user parameters?

## Forecast review period

When calculating a forecast demand, how many months/weeks/days does the system look at? Can you change this?

## Forecasting method – simple arithmetic average?

What method is used to calculate a forecast? If it is a simple arithmetic average then the forecast demand is likely to be wrong where there is a rising or falling demand, i.e. most cases. If the system continues to use a simple arithmetic average then you will need to edit a stock order excessively.

## How long do phased out parts stay on file?

You need to know the parameters – if any - for deleting phased out parts from your file. If the user sets the parameters, we recommend that phased out parts *without stock* are deleted 12 months after either scrapping or when they entered the Obsolete category, whichever is later. The system should generate a report of all such parts one month prior to automatic deletion. That way, no further action is needed unless there is a good reason to override the decision.

## How to record lost sales

Most DMS suppliers make it fairly easy to record lost sales. If you think it is difficult then check the exact method. Also, check how your system deals with lost sales caused by price – can they be separated from those caused by insufficient stock and do they count as a demand when forecasting? Ideally, they should be separate and should not count as a demand.

## Nursery (new) parts

When you phase in new parts, do they go into a "nursery" CMC? Is the period they stay fixed – for example, 180 days – or can the user amend it so that a new part can automatically enter a CMC when appropriate?

## Paying for "state of the art" system changes

Where the DMS supplier does not offer "state of the art" functionality, who pays for changes? To an extent, this will depend on the contract your company has with the supplier. If your system is "ancient" then you can hardly expect "state of the art" functionality. If it is relatively new, then you might expect the DMS supplier to offer to upgrade where functionality is unsatisfactory.

Examples of functionality that is not "state of the art" are:

- using sales not demands when forecasting
- a forecasting method based on a simple arithmetic average
- movement only categories rather than *cost* movement categories
- restricting access to parameters

**Recategorisation of CMCs**

When does your system recategorise individual parts into new cost movement categories? If demands are rising or falling rapidly then this can make a difference to the usefulness of the "min" and "max". Does recategorisation take place daily, weekly, monthly or whenever a recommended stock order is generated? Or do you, as a user, have to initiate recategorisation?

**RIM**

Is this report available? If so, can you insert targets for stock turn?

**Rounding up or down and at what point**

What are the rules for rounding forecast demands and order quantities? At what point does rounding take place? Can the user change these rules?

**Weightings**

If the forecasting method depends on weighting recent demands, how exactly does it do this? Can the user make changes? If so, how and is there a simulation process?

## Appendix 4

# CONVERSION OF TRADITIONAL STOCK TURN TO TRUE STOCK TURN

**TRADITIONAL STOCK TURN**

| Stock turn p.a. | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 |
|---|---|---|---|---|---|---|---|---|---|
| Days cover | 91 | 73 | 61 | 52 | 46 | 41 | 37 | 33 | |

**TRUE STOCK TURN**

| VOR % | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn | True Days Cover | True Stock Turn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **5%** | 3.8 | 96 | 4.8 | 77 | 5.7 | 64 | 6.7 | 55 | 7.6 | 48 | 8.6 | 43 | 9.5 | 38 | 10.5 | 35 | 11.4 |
| **10%** | 3.6 | 101 | 4.5 | 81 | 5.4 | 68 | 6.3 | 58 | 7.2 | 51 | 8.1 | 45 | 9.0 | 41 | 9.9 | 37 | 10.8 |
| **15%** | 3.4 | 107 | 4.3 | 86 | 5.1 | 72 | 6.0 | 61 | 6.8 | 54 | 7.7 | 48 | 8.5 | 43 | 9.4 | 39 | 10.2 |
| **20%** | 3.2 | 114 | 4.0 | 91 | 4.8 | 76 | 5.6 | 65 | 6.4 | 57 | 7.2 | 51 | 8.0 | 46 | 8.8 | 41 | 9.6 |
| **25%** | 3.0 | 122 | 3.8 | 97 | 4.5 | 81 | 5.3 | 70 | 6.0 | 61 | 6.8 | 54 | 7.5 | 49 | 8.3 | 44 | 9.0 |
| **30%** | 2.8 | 130 | 3.5 | 104 | 4.2 | 87 | 4.9 | 74 | 5.6 | 65 | 6.3 | 58 | 7.0 | 52 | 7.7 | 47 | 8.4 |
| **35%** | 2.6 | 140 | 3.3 | 112 | 3.9 | 94 | 4.6 | 80 | 5.2 | 70 | 5.9 | 62 | 6.5 | 56 | 7.2 | 51 | 7.8 |
| **40%** | 2.4 | 152 | 3.0 | 122 | 3.6 | 101 | 4.2 | 87 | 4.8 | 76 | 5.4 | 68 | 6.0 | 61 | 6.6 | 55 | 7.2 |
| **45%** | 2.2 | 166 | 2.8 | 133 | 3.3 | 111 | 3.9 | 95 | 4.4 | 83 | 5.0 | 74 | 5.5 | 66 | 6.1 | 60 | 6.6 |
| **50%** | 2.0 | 183 | 2.5 | 146 | 3.0 | 122 | 3.5 | 104 | 4.0 | 91 | 4.5 | 81 | 5.0 | 73 | 5.5 | 66 | 6.0 |
| **55%** | 1.8 | 203 | 2.3 | 162 | 2.7 | 135 | 3.2 | 116 | 3.6 | 101 | 4.1 | 90 | 4.5 | 81 | 5.0 | 74 | 5.4 |
| **60%** | 1.6 | 228 | 2.0 | 183 | 2.4 | 152 | 2.8 | 130 | 3.2 | 114 | 3.6 | 101 | 4.0 | 91 | 4.4 | 83 | 4.8 |

# APPENDIX 5

## The Autoline forecasting algorithm and reorder calculations (as used in Rev7 and Rev8)

Forecasting and reordering can be looked at in three stages.

### 1 Calculating the predicted average monthly demand (amd)

Predicted amd = ( Previous amd x Factor + actual demand ) / ( Factor + 1)

The Factor is either 6 (for slow moving lines) or 2 (for fast moving lines).

A slow moving line is defined as one with less than three requests in a month or an average demand of less than one. The calculation assumes that it will be run monthly but will compensate if run at different times.

The idea behind the Factor is that fast moving parts tend to have a smoother demand profile than slow moving ones. See the examples below:

Example – fast moving part

Previous predicted amd = 6
Demands this month = 10

So, new amd = (6 x 2 + 10) / (2 + 1) = 7.33

Example – slow moving part

Previous predicted amd = 0.6
Demands this month = 1

So, new amd = (0.6 x 6 + 1) / (26+ 1) = 0.65

The system compares the new predicted with the previously predicted amd and for all lines with a demand greater than 1 and a variance between the predicted and actual demand of greater than 20% a variance exception is printed. This allows the user to investigate why the prediction demand has moved so much.

### 2 Calculating a new minimum stock figure

The new minimum stock is based on the amd plus safety calculations and lead time.

New min = (1 + system safety) x (1 + user safety) x lead time x (amd /30)

The lead time is expressed in days. Because the amd is a monthly calculation it is divided by 30 to ensure all calculations are based on days.

The user safety figure can be amended and is described as a safety coefficient. Usually, safety coefficients are applied to reorder categories, i.e. A, B or C. As a general guideline, the user will apply a higher safety coefficient to fast moving parts to ensure customer service. However, slow movers run a greater risk of becoming obsolete so C category parts will have a very low safety coefficient. In fact, experience suggests C category parts should have a safety coefficient of 0.

The system safety figure is hard wired into the system. It is based on the amd. The calculation is as follows:

$$1 + 0.3/\log(amd + 2)$$

Essentially, the system safety factor assumes that the faster moving a part is then the smoother is its demand profile.

## 3 Calculating a new maximum stock figure

The maximum stock is calculated as follows:

$$\text{Maximum} = \text{Minimum} + \text{the days between orders} \times (amd / 30)$$

The "days between orders" is for most users is now just a single day.

## 4 Our recommendations

Following the general introduction by VMs of daily stock orders, we feel that Autoline users should experiment with the parameters in the Min/Max calculations. This is best done using the "What If" facility (available in Rev8).

If you take the literal number of days in "lead time" and "days between orders" then you will end up with a sell one/buy one situation - i.e. not taking advantage of economic ordering and being forced to handle too many receipts each day. Experiment.

Our experimentation suggests that users on a daily stock order will get decent results by setting the lead time at 4 days and the days between orders at 9 days.

# INDEX

The locations for most subjects are shown as chapter then section. Where the location is Example, the reference indicates the chapter and sequence. So, Example 8-3 is found in Chapter 8.

To avoid needless repetition, we have disregarded the plural where a singular entry (or vice versa) is already covered; for example, VM covers references to both VM and VMs.