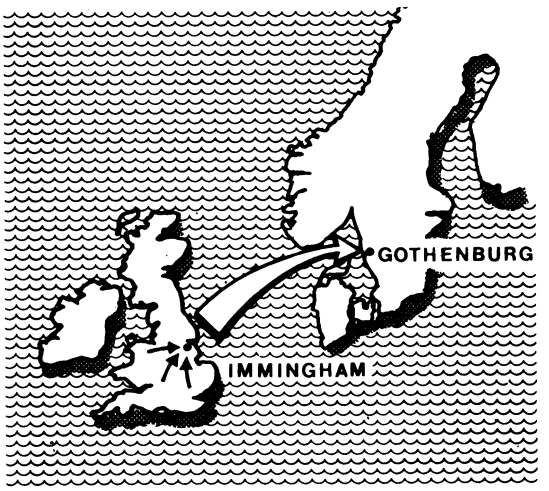
Volvo's component pipeline



Almost one quarter of the content of the average Volvo car is British. The Swedes rely on British industry to supply the components which their smaller country cannot provide. The problem arises: how can Volvo guarantee regular delivery from over 200 foreign suppliers when even a British car-assembler like British Leyland finds its lines are stopped by lack of components as often as for any other reason. Volvo has solved the problem with some unusual techniques

Peter Krafft

Ex-works buying

The Volvo system depends on the principle that component manufacturers are best left to concentrate on manufacturing. Volvo undertake responsibility for transport of goods out of the British factory gate and through to Sweden. British suppliers like the system because it gives them a guaranteed method and time for pick-up. Volvo not only get improved delivery, but can cut haulage costs because of the more efficient use they can make of lorry routing. But perhaps most important of all, Volvo are in control of components which are the life-blood of their production processes in Sweden.

Carburettors, pistons, paint and tyres are among the dozens of British manufactured materials used by the Volvo group. More than 200 suppliers contribute to this range, varying in size from ICI to small firms in rural areas.

The transport system responsible for bringing 400 tons daily to Immingham is supervised by D. D. Smyth & Co. The system divides Britain into 27 areas each serviced by one haulage contractor, bringing goods from the factories within his area together, and then forwarding them to Immingham.

Goethe Svensson, the Swedish manager in charge of Volvo's material control department in Birmingham, steps in when supplies are falling behind or liaison is required between British maker and Swedish assembler. He is in no doubt that ex-works buying is good for both parties. "The supplier just picks up the phone when he needs transport; he knows that there are specific days when the haulier comes to collect".

It saves the supplier not only the cost of hiring or running his own fleet, but also from relying on others: often vehicles are not available.

Ex-works buying is favoured among suppliers themselves, and particularly by those whose transport division is not large enough to compete in efficiency with the sort of purpose-built system built up by Volvo.

". . . it is often easier for firms to supply Volvo than some British companies which have variable delivery schedules."

—From a Volvo memorandum to a committee of the House of Commons

Jim Power, contracts executive with Zenith of Stanmore who manufacture carburettors, calls ex-works buying "a vast improvement". The regular delivery point takes a lot of the heartache out of transport, and when running out of empty stillages it is only necessary to ring Volvo. "The materials handling depot of Volvo's at Birmingham is purely and simply that, whereas at the supplier's end one tends to look at it as a sideline."

Safety stock

Somehow Volvo are able to persuade British component suppliers to tie up several months' supply of their goods in the Volvo shipping terminal at Immingham. The value of this safety stock totals many millions of pounds, and the cost of financing it, including the cost of warehousing, is borne by the supplier. Nevertheless, the system is welcomed by British suppliers.

In order to maintain the safety stock in good condition, all goods in it are rotated every three months. Russell Gibney, general manager of D. D. Smyth's terminal, says that only twice in the last nine years has it been necessary to ship the entire stock out to Sweden, on the occasion of a dock strike and an engineering strike. As a matter of routine the stock is drawn on in rotation, though it sometimes happens that when British suppliers cannot meet their orders the stock is run down.

The amount deposited as safety stock at Immingham is the quantity of the component necessary to maintain full production in Sweden for four weeks. This commitment is required of every component with 'line-stopping' capacity, and is in addition to the policy of dual sourcing which gives Volvo a non-UK supplier for every one in Britain. Borg-Warner have around £½m worth of automatic transmissions at Immingham; International Harvester the same amount.

How do Volvo persuade companies

to tie up this dead money? Goethe Svensson explains that, as a carrot, Volvo try to maintain the best possible relationships with suppliers and to give them stable orders; as a stick, if a supplier fails to maintain safety stock at Immingham at the agreed level, he stands a reduced chance of getting through a price increase with Volvo.

Suppliers themselves take a philosophical view of the safety stock idea in view of the fact that it is spreading: Vauxhall have very recently brought in a similar scheme.

Brian Fletcher, sales contracts manager for Hardy-Spicer of Birmingham, finds the safety stock a convenience which helps eliminate panics if Volvo make a sudden and unexpected demand for prop-shafts above the normal requirement, or if a machine in the factory breaks down. "We wouldn't relish it if the idea caught on with all our customers" he says. "Capital is tied up, and it is a bit much expecting us to finance the stock when Volvo may need it only because they have decided to make last-minute alterations." But again, Volvo are a special case. Fletcher sees them as good customers and their demands have to be viewed in the context of business done.

Volvo packaging

Volvo are known for the adventurous materials handling techniques in their factories. This interest spreads right to the doors of their British suppliers. Standard Volvo packaging is provided free to manufacturers, and gives Volvo: a package that can be integrated with their factory handling in Sweden; reduced prices from manufacturers who need no longer provide their own packaging; and a 'pool' of packaging material that may be circulated as efficiency dictates anywhere in the Volvo parts-procurement system world-wide.

Between five and six million pounds are invested in Volvo's packaging materials group-wide. "The beauty of the system", says Goethe Svensson, "is that a package made up by BRD or Zenith or whoever goes straight on to the assembly line in Sweden where a rack is designed for that particular pallet and nothing else."

The Immingham terminal keeps a stock of packaging which comes from Sweden fully collapsed and is circulated free to British manufacturers. Volvo gain through giving lorries a load on return trips. Pallet boxes vary in size but fit the ISO 8ft by 20ft flats used for shipping to Sweden. There are five different pallet sizes, and many different types of emballage specially designed and supplied by Volvo to suit the component—one for carburettors, for example, and another for prop shafts. D. D. Smyth at Immingham undertake packing in some instances. Tractor engines come from Perkins in post pallets and are then transferred for safety in shipping to special cradle pallets that are geared to the production process in Sweden. The cradles come back to England after use.

"It is far cheaper for Volvo to recycle pallets," says Russel Gibney. "There is a big out-lay, but it is cheaper in the end." He cites the example of Perkins, which used to supply their own packaging and charge Volvo the extra cost. Now Perkins use Volvo packaging, and Volvo no longer have waste materials accumulating at their Swedish factories with which they are not geared to cope.

Scheduling

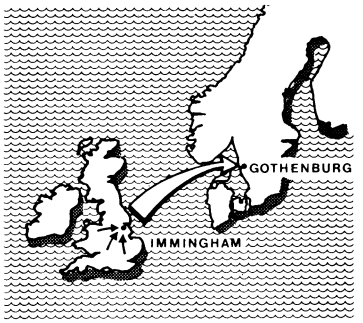
All firms who buy on the scale of Volvo give their suppliers some idea of future requirements, if only because a supplier who goes bankrupt for lack of an order will not be available to turn to next time. The Volvo method is to make their projections as close to firm orders as possible, using short, medium, and long term estimates. The verdict of suppliers is that Volvo are usually pretty accurate. The pay-off for Volvo is that suppliers are more able, and willing, to meet delivery dates.

The Volvo scheduling system is based on a 12 month forecast, of which the first three months constitute a firm order; the second three months form a period in which Volvo is responsible for raw materials and work-in-process in the firm, but in which Volvo is free to vary its requirements; the final six months of the 12 months projection is tentative. Beyond that, a firm which requires an indication of future trends will get it from talks with Volvo personnel rather than from the Volvo computer.

"... a package ... goes straight on to the assembly line in Sweden where a rack is designed for that particular pallet and nothing else"

"We believe our scheduling helps companies to keep their deliveries," says Goethe Svensson. "We've been told we're Number One as far as scheduling goes, and that hardly any other car manufacturers do any thing like it. We give suppliers a stable schedule to order materials and machines."

Jim Power of Zenith finds the 12 month forecast far preferable to crystal-ball gazing. Volvo has had its



troubles, he admits; an unforeseen change of specifications at a critical point brought the need for die modifications. But generally the annual projection has been pretty good.

Joe Russon, order processing manager at Hardy-Spicer, calls Volvo scheduling "unique", and contrasts it with the havoc that orders from other makers create. One British car maker "can't say today what it wants tomorrow." In dealing with this company, Russon reduces their orders by 20 per cent because he knows by experience that the company overestimate. By contrast, Volvo give Russon an accurate indication of what will be required for weekly shipping over the next 12 months. Volvo monitor the projection, and will write to say if pressure is building up that will cause so much as a five per cent divergence from plan.

Companies that "cut out of the front-end" of the order book make big problems for suppliers. Despatch departments clog up, cash-flow problems arise. It would hardly be surprising if suppliers are more willing and able to deliver promptly to Volvo than to other customers.

Ford's system of projection provides Hardy-Spicer with monthly schedules up-dated every week. For the sake of comparison, it is interesting to note that Joe Russon finds this less satisfactory than Volvo's system because of the amount of paper-work involved.

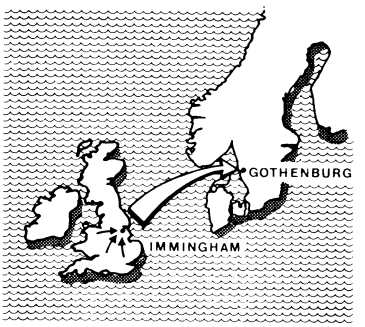
Air freighting

Finally, if all the organisation and forethought fails, Volvo can fall back on air-forwarders to move parts from Britain to Sweden and keep production moving. This technique is expensive, but one that is resorted to quite frequently. Occasions may be additional requirements due to a change in production in Sweden, or failure on the part of British suppliers to meet a deadline.

Volvo carries stock-in-hand (apart from the safety stock) of only 10 working days. Transport is rapid, timetables are closely co-ordinated, and with so little slack in the system it is sometimes necessary to air-freight line-stop materials.

Annual tonnage moved by air is around 300 tons. The remarkably fast sea-freight time is around 36 hours from receipt at the Immingham terminal to landing on Swedish soil. Atlas Air of Feltham, who manage all Volvo's air transport from England, have when necessary moved a vital part from the factory gate of the British supplier to the factory gate of the Swedish assembly plant within the same afternoon. The company flies to airfields throughout Sweden and the Continent, and has chartered aircraft for special flights.

Air freighting is monitored by Volvo's Birmingham office. The basis of payment for the extra cost of air freight is that if the fault is on the supplier's side, the supplier pays; if on the part of Volvo, Volvo carries the cost. ■



Volvo's British hub

Volvo's procurement system in Britain centres around one establishment—the Volvo Cargo Terminal at Immingham. From here all components leave for Sweden, as well as Volvo concerns in other countries; through this terminal flows the cycle of loaded and collapsed pallets.

The terminal, covering six acres and employing 24 staff, was the largest private shipping terminal in Europe when built in 1971. Its owner, D. D. Smyth, was the man originally appointed by Volvo's shipping division to survey and rationalise the system of materials movement from the British factory gate to the overseas user.

Why a single port?

During his three-year survey D. D. Smyth visited over 100 of the major suppliers. He concluded that it was economically desirable to direct the traffic flow through a single port, and that the port should lie on the east coast.

As general manager Russell Gibney points out, concentration of the system on Immingham means that materials sometimes in effect back track on their route. Parts manufactured on the south coast of England may be taken up to Immingham and then shipped down to a Volvo plant in France. This procedure contrasts with the one existing before 1966 and Smyth's reorganisation, when exports were made through at least six different ports.

Volvo are said to have found the old system wasteful of money. Certainly tonnage exported from Britain increased dramatically after the single-port method was brought in. From around 15 000 tons in 1966 when, for lack of a shipping service from Immingham, Volvo started directing materials through Hull, the tonnage shipped has steadily increased to its present level of 95 000 tons per year. After 1968 exports took place from Immingham, partly to avoid the labour difficulties that tonnage growth had brought to Hull. Two years later a move was made to the present terminal site, where space has been set aside for the expected growth of volume in the future.

In a memorandum to a Parliamentary industry committee Volvo claimed that it operates "what is believed to be a unique integrated system of materials handling for British suppliers".

No doubt the success of the Immingham operation was as much due to the improved control given by putting traffic into the hands of a single firm as to the benefits of more economical routing. D. D. Smyth undertake responsibility not only for arranging haulage to the terminal, but for sorting materials according to destination and making up loads for shipment.

Operation of the terminal

Kevin Smyth, son of the founder D. D. Smyth, is now in charge of the Immingham terminal, and claims that its efficiency as a materials handling unit depends on the smoothness with which its running is co-ordinated. "You don't need to have fabulous equipment to run a modern terminal. Overheads of a company are probably the deciding factor in its success or failure, and high-value equipment that is underutilised is inefficiency."

The lynch-pin of the flow of materials is the standard Volvo label provided to each supplier and then attached to the box. It bears the name of the manufacturer, and a number indicating which of 20 different factories in Sweden the parts are bound for. This numerical indication will ensure that pallets for a particular factory are loaded on a single flat, and not mixed with pallets which will later have to be removed. The label also carries the Volvo order number, the weight and quantity of goods, and the Volvo part number.

In the terminal building pallets are checked and sorted on to flats using electric forklift trucks with sideshift attachments. When each flat is loaded a tally-sheet of the contents is transmitted to Sweden by telex, so giving Volvo opportunity to integrate the coming components into its scheme for transport and production.

The D. D. Smyth terminal site is three miles from the Tor line terminal. The flats, weighing 20 tons with their loads, are transported on trailers and loaded on board the drive-on ferries by 30ton forklifts.

The standard Volvo pallet label, colour coded to indicate which of the 20 factories in Sweden the pallet is destined for. Information given on the label is: Volvo part number, case number, number of parts in the case, despatch date, supplier, invoice number, Volvo order number and gross weight in kilos