



Method

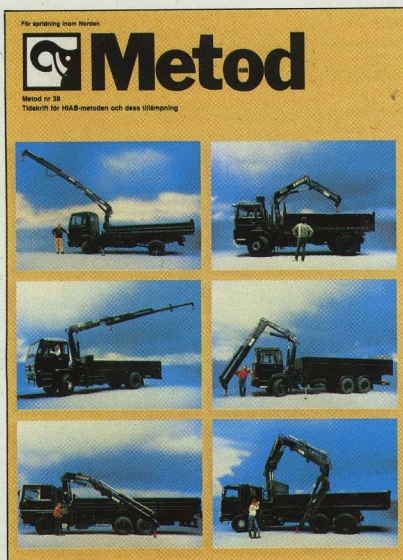
HIAB

Method No. 39

A magazine featuring the HIAB Method and its applications



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Cover picture

Six out of ten in the new generation of black HIAB cranes.

HIAB METHOD No. 39

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Twenty Years of Method Development

Twenty years have now passed since the first number of METHOD appeared. In that issue, as in this present one, some of the pages were devoted to the work of development that lay behind the HIAB loaders. The department of HIAB – as the Company was then called – that was described in METHOD No. 1 was referred to as the Experimental Shop. Its counterpart today is known as the HIAB-FOCO Development Laboratory. The change in name tells us something of what has happened in this field during these two decades. The pictures in METHOD No. 1 tell us more. By comparison with today's superbly equipped laboratory the Experimental Shop of 1965 was small and cramped – a sort of backyard operation in which any trials and test series that called for space had to be conducted out of doors. But the goal of the work was the same then as it is now – to come up with crane designs that in all respects are the best that the industry can show. And HIAB then, just like HIAB-FOCO now, put more than anyone else into achieving that goal. The 1965 report tells of hose tests involving millions of bending cycles – both

at normal temperatures and in extreme cold. They revealed startling differences in durability from one hose brand to another – although the quality, according to the manufacturers' data, should have been about the same.

The development staff at the HIAB-FOCO of today can still produce startling results. This issue of METHOD is largely taken up with a presentation of an entirely new generation of cranes. Ten new cranes! – seven for piece goods and three for forest haulage. Never before has a manufacture released so many new crane models to the market all at once. To emphasise the fact that this is a new generation, as regards both design and performance, the new cranes sport a black finish instead of the orange that for more than twenty years, with minor variations, has been the distinctive HIAB livery.

Besides all the new cranes we can also introduce a series of new accessories carrying forward the advance of the HIAB Method into ever more and ever larger fields – the development that for twenty years has been described in the pages of METHOD.

A heavy attachment, a weighty load and a big outreach; this loader performs close to its maximum on every lift, and does many such lifts for each job of loading.



One Crane – Two Classes

In the technical data that HIAB-FOCO issues concerning the HIAB cranes you'll often see two tables showing different figures for the lifting performance of a given model at stated radii. In the heading of one column the model designation ends with "B2"; in the other, which contains lower performance figures, the ending is "B3". Why give two figures for one and the same crane?

There's no easy answer to that question. It goes back to the fact that no crane, not even when it's as well designed and as thoroughly tested as a HIAB, can be expected to last for ever. If the crane is used long enough, then in time some part of the construction will fail through fatigue, even if it has never been overloaded. If the crane has been properly dimensioned and properly made with due attention to quality, this won't happen before the crane has done its life's work and been scrapped, or at any rate has lifted such a lot that it's paid for itself many many times over.

How long, or for how many lifts, a crane construction will last isn't easy to calculate, but it can be done, and the calculations can be checked by running fatigue tests. However, we have to make certain assumptions, one being that the material, welds and so on are uniform, while the others are concerned with the way in which the crane is used.

It's easy to understand that a crane

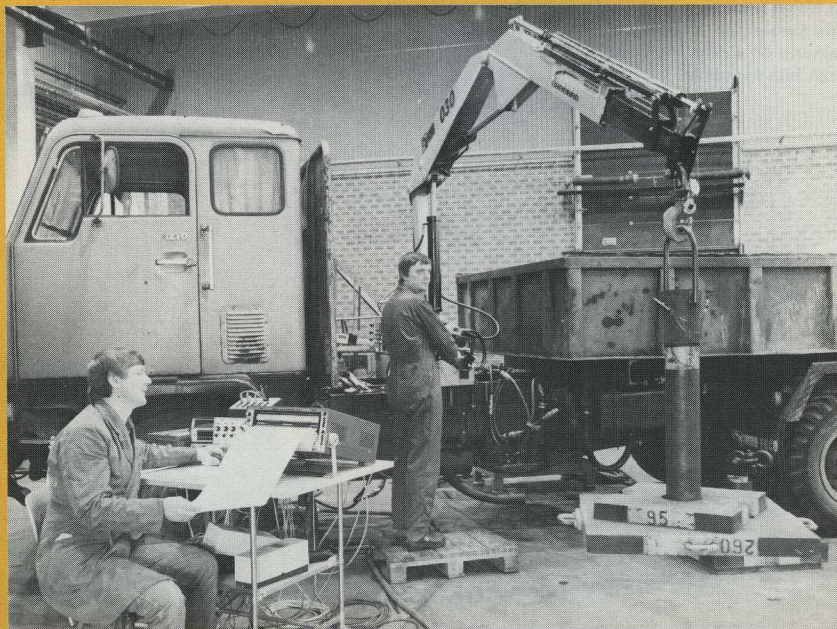
which is worked to the utmost in almost every lift won't do as many lifts in its life as another that is only occasionally asked to lift its maximum load. Similarly, it's obvious that a crane fitted with a big gravel bucket or brick clamp will often do many more lifts and handle a much greater tonnage in a single day than an identical crane in hook service on a delivery truck would get through in several weeks or even months.

If we allowed the same maximum load for both cranes, the one operating at peak capacity with the heavy equipment would reach its fatigue limit in only a fraction of the time or the number of lifts that the hook crane would manage before it had had enough. The maximum load applied in common would be either too low for the hook crane or too high for the attachment crane. This is why HIAB-FOCO states two different figures as to how much a given model can lift. The designations B2 and B3 are taken from the German DIN standards, which lay down how the maximum

load is to be calculated for various types of crane work. Thus the DIN standards require the maximum load to be put lower for a crane whose capacity is regularly used to the full than for one that only occasionally lifts a capacity load.



This crane probably does only one or two lifts for each job of loading and uses only a fraction of its lifting capacity most of the time.



Checking the hydraulic system on a mounted crane. Oil temperature, pressure and flow are registered by sensitive measuring equipment.

Testing Gives Us New Insights and Keeps Us in the Lead

More than any other company in its industry, HIAB-FOCO goes in for research and for the development of new products – and notably for the testing and evaluation of the new cranes that come from the drawing-boards of the designers. And that's not all; the models that have already passed the prototype and test-series stages are routinely tested as long as they remain in regular production.

The work of large-scale testing is carried on in the firm's spacious, well-equipped development laboratory, which employs some fifteen technicians. This unmatched commitment to intensive testing yields results that greatly benefit the Company and above all the buyers of its cranes.

When it comes to new cranes there are always teething troubles. The best way to combat them is to provoke them into breaking out on the test cranes – the ones that never get further than the lab. You can then adopt preventive measures – design changes, increases in strength, etc. – that render the production cranes

immune to these particular problems.

All new crane designs are also put through wide-ranging fatigue tests to confirm that the crane really does have the durability that was one of the goals during the development work, and that it can satisfy, with plenty to spare, the technical data set forth in the crane specification.

A very large proportion of the tests that are carried out are concerned with the individual components. Every new cylinder type, loader body, three-point mounting, valve assembly, hydraulic hose and so on is tested in depth before being passed for incorporation into a crane design which, in its turn, is then tested as a whole. Tests in new materials also bulk large in the work of the lab, leading to new and better designs and production methods.

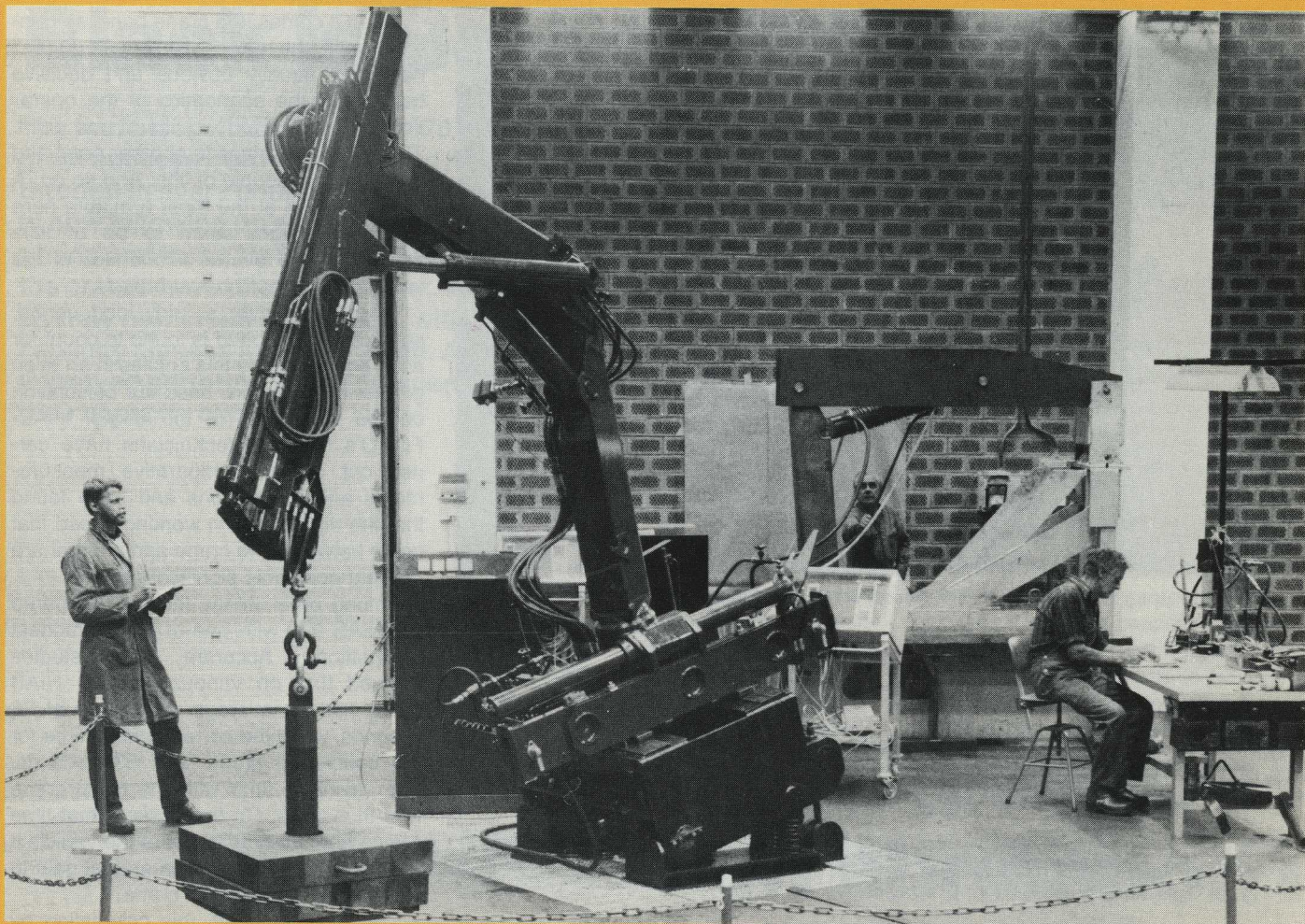
Many of the tests that are performed are more in the nature of research than anything else. For instance, the investigators may want to know just how closely the strength of a design agrees with the designer's calculations, or to compare two test methods in order to determine which of them gives the more reliable result. Most of these tests have no direct effect on the products, but they add to HIAB-FOCO's fund of experience and knowledge as a crane maker.

Random Checks

A line of testing that goes on unceasingly in the HIAB-FOCO development laboratory is the examination of cranes taken at



A fatigue test on a Jonsered 700.



random from routine output. This means that these cranes have already passed the rigorous production inspection. Even so, they're diverted into the lab and given a thorough workover. Everything is checked and measured; the examiners don't miss so much as an insufficiently tightened nut or a grinding mark on the body. All their findings are recorded, and any defects or shortcomings are rated using a points system on a form called a "Quality Audit" – a title which says it all. Because that's just what it is! – an audit, and when the hard-nosed auditors add up the penalty points at the foot of the sheet the answer is a measure of how close the production people have managed to get to the ruling quality requirements. If a certain type of criticism is found to occur frequently they huddle with the production management to seek out the cause and to eliminate it by adjustments to the production method. The aim is to push the negative total of points down as low as they can get.

Testing the Competition

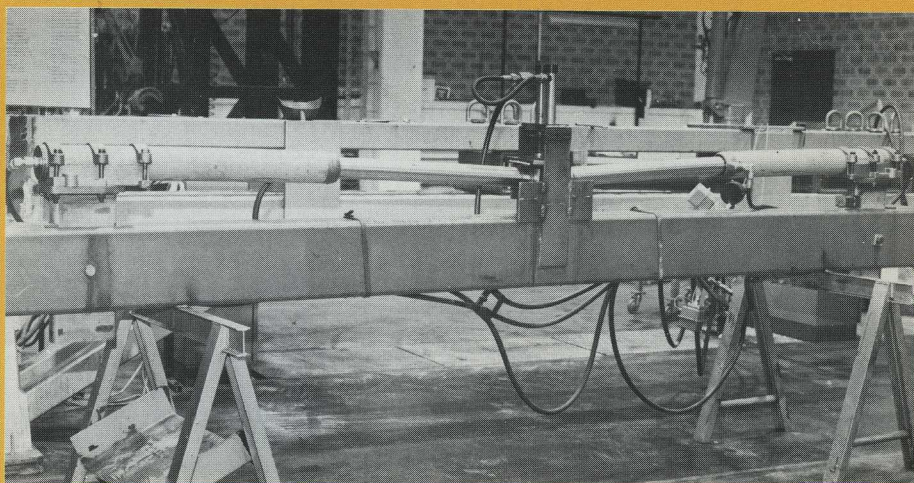
Even if we of HIAB-FOCO know that we produce cranes with excellent performance and superior quality, we can't take it for granted that we'll maintain our edge over the competition in these respects unless we test their products in the same

way as we test our own. So we regularly purchase new cranes of other makes and turn them over to the lab. Among the things in store for them there are functional tests with the crane mounted on a truck and a quality check with the crane mounted on a testbench. They undergo a quality audit of the same kind as our own products. The slewing gear is subjected to a special trial, and the series ends with a fatigue test. All told, our test people will grill a competing crane for more than 200 hours if it's a piece-goods model; in the case of a forest model they'll keep on at it

The slewing mechanism of this HIAB 070 is being tested at a sharp tilt, and the inspectors are measuring the wear arising from the one-sided loading. In the background, a crane body is undergoing a fatigue test.

for 350 hours. After testing on that scale they can form a pretty good idea of how the competition stacks up.

A fatigue test on support legs for an 070. Here, too, the severity of the test has been increased by skew loading.





In loading work like this it's obvious that crane speed is of economic significance.

Seconds Out – Thousands In

When you've got a big roundwood rig loading up at a forest landing the crane usually does between fifty and a hundred lifts for a full load. So it stands to reason that its speed of action counts. A faster crane, doing each lift in, say, 15 seconds less time, would save between 12 and 24 minutes on the whole loading job. With a sufficient number of round trips a day the time saving would run into hours. And that, of course, would be worth a lot of money.



When it comes to a crane handling general freight, the matter of its speed doesn't have any equally obvious and decisive bearing on the economics of the operation. It does one or two lifts at one point. Then the outfit drives to another point and does another couple of lifts. And so on. A time saving of at the most a minute here and there might seem to be of little account in the overall economics of the vehicle – but you'd be surprised.

Worked out over a fairly long period, say five years, speed is found to count for a lot, and of course this applies in an even greater degree if we base our calculation on the whole life of the crane. HIAB-FOCO's methods technicians have carried out careful comparative measurements and calculations and have found that the differences in working speed that occur between one crane and another are of great economic significance.

Among other things they've compared the HIAB 070 with one of its commonest competitors. Accurate time studies showed that on various lifts the HIAB crane had an average cycle time of 38 seconds, while the corresponding time for the competing crane was 53 seconds. The saving in time with the HIAB crane was thus 28%. On the basis of that time saving and the hourly rate of the vehicle it is possible to calculate the annual gain to be made with the faster crane.

You have to begin this calculation by first working out or coming up with an assumption as to what proportion of the average working day is made up of crane work. Two hours is by no means an unreasonable assumption in this context, and the crane operating time, i.e. the aggregate time during which the crane is in motion, will be about half as much, or an hour a day. We can also take it that the crane is used about 200 days a year. The annual gain will then be:

$$0.28 \times 200 \times \text{hourly rate} = 56 \times \text{hourly rate}.$$

Even if we put the hourly rate as low as Skr 200 the annual gain will thus be over Skr 11 100, and that's not to be sneezed at. If we work out the present value of the gain over a five-year period – which is a common approach in these matters, and if we take 15% as the rate of interest, we find ourselves looking at more than Skr 40 000. In the face of that, who can deny that speed is valuable, and who would venture to draw up financial estimates for a crane purchase without taking the time gain into account?

Even where the crane work is less intensive, speed plays a large part in the economics of the operation. A few seconds' gain per lift adds up to big time savings over a matter of years. And time is money!

Black is Beautifully Successful

The first black HIAB, the HIAB 070 piece-goods crane, was a great success from the start, and has promptly scored its breakthrough in every country where it's been introduced. HIAB-FOCO is now following up with another nine black cranes, six for piece goods and three for forestry. But the important news isn't that the cranes have changed colour. What we have here is an entirely new crane generation, with newly designed cranes in all capacity classes from 5 to 25 tm. And all of them show markedly improved performance as compared with their predecessors in their capacity classes.

HIAB 050

The HIAB 050 is the lightest in the series, but it's a real weightlifter. Its capacity is no less than 5 tm, and its outreach is no less impressive – 4.5 and 6.4 metres as standard with the short and the long boom system respectively. With manual boom extensions you can raise that to something over 9.5 and 10 metres respectively. Even so, in its lightest standard version the 050 weighs only 780 kg with fixed

support legs. Since its low weight permits it to be mounted on relatively lightweight trucks it requires properly matched support legs if its great capacity is to be utilised. There are no less than six different support-leg arrangements to go with the HIAB 050, with rather more than 4 metres between the support points. All support-leg alternatives have two different mounting positions to allow for different frame heights.



The HIAB 050 is the smallest of the new generation, but it can still cope with heavy attachment jobs.

HIAB 070

The HIAB 070, which has already been on the market for a time, was a success right from the start and is still as popular as ever. And that's really nothing to be surprised about. It weighs one tonne but will lift seven. That puts it in one of the most useful capacity classes. The alternative boom systems will reach out 5.3 and 7.2 metres, and both can stretch to 11 metres with manual boom extensions.

Among the reasons behind the popularity of the 070 are the easily operated and logically arranged controls. The levers are in the same left-to-right order on both sides of the vehicle. This arrangement reduces the risk of mistakes due to habit. The same lever arrangement is to be found on all new cranes (except the 050) and has been patented by HIAB-FOCO.



HIAB 080

The outreach and crane geometry of the HIAB 080 are the same as the 070, but it has been strengthened so as to permit the lifting torque to be raised to just over 8 tm. That means it will lift 1 700 kg at 5.2 metres with the shorter boom system and 1 170 kg at 7 metres with the longer one.

With boom extensions that are drawn out by hand the reach of both boom systems can be increased to a maximum of 11 metres. In the standard version the HIAB 080 weighs just short of 1 100 kg with the shorter boom system and rather more than 1 200 with the longer one.

The HIAB 080 always stands firm, thanks to a large selection of support-leg arrangements, with 3.3, 4.5 or 5.4 metres between support points. The support legs are easily pulled out on ball-bearing rollers and can be operated from either side of the vehicle.



HIAB 100

The HIAB 100 is a good couple of rungs up from the 080 as regards strength and outreach. With a lifting capacity of 10 tm and a standard outreach of no less than 9.7 metres for the longest of the three alternative boom systems the HIAB 100 is a big crane – in everything except tare weight. In the lightest standard version it weighs under 1.5 tonnes, so it's an excellent alternative for a medium truck. Its good performance makes it ideal for work with heavy hydraulic attachments such as a gravel bucket or building-block grab. The stout slewing gear enables the HIAB 100 to handle a full load on gradients of up to 6°.

HIAB 140

The HIAB 140 turns in a really impressive performance, while still qualifying as a light, compact crane. With the longest of the three boom systems it weighs less than two tonnes including support legs, yet it has a standard outreach of more than 10 metres and will lift a whole tonne at that radius. It's equally good at heavy lifts – six tonnes on the inner hook fitting – and in work with large hydraulic attachments over a wide area. To give it sufficient stability there are six different types of support leg with up to 5.6 metres between support points. Like all the new black HIABs, except the 050, the HIAB 140 can be fitted with top-seat controls that give a better view of the working area and increase the speed, especially in attachment work.



HIAB 190

The HIAB 190 is one of the two big boys in HIAB-FOCO's new crane generation. It has double hydraulic cylinders both for the slewing function and for the inner boom. It has enough muscle to lift 2 tonnes at an 8.2-metre radius or close on 9 tonnes on the inner hook fitting at 2 metres. This model has four alternative boom systems with standard outreaches between 6.3 and 12.1 metres. Manual boom extensions increase the outreach to over 16 metres.

Incorporated in the hydraulic system are entirely new control valves with the capacity for bigger oil throughputs, one with six functions for the crane movements and hydraulic attachments and another with four functions for operating the support-leg equipment.



HIAB 260

The biggest crane in the black generation is the HIAB 260. Like the HIAB 190 it has double cylinders for the slewing function and the inner boom – but it has them for the outer boom as well. The four boom systems have standard outreaches from 6.3 to 12.1 metres. The crane will lift a maximum of 10 tonnes using the inner hook fitting.

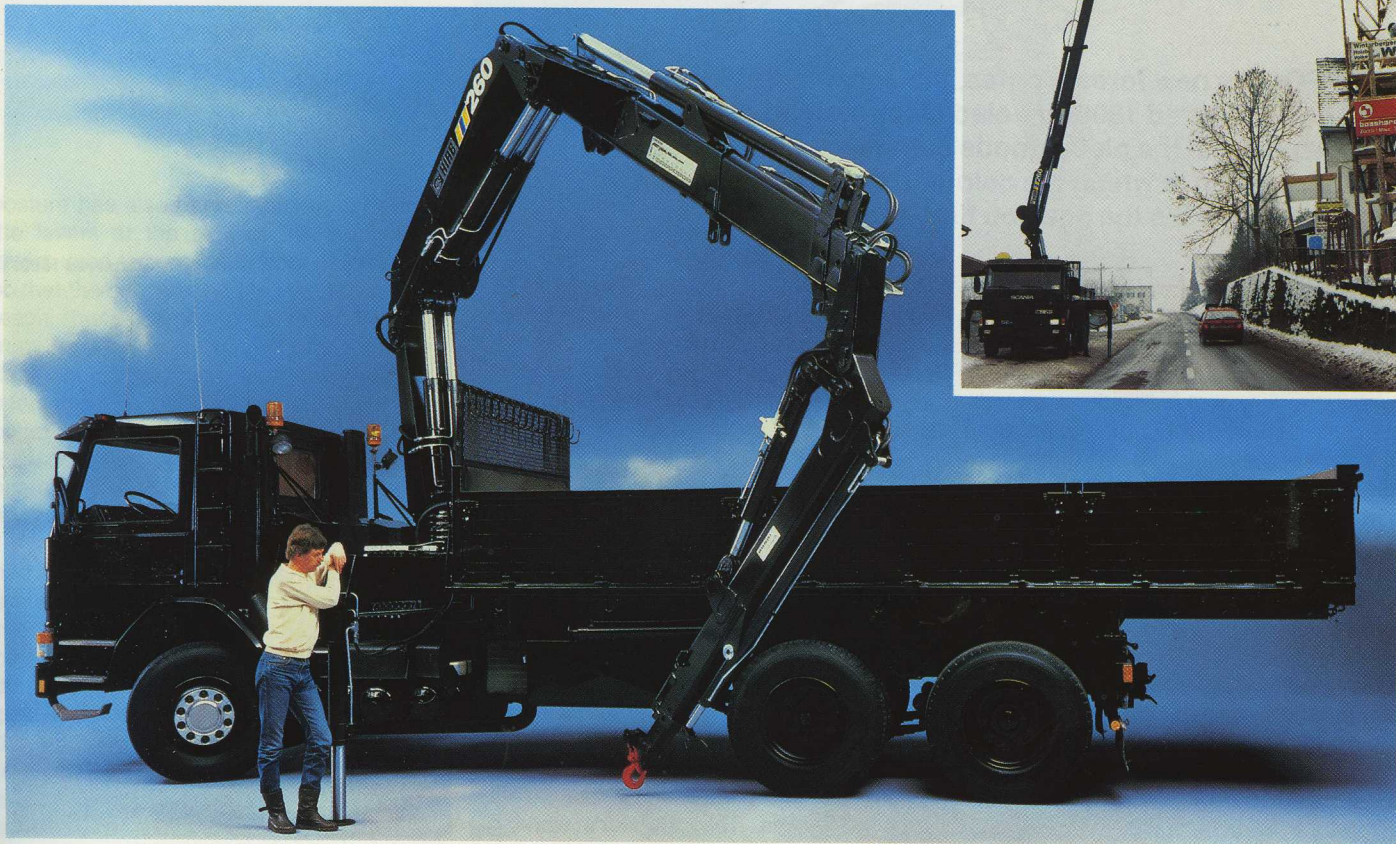
Three of the boom systems can be supplemented with manual boom extensions that give a reach of over 16 metres. At this

maximum radius one of them will lift 1 320 kg, the other two somewhat less.

Like the HIAB 190 the HIAB 260 has new control valves with a total of ten functions, six for the crane and hydraulic attachment and four for the support legs.

Even though the HIAB 260 is among the strongest lifting devices you can mount on a truck it's not heavy as cranes go. Including support legs with a span of 4.2 metres, the lightest version weighs not much above 3 tonnes. In its heaviest version, the HIAB 260 with side-mounted top seat and 4.7-metre support legs weighs only 500 kg more.

The strongest model of the new crane generation is the HIAB 260. It will lift up to 10 tonnes, and its maximum outreach, with a jib as shown in this picture, is 18.5 metres.





Black in the Forest as Well

HIAB-FOCO's new forest cranes, the Jonsered 700, Jonsered 1000 and Jonsered 1800, are also black instead of red as before. And just as with the piece-goods cranes it's fair to speak of a new generation in which the colour is the least important novelty, even if it's the one you first notice.

The Jonsered 700 and Jonsered 1000, with lifting torques of 7 and 10 tm respectively, have been designed primarily for the handling of sawlogs and pulpwood. Among the foremost innovations are substantially improved operator comfort, a redesigned crane body with ball-bearings, a new base and new support legs. Compared with their forerunners the new black Jonsered cranes have lower energy consumption, gentler slewing movements, greater durability, longer life and less need for service and maintenance.

The Jonsered 1800 is a bigger and more powerful successor to the Long John 150 B and is thus intended for everybody who handles whole stems. Its impressive lifting capacity is 3 tonnes at a 6-metre radius and 2.2 tonnes at just over 7 metres, which means that 25-metre

stems will give it no trouble. Thanks to its double slewing cylinders the strength of the crane can be exploited to the full even on inclined landings where the support legs cannot wholly compensate for the gradient.

Increased Comfort

The operator's seat on forest cranes used to be placed squarely behind the boom, which thus to some extent obscured the view of the grapple and load. On the Jonsered 700 and 1000 the designers have eliminated that problem by mounting the seat so that it can be slewed out to the right or left, giving the operator a much better view of his work.

The cranes are operated either by two levers and two pedals or by four levers and two pedals. The operator's working

The Jonsered 1800.





On the new Jonsered cranes the control levers are sited at the side, giving the operator a more comfortable working posture.



Climbing up to and down from the operator's seat has been made a good deal easier. The accident hazard is reduced as a bonus.



The new Jonsered cranes are strong! Even the "middleweight" Jonsered 1000 can cope with heavy whole-stem handling.

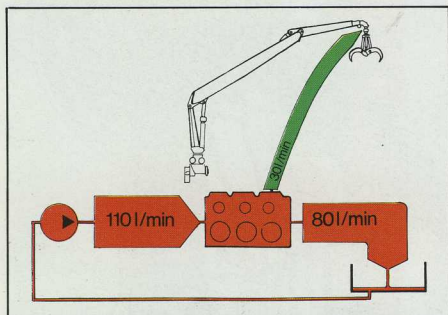
posture has also been improved by siting the levers at the side of the seat. The levers used to be sited in front of the seat, so that the operator had to lean forward to reach them. Climbing up to and down from the seat has also been made a good deal easier, and the accident risk has been reduced by a guard rail round the operator's position. Another point is that the support legs and outriggers can be operated either from the operator's position or from the ground.

All the new Jonsered cranes can be had either with the conventional hydraulic system or with the LC control valve and hydraulic pump featuring variable displacement. In the latter system the oil throughput and oil pressure are automatically suited to the demand. Among other things this means fast crane movements, less heating of the oil and lower fuel consumption in loading and unloading. The system is described more fully on p. 12.

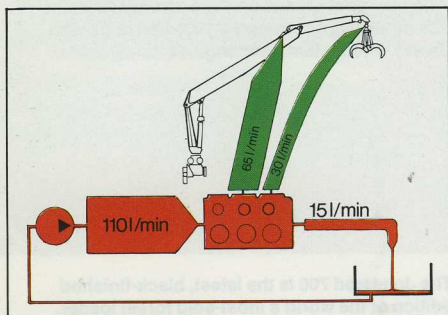
The Jonsered 700 is the latest, black-finished edition of the world's most-sold forest loader.



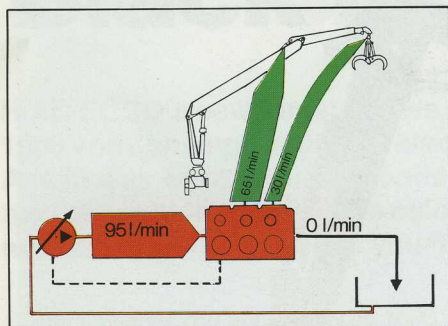
Something's Happening with the Hydraulics



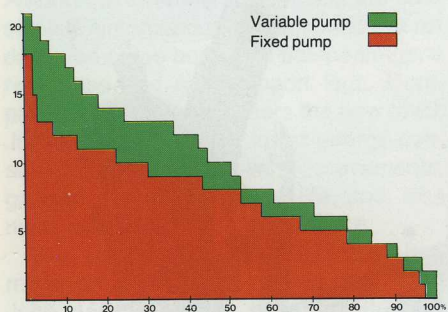
With an ordinary hydraulic pump the bulk of the oil flow returns to the tank without having been put to work when only one crane function is in use.



When two crane functions are in use a greater proportion of the throughput is utilised, but some of it is still by-passed back to the tank.



Responding to impulses from the LC valve, the variable pump delivers only so much oil as the crane needs at any given moment.



The pressure in the hydraulic system with a fixed and with a variable pump. The difference is due to peaks in the pressure, arising because the fixed-displacement pump gives too high a throughput. The higher pressure throws a corresponding extra load on the equipment.

Hydraulic cranes have developed enormously since they first came into service nearly forty years ago, but in principle their hydraulics have always worked in the same way. The combination of the LC valve and the variable pump, which HIAB-FOCO is now introducing on Jonsered forest cranes, constitutes a new, advanced and greatly improved hydraulic system.

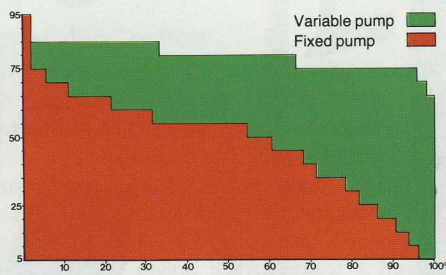
The advantages of the new combination are numerous and striking. First and foremost, the crane can utilise a bigger oil throughput. This means that it can work faster, since its speed of action is dependent on the oil throughput. Even so, the rise in oil temperature while the crane is working is less than before. At the same time, the energy consumption is reduced, since the engine that drives the hydraulic pump can run at a lower rpm.

One of the merits of the LC valve, which has already been in service on Jonsered cranes for some years, is that it can control very large throughputs without loss of precision. In an hydraulic system with an ordinary oil pump this advantage cannot be fully exploited, since the generation of heat in the oil sets a limit to the size of the flow. An ordinary hydraulic pump delivers a constant quantity of oil per minute, irrespective of how much oil the crane requires for its movements. HIAB-FOCO has conducted thorough and protracted studies of how a forest crane works and how it utilises the available oil throughput. It was found that the full oil flow is used for only a small fraction of the time the crane

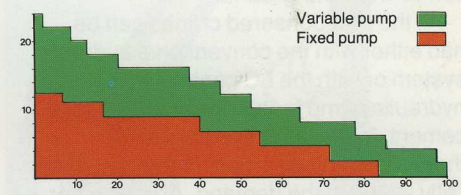
is at work. The rest of the time, all or a large proportion of the oil flow simply returns to the tank, and the unused energy is converted into heat.

The variable pump, by contrast, delivers only as much oil at any given instant as is needed for the work of the crane. It is able to do this because the LC valve senses the current oil demand and signals it to the pump, which changes its displacement to accord with the demand. Thanks to the fact that the LC valve governs the oil throughput we are able to use either a variable pump with a large maximum displacement or dual pumps. Since the full displacement is used only for a small fraction of the working time there will be no unnecessary heating of the oil.

The ample pump displacement that is available permits the pump and the truck engine to run at lower speeds, while still delivering a sufficient oil throughput for fast crane movements even when several functions are being used concurrently. This means that for a normal forest outfit doing crane work the fuel consumption is lowered by at least 3 litres an hour – often a good deal more.



The oil throughput with a fixed and with a variable pump. Only for a very small proportion of the time can a large flow be utilised – the surplus passes back to the tank via the relief valve.



Compared with a variable pump, a pump with a fixed displacement needs roughly double the wattage to do the same work. The difference is converted into heat. The wattage demand is reflected directly in the fuel consumption.

A Bigger Working Area

Concurrently with the introduction of the new black cranes HIAB-FOCO is bringing in a new remote control device – the DigiDrive. It consists of a controller with six levers, one for each function on the control valve of the crane, and a control cable with a standard length of 15 metres. With the DigiDrive, therefore, the crane can be operated from any point within a radius of about 15 metres, more smoothly and precisely than with the regular control valves.

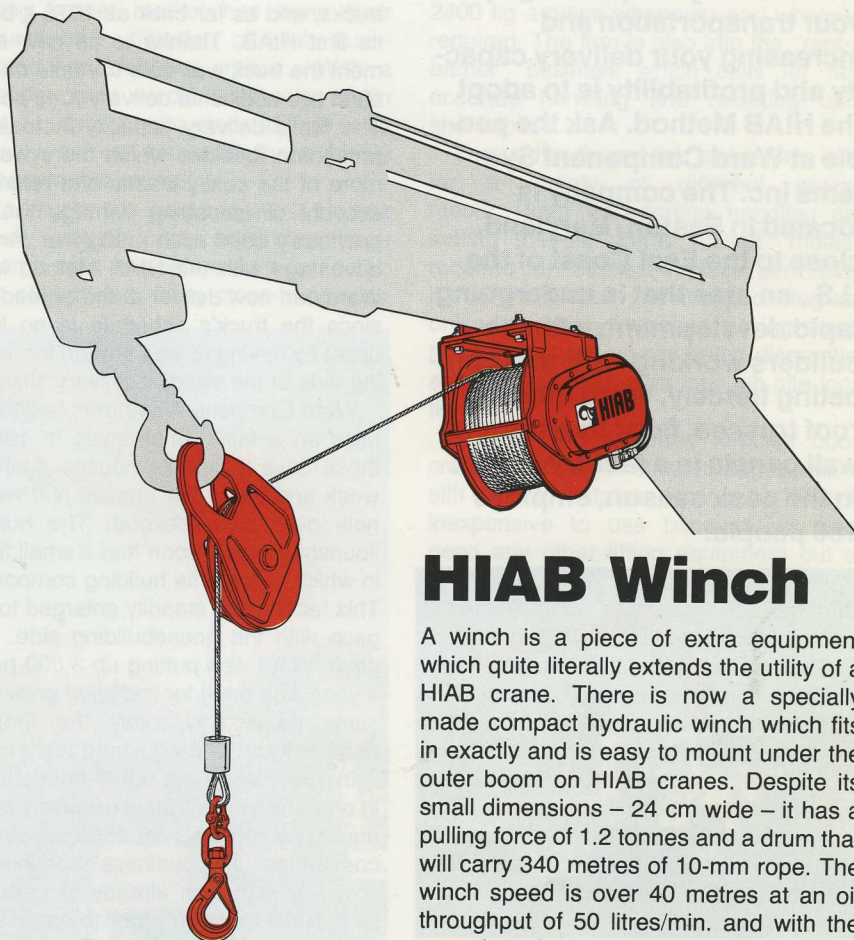
The DigiDrive is a position-governed proportional system, meaning that the slides in the hydraulic valve move in exact proportion to the distance through which the operator shifts the levers on the control valve. The principle is that the movements of the controller levers are converted into electric pulses which are carried by the cable to an actuator, which is mounted on the control valve. The actuator, in its turn, converts the electric pulses into physical motions that are communicated to the valve slides. This communication proceeds without delay, and the size of the movements is not affected by binding slides, temperature variations in the oil, the pressure in the hydraulic system, etc.

A number of safety features are built into the system. On the controller is a stop button that actuates a dump valve in the hydraulic system so that all crane movements are arrested instantly. The same thing happens if the control cable is damaged, or if a short circuit or other fault arises in the electrical system.

When the remote control is connected up, the crane can still be operated from the regular control levers. So the crane operator can move freely around in the whole working area of the crane and operate it first from the regular control position and then from a point next to the lift hook at full outreach or from up on the platform if necessary. The controller weighs only 1.5 kg and does not interfere with the operator's movements.



In the DigiDrive, outgoing signals from the controller are transmitted through a cable to an actuator mounted on the control valve.



HIAB Winch

A winch is a piece of extra equipment which quite literally extends the utility of a HIAB crane. There is now a specially made compact hydraulic winch which fits in exactly and is easy to mount under the outer boom on HIAB cranes. Despite its small dimensions – 24 cm wide – it has a pulling force of 1.2 tonnes and a drum that will carry 340 metres of 10-mm rope. The winch speed is over 40 metres at an oil throughput of 50 litres/min. and with the rope drum full.

The HIAB winch weighs 80 kg.



The cranes can easily handle all the building components that Ward makes.

Capacity Trebled

The best way of speeding up your transportation and increasing your delivery capacity and profitability is to adopt the HIAB Method. Ask the people at Ward Component Systems Inc. The company is located in Easton, Maryland, close to the East Coast of the U.S., an area that is undergoing rapid development, with the builders working hard and competing fiercely. Ward makes roof trusses, floor trusses and wall panels in a factory which, in the peak season, employs 160 people.



There's less risk of damage to the goods, since the firm's own personnel handle the entire unloading job.

Ward delivers its products using its own trucks, and as far back as 1976 it bought its first HIAB. Thanks to its new equipment the truck was able to make one and often two additional delivery runs per day. The firm's delivery capacity increased in proportion, besides which there were no more of the costly claims and returns on account of unloading damage that had previously been such a bugbear. Another advantage with the HIAB Method is that Ward can now deliver at the agreed time, since the truck's schedule is no longer upset by having to wait around for unloading aids at the various delivery sites.

Ward Component Systems began business on a fairly small scale in 1968. In those days it built its houses during the week and made the trusses and wall panels over the weekend. The business flourished, and it soon had a small factory in which it made its building components. This facility was steadily enlarged to keep pace with the housebuilding side. At its peak, Ward was putting up 3,000 houses a year. The need for transport grew at the same pace, and today the firm has another four HIAB-equipped truck rigs.

In 1984, Ward got out of housebuilding in order to concentrate exclusively on producing components for other construction companies. Its business continued to grow, so that it is already in need of a sixth HIAB crane in order to cope with its deliveries.

"With a HIAB on the truck we can man-

age up to three times as many deliveries," a spokesman for the firm tells us. "The cranes are light and compact, so they have little effect on the payload of the truck. With the lifting capacity and the out-reach of these cranes it's no trouble to handle all the various building components that we produce.

"It's also an advantage that the driver can do his own unloading. We need only one man per truck, which lightens our payroll. There's also less risk to the products when they're unloaded by our own personnel who know just how to deal with them."

In certain cases when Ward is delivering several loads to the same site the firm sometimes sends out a trailer which it drops off at the site without unloading it. The tractor truck returns in due course with another trailer, whereupon it offloads the whole delivery. After this, the crane lifts the first trailer onto the second for the home run. Another example of the versatility of the HIAB Method!

Each unit of prefabricated crash barrier weighs 2 400 kg.

Like a Person's Arm

In 1961 Paul J. Rach began producing concrete units in Baltimore, USA. From the beginning he and his three foremen (Nick Desieur, Arthur and Nick Hobson) set out to build their reputation on hard work, excellent workmanship, experienced personnel and dependable "on-schedule" service. Currently employing some 80 people Rach specialized mainly in curb and gutter work, sidewalk paving and drainage ditches. In 1978, however, they were awarded a bid contract for the construction and placement about 4 200 metres of pre-cast highway barriers.

Ever since this first contract, Rach has been increasingly active in furnishing "Jersey" barriers for major highway traffic control and repair work. Their area of



operations extends over a large part of the State of Maryland.

According to Joe Spencer, estimator and corporate secretary, pre-cast barriers now constitute about 15% of their total barrier business. The lion's share is in cast-in-place barrier walls. These walls range in height from about 0.85 to 2.40 metres to allow for the difference in road grade elevation from side to side.

Instrumental in helping the company to obtain an even greater share of the fast-growing barrier market has been their purchase and utilization of Hiab truck-mounted knuckleboom cranes. "With a stiff boom crane we could not even begin to get our barriers into place as fast or as precisely as we can with these highly manoeuvrable cranes."

In principle the boom system on this uniquely versatile crane articulates much the same as a person's arm. It can pivot, reach straight out, bring close-in or raise

and lower itself to position a load exactly where the operator wants it.

Offering the operator an excellent field of vision, the crane can be quickly and easily put into operation from either side of the truck. Sturdy outrigger leg supports are hydraulically operated for maximum load stability.

Rach currently has five Hiab truck-mounted cranes in daily use. The two larger cranes are used to deliver, set and pick up pre-cast barriers weighing about 2400 kg a piece whenever and wherever required. The firm is also into the "rent-a-barrier" business which calls for fast, accurate handling and resetting upon short notice.

Their other three Hiab cranes are used for a variety of different assignments...from transporting handling and setting the slip forms (called "mules") required for the cast-in-place permanent barrier installation...to lifting, loading and unloading heavy concrete paving equipment that is continually being dismantled and reassembled at various job site locations.

"These truck-mounted knuckle boom cranes offer a lot of advantages over a stiff boom," states Spencer. "They're inexpensive to use because we don't need any other lifting equipment out on the job. Cost-saving features such as one man operation, lightweight and compact, fold-away travel position allow us to carry more payload out to the job. In fact, our trucks never leave our yard without taking eight pre-cast barriers along with them."

Joe Spencer emphasized that, from a maintenance/service standpoint their Hiab cranes were more than satisfactory. "It's like anything else," he said, "you pay a little more for quality up front, but it sure comes back to you many times over in the long haul."

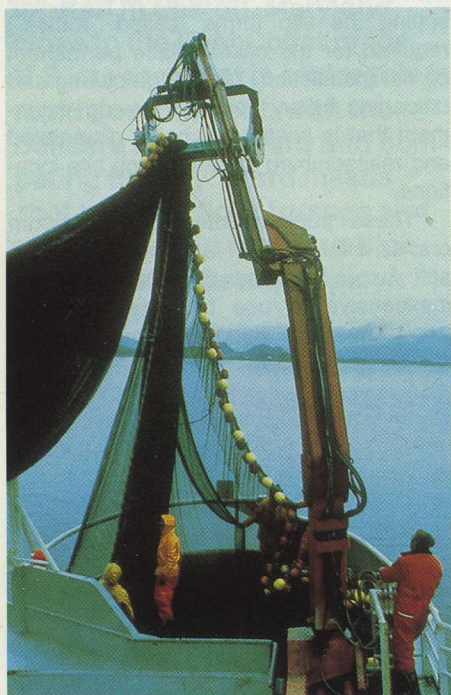


The flexible action pattern of the HIAB crane permits the fast and exact positioning of the units.

On fishing-boats up to about 30 metres in length the seine is retrieved by a HIAB 110 SeaCrane and a net block.



The tackle used in purse seining is very bulky. A seine for large herring may be 500 metres long and 100 metres deep. Some tackle is a great deal larger still. Retrieving and stowing a net like that at sea is obviously a formidable handling problem. With the methods formerly used it took anything up to eight or nine men, a crew which for the rest of the time was unnecessarily large.



The bigger boats use a more advanced method featuring a HIAB 180 SeaCrane with rotator, net roller and tilting device.

SeaCrane Replaces Half the Crew

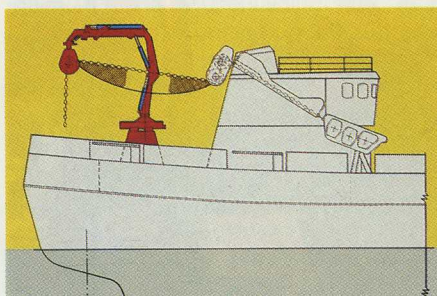
But for this job, too, they've evolved a HIAB Method, and one that not only reduces the necessary crew strength to about half but also confers a number of other advantages.

You could say it's really two methods: one for the smaller fishing-boats – up to about 30 metres long – and one for the bigger vessels. The first is built round the HIAB 110 SeaCrane in combination with a hydraulic net block. The block draws the seine straight up out of the sea and the crane lays the great net evenly in the net hold. For the most part the job is done by three men.

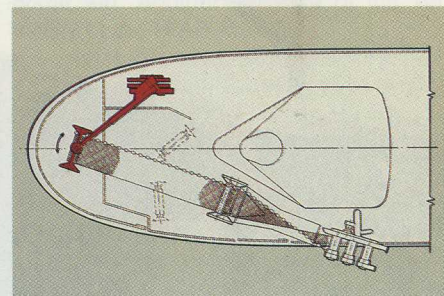
The larger boats use another and more advanced method featuring the HIAB 180 SeaCrane. The seine is pulled up along the gunwhale with a special net winch and is drawn sternwards to the net hold using one or two net rollers. The HIAB is equipped with a special stacking device con-

sisting of an angled boom extension, a powerful rotator and a net roller, along with a tilting device for controlling the inclination of the net roller. The crane keeps the seine raised as it leaves the transport rollers and distributes it evenly in the net hold. Thanks to its mobility the crane can command two net holds. Here again, the HIAB Method saves a great deal of labour, requiring no more than four men where there were usually nine before.

Besides economy of labour, which by itself is reason enough for switching to the HIAB Method, there's a very well worthwhile saving of time. Less damage to the seine thanks to better stacking is another advantage. Naturally, the crane can also be used for handling the seine in port, and since the stacking equipment is easy to detach the owner gets a powerful, versatile, big-reach deck crane into the bargain.

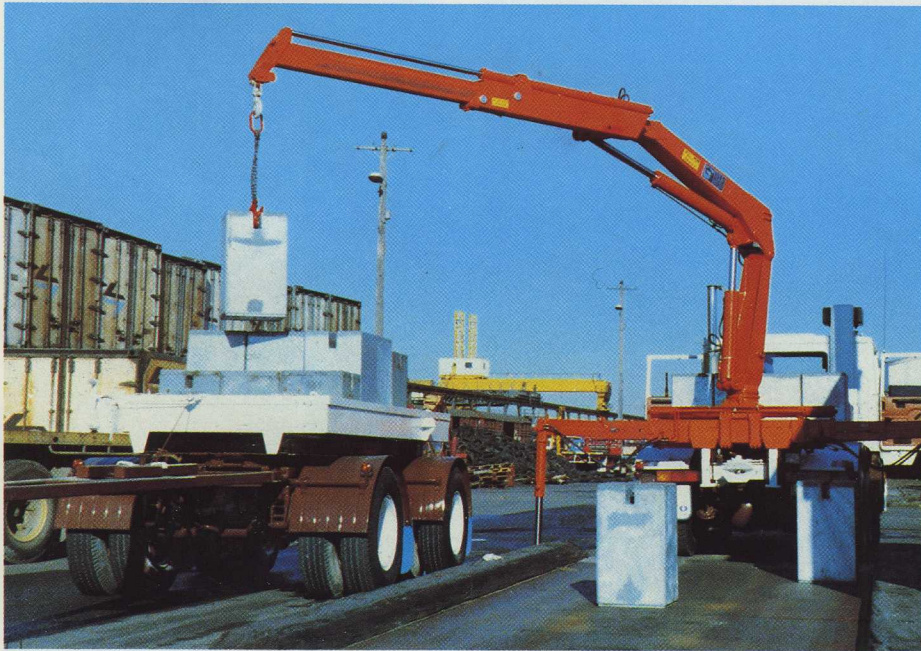


These sketches show how the larger boats retrieve their seine along the side with a net winch, after which it is



passed on by transport rollers and laid out evenly in the net hold by the HIAB crane.

Weighing Up the Weighers



Without seeking to be unduly witty one might say that the reliability of weighing machines is a weighty matter, at major goods terminals just as in the corner shop. And as you'd expect, most countries have special government agencies to watch over it. Just now, we're not concerned with how they ensure that the shopkeeper gets it right when he's weighing out four ounces of cheddar; it's more interesting to note that certain "weight-watchers" in Australia, the Department of Weights and Measures in New South Wales, use the HIAB Method for checking weighbridges. The procedure is to place concrete blocks of known weight on the deck of the weighbridge, check the reading, and adjust the calibration as necessary. Since many of these machines are capable of weighing fully laden mining trucks and other vehicles in the same class their reference weights, which they transport on a trailer, are both numerous and ponderous. But handling them is no problem with a HIAB 1165 on the tractor truck.

Even HIABs Get "Lifted"



"Just over a decade ago we gave up hauling agricultural produce and began transporting glass and paper products instead. Prior to that we didn't need any crane, since nearly everything was loaded by hand, but the changeover confronted us with a difficult choice: what brand of crane would suit us best? It wasn't long before we made contact with HIAB-FOCO and settled for their product, and it was a decision we've never regretted."

The speaker is Mr. Schoonen, head of a trucking outfit of the same name in Bergen op Zoom, Holland. He thus became a HIAB customer more than ten years ago, and remains one today.

"I must have picked a winner first time", he observes, "because if you're any kind of a businessman at all you don't go on buying the same product for more than ten years if you can find something that's better."

Schoonen's haulage firm is based on two towns, Charleroi in Belgium sharing the honours with Bergen op Zoom. Toget-

her with its sister-enterprise Multitrans it has 105 outfits whose runs extend over most of Europe. Thirty-five of them are equipped with HIAB cranes, and twenty of these are Rol-loaders.

"A perfect arrangement for our drivers", says Mr. Schoonen. "The glass, for example, is packed in frames weighing exactly 2.5 tonnes, which is no problem for our Rol-loaders. I've got nothing exciting to report. The cranes just go on doing what we expect of them, without fuss and bother."

"But what about service?"

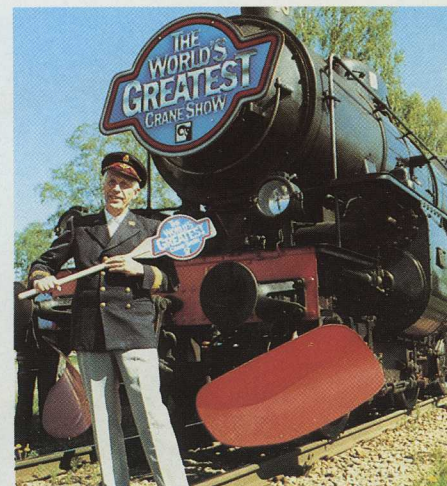
Among other things, Schoonen transports glass packed in frames weighing 2.5 tonnes. Loads like these are handled by the HIAB Rol-loader.

"Good as far as I know, but we've no great demand for it. We attend to the minor troubles ourselves, and it's a fact that we've never had any major problems on any of our cranes. But of course it's nice to know that HIAB-FOCO has a service shop in Zaltbommel, which is much closer to us than the main shop in Meppel."

One of Schoonen's HIABs was once involved in a rather bizarre occurrence. A whole rig, complete with its crane, was stolen one weekend from an industrial site. The tractor and the trailer were recovered in due course, but the crane was gone for good.

"I suppose they were out after a crane that wouldn't let them down in a pinch", laughs Mr. Schoonen.

Section S



It's never before happened that any maker of hydraulic vehicle cranes has unveiled ten new crane models for its customers at one and the same time. It was an event that justified an extra blast on the publicity trumpet. HIAB-FOCO made it a whole fanfare in the early summer of this year when it put on "The World's Greatest Crane Show" for some hundreds of guests from all

round the world. The three-day extravaganza took place in the Swedish province of Dalarna, to which the star attractions of the show – the new black cranes – and their audience travelled by a special steamdriven train. The smartly turned-out station-master who welcomed them as the train pulled in was HIAB-FOCO's President, Bertil Bredinger.

THE WORLD'S GREATEST CRANE SHOW, ETC.



Even when they're not appearing at "The World's Greatest Crane Show", HIAB cranes attract a lot of interest at fairs and demonstrations all round the world. The picture above comes from a SeaCrane exhibition at Reykjavik in Iceland. On the left, two Jonsered cranes and a HIAB are giving a display of grapple loading at a demonstration in Windsor, west of London, while in the picture below eager visitors are crowding round the HIAB cranes at an exhibition of European industrial products in Taipei, Taiwan.



Method Hoists



When it comes to big cranes on small trucks the HIAB-Unimog combination is pretty well unbeatable. Here's a HIAB 1280 with winch and jib mounted on a Unimog U 1700. The outfit is used for roofing work and other erection jobs. Four extensible support legs provide the stability needed for high, heavy lifts.



Six out of seven GMC trucks were equipped with HIAB 1265s supplied through the HIAB-FOCO representative in Santa Ana, California. The buyer was a power utility in Taipei, Taiwan, which will employ the vehicles in raising poles and maintaining its transmission grid.



There are many ways to make a HIAB crane mobile. Bennes Manjot, of Lyon, France, has a HIAB 030 that can be shifted around by a fork-lift truck. The crane is used for hoisting heavy machinery parts, a job for which it is a good deal handler than an overhead crane, for example. Four support legs hold it steady.



No fewer than 47 HIAB 985s were recently delivered to the People's Republic of China from HIAB-FOCO's representative in Bavaria, West Germany. The cranes were mounted on M.A.N. trucks, and the Chinese plan to use the outfits in geological surveys.



This exceptionally well-equipped rig is based in Dallas, Texas, and is used for repair work and field service on heavy contracting machinery. Presiding over all that gear is a HIAB crane with a winch and remote control.

**One of the new black
Jonsered 1800s lugs the logs.**

