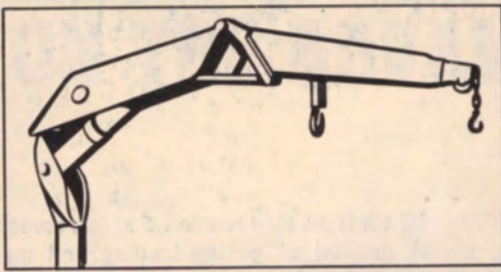
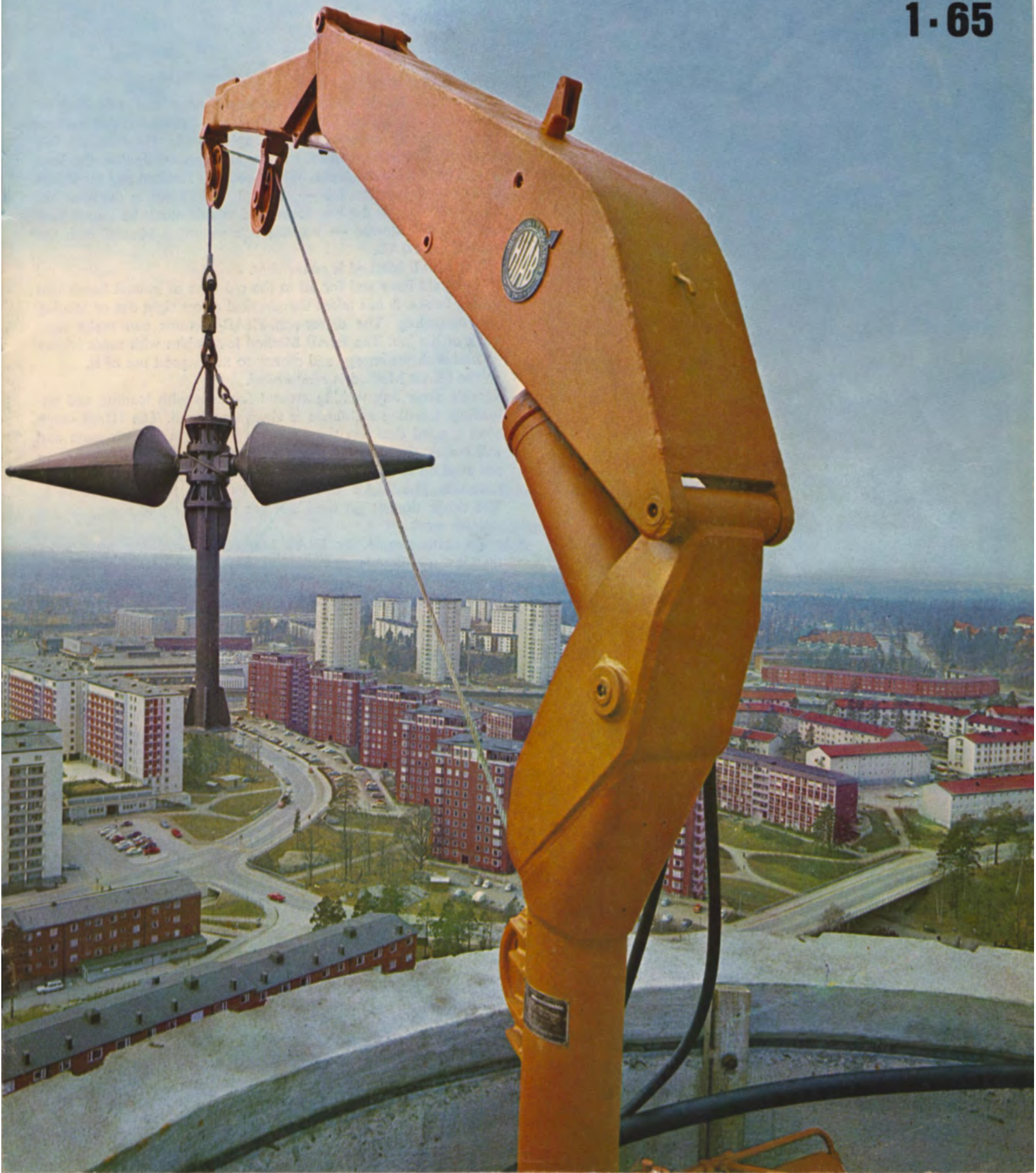


HIAB



METHOD

1-65





HIAB is an abbreviation that has come to stand for a new method. A method of getting loading and unloading jobs done, not by manual and muscular effort, not with sweat and strain, but by using a simple aid which is always on hand when wanted, which is ready for instant action, and which deals with loading and unloading

SAFELY
CONVENIENTLY
ECONOMICALLY

The HIAB Method is *safe*

The truck driver can often manage loading and unloading by himself — or with one helper at the most. There's no need for him to go under or anywhere near hanging loads. He exercises full command from the control station, and can manipulate the load at will from a safe distance. When loading's finished and the driver starts on his toughest job — driving! — he's not in the least hot and tired. He's in the best form, and what's more: he knows how his freight is stowed — because he's stowed it himself with the help of his HIAB.

The HIAB Method is *convenient*.

It puts paid once and for all to the old days of gashed hands and aching backs. It has taken the physical effort right out of loading and unloading. The driver-cum-HIAB-operator can make light work of his job. The HIAB Method leaves him with more leisure — and with the energy and money to make good use of it.

The HIAB Method is *economical*.

There's never any waiting around for help with loading and unloading. Loading assistance is always on hand. The HIAB crane costs a good deal less than a year's pay for a driver's mate and will outlast the truck. The HIAB loader is never out of sorts — not even on Mondays — and never needs a vacation or any other time off. The HIAB loader keeps its truck rolling to the limit. The driver doesn't get tired and has more life and energy to put into his work.

To many people, the HIAB Method is something much more than just a radical improvement in transportation work. It has also paved the way for some direct solutions to handling problems. Grab loading and unloading will move roundwood and logs on and off a truck — but the grab also bundles the material into the bargain, without any extra charge. A prefabricated building element is not merely loaded, transported and unloaded — the HIAB Method also puts it right into its final position (using the precision control facilities). HIAB doesn't just move pipes and culverts from depot to site — it places them right where they're wanted (thanks to its high and low reach). It doesn't content itself with delivering posts — it raises them too. Machines aren't just lifted on and off the truck deck — they're deposited neatly on their foundations. Large panes of glass go straight into the window frame.

As yet we've only scratched the surface of all these special methods and solutions to problems. The oldest HIAB crane is still only in its teens. The HIAB Method has its best years ahead of it. Many people have got so used to their HIAB that they can't work without it, yet we're still only at the beginning of a period of simpler, cheaper, safer and handier loading and unloading.

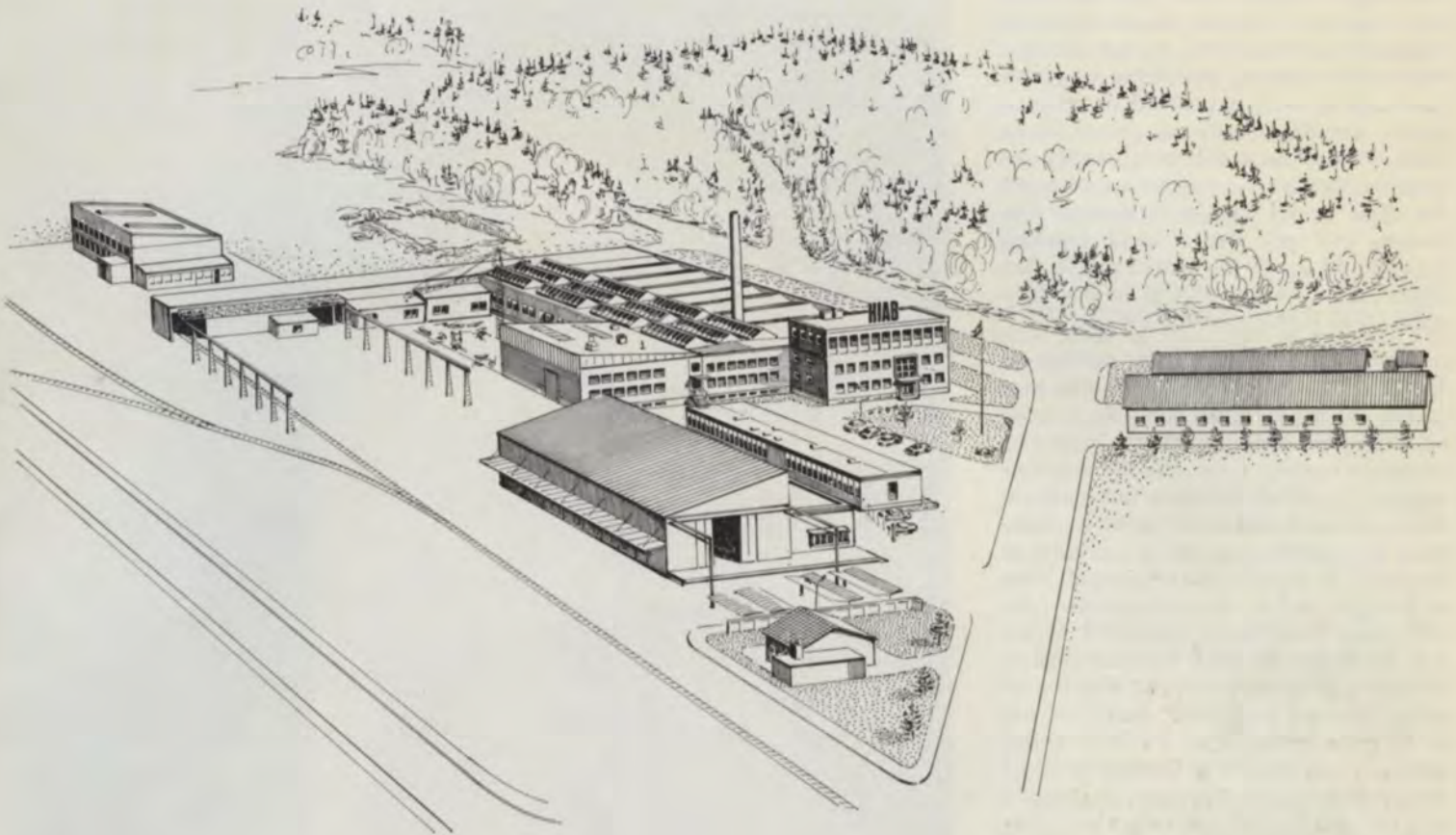
All this means that the HIAB Method has ushered in a new epoch for tens of thousands of people occupied on goods transportation and materials handling.

"METHOD" aims to help everyone towards better understanding and utilization of their HIAB loaders by presenting direct information on methods, hints on service, and feature reports.

So it is in the cordial hope that those engaged in the transportation business will find the HIAB Method increasingly useful and helpful that I put before you this first issue of our new customer magazine "METHOD".

Hans Bostedt

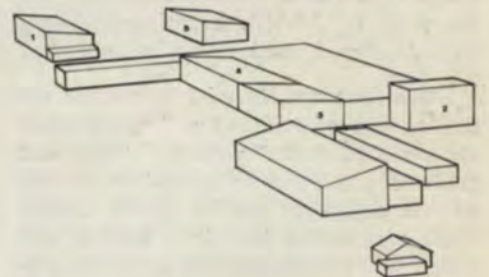
METHOD ON THE ADVANCE



Today's HIAB can be said to have sprung from a peace of clear thinking — an idea that was developed into a method which is now capturing the world market. The thinking behind the method was that a truck haul means more than just moving a load along a road from one point to another. The haul begins when the freight is put aboard the truck and isn't over until it's been unloaded at its destination. The idea was that the truck would do all the heavy work and that the driver would cope not only with the driving but also with the loading and unloading by himself. With that aim in mind the HIAB Method was developed.

If anyone asks whether the aim was achieved, and whether the approach was right, the answer is that today only 15 years since it was introduced, the HIAB Method has won general acceptance throughout Sweden and is being exported to some 50 countries all round the world. The name of HIAB has become synonymous with the hydraulic self-loader, and the manufacture of the loading appliances that represent the technical embodiment of the HIAB idea has given rise to one of the most expansive industrial undertakings on the northern Swedish seaboard — in Hudiksvall alone it employs some 500 people and has quickly grown to be the largest manufacturer in the town.

1. The new plate-working shop, which was opened in April 1965.
2. An extension to the office premises, likewise already in use.
3. Shop extension, Stage I — complete.
4. Shop extension, Stage II — in progress.
5. New shop building: foundation work in progress.



However, the objectives that have been reached are but milestones in a highly dynamic course of development. When the method was at last accepted in Sweden, after some hard going during the first few years, the demand for hydraulic loading appliances rose so swiftly that HIAB's production resources could not keep pace with it. Exports to an ever-growing number of countries have still further increased the lead of demand over production, while at the same time the products have constantly been finding new uses. To meet this situation HIAB is coupling development work on its products with ceaseless expansion on the production side.

Not long ago a new plate-working and machine shop was opened. Last spring

some of the office staff moved into an extension to the older office building, but the sales department still has to make do in the "horizontal skyscraper" that stretches in front of the actual factory building. In addition, one stage in the enlargement of the main plant was completed in the spring, and the next stage was commenced straight away. At the same time, foundation work is under way for yet another factory building behind the present premises.

Despite the extensions at Hudiksvall the production capacity there will still fall short of requirements. In the near future, therefore, HIAB plans to assign the manufacture of certain models wholly or partly to subsidiaries, both in Sweden and abroad. The development of new products and

the improvement of existing models is a task on which a good proportion of HIAB's personnel are constantly engaged. On the drawingboards of the design department the engineers grapple with hydraulic and mechanical problems and work out solutions that in due course are passed to the experimental shop next to the factory, where their drawings and ideas are translated into prototypes destined to undergo tough, searching trials on the testbeds. Each item is subjected to a steadily increasing load until it can no longer stand the strain — and that's as far as most new designs ever get. But a small minority prove to be up to the mark, and in due course, after further careful testing, they graduate to HIAB's production line.

Alongside trials and tests devoted to HIAB's own innovations and improvements, the experimental shop also carries on large-scale testing work on items and materials coming from HIAB's sub-contractors. At HIAB they know that a vehicle crane, like each and every one of its parts, must be able to stand up to a great deal that can't fit in under the heading of "normal usage", and in that in most cases such equipment isn't exactly pampered in the way of regular attention and maintenance. A hose that will take a lot of punishment under "normal conditions" may turn out to be quite useless when it's 35°C below zero. A chain capable of holding 20 or 30 tons may be weakened so much by abrasion at a vulnerable point that before very long it's ready to part under a load of no more than a ton or so. In most instances the makers of hoses and chains can't give any particulars as to how their products will perform in such abnormal situations, but the staff of HIAB's experimental shop have developed considerable inventiveness.

Some time ago, to take a concrete example, they carried out a thoroughgoing comparison of the various brands and grades of hoses now being made which are on the cards for use in HIAB cranes. Their examination included a bending test which was performed with a special machine designed for the purpose. It subjected the hoses to twice the pressure employed in HIAB loading appliances and then put them through repeated flexing until they burst or developed leaks.

The results were astonishing. To judge from the particulars supplied by the makers, those hoses were much about the same as regards quality — yet some of them sprang leaks as soon as the oil pressure was turned on, some of them stood up to a few hundred bendings, most of them managed some tens of thousands, and some few were good for more than a million. To be on the safe side the test was carried out both at normal temperature and in severe cold.

When we visited the experimental section two test series had been under way for some time out on the testbeds, while inside

In the experimental shop they display great inventiveness in dreaming up test rigs that subject cranes and their component parts to stresses many times greater than any that could conceivably occur in practice.

The picture on the right shows a vibration test being carried out on control levers and pipe couplings with the aid of a machine of the kind used to compact sand and gravel in roadbuilding work.

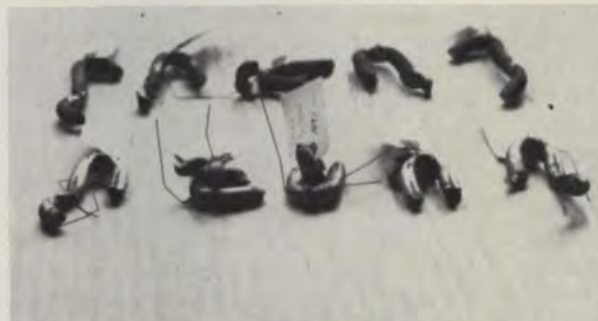
TESTS TRIALS TRYOUTS



When the crane is working on the tilt, its slewing arrangements among other things are subjected to stresses that are decidedly greater than normal. In the picture on the right its ability to stand up to such conditions is being investigated.

For safety's sake the crane is "remotely controlled" using a long rod.

The rig on the left is used to test chains.



Here are the results of some chain tests. The combination of heavy loading and abrasion has led to the failure of the hardest-worked link. The tests reveal considerable variations among otherwise comparable grades of chain.





the shop itself they were making preparations for a third. The strident staccato of an internal-combustion engine rose from one corner of the yard, where they were doing vibration tests on the brackets for the levers with which HIAB cranes are controlled. When a crane is in place on its vehicle it has to put up with very intensive vibration, both when the truck is on the move and when its engine is idling. There are two fixing holes in the brackets of the control levers. In time, these holes are enlarged by the long and violent vibration and the levers begin to show signs of slackness.

The object of the test series was to find out how well various materials could withstand wear of this kind in practice. To produce the vibrations the testers had got hold of an engine-driven vibrator, and the levers were mounted in the position giving maximum vibrational wear. At the same time they took the opportunity to test the piping of the hydraulic system as well, by welding onto the vibration plate a number of pipes and pipe fittings of the type used on the cranes.

The results of the practical tests are compared with the calculations of the design department, and the outcome is greater certainty in choosing the material that can best cope with the stresses to which a HIAB crane is subjected.

Mounted on a testbench in another corner of the yard was the outer member of a crane jib, together with a hydraulic cylinder. Over and over again the crane hoisted a three-ton load suspended from a chain of the kind with which HIAB cranes are equipped. The purpose of this test was to investigate the ability of various grades of chain to withstand the wear that is set up when the links next to the jib rub against each other while the chain is lifting a load. A counter on the set-up registered the number of lifts. When one of the links finally snapped after a thousand or so lifts, the rig stopped automatically. Five tests of this kind are carried out on every grade of chain.

Inside the shop itself they were just putting the finishing touches to preparations for testing a crane under really gruelling working conditions. Not infrequently, the vehicle on which the crane is mounted is tilted, e. g. when it is standing on a slope. Under such conditions the loads on bearings and mountings will be of an order very different from those found when the truck is standing level. The slewing mechanism, in particular, is subjected to far heavier stresses during loading with the truck at a tilt. To back up theoretical calculations on the size of the slewing mechanism, the testing staff were engaged in setting up a testbench on which a crane could be mounted in the worst conceivable position. The crane was put under a heavy load — and everything was ready to begin testing the slewing mechanism.



The Speedloader Mechanizing Forestry

The reality behind the mechanization of Swedish forestry is that horses and raftsmen have had to give way to tractors and trucks, and that most of the jobs which used to make forestry hard, tough and backbreaking are disappearing, thanks to two relatively simple and inexpensive aids — the chain saw and the Speedloader.

Using uncomplicated implements and methods that have been thoroughly tried and tested, Swedish forestry has achieved results which as regards reduced costs and increased daily outputs per man are well able to stand comparison even with the performances recorded by big and expensive "futuristic" machines. Small, mobile, highly mechanized standard units which can readily be combined and adapted to suit local requirements and conditions — tractors that can be switched at will to cross-country work, to barking or to ground preparation, etc., and all-round machines for loading that can be utilized at every stage — have already been yielding sound commercial results for a number of years.

Monsters in the Mist

We got a good idea of what today's mechanized Swedish forestry looks like from a visit to one of Iggesunds Bruk's logging (CONT. OVERLEAF)



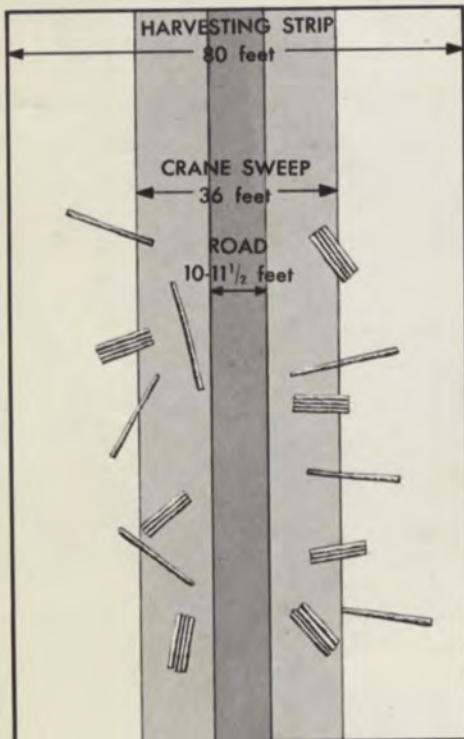
Thanks to go-anywhere tractor outfits, on tracks or — as in the big picture — on wheels, the Speedloader can get right to the stump to collect timber. The picture on the immediate right shows a Speedloader mounted on a barking unit. On the far right we see the unit as a whole; in this case it is based on a wheeled tractor. The picture above shows the Speedloader in use as an independent loader at a large log landing.



(CONT.) areas 40—50 miles from the coast of Northern Sweden, where they were clear-cutting a hillside, very steep in places, at a height of about 1,000 feet above sealevel.

The clouds hung low, giving a remote and slightly spooky air to the landing when we arrived there just as the breakfast break was over and four big Brunett tractors, which are used for moving the logs out, were lumbering off through the mist for a fresh bout of grappling with the newly cut logs lying in the forest. Despite their clumsy waddling motion the machines proved surprisingly fast and it was impossible to keep up with them against the gradient as they climbed to the highest point of the harvesting strip. All four disappeared into the mist like great red ducks, but the sound of their engines could be heard far away across the bare hillside, mingling with the chatter of chain saws working somewhere out of sight.

Our photographer muttered something about poor visibility and miserable lighting, but no one could remain indifferent to the unreal atmosphere over the apparently endless stretch of "slash" and logs across which we were moving. Going by the sound, we picked our way towards one of the Brunetts. And suddenly! — there it was bearing down on us, frighteningly close and on an alarmingly steep slope. We threw ourselves promptly to one side so as not to be crushed under the giant duck, expecting it to come somersaulting down the hill any moment. And then, almost in mid-air so it seemed, the driver coolly stopped



Sketch showing the plan of a harvesting strip where cross-country transport is by tractor and HIAB grab loader. The harvesting strips, 80 feet wide, are disposed at right angles to the contour lines.

This picture shows unloading in progress down at the log landing by the motor road. The Speedloader enables the logs to be quickly stacked into piles over eight feet high, so that the landing can accommodate a great deal of timber on a relatively small area. Adjacent to the landing is a depot holding fuel for the tractors, etc.

his machine in its tracks, did an about-face in the cab and used his Speedloader to pick up some pulpwood and add it to his small but growing cargo. A few moments later he was facing the right way again and driving his lurching monster down the boulder-strewn slope, which was thickly dotted with pulpwood cords, so that his load quickly rose to a height that made the manoeuvrings of the outfit still more spectacular.

The haulage run from this particular logging area to the motor road was in the region of 1,200 yards across country — rather a long way, but possible thanks to the relatively high speed of which these wheeled tractors are capable — up to 20 m.p.h. (30 km/h) on good ground. In a working day each outfit can bring down five loads, a load being 425 cu.ft. (12 m³) piled measure. All timber cut in this major felling operation is concentrated at a single landing beside the road. The HIAB Speedloader stacks the logs in piles 10—13 ft. (3—4 m) high, so that the landing can be kept to a fairly restricted area despite the considerable quantities of timber it holds.

No one Misses the Sleighbells

A harvesting operation like this would be almost out of the question without the aid of chain saws and loading appliances. Felling, trimming and bucking all the timber on this relatively large area with hand-saws and axes would call for a whole regiment of lumberjacks — more than there are in the entire province of Hälsingland at present. And it would probably be even harder to get hold of all the horses and drivers that would be needed to haul it all to a motor road or floatway.

A lot of the romance of logging has disappeared. The snick of the axe echoing

among the towering spruces and the tinkling of sleighbells along the forest roads have been replaced by nothing but the roar of engines, yet the young lads who jump from the tractor cabs for a break and a smoke down at the landing don't feel any sense of loss over the exchange. They know what all the "romance" meant for their forefathers — unbelievably hard work from morning to night, with aching backs and arms as a much more noticeable result than their meagre earnings.

But don't run away with the idea that working on a mechanized clear-cutting operation like this is a soft job. Even though the chain saw has taken over most of the sawyer's muscle work his job is still one of the hardest there is, and floundering through deep snow is just as exhausting as ever. But he gets through his work faster and his earnings are better. The loader, with its hydraulic grab and rotator, has brought the same gains to the haulage side. Logs that have frozen fast, which would have taken the old-time teamster half an hour and a great deal of exertion to lever up and load onto his skidding sled, are now hoisted by the loader onto the tractor trailer in a few seconds without any effort from the driver, and unloading them is just as simple.

While all this is going on the driver is sitting in his heated cab where he can work without gloves and thick clothing. He doesn't need great physical strength, although thorough training is necessary to fit him for handling his outfit, and it isn't everybody that can make a good tractor and HIAB operator.

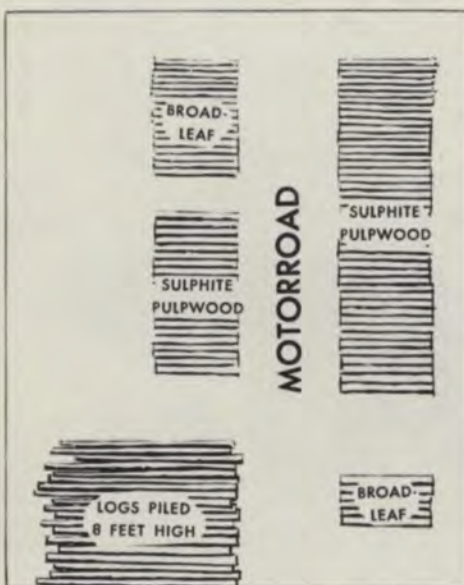
Twice the Capacity

At another log landing we were able to see how the Speedloader has contributed to

far-reaching mechanization in a later stage of the job of getting timber from stump to mill — the highway haul, which to a growing extent is replacing river driving in Swedish logging practice. This landing was also a pretty big one, so that the Speedloader was being used as an independent loader, in other words it was mounted on an old truck chassis which had been shorn of its registration plates and converted to serve as a tractor.

Before we got to the part of the landing where loading was in progress we passed a loaded two-axled trailer parked beside the road. That load had been put on by the independent loader and then towed to one side during the wait for the log truck to return from its first trip. By now the truck was very nearly fully loaded — less than half an hour after it had reached the landing. A few minutes later the load was ready, the previously loaded trailer had been hooked up and the rig was on its way to the mill for the second time that day. Behind it at the landing it left an empty trailer, and that too was loaded again by the time the operator of the loader knocked off for his lunch break.

What it all amounted to was optimum utilization of truck and loader. The truck spent most of the day bowling along the highway, and had time to get through four round trips with a full load on the tractor truck and the trailer. The halts at the landing to uncouple the empty trailer, load up the tractor truck and hook up the already loaded trailer took only half an hour. Without that saving of time at the landing the truck in this case would only have been able to do three round trips a day. On this particular haul there was also scope for doubling the capacity by putting on another tractor truck and trailer. Two trucks, three



The layout of the log landing. Like the one on the foregoing page this sketch is taken from HIAB Method Service No. 2, dealing with cross-country haulage.

ROPE CRANE OR GRAB LOADER?

Outfit A: Rope crane + 2 men

Outfit B: Grab loader + 1 man

Example	Hours										Results	
	0	1	2	3	4	5	6	7	8	9		10
1 Haulage distance 30 miles	A	█			█				█			2 round trips in 9 1/2 hours
	B	█		█			█		█			
2 Haulage distance 15 miles	A	█		█			█		█			2 round trips in 7 hours
	B	█	█		█		█	█		█	3 round trips in 7 1/4 hours	

This example comes from another HIAB Method Service publication, No. 9, which contains a comparison of the production obtained with a rope crane and with a grab loader on the highway haulage of roundwood. Both outfits consist of a truck and a trailer. The diagram shows how the shorter loading time with the grab loader saves two hours in the first case, while in the second it enables another round trip to be got in for an increase of only 15 minutes in the total working time. The same publication reveals that the nett earnings in the first case are 27 Crowns per day for Outfit A and 48 Crowns per day for Outfit B. In the second case the corresponding nett earnings will be 38 and 118 Crowns respectively.

trailers and an independent loader, manned by two truckdrivers and a loader operator, were thus capable of moving eight fully loaded rigs to the mill every day.

In the case of smaller landings it is more appropriate to have the loader mounted on the haulage rig. Various alternative sitings are: (1) behind the cab, (2) at the rear end of the truck frame, and (3) at the front of the two-axled trailer.

Beyond Comparison

Today's modern up-to-date and efficiently designed truck outfits have an annual capacity which can be put at two or three times the figure attained with older arrangements.

Stouter trucks and trailers, faster loading — with the HIAB grab loader making all the difference, better roads, big, concentrated log landings and good organization between the various transportation links — cross-country, highway, and mill intake — are the decisive factors in today's haulage results.

But it isn't possible to apply such rationalization to each and every highway haul of roundwood. As yet it's still the usual thing for the timber to be collected from numerous small landings, many of which don't even hold enough logs to make up a full load. Under such conditions the loader obviously has to be on the truck. Even so, the Speedloader not only replaces a driver's mate but also serves to increase transport capacity by at least as much as in the case described above. Whatever the landings are like, loading with the grab loader takes only a third of the time needed with a rope crane and a driver's mate. The shorter the haul, the greater the importance of the time that can be saved in loading.

Indispensable in Barking

Yet another field in which the Speedloader has made itself indispensable is machine barking. At one of Iggesunds Bruk's riverside landings we studied a mobile barking plant made up of a Cambio barking unit, a Brunett tractor and a Speedloader with a hydraulic grab and rotator. The Speedloader picks the ten-foot lengths of pulpwood up both in front of the tractor and alongside it, and lifts them high up onto the raised feed table. Thanks to the height at which the barking unit is sited it is possible in this case to let the barked logs fall straight from the discharge opening onto piles about six or seven feet high, which cuts out any moving of the timber after barking. The unit is served by three men, one operating the Speedloader, one stationed at the infeed end and one tidying up the barked logs in the piles. The normal capacity is 3,500—4,000 logs per shift.

Similar arrangements on trucks have been successfully tried out in many parts of the country. The usual thing is that the timber is concentrated at the roadside in long piles. The Speedloader loads the logs in and then lifts them back onto another roadside pile after barking.

METHOD SERVICE

NOW these veneer bundles are unloaded without any trouble in one day by two men. The Speedloader does all the heavy work. It's even used for short movements of trailers and trolleys.

6 MEN × 2 DAYS

=

2 MEN × 1 DAY

+

1 HIAB SPEEDLOADER

For the benefit of its present and future customers HIAB maintains a series of descriptive publications covering cases of method rationalization achieved with the help of HIAB loading appliances. These descriptions, under the collective title "HIAB Method Service", give numerous examples to illustrate that it is not only in connection with truck hauls that HIAB loading appliances can bring about far-reaching simplification of tedious and laborious jobs. And truckers and their drivers are not the only people who can thank the HIAB Speedloader for easier and better-paying work without backaches.

In many places, HIAB loaders are in use on stationary mountings. One example, described in HIAB Method Service No. 7, comes from a small station on the Swedish State Railways.

Goods handling in the marshalling yard used to give a lot of trouble. The railwaymen had one particular headache over freight going to a nearby joinery. It receives frequent consignments of veneer, which is shipped in large crated bundles. These bundles often weigh between 900 and



1,300 lb., and their bulky shape makes them very awkward to handle. The consequence was that it often took six men two days to unload a single rail freight car loaded with veneer.

Today, a load like that is discharged in one short day by two men using a HIAB 172 S Speedloader in combination with a HIAB pump unit for stationary duty. One man works the crane while the other hooks the goods on and off. The result is that the cost of discharging a carload of veneer has dropped to less than one-fifth of what it used to be, besides which a day has been saved on the job. Another point is that the work now takes much less effort.

This is what the costing calculations look like, worked out in Swedish crowns:

6 men × 2 days × 8 hours =		
96 man-hours at 6:—		576:—
Car rental for one extra day		10:—
Total costs before		586:—
2 men × 1 day × 8 hours =		
16 man-hours at 6:—		96:—
Crane rental for one day		5:—
Total costs now		101:—

ONCE it used to look like this. Six men toiled for two days to unload one single rail car loaded with this hard-to-handle freight. They all had to put their backs into it. Sometimes they put their backs out on it, too.



HIAB Hoists

The reliability, versatility and simplicity of the HIAB Method have made it the right solution for awkward lifting problems all over the world. HIAB loading appliances are marketed on all continents, and almost every country on earth can furnish examples of difficult, unusual or sensational lifts successfully carried out with the aid of hydraulic loading appliances from Hudiksvall. On this page we show some of the pictures that have come in from HIAB customers round the globe. There are more in the archives at Hudiksvall, and new evidences of HIAB versatility arrive by almost every post. So in forthcoming numbers we expect to be able to present more "HIAB Hoists". The "Method" editorial office at Hudiksvall will be grateful to receive pictures and method descriptions.



WEST GERMANY

A gas pipeline is being laid through the rolling West German countryside. The long sections of piping are placed in the trench by a HIAB Speedloader.



VIENNA

Austrian Army engineers at work amidst the traffic in front of the Opera House in Vienna. The structural units are being handled by a HIAB Speedloader.



CAPE KENNEDY

When astronauts who have completed their journey through space are to be fished from the waves of the Atlantic it's yet another job for a HIAB loader. A Speedloader mounted on a small, fast craft has the honour of lifting the capsule out of the "ditch".

METHOD HIAB 1/65

A magazine featuring the HIAB Method and its applications, published by HYDRAULISKA INDUSTRI AB, Hudiksvall, Sweden.
Publisher: RUNE BACKSTROM
Editor: LARS ROSENGREN
Translation: D. SIMON HARPER
Production and printing: WIKING TRYCKERI AB, Södertälje, Sweden, 1965.

HIAB ON TOP

COVER PICTURE:

There can be few Speedloader operators able to enjoy such a view as this, taken from the controls of the HIAB Speedloader mounted at the very top of the 262-foot Tele Tower in Farsta, south of Stockholm. This crane, which was supplied by HIAB's subsidiary in Stockholm, is used for such jobs as hoisting aloft the transmitter aerials of various designs which are set up on the tower for testing.

When visibility is good the man at the crane controls can see much of Stockholm and its southern suburbs spread out beneath his feet.

