Method

HIAB

Method No. 29

A magazine featuring the HIAB Method and its applications

Cover

Two railborne HIAB 765s on either side of the hull play an important part in the building of 350,000-tonners at Kockum's shipyard in Malmö.

HIAB METHOD No. 29

A magazine featuring the HIAB Method and its applications, published by HIAB-FOCO AB, Hudiksvall, Sweden.

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HIAB in Industry

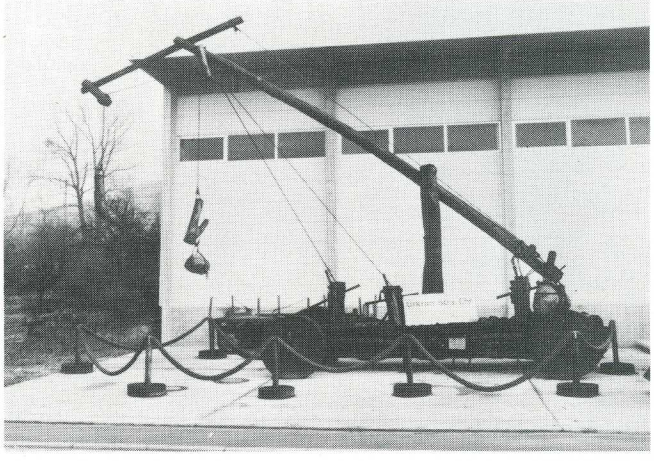
HIAB loaders have long since burst the bounds of their traditional job, vehicle loading, and have gone on to solve an ever-growing multiplicity of other lifting and handling problems. In this issue we're devoting some of our space to one such area: handling in industry. Matching the safety and precision of hydraulics with the great working range of the articulated boom, the HIAB loader is well suited to tackle the heavy lifting jobs met with in industry. And EMPROC, one of the accessories that are also presented in this issue, enables the operator to stay well clear of noise and other irritants to which he is sensitive whereas the HIAB isn't.

Beginning on this page, then, is a section which spotlights a variety of industrial applications, under the collective heading "HIAB Industrial Loaders".

Two Accessories

The HIAB Method is being developed and applied to ever more difficult and complicated handling tasks, and its accessories have to be developed apace. In this issue we present two accessories that raise the performance and versatility of the loader to still higher levels. One of them is the HIAB EMPROC remote control equipment and the other is an extra hydraulically operated outer boom. Both these accessories, and particularly EMPROC, are the outcome of protracted trials with various approaches, and both of them are long-awaited additions to the HIAB programme.

Speaking of Progress . . .



The editors of "Method" have always believed that if any loader deserved to be called "The Original No. 1", the predecessor of all the lorry loaders now in existence, then it was the HIAB "Speedloader", the model that contributed more than any other to the early and rapid breakthrough of the HIAB Method all over the world around two decades ago. But if the latest reports to reach us are accurate, then we'll have to admit that HIAB wasn't the first to design a crane patterned on the human arm. Beside the road leading in to the wine town of Heppenheim on the Rhine there stands a reproduction of a crane that's about 2,000 years older than the Speedloader. It consists of a kingpost, an inner boom and an outer boom — just like a HIAB, and it's mounted on an equally venerable vehicle. They weren't very good at hydraulics in 50 B.C., so this ancient crane had to be driven by muscle-power, with the aid of blocks, winches and counterweights. It's said to have been used for heavy cross-loading jobs. According to the plaque on the base of the crane it took 3,000 hours to build the model from ancient drawings.

HIAB loaders are good for much more than just lifting loads on and off trucks - we've published many examples of that in "Method". Wherever there are heavy, risky or otherwise awkward lifts and handling jobs to be done the HIAB Method has great advantages to offer. HIABs are built for hard work, they're indifferent to Arctic cold or the fierce glow of white-hot steel, and they can perform highly complex handling jobs with millimetric precision. Their capabilities have been discovered by a great many people whose work has no direct connection with transportation. A HIAB loader, stationary or mounted on a tractor for example, is a valued aid that you meet with increasing frequency in factories and workshops, on wharves and aboard ship, in scrapyards, in stockyards and on building sites.

On this and the next few pages we've brought together some examples to show what the HIAB Method can do in such contexts.

HIAB on Top

The very first issue of "Method" had a cover picture captioned "HIAB On Top". It was the literal truth: the picture showed a Speedloader mounted on top of the Tele Tower in Farsta, south of Stockholm, and used — just like this HIAB 550 on a water tower near Helsinki — for handling various types of aerial which are set up on the tower for testing.

The Helsinki loader is used by the telecommunications laboratory of the National Technical Research Centre, and the tower on which it stands is 54 metres high. The laboratory designs and builds prototypes of various kinds of aerials for radio, TV, radar and so on, and they undergo practical testing on the tower. The job of the loader is to hoist the aerials up a shaft in the centre of the tower and to lift them over onto a scaffold where they are set up for testing.

The job of putting a loader atop a 54-metre tower calls for certain special arrangements, but the difficulties were overcome with complete success thanks to cordial co-operation between Finnish HIAB, the laboratory personnel and the designers of the water tower, who made the necessary allowances while the tower was still on the drawing-board. The architects were supplied with accurate data on the functioning of the loader, the strength specifications for the foundation, the siting of valves, the motor for the hydraulic pump and so on. ■ 1

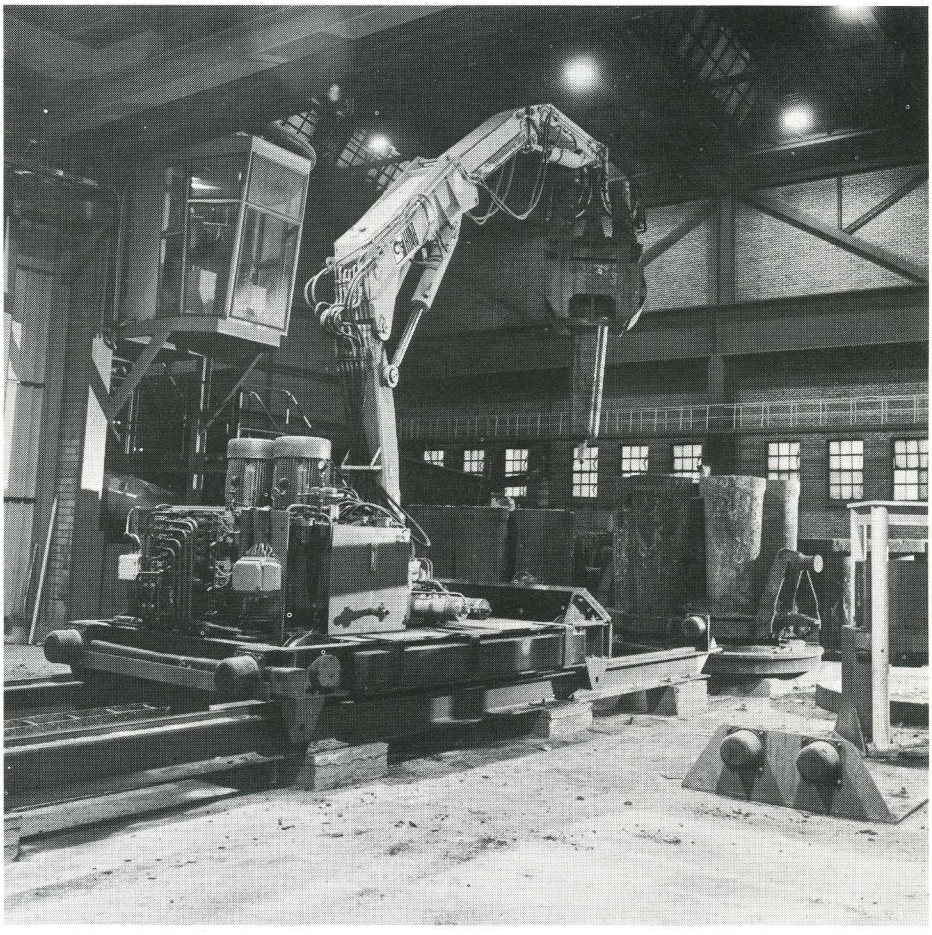
Three Loaders

Within the heavy engineering industry there are numerous weighty handling tasks that demand a lot in the way of precision and flexibility. In such cases the HIAB Method is often the best path to simplified, mechanical handling. Many companies have realised this - among them AB Bofors, which employs HIAB handling at a number of points in its work.

The crankshafts which the HIAB 550 manipulates in the drop-forge are at a temperature of 1,000°C. The operator is seated behind a screen to protect him from the heat.

at Bofors

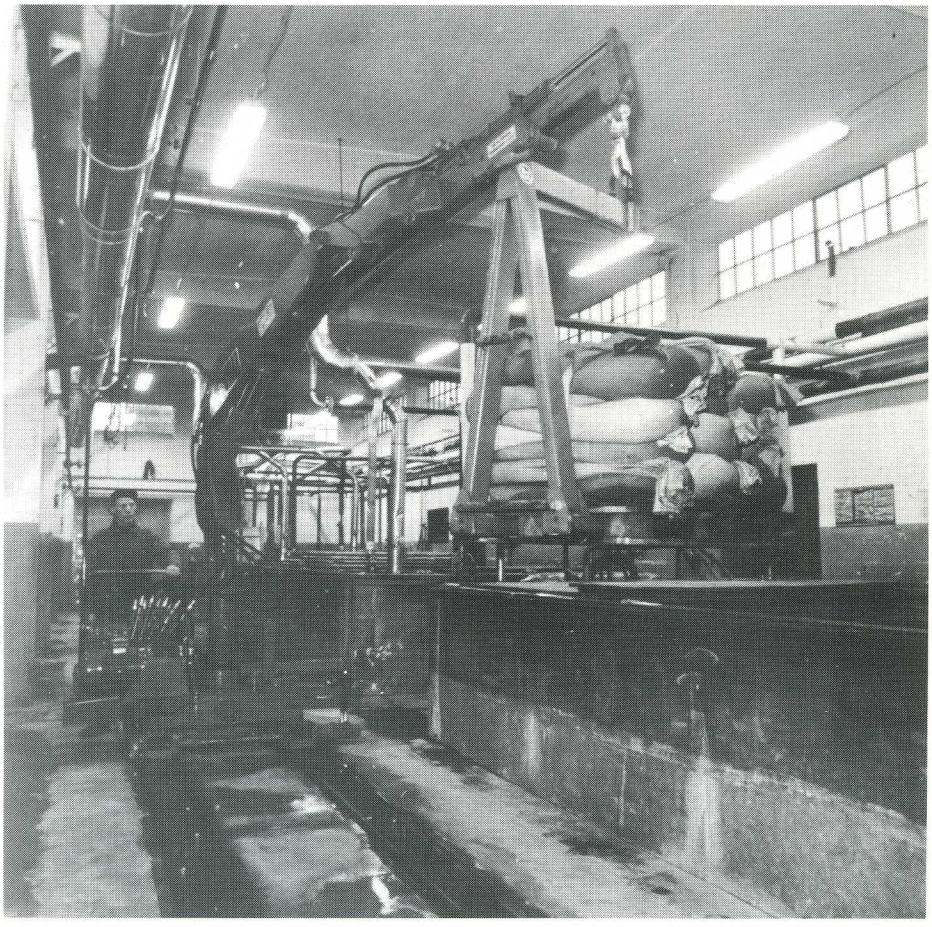
In the steelworks at Bofors, hot and heavy ingots are handled by a HIAB 1560 with special hydraulic tongs.



In the steelworks there's a HIAB 1560 that makes light of a really awkward and sweaty job. When the molten steel in the ingot moulds has solidified the ingots have to be transferred into boxes which keep them hot on the way to the rolling mill. That involves a lift that's both hot and heavy, but it's no trouble for the HIAB. Specially designed hydraulic stripper tongs remove the ingots from the moulds and pass them over to the transport boxes. The operator remains seated all the time in a cabin on the wall where he has an unrestricted view while at the same time being out of reach of the heat and fumes given off by the ingots and moulds. His HIAB, like the others at Bofors, is mounted on a railborne trolley so that it can work over a wide area.

In the drop-forging shop there's a HIAB 550 that likewise has some warm work to do. Among the products of the shop are crankshafts weighing about 200 kg, which are forged in a duplex hammer. The HIAB has a hydraulic grapple with which it transfers the half-finished crankshafts from the duplex hammer to a conveyor band that takes them to another drop-forging unit where the forging job is finished. The operator sits aboard the railborne truck on which the loader is mounted and is protected from heat and spatter by a glass screen.

A third loader, also a HIAB 550, is to be found in the explosives factory at the Nobel Division of Bofors and is used in the operation of water-treating the explosive powder. The powder, packed in 20-kg sacks on pallets, is lowered into tanks of water by the HIAB, which is equipped with a pallet fork. This job used to be done manually by two men, who lifted 18 tons a shift. With the HIAB Method it's done easily and speedily by one man. ■ 2

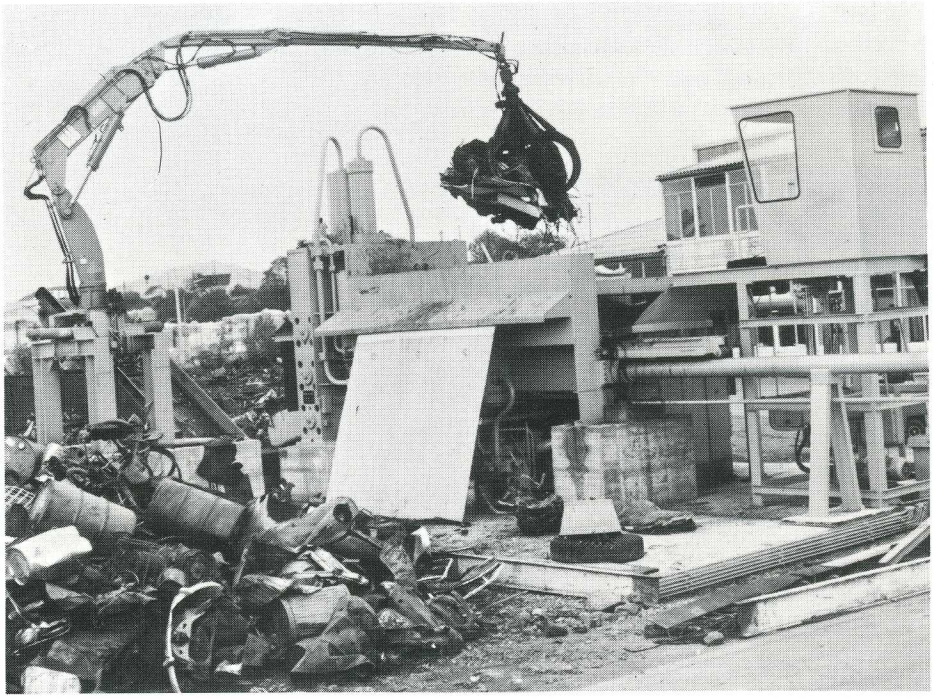


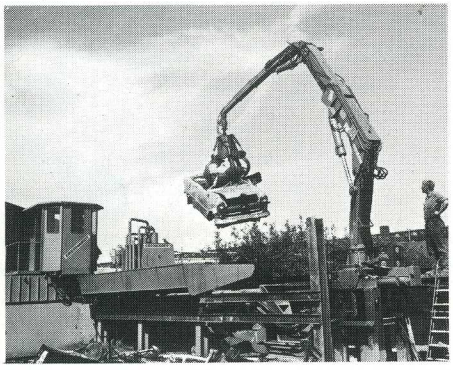
Each sack contains 20 kg of explosive powder due for water-treatment. A HIAB 550 with a pallet fork lifts the sacks into and out of the vats.

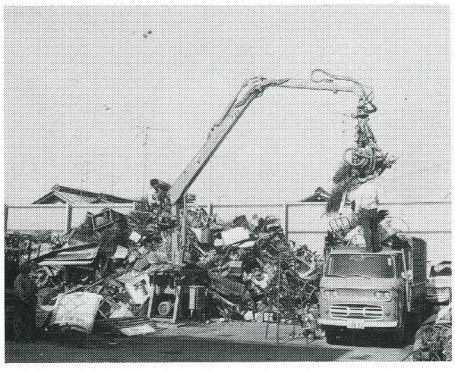
Scrap, Scrap and Scrap

In scrap handling, HIAB loaders both stationary and mobile have long since established themselves as remarkably effective aids. At Fulda, West Germany, there's a stationary HIAB 1560 handling heavy scrap, mostly junk cars and machine parts, for a large scrap press. The loader is operated from a cabin at one end of the press, where the operator has a good view of the working area of both the press and the loader. At the same time he's protected from all the hazards associated with scrap handling on conventional lines, with the personnel working right in among the scrap.

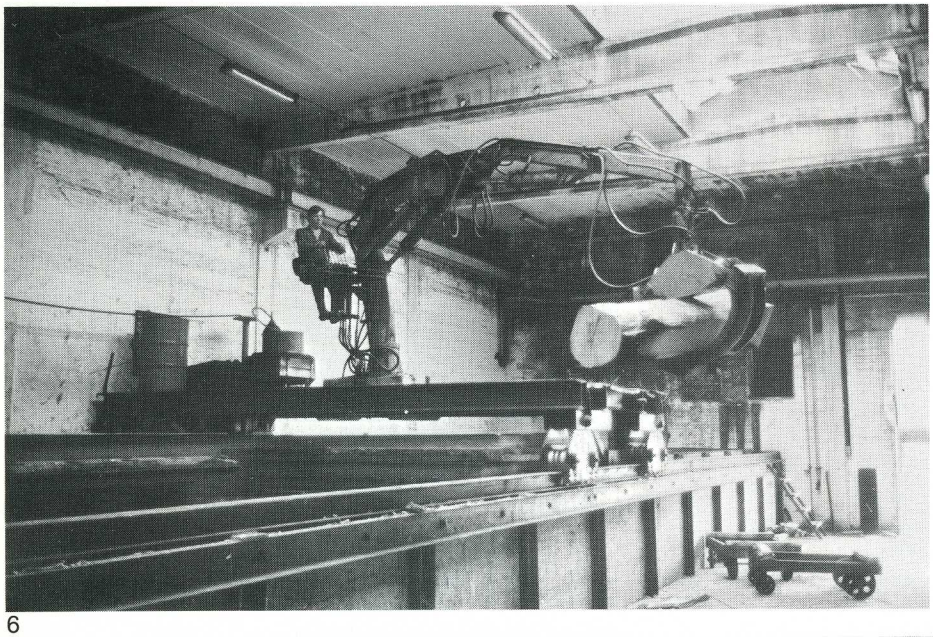
Arrangements similar to this are used in scrap handling the world over. The picture below left comes from a scrapyard outside Copenhagen, where they likewise feed the press with the aid of a HIAB 1560. The HIAB 670 in the middle picture does duty in a scrapyard at Nagoya, Japan, while the picture on the right shows a HIAB 950 installed in the middle of a scrapyard in Västerås, Sweden, to feed a press shear which cuts scrap into pieces before it is pressed into conveniently handled bales. ■ 3







Railborne HIAB 1560 Soaks Veneer Wood



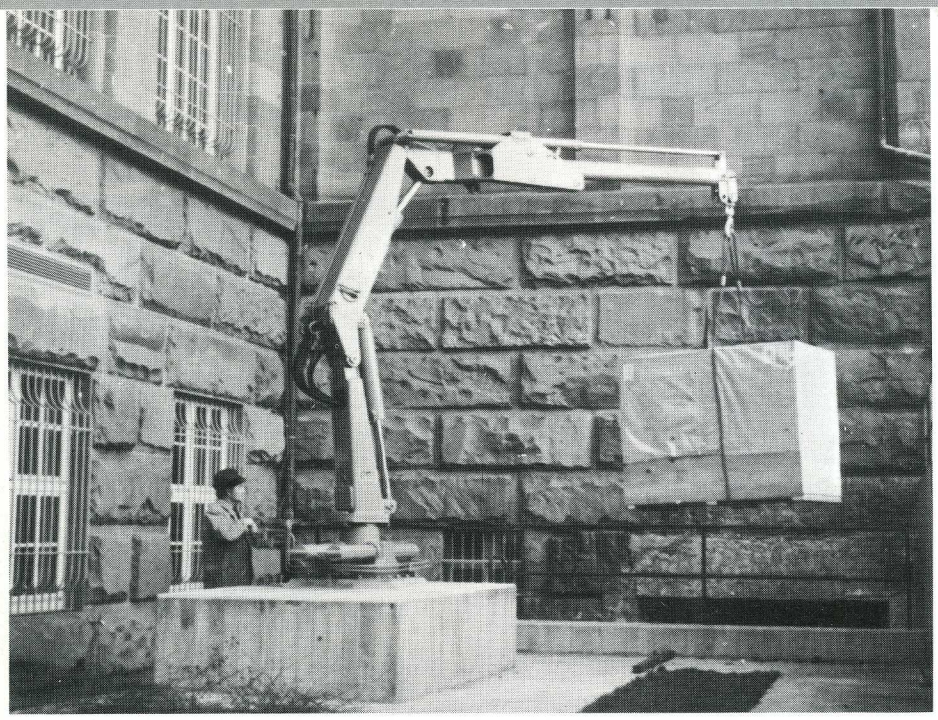
A woodworking plant outside Aarhus in Denmark makes hardwood veneers. Before the logs are peeled into veneer they must be soaked. This is done in large vats containing hot water. The heavy logs are lifted into and out of the vats by a railborne HIAB 1560 which can move along the whole line of vats. The loader is equipped with a rotator, a hydraulic grapple, and top-seat controls. It also handles the heavy lids that cover the vats. ■ 4

Power Plant Parts

The beautiful Moselle valley produces some of Germany's finest wines. But that's not all. The head of water in the river from Koenigsmacker in France to Koblenz in Germany is about 85 metres, and it's used to produce electricity in 14 power stations with an aggregate rating of something like 200,000 kW. At the power station in Zeltingen there's a HIAB 670 on a stationary mounting and fitted with a winch. It's used to handle parts for the turbines and generators that are built into the dam. It quickly made itself an indispensable aid in the work of maintaining the power plant. ■ 5

Spreading the Load

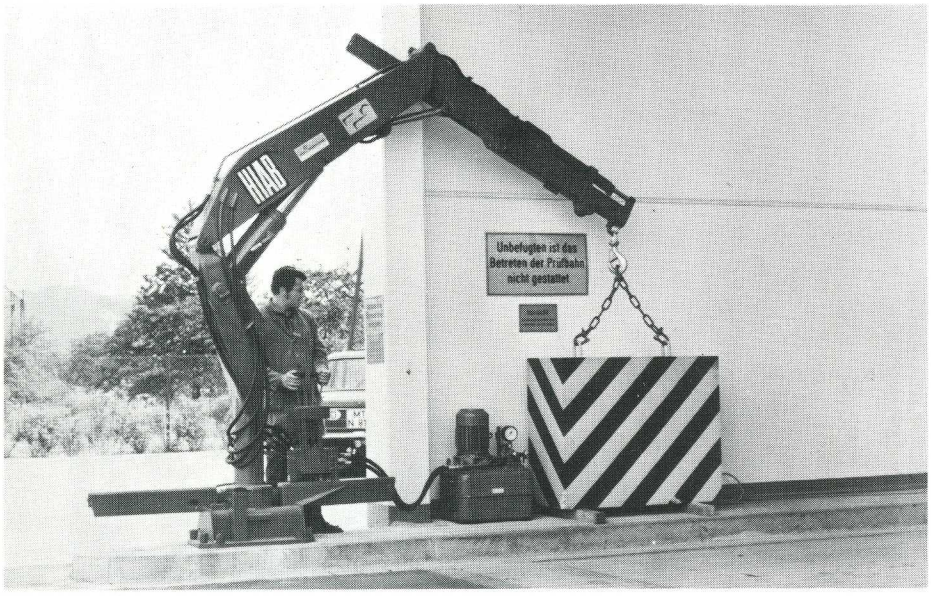
At a marshalling yard in Münchehof, West Germany, the firm of Preussag AG Metall has a ramp for cross-loading ore concentrates from trucks to railway wagons. Lead and zinc concentrates are tipped from the trucks straight down into the wagons. Owing to the high density of this freight the load space of the wagon is only partly filled when it is fully laden. It frequently happens that the load is not evenly distributed between the axles of the wagon. But safety regulations call for an equal load on all wheels. The load is redistributed by a HIAB 550 mounted on the edge of the ramp. The HIAB is equipped with a hydraulic bucket and top-seat controls. From his vantage point the operator can easily see how the concentrate must be distributed to spread the weight evenly and can quickly take the necessary action. ■ 6



The charger can operate the HIAB from controls in the personnel basket, enabling him to range over a large area.

HIAB 950 for Art Treasures

An art gallery that uses the HIAB Method to handle its showpieces isn't exactly a commonplace - at least not yet. But now that it's been tried out in practice by the gallery in Mannheim, West Germany, the idea may spread to others as well. At the rear of the building is a HIAB 950 which lifts the objets d'art up and down to a basement entrance through which they enter and leave the gallery. With precise and gentle HIAB handling there's no risk of damage to the pieces, which are often as costly as they are unwieldy.



The Checkers' Choice

The roadworthiness inspectorate in West Germany runs an annual check on all vehicle-borne cranes. It includes a test-lift of a specific load. For the handling of its test-weights the installation in Koblenz has a HIAB 550 on a stationary mounting.

The miner's job is heavy and in many cases difficult to mechanise, but with the HIAB Method there's scope for making it lighter in many respects, and HIAB loaders are becoming increasingly common at mining undertakings all round the world, below ground as well as above. At the mines in Outokumpu, in eastern Finland, there are three HIAB 550s mounted on Valmet tractors and serving various purposes.

Finnish Mine

One of them is used mostly for charging shot-holes. To reduce the height of the rig so that it can be used in drifts with relatively low headroom the loader body is shortened and mounted on a tractor with small-size wheels. The charger works from a personnel basket, fitted with controls by which he can manoeuvre the loader to put him within reach of shot-holes over a large area. The explosive is in powder form and is transported by compressed air from a bin on the tractor via hoses up to the basket and into the holes. The loader can also be manoeuvred from the ground by controls on the loader body. Its oil pump can be driven either by the tractor motor or by an electric motor sited at the forward end of the tractor. This makes it possible to switch off the tractor engine and avoid exhaust gases during extended work at the same point underground.

The HIAB Method has considerably shortened charging times, while at the same time making the work much lighter and reducing accident hazards.

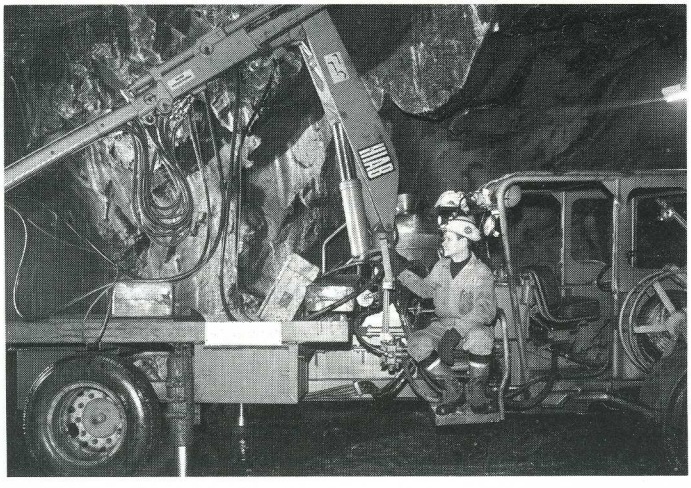
The loader with the personnel basket is also used in the important work of "scaling" the roof and walls of newly blasted areas to get rid of loose rocks

Charges by the HIAB Method

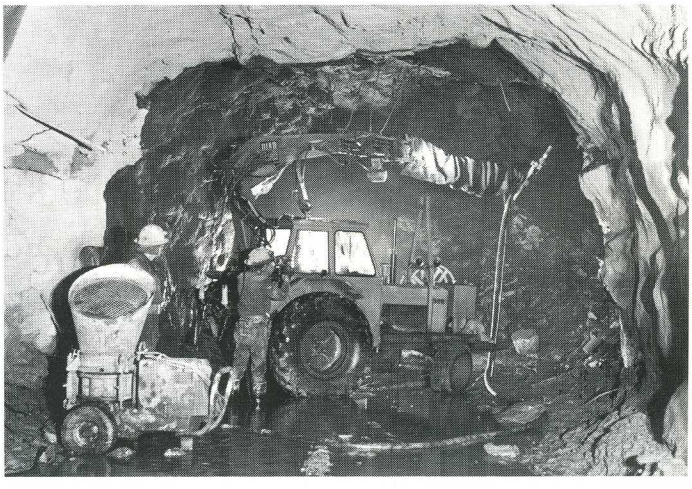
and stones - a serious hazard to life and limb. The scaled surfaces are later "gunited" - sprayed with concrete - for still greater safety, and this too is nowadays done by the HIAB Method. The work is performed with a tractor-mounted HIAB 550 having a hydraulically controlled slewing device to carry the gunite nozzle.

Compared with the older technique of manual spraying, the HIAB Method brings great advantages. Formerly the workman had to stand right beneath the surface being gunited, exposed to all the dust and spatter and in constant danger of being struck by loose blocks of stone left in the roof despite careful scaling and dislodged by the gunite spray. Now he can stand well clear of the danger zone, and the HIAB has taken over the heavy work of handling the nozzle, making his job much easier.

The third HIAB at Outokumpu is used for a variety of transport and service jobs in the mine. ■ 7



The small wheels on the tractor and the cut-down loader body enable the charging loader to work even in drifts with low headroom.



Roof and walls are reinforced by concrete spraying, a job which the HIAB Method has made both lighter and safer.

First-rate Firefloat

At Koblenz, where the Moselle joins the Rhine, there's a lot of busy river traffic. The city recently commissioned a service vessel intended mainly for firefighting on the river and its banks but also fitted out for other tasks, such as tackling oil spills. Its plentiful equipment includes a HIAB 950 mounted on the rear deck.

Measuring 25 x 5.5 metres, the craft meets high standards of manoeuvrability and speed. With its propulsion machinery of 1,800 h.p. it can travel at 33 k.p.h. upstream and 43 k.p.h. downstream. It draws only 1.25 metres. Its foam equipment can deliver 30,000 litres a minute. The ship is also furnished with a sprinkler system which can surround it with a water curtain to screen off the radiant heat from a fierce fire.

The HIAB loader performs a number of duties. It loads and unloads firefighting equipment and supplies, and also serves to launch and retrieve the ship's boat - as shown in the big picture. And it will be on hand when needed to bring on board equipment carried to a disaster site by helicopter and dropped into the water near the ship. The inset picture shows the ship demonstrating its water-guns during its maiden trip on the Rhine. ■ 8

Out - o-u-t - O-U-T-reach

The HIAB 765 and 950, which have a big reach even in their standard versions, can now stretch still further thanks to an extra hydraulically operated luffing "fly jib". 2.2 metres long in itself, the fly jib can be fitted with a manual pull-put extension to increase the reach by yet another 1.5 metres. This equipment gives the HIAB 765 and 950 a maximum outreach of 10.2 metres, at which radius they can lift about 450 kg.

The fly jib is fitted directly onto the standard boom and is operated by its own hydraulic cylinder which is connected to the spare valve section of the loader. The extra jib and the greater manoeuvrability resulting from the additional hinge not only extend the outreach but also improve lifting performance close to the loader body. They moreover enable the loader to reach areas that are difficult or impossible to get at with the standard boom, such as the ground on the far side of a fence or to the rear of the truck platform if the loader is mounted behind the cab.

When the loader is to be parked, or readied for heavy lifts, the fly jib is folded away beneath the standard outer boom. Thus the new jib does not require any extra space when parked and does not affect the width or height of the vehicle.

The fly jib itself weighs 165 kg, the manual extension 35 kg, and the hydraulic hose and pipe kit 17 kg. Thus the whole accessory weighs no more than about 225 kg, and the resultant reduction in payload is often more than made up by the advantages that come with the extra reach. ■ 9

The extra hinge facilitates work close to the loader body.

The fly jib takes up no extra space when parked.

With the HIAB EMPROC the operator can stand next to the load and manoeuvre it with one hand.

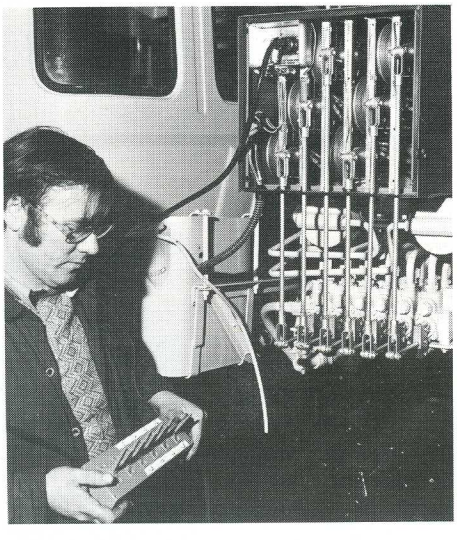
One Man Does Work of Two with HIAB EMPROC

One-man crewing, which means arranging things so that the driver himself can load and unload his vehicle without other help than his HIAB, is one of the basic ideas in the HIAB Method - an idea to which it owes many of its successes. Inevitably, though, the driver is sometimes faced with handling tasks that he can't manage with the loader alone, at any rate not without difficulty. Some such problems can be solved with hydraulic attachments or other extra equipment on the loader, and recently HIAB has introduced a new aid, the HIAB EMPROC, which improves the driver's chances with many awkward lifts.

"EMPROC" is an acronym for "Electro Mechanical Proportional Remote Control". It means that the driver is no longer tied to the fixed controls of the loader but can operate it from any point he likes within a radius of 9 metres. He simply works the small levers on a lightweight panel which he carries camera-fashion on a neck strap. He can do this with one hand, leaving the other hand free to guide the freight to precisely the right position, or to attach a hook or other tackle to it, after which he can operate the loader right away from the selfsame spot.

A more "mobile" driver has many advantages, especially when the view from the fixed controls is obstructed by other freight for example, on the platform or on the ground. Safety is enhanced too, since the driver can always move to the best observation point and can position himself and the load so as to obviate accident hazards.

The impulses from the control-panel levers are transmitted electrically through a trailing cable to an ancillary unit on the loader control bank, where they control electric motors which mechanically actuate the loader controls. Since each loader function has its own motor two or more functions can be run simultaneously, and the combination of electronics and mechanics permits proportional control movements. This means that a small movement of the lever on the remote control unit produces a small shift of the loader control valve and a slow loader movement, increasing the lever movement gives a bigger valve shift and a faster loader movement. Thus the remote control affords the same precision and responsiveness as the regular fixed levers. The EMPROC runs on 12 or 24 volts from the vehicle battery and can be fitted to standard HIAB loaders, e.g. the 550, the 765 and the 950.



An EMPROC-equipped HIAB loader can be operated in the ordinary way once the linkages that actuate the control levers are disconnected. ■ 10

An extra pair of outrigger legs provide stability for the heavy lifts.

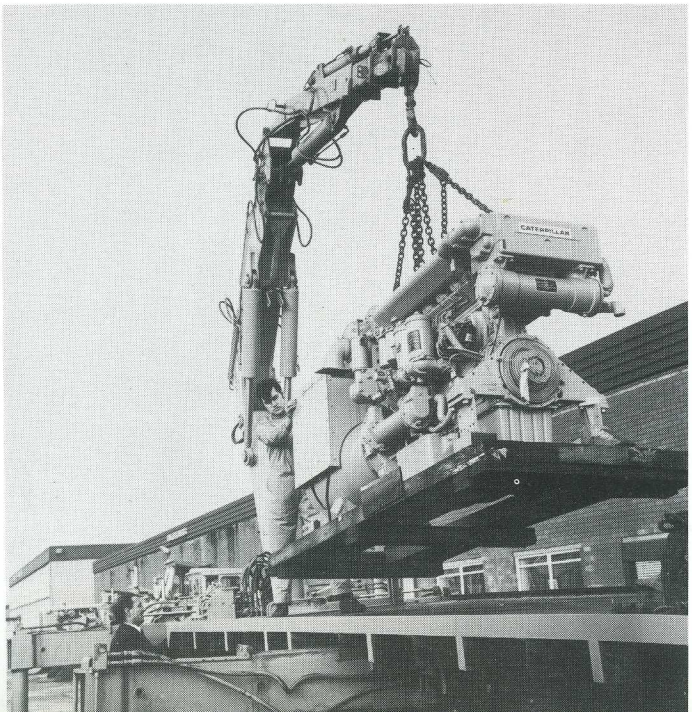
HIAB 1560 Speeds Up Caterpillar Service

If you're responsible for servicing heavy machines whose engines alone commonly weigh four tons, then you have a handling problem - especially when most of the time you have to do the job right on site. They're keenly aware of it at Caledonian Tractor & Equipment Ltd., of Baillieston, Glasgow, the sole Scottish dealer for Caterpillar's contracting machinery, engines, generators, trucks and so on. Most components for these big machines are in a weight class that rules manhandling right out, so Caledonian's travelling servicemen always had to get hold of a crane or other lifting tackle before coming to grips with their assignment.

But handling problems are a thing of the past now that the company has adopted the HIAB Method and bought itself two HIAB 1560s. One of them has a 6-metre standard boom and standard support legs, but the other has double hydraulic extension and an additional pair of support legs mounted midway along the chassis. It can cope with lifts of up to 1,450 kg at an 8-metre radius.

The HIAB-equipped service trucks can now manage all offloading and installation from their own resources, enabling them to offer faster and more efficient service to customers and entailing substantial economies in both time and money. The loaders are powerful enough to offload and fit such items as a 3-ton excavator bucket or a 4-ton track group. They also have the height of lift needed to install a complete new cab on an excavator.

The HIABs work in tandem to handle very heavy lifts, e.g. big marine engines and generators weighing 9 tons or more and widely used in North Sea oil prospecting. One HIAB 1560 is permanently stationed at Perth to cope with calls from the oil industry's installations and supply tenders. ■ 11

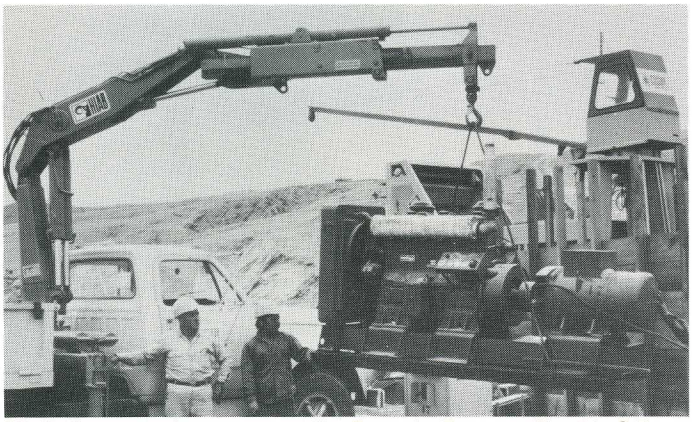


The HIAB 1560 can handle all the heavy parts of the Caterpillar machines.

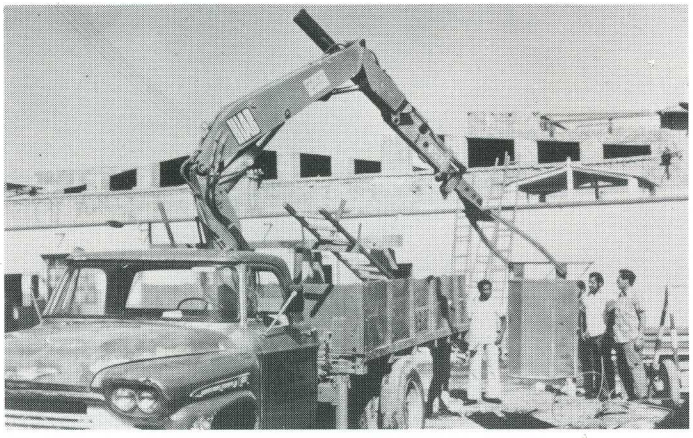
This loader works nearly 5,000 metres up at the hydroelectric power station of La Oroya, with the mighty peaks of the Andes forming the backdrop.

The HIAB Method in Peru: At Sea Level and at 5

In the port of Chimbote in northern Peru the Picsa yard builds boats for the tuna fisheries and equips them with HIAB 670s. This one has double winches.

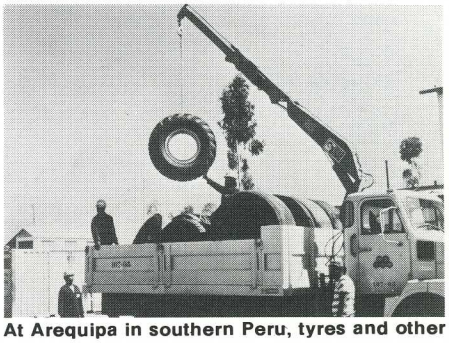


All the heavy equipment at an oil refinery in Bayovar, like this 2.5-ton diesel set, is handled by a HIAB 950 (above). On the right, a HIAB 950 hoists a transformer in Oroya. A HIAB 550 with a personnel basket (below) is used by the electricity works in Chiclayo for such tasks as cleaning insulators.

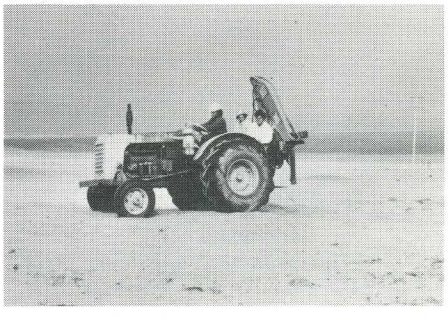


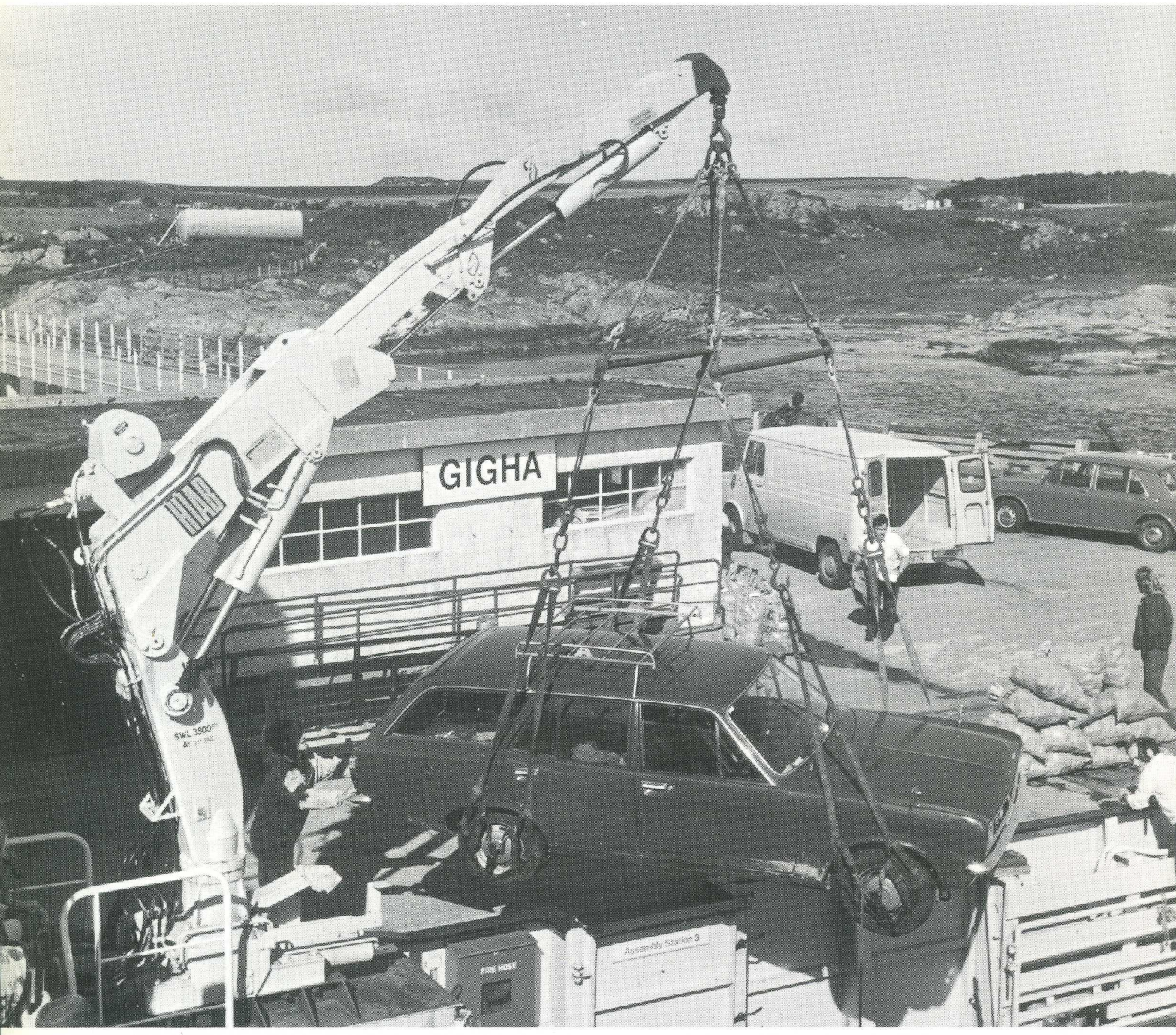
,000 Metres

In Peru, the HIAB Method has broken through in emphatic fashion, as shown by this suite of pictures. High up near the Andean peaks or down in the cities on the Pacific coast, HIAB loaders are in common use and high esteem as handling aids.



At Arequipa in southern Peru, tyres and other equipment for contracting machines are handled by a HIAB 550 (above). The cable reel on the left weighs 2 tons and provides a test-lift for the loader after an overhaul in Chiclayo. The tractor below, with its HIAB 550, is used for erecting power-line posts in the desert between Chimbote and Trujillo.





HIABs Take the Isle Load

Movements of goods to and from the tiny island of Gigha off the west coast of Scotland are not large - but they're vital to the inhabitants. The transport service is provided by the ferry "Pioneer", which does daily runs between Tarbert on the Scottish mainland and Port Ellen on the large island of Islay, calling at Gigha on the way. Both Tarbert and Port Ellen have modern roll-on/roll-off quays, but Gigha has only a jetty, so all goods - entering or leaving - must be loaded and discharged by crane.

The problem was that the volume was not sufficient to justify installing a crane on Gigha's jetty. And ordinary ship's derricks take so much time to load and unload cargo that the "Pioneer" could not manage it in the short turnround times allowed by the timetable. The difficulty was overcome by equipping the ferry with two HIAB 1560s mounted port and starboard. They're quick on the job, and they have enough lifting capacity and reach to handle everything crossing the Gigha jetty, from cars to drums of oil and bales of wool.

The HIABs are powered from the ferry's main engines and are mounted on platforms amidships, from which the operator has a good view both of the deck and of the jetty. ■ 12

Section S

HIAB Lauded to the Skies

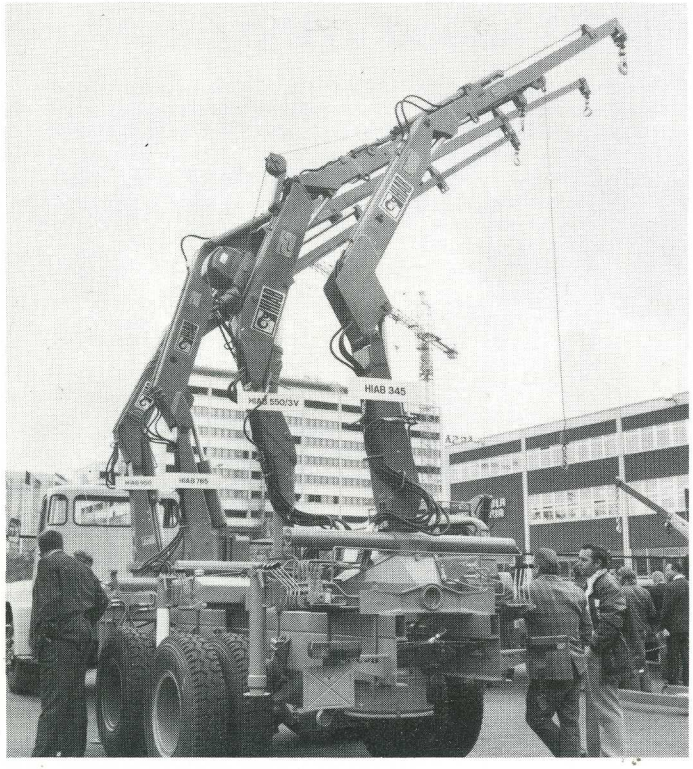
Ballooning is a sport on the way up - but it's an expensive pastime. Most of its devotees are therefore sponsored by business in return for advertising space on their spectacular craft. And why shouldn't HIAB, which sends so much else aloft, help to get a hot-air balloon off the ground? A Swedish balloon with Ulf Ståbi in the basket was enabled by HIAB-FOCO backing to enter the World Ballooning Championships starting from Albuquerque in New Mexico, U.S.A., and made a fine sight as this picture shows.

HIAB-FOCO's facilities in Hudiksvall and Skellefteå

It's been quite some time since "Method" ran any pictures of HIAB-FOCO's factory facilities, which have been steadily enlarged and have reached a considerable size. The Hudiksvall plants (right) now comprise about 36,000 m^2 and employ some 500 people. The Skellefteå plants (below) have an aggregate area of about 27,300 m^2 and employ some 480 people. In all, HIAB-FOCO has 1,360 employees in Sweden and around 575 at subsidiary companies abroad.

Since these pictures were taken the company has completed a new storage yard for finished products in Hudiksvall and a new entrance to the factory site in Skellefteå.

Section S

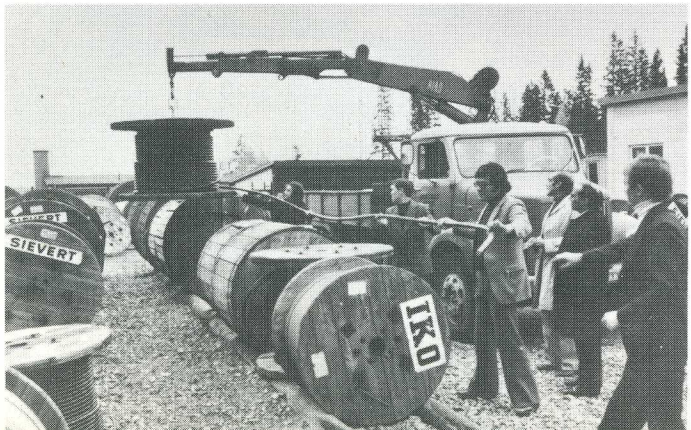


Well-equipped Outfit

At the Technical Fair in Helsinki, Finnish HIAB displayed this indisputably well-equipped outfit. Counting from the rear, it mounts a HIAB 345, a HIAB 550, a HIAB 765 and a HIAB 950.

الجزائر Algeria - HIAB-FOCO, Sweden

In the interests of commercial intercourse between Sweden and Algeria a delegation from the Algerian transport sector recently visited the HIAB-FOCO establishment in Hudiksvall. The participants represented the Algerian organisations Coopemad, Sonelec, O.N.T.F., Sacra, Sonelgaz, Sonatiba and Sonatrach. The visitors received a briefing not only on the firm's products but also on working conditions, industrial safety, labourmarket organisations and so on. In this picture a party of delegates are watching a demonstration of cable and cable-drum handling by the HIAB Method.



Huddle in Hudiksvall

A recent service and spare-part conference in Hudiksvall was attended by some thirty visitors from all round the world. Lasting for three days, it ranged over the servicing of current products, the presentation of new ones, the organisation of service in various countries, and so on.

Method Hoists

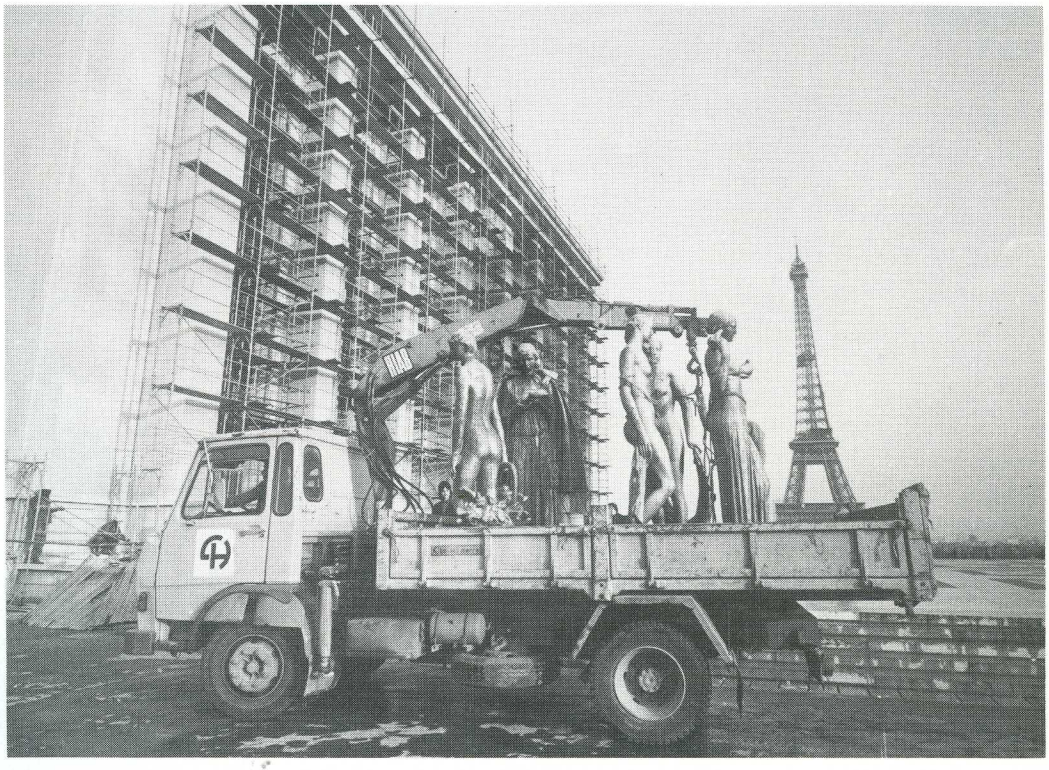
The waterworks in Deagu, South Korea, has solved its lifting problems with a HIAB 950 mounted on a Unimog. The outfit was supplied by the HIAB representative in Seoul, Daejin & Co. Ltd.

A telephone company in Canada uses this hefty outfit and its HIAB 1560 for transporting and handling cable reels and line poles. The heaviest cable reels weigh about five tons. The loader has HIAB EMPROC remote control.

Method Hoists

The Leaning Tower of Paris?

It looks as if the Eiffel Tower has decided to emulate the equally famous edifice in Pisa. And the building on the left looks a bit shaky. But the City of Light is in no danger - Photographer Serge Hambourg/le Figaro has simply used a wide-angle lens to make a nice composition out of the architecture, the statues and the HIAB loader, and shown once again that valuable and fragile works of art can be safely handled by the HIAB Method.



HIAB 550 Chips In For East Germany

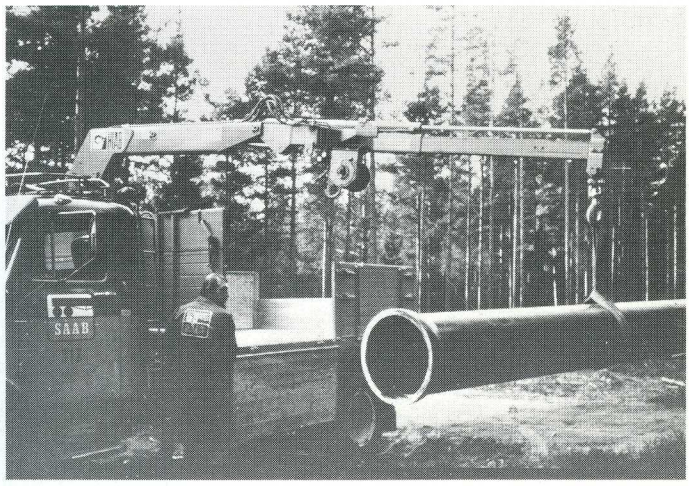
A mobile chipper all set for export from Bruks Mekaniska, of Arbrå, Sweden, to Joachimsthal, East Germany. It is fed by a HIAB 550 equipped with an 0.25-m^2 grab.

Transformers and Cables

The service truck at the electricity works in Östersund is equipped with a HIAB 765. It's often used for transporting transformers and cables. The transformer in this picture weighs over 2.5 tons, but gives no trouble to the HIAB. The utility's working crews also call in the rig when they need a lift-up.

Keeping a HIAB 345 Busy

This rig is on hire to the municipal office of works in Södertälje. Its assignments vary: in this picture it's handling 5-metre pipes - next time out it may have to shift a refuge or fetch some building units. Almost always, the owner finds good use for his winch-equipped HIAB 345.



This is how HIAB-FOCO made its Algerian début at a fair in Algiers.