

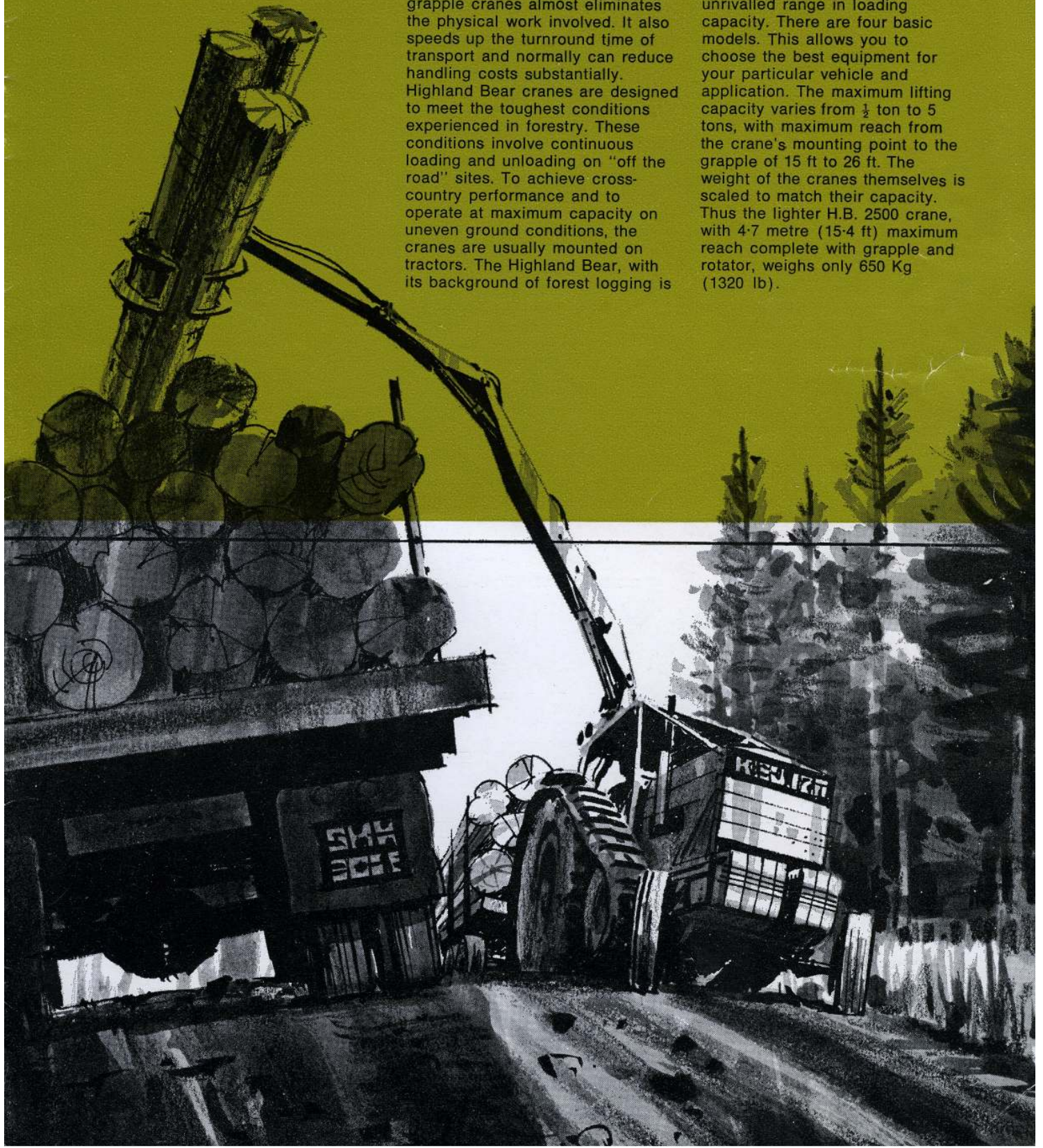


**James Jones
& Sons Ltd.**

Highland Bear Loader

Manhandling of timber is hard work and therefore expensive. The introduction of hydraulic grapple cranes almost eliminates the physical work involved. It also speeds up the turnaround time of transport and normally can reduce handling costs substantially. Highland Bear cranes are designed to meet the toughest conditions experienced in forestry. These conditions involve continuous loading and unloading on "off the road" sites. To achieve cross-country performance and to operate at maximum capacity on uneven ground conditions, the cranes are usually mounted on tractors. The Highland Bear, with its background of forest logging is

exceptionally reliable when used on other less arduous work. The Highland Bear offers an unrivalled range in loading capacity. There are four basic models. This allows you to choose the best equipment for your particular vehicle and application. The maximum lifting capacity varies from $\frac{1}{2}$ ton to 5 tons, with maximum reach from the crane's mounting point to the grapple of 15 ft to 26 ft. The weight of the cranes themselves is scaled to match their capacity. Thus the lighter H.B. 2500 crane, with 4.7 metre (15.4 ft) maximum reach complete with grapple and rotator, weighs only 650 Kg (1320 lb).



Highland Bear Loader

Choosing a crane

To choose the right crane for the job, four factors must be taken into consideration:

The normal size and weight of lift involved.

The reach required.

The site conditions and method of work for which the tractor will be used.

The vehicle which will carry the crane.

The normal size and weight should not include the largest log ever to be handled, as special arrangements are always required for special circumstances, but it should take into account those loads usually handled in day to day work. It should be noted of course, that heavy loads can be lifted one end at a time, thus greatly increasing the apparent capacity of the loader.

The reach of the crane is the distance from the centre of the slewing gear to the grapple. This is an important feature as without long reach, loading long logs or trailers becomes impossible. The reach can be extended on smaller models of the Highland Bear by adding a light weight winch for handling logs in inaccessible positions.

The site conditions and methods of work govern the type of vehicle on which the crane is to be mounted. Cross country

applications normally require tractors while road haulage usually involves trucks. It is very important to select a loader suitable for the particular vehicle to be used. The balance between the weight of the crane and its capacity to lift should be such that the total tractor weight is devoted to lifting and stabilising the load and not the dead weight of the loader. The tractor should not be heavily ballasted. This decreases performance and increases the need for maintenance.

The best results on tractors are therefore obtained by selecting the lightest available loader able to do the job. If a loader with heavier capacity is used in conjunction with a light tractor, often the full capacity of the loader cannot be utilised, even with considerable amount of extra ballast.

Mounting

The compact design and the construction of the Highland Bear crane allows considerable flexibility in mounting. The H.B. 2500 and the H.B. 4500 models can be bolted to the roof of an approved safety cabin. In this position, the operator has excellent all-round visibility and access unobstructed by crane parts or mountings. Also the tractor can be used in combination with a trailer or independently as may be required.

Pillar mounts can be supplied in various lengths to suit any requirements and are available as standard in: 1, 2 and 3 metre lengths (3, 6 and 10 ft). These can be fitted to trailers, trucks, loader chassis or to foundations for static work. The position of the crane on the vehicle can be varied to suit specific requirements: front mounted for handling long timber, 25 to 35 ft or more: centre mounted to increase reach on long trailers: rear mounted for working in confined areas or loading other trucks. A trailer fitted with pillar mounts and the H.B. 2500 can inter-change between tractors.

The operator's controls can be located on the pillar or to suit the specific requirements of the application. This gives the operator the benefit of working from a weatherproof cabin if required. Fingertip control enables the operator to work quickly and accurately, with the minimum of effort.

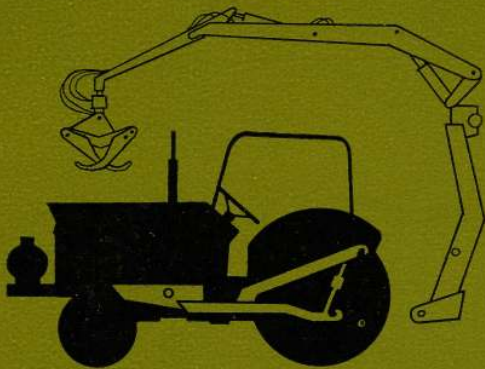
A Highland Bear mounted on a special forwarding tractor

extracting shortwood timber from stump to lower landing





Rear mounting of the H.B. 5000 crane allows one vehicle to load another.

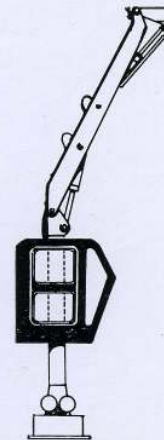
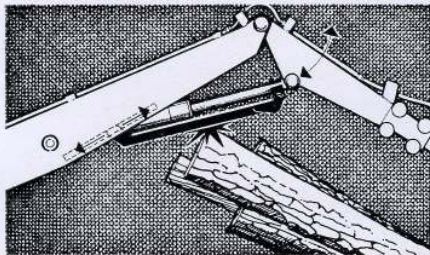
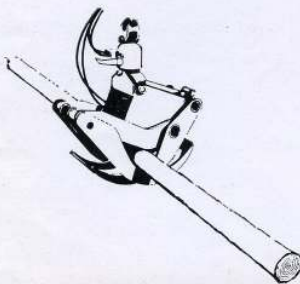


Technical Details

Independent tests on forest tractors used in logging operations have indicated that up to 38% of repair and maintenance time was caused by the grapple crane. Recent tests on the Highland Bear crane, indicate that this time has been reduced to between 10 and 20%. This has been achieved by a number of unique design features built into the Highland Bear: Patented cylinder shield which protects hydraulic cylinders from accidental damage caused by striking the load or the steel uprights of the timber transporter. Slewing is controlled by double opposed racks working on a

common pinion. The pressure is provided by four hydraulic cylinders with cross hydraulic flow and fitted with double long life seals. Double slewing racks ensure equal spread of slewing forces and allow 50% more slewing power. Up to 425° slewing is available on the H.B. 5000. This is essential for rear end truck mounting where loading may take place from any direction. Choice of rotators — 280° or infinite rotation. Low profile grapple with horizontal cylinder. This feature reduces the risk of accidental damage to the grapple, since it is easier to control when empty. The

grapple will close and hold logs of 6 in diameter or large bundles of logs equally well. Special double armoured hydraulic hose with re-usable couplings throughout. Hoses do not require stripping to fit couplings. Cobra Pillar which increases reach by 1.5 metres (4 ft 10 in) to 8 metres (26 ft). For shift working, lights are fitted to the crane as standard. Choice of three types of stabiliser. Weatherproof cabin is available.



Low profile grapple

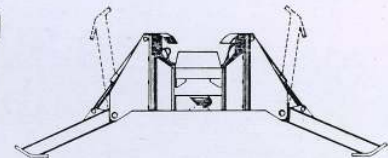
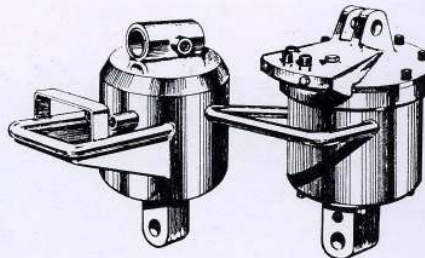
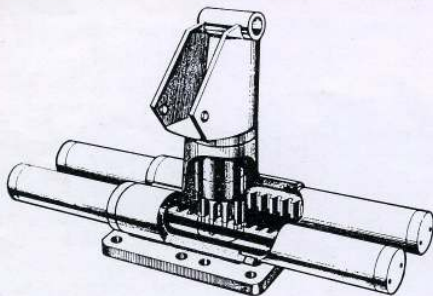
Cylinder shield

Static Loader

Double slewing racks

Choice of rotators

Choice of Stabilisers



Grapples

Type	Area of Grapple	Construction and Use
G2	2.7 ft ² (0.25 m ²)	Light work on H.B. 2500.
G3	2.7 ft ² (0.25 m ²)	Very strong cross ram grapple for H.B. 2500/4500 cranes. Suitable for forwarding shortwood or tree length loading of individual logs.
G6	3.25 ft ² (0.3 m ²)	Large cross ram grapple for bundles of shortwood 6 ft-10 ft. Also general purpose use with H.B. 4500 and H.B. 5000.
G8	5.35 ft ² (0.50 m ²)	Large cross-ram grapple for H.B. 5000. Handling 6 ft-8 ft logs only.

Rotators

280° Rotation	Suitable for use on all cranes on normal logging operations.
Unlimited Rotation	Simplifies operator learning and training. Stronger than 280° rotator. Ideal for tree lengths and heavy logs.

Logging Methods

There are three main uses for the Highland Bear crane in forestry: **FORWARDING OPERATIONS** — the extraction by shortwood system using a tractor trailer unit from stump to landing.

TRANSFER OPERATIONS — the movement of extracted timber from the upper landing in the forest to a lower landing suitable for heavy road transport, using a tractor trailer unit.

LOADING OPERATIONS — the loading of timber at the landing by independent loader, tractor or self loading truck on to road transport.

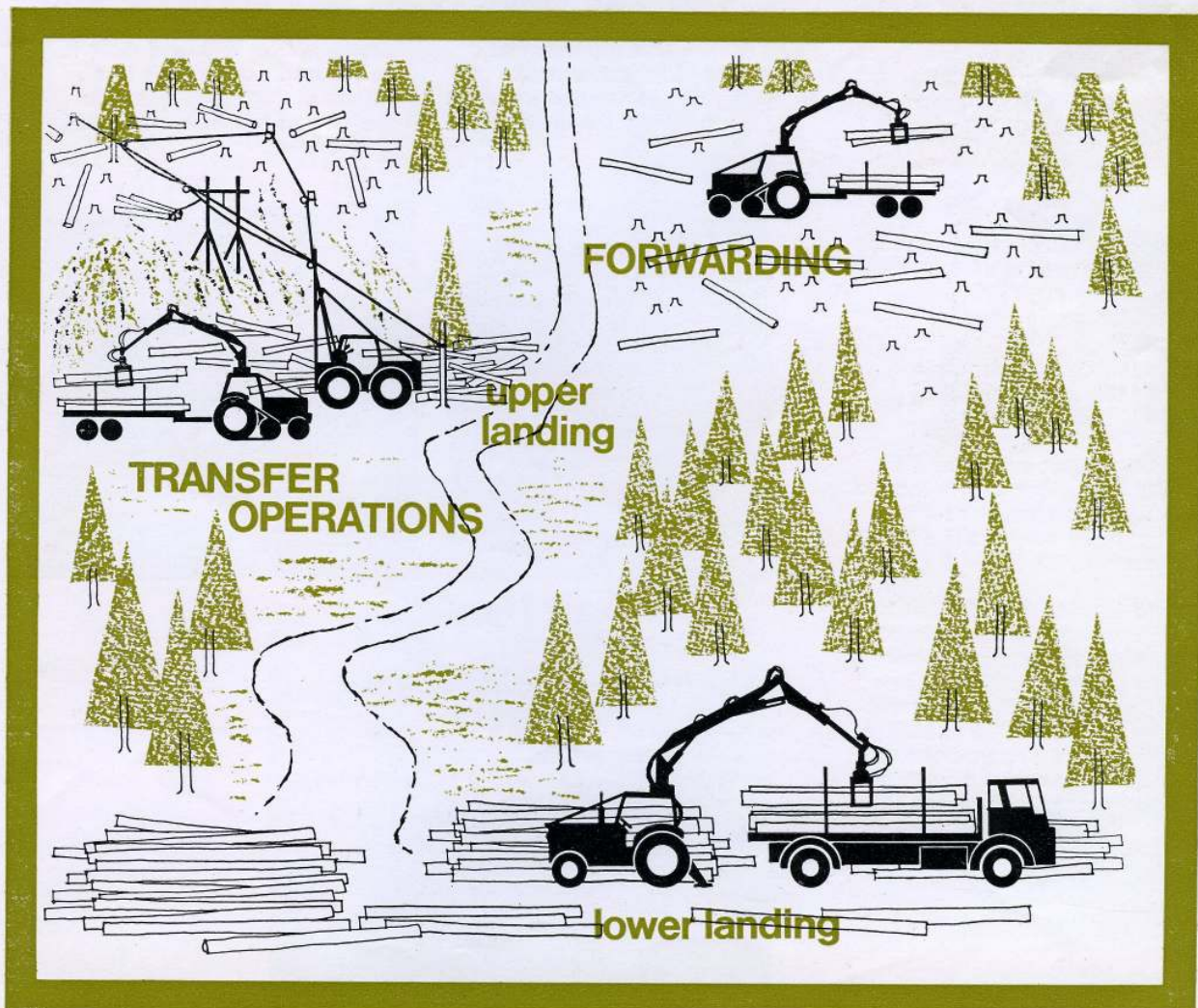
It is important to assess which of these operations are to be covered by the loading unit and whether they are full or part-time

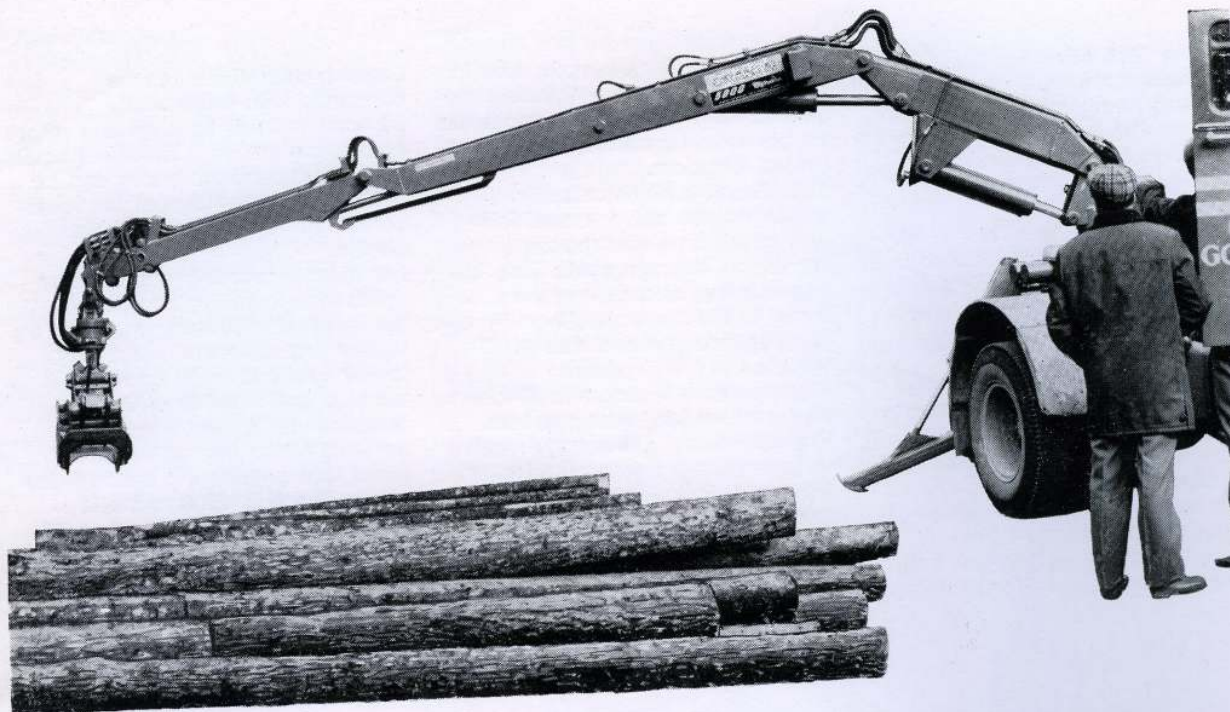
occupations. For example, only in clear cutting or heavy thinning on easy ground is it normally possible to forward successfully in the United Kingdom.

Transfer operations suitably employed can cut down vehicle turn round time and reduce repair and haulage costs. This is because the journey into the forest to the upper landing dictates the type and size of vehicle used and causes disproportionate amounts of lost time and vehicle wear and tear. Transfer operations merely require a conventional tractor and trailer fitted with H.B. 2500 or H.B. 4500 cranes. The tractor can be transferred to other work, such as winch extraction, when not required for transfer operations.

Loading operations can be combined with forwarding, transfer or truck haulage and where operations are on a sufficient scale, a fully independent loader can be used. Only knowledge of the local conditions can indicate the best choice.

For most forwarding and transfer operations involving shortwood the smallest cranes mounted on a tractor are adequate. What they lose in reach is made up for by the size and mobility of the combination. A light winch can be fitted to the tractor to pull in those logs outside the reach of the crane. The H.B. 2500 crane is suitable for mounting on 50 to 75 hp tractors. If heavier loading capacity is required, then a larger tractor in the 75 to 100 hp range is required to balance the crane.





Independent Loading Unit

For independent loading operations, using an old vehicle chassis, longer reach becomes increasingly important. If landings are on steep ground, or restricted in size, it may be necessary to load road transport over the tail board. In this situation, the full reach of 26 ft of the H.B. 5000/C may be

needed to load the front of a 30 ft road trailer. Long reach is also important for collecting logs from above or below the road level on steep sides. A smaller loader fitted to a tractor, can often, because of its manoeuvrability, overcome the reach problem by standing alongside road transport and loading from the ditch.

Industrial Applications

Due to its design and construction, the Highland Bear crane is an excellent engineering component for specialised plant installations. It can be bolted to almost anything. The Highland Bear is being used successfully in a variety of industries where its quality and reliability are greatly appreciated.

Above

The Cobra extension pillar gives the H.B. 5000 crane a 26 ft reach.

Right

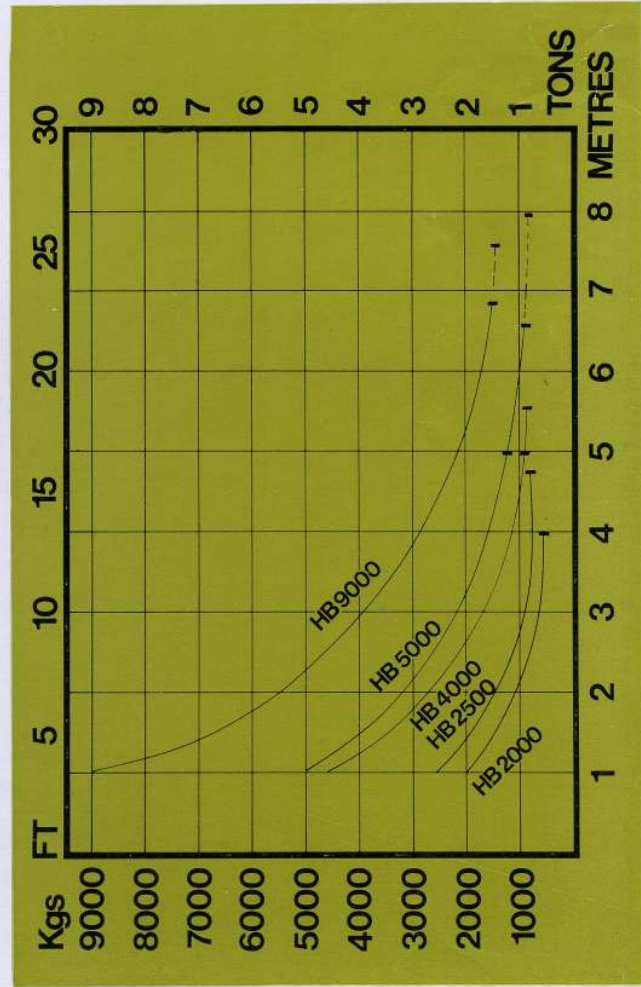
An independent loader based on an M.F. 165 tractor and the Highland Bear crane.

A Highland Bear crane used on transfer operations of saw logs to articulated road trailer at lower landing; maximum effective load approximately 25 ft³.

A crane fitted to a truck must be the lightest one still capable of doing the work required. It must also be extremely reliable since crane breakdown can also mean that the truck is off the road. The reach is also important because the truck is not easily moved in confined spaces.



Crane Type	H.B. 2505		H.B. 2500		H.B. 4510		H.B. 4000		H.B. 5000		H.B. 5000/C		H.B. 9010		H.B. 9000	
	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Lifting Capacity at Metres (feet)																
1 3-25 approx.	2500	5500	2500	5500	4500	10000	4500	10000	—	—	—	—	—	—	—	—
4 13	625	1375	615	1350	1200	2640	1120	2470	1475	3250	1475	3250	2800	6150	2950	6500
6-5 21-3	—	—	—	—	—	—	—	—	900	2000	900	2000	1550	3400	1750	3850
Maximum Reach —																
Reach																
Maximum	532	1170	532	1170	895	1975	895	1975	900	1985	900	1985	1340	2940	1670	3680
Extension	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)	Metres (feet)
Reach up	4-7 (15-4)	4-7 (15-4)	4-7 (15-4)	4-7 (15-4)	5-35 (17-6)	5-0 (16-4)	5-0 (16-4)	5-0 (16-4)	6-5 (21-3)	8-0 (26)	6-5 (21-3)	8-0 (26)	7-52 (24-7)	7-52 (24-7)	6-80 (22-3)	7-52 (24-7)
Reach down	Manual	Manual	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.	Hydr.
	0-75 (2-5)	0-75 (2-5)	0-75 (2-5)	0-75 (2-5)	0-75 (2-5)	0-75 (2-5)	0-75 (2-5)	0-75 (2-5)	1-3 (4-3)	2-8 (9)	1-3 (4-3)	2-8 (9)	1-2 (3-9)	1-2 (3-9)	1-2 (3-9)	1-2 (3-9)
	4-0 (13-1)	4-0 (13-1)	4-0 (13-1)	4-0 (13-1)	5-2 (17)	4-8 (15-8)	4-8 (15-8)	4-8 (15-8)	6-0 (19-5)	6-0 (19-5)	6-0 (19-5)	6-0 (19-5)	7-20 (23-6)	7-20 (23-6)	6-55 (21-5)	7-20 (23-6)
	3-2 (10-5)	3-2 (10-5)	3-2 (10-5)	3-2 (10-5)	3-6 (10-5)	3-2 (10-5)	3-2 (10-5)	3-2 (10-5)	4-5 (14-8)	5-8 (19)	4-5 (14-8)	5-8 (19)	5-70 (18-9)	5-70 (18-9)	5-00 (16-4)	5-70 (18-9)
Slewing																
No. of cylinders	2	2	2	2	4	4	4	4	4	4	4	4	4	4	4	4
Degrees of travel	380°	380°	380°	380°	380°	380°	380°	380°	380° or 425°	380° or 425°	380° or 425°	380° or 425°	380°	380°	380°	380°
Speed	40°/sec	40°/sec	40°/sec	40°/sec	25°/sec	25°/sec	25°/sec	25°/sec	30°/sec	30°/sec	30°/sec	30°/sec	20°/sec	20°/sec	20°/sec	20°/sec
Pump at 2500 P.S.I.																
Max. capacity/min.	45	10	45	10	70	15	70	15	70	15	70	15	70x2 (15x2)	70x2 (15x2)	70x2 (15x2)	70x2 (15x2)
Maximum hydraulic	130	1850	130	1850	140	2000	130	1850	150	2100	150	2100	150	2100	150	2100
Working pressure	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²
Weight of crane, rotator and normal grapple																
	620	1360	635	1400	885	1950	850	1870	970	2140	970	2140	4875	10750	4500	9900



1) With grapple and rotator

Technical Specifications



Highland Bear 10,000

**James Jones
& Sons Ltd.**

The Highland Bear 10,000 is a purpose built logging crane designed and manufactured in conjunction with Jonsereds of Sweden to simplify the loading of heavy timber, making it a fast and straightforward operation for one man.

Proven in hardwood and softwood logging in Europe and Scandinavia since 1970 the clean lines and tough construction of the Highland Bear 10,000 ensure reliability in service and a favourable power to weight ratio. The solid pillar with vertical main lift cylinder and integral stabiliser legs produce a compact unit that occupies the minimum of body space.

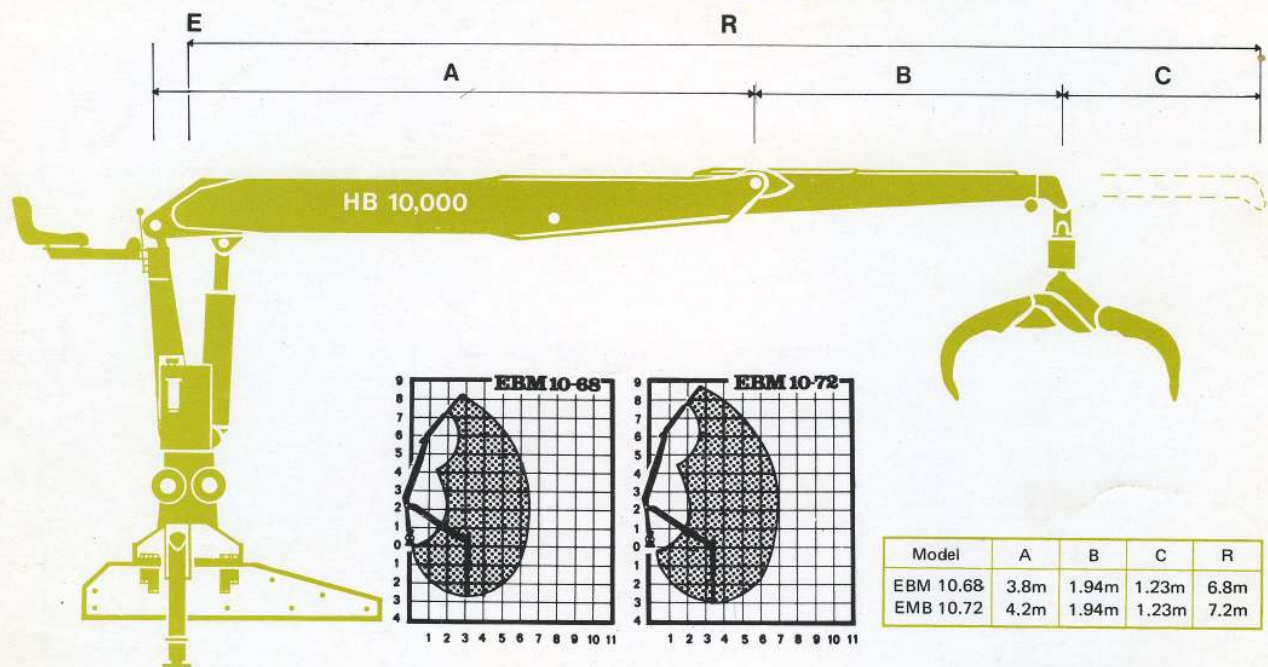
Twin slewing cylinders balance the powerful slewing torque and give up to 405° slewing.

Flexibility in operation is important and the Highland Bear 10,000 can be mounted on a suitable vehicle chassis for road haulage or as an independent loader. Folding forwards over the cab allows use of the crane on artic units.

The operator has excellent visibility and handling logs is made easier by the choice of 300° or continuous rotator, and vertical or cross ram grapples. The crane can be controlled either from a mast seat position or from an all weather position in the vehicle cab.



Highland Bear 10,000



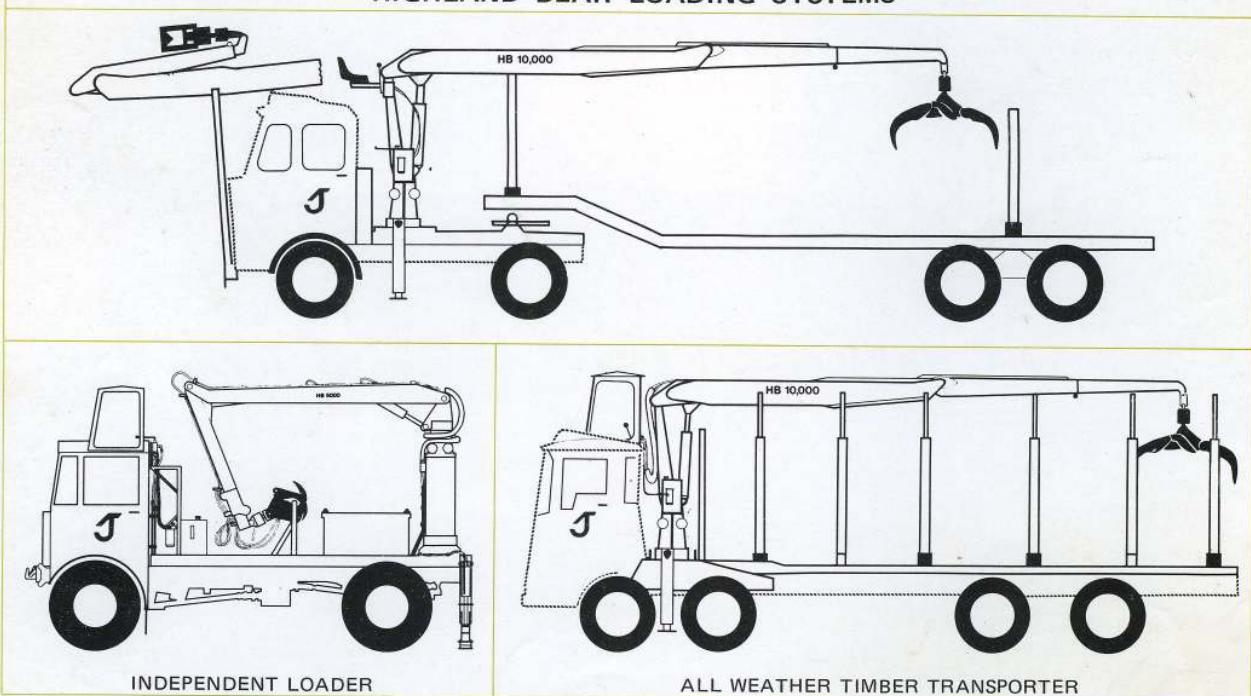
Model	EBM 10.68	EBM 10.72
Maximum Reach	6.8m	7.2m
Hydraulic Extension	1.23m	1.23m
Slewing Angle	405°	405°
Slewing Torque	2500 kpm	2500 kpm
Required Pump Capacity	50-80 lit/m	50-80 lit/m
Maximum Working Pressure	210 bar	210 bar

Model	EBM 10.68	EMB 10.72
Approx. weights for:		
Tank oil + pump	163 kg	163 kg
Crane fitments + legs	1780 kg	1810 kg
Stabiliser legs		
Grapple + rotator	Between: 260 kg/330 kg	
Chassis fitting space	Between: .63 m/.76 m	

Lifting Capacities			
reach from point E	3m	5m	Max. reach
Model EB 68	3353 kg	2032 kg	1524 kg
Model EB 72	3353 kg	2032 kg	1422 kg

To obtain net lifting capacity deduct weight of grapple link and rotator.

HIGHLAND BEAR LOADING SYSTEMS



The Company reserves the right to alter specification without prior notice.



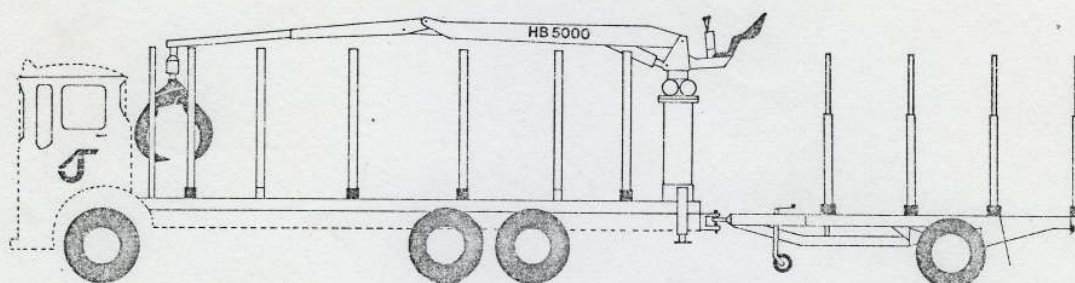
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JONES HIGHWAY TRAILER.

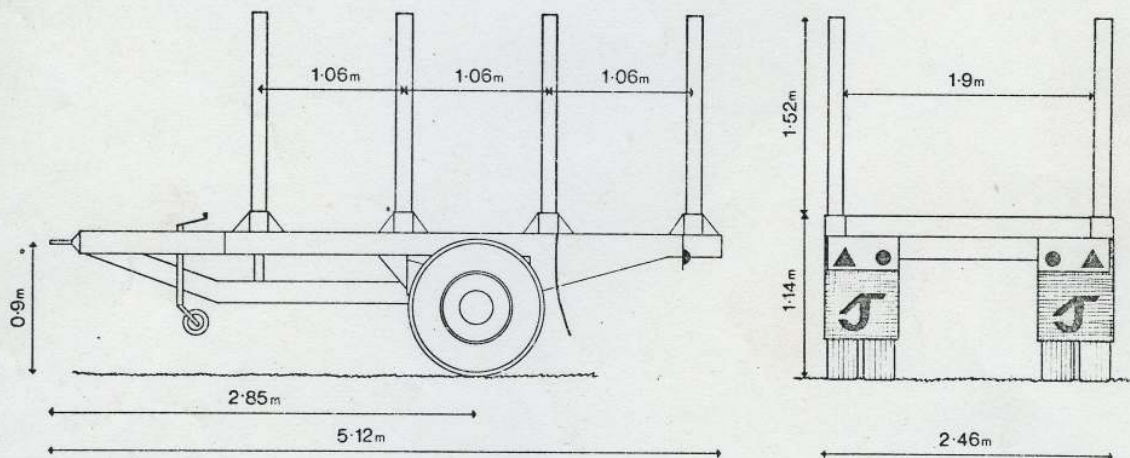


JONES HIGHWAY TRAILER is designed to utilise the capacity of rigid 4 and 6 wheel vehicles with 24 and 32 ton gross train ratings. Built round a 10 ton axle, the trailer has been carefully designed for timber operations and by using special alloy steels strength has been combined with a low all up weight.

The Trailer can be loaded onto the truck for running empty, saving wear and tear and improving the truck's off-road performance.

The front bolster is fixed with the rear bolster adjustable to suit log lengths up to 5m. For shortwood bolster spacings can be arranged to suit individual requirements.

TECHNICAL SPECIFICATION:



MODEL NO.: J.R.T./10

Payload : Approx. 8000 kg.

Tyres : 4 off 10.00 x 20 16 ply

G.T.W. : 10 tons

Tare : Approx. 1450 kg

Brakes : 3 line air

Additional Fittings : Front mounted landing wheel. Full lighting with rear and brake lights, reflectors and flashers.
 Heavy duty 50mm towing eye with replaceable bush.

THE COMPANY RESERVES THE RIGHT TO ALTER SPECIFICATION WITHOUT PRIOR NOTICE.