

# Job Report Hydraulic Excavator

**R 984 B**  
Litronic®

## The R 984 B Litronic® – loading cargo ships with scrap.



The Borowski & Hopp company is one of the largest and most important scrap processors for industrial scrap in northern Germany. Over 50 Liebherr machines, mostly hydraulic scrap handlers, but also dozers and crawler loaders as well as wheeled loaders are used for various applications, such as loading and unloading

trucks, rail cars and ships, for feeding scrap shears, sorting and stock piling. These machines have proven themselves for 25 years to Borowski & Hopp's satisfaction. The experiences they have gathered during this time have been and still are passed on to Liebherr and are regularly applied in designing and building new machines.

# LIEBHERR

The Better Machine.

## Task

K & S Rohstoff GmbH, a subsidiary of Borowski & Hopp, operates a scrap handling operation directly at the pier in the Hamburg Ross harbor. The material is collected from locations in northern Germany and the CIS states by truck as well as inland and coastal sea routes. The scrap is stock piled in 15 to 20 m high piles due to the limited space available. The raw materials are then shipped primarily to Indonesia, Taiwan and Turkey in cargo ships. Moorage fees in harbors can cost up to \$ 10,000 per day based on a ship's size. Therefore, loading has to take place as quickly as possible, which requires very high performance material handlers. 800.000 to 1.000.000 t of scrap is handled every year in Ross harbor.

## Solution

To manage this complex task, the following Liebherr machines have been put into operation:

1 wheel material handler	A 922
2 crawler material handlers	R 962 Litronic
3 crawler material handlers	R 974 Litronic
2 crawler material handlers	R 984 Litronic
1 crawler loader	LR 621
1 dozer	PR 721
2 dozers	PR 731

Each year, these machines are in operation for over 6.000 hours. The R 962 Litronic and the R 974 Litronic material handlers, for example, did operate more than 20.000 hours in just a few years.

To increase the operation's capacity and rehandling capability, a new high performance rehandling machine was required. As a result, a new R 984 B Litronic is now in operation since mid-1997.

This 440 kW/598 HP material handler is equipped with a 12,0 m industrial straight boom, a 9,0 m industrial stick and a 4 m<sup>3</sup> semi closed grapple. Its maximum reach of 21,0 m and maximum dumping reach of 22,0 m guarantees quick and easy handling of the scrap piles. Its low center of gravity, a 22 t counterweight and a large sized extra wide undercarriage ensures stability. Special 750 mm wide flat track pads for working at the docks ensure low ground pressure and reduce damage to the ground surface. The total operating weight of the R 984 B Litronic is 125 t. The machine is equipped with a hydraulically operated cab elevation to allow the operator an unrestricted view in the cargo area of the ship. The operator's eye level is at about 7,6 m.

## Production

Mid-June 1997, the "Glenita", a 185 m cargo ship owned by the Norwegian shipping company Ugland, was docked in Ross harbor. 35.000 t of scrap headed for Turkey had to be loaded into 5 cargo bays as fast as possible. Only 3 - 4 days were reserved for the task, so loading had to take place 24 hours a day to meet the deadline. Three machines, two R 984 Litronic and an R 984 B Litronic loaded the ship directly via the cargo hatches. Two R 962 Litronic and two R 974 Litronic were assigned to distribute and trim the cargo. Occasionally, the third R 974 Litronic was called in to load the ship. The average performance of the R 984 B Litronic was 400 - 500 t per hour depending on the material handled. The crawler loader LR 621 was assigned to distribute and trim the scrap around in the hatches. As expected, the task was performed to the complete satisfaction of K & S Rohstoff GmbH and the shipping company Ugland. The "Glenita" was at sea on the fourth day.

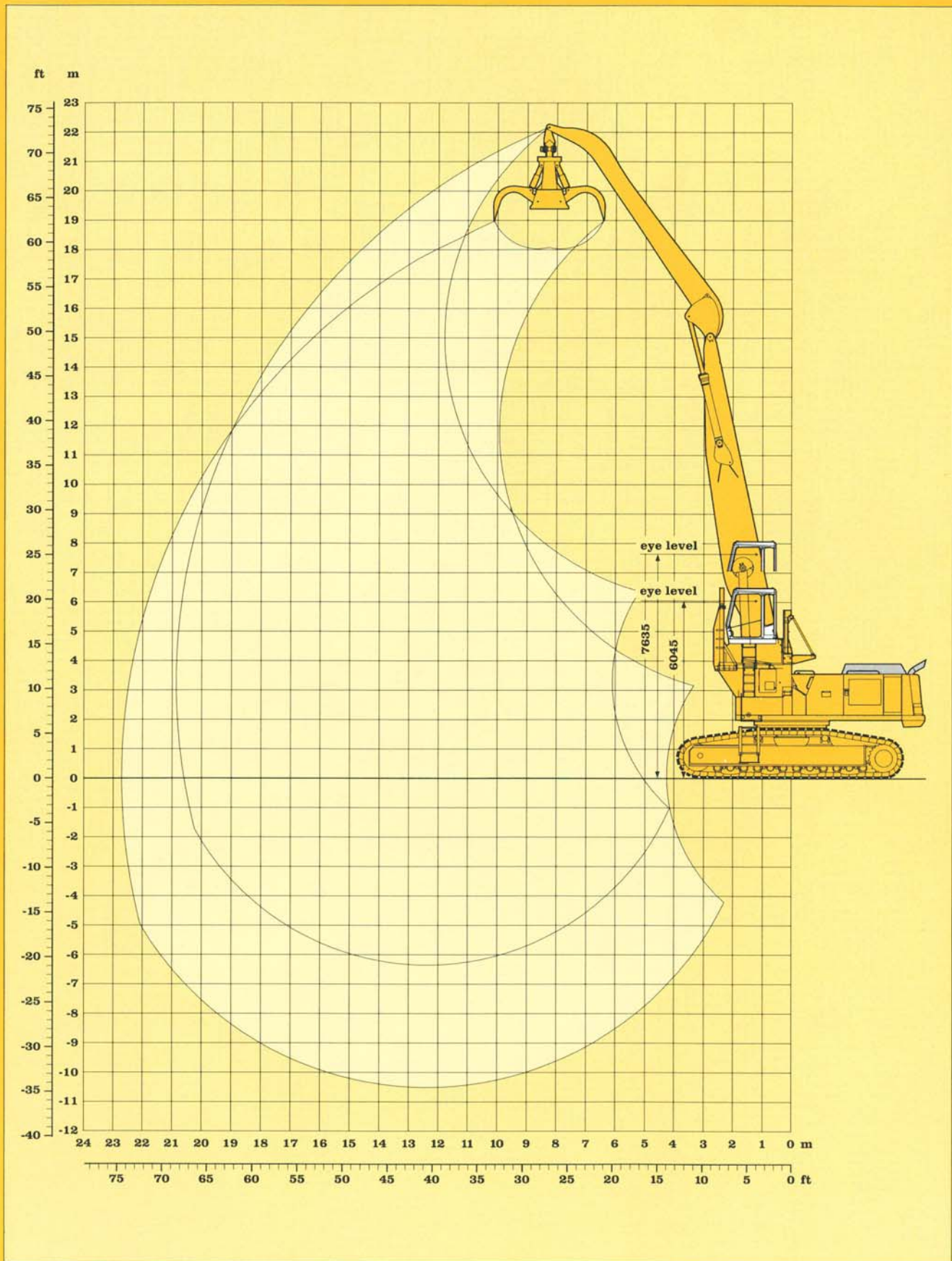
## Technical Data

R 984 B Litronic with EW undercarriage and 750 mm flat track pads

Total operating weight:	125 t
Engine:	Cummins diesel KTTA-19 C 700
Engine output per DIN/ISO 3046-1:	598 BHP/440 kW at 1800 1/min
Hydraulically operated cab elevation	
Heavy counterweight:	22,0 t

## Attachment

Industrial straight boom:	12,0 m
Industrial gooseneck stick:	9,0 m
Grapple model:	GM 85
Capacity:	4,0 m <sup>3</sup>
Maximum reach:	21,0 m
Maximum dumping height:	22,0 m





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**LIEBHERR-FRANCE S.A. 2, Avenue Joseph Rey, B.P. 287, F-68005 Colmar-Cedex, ☎ 03 89 21 30 30, Fax 03 89 23 81 58**

**With compliments:**