Hydraulic General-Purpose Loader

T 157|2

LANDTECHNIK AUS DER DDR

Our combine has developed this loader for agriculture, road construction and for municipal work. As experience shows the 750 kg carrying capacity of our T 157/2 is quite sufficient for these fields of application. Moreover, this carrying capacity is ensured at any jib position. For economic data on this hydraulic multi-purpose loader see page 8 of this brochure.

The T 157/2 is supplied together with a great number of working tools (see page 6), which give it a wide field of application. It can be used e. g. for reloading bulk and piece goods, for digging and land improvment work, for shifting poles and prefabricated concrete parts and for drilling earth holes. The working tools can be interchanged by the loader driver with few manipulations and without help.

The T 157/2 is exclusively hydraulically operated. A high-pressure gear pump provides the necessary pressure of 120 kg/cm². The driver has the loader in his field of vision at all jib positions. Twin tyres on the rear wheels and props which can be extended on either side of the loader provide for absolute stability.

Our loader can take hard stresses and is of a rugged and solid construction. Expenditure on maintenance and care is reduced to a minimum.

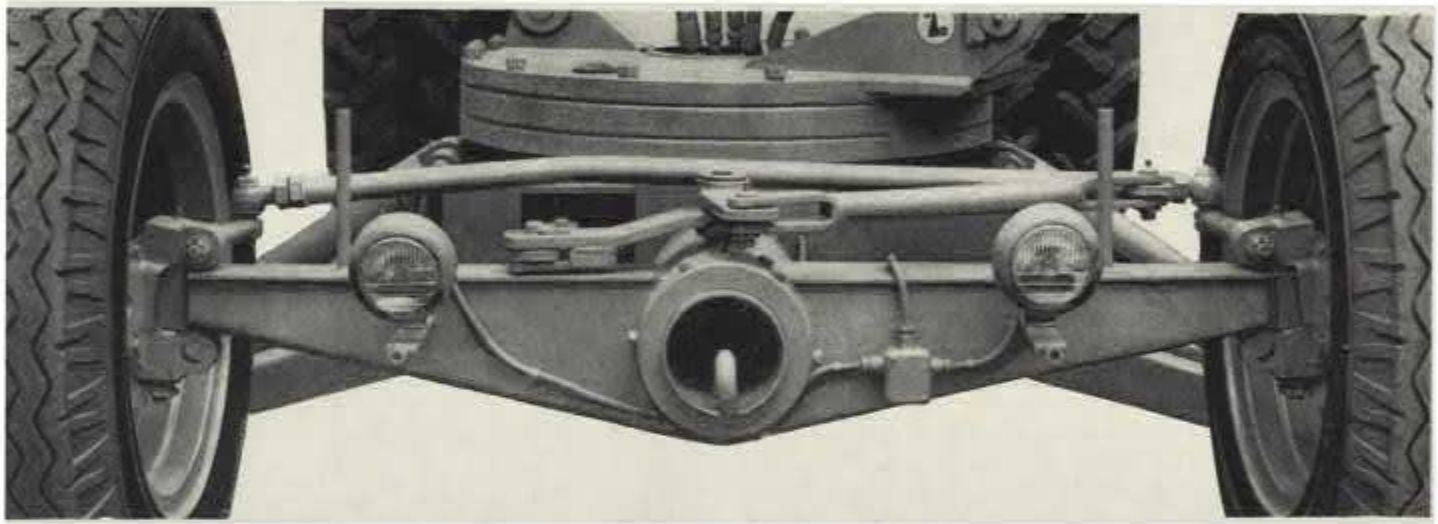
When making your decision you should not forget that thousands of the type T 157/2 loader have proved successful in the field and that there is also an extensive network of servicing stations available for this machine.

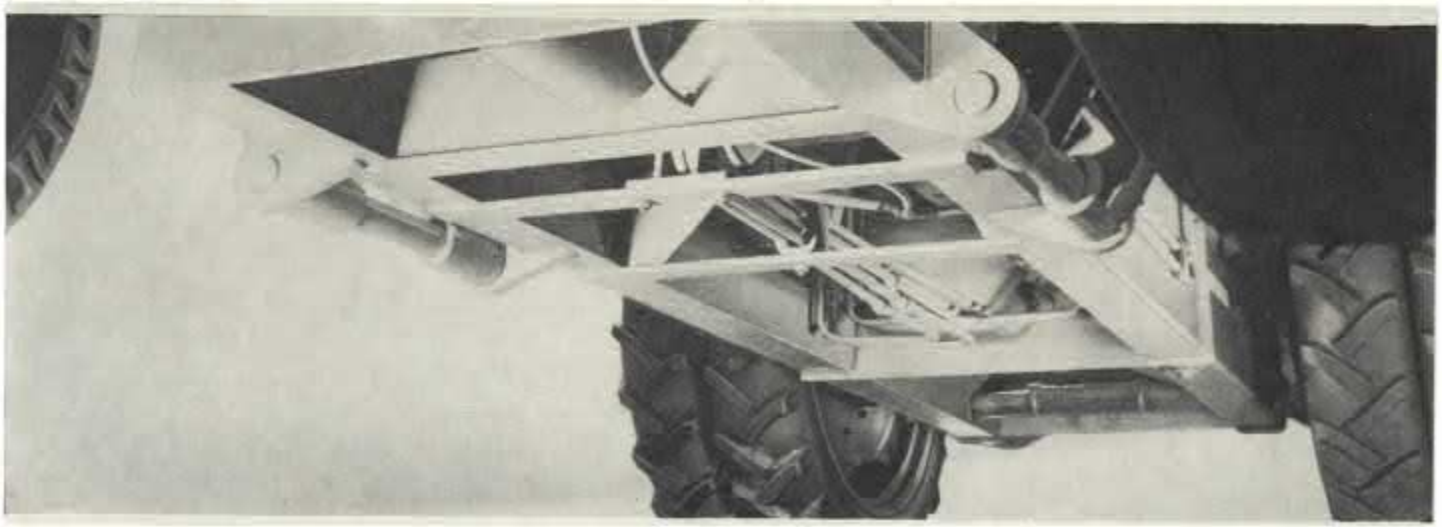
The front axle is attached to a floating joint and will compensate for any uneveness of the ground. As a safety precaution the floating motion is limited. By removing the front cover plate easy access to steering linkage and headlamps is provided. The tow hook is welded to the axial frame tube, and access is provided by an opening in the cover plate.

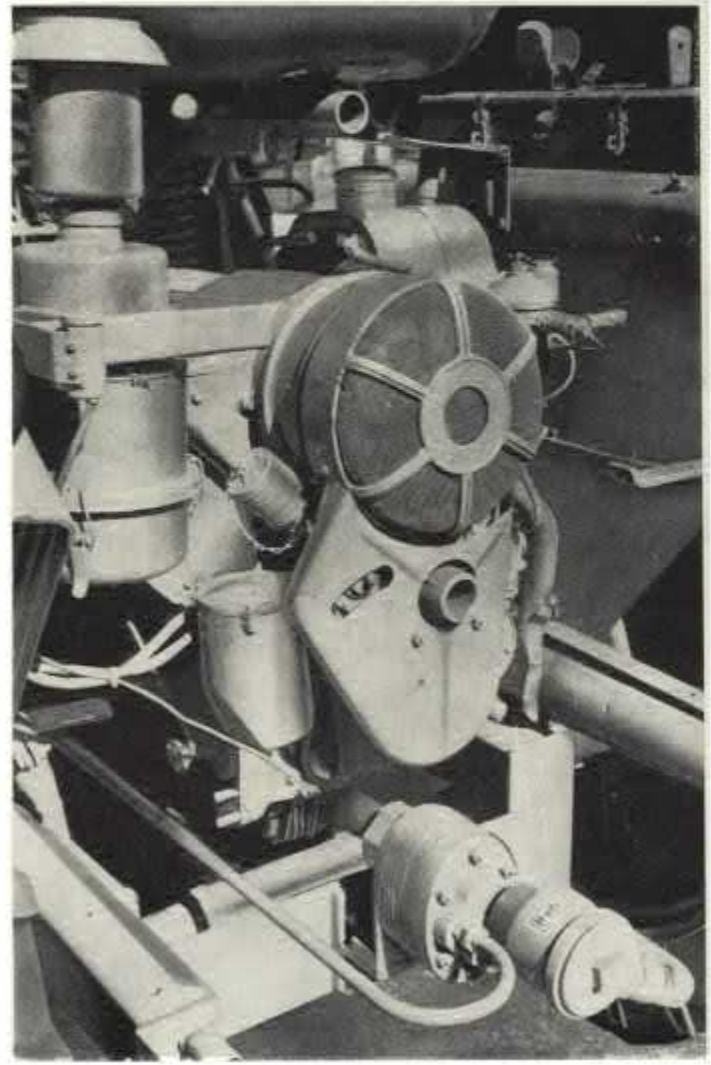
The hydraulic lines are located between the two frame side members. Cross members not only reinforce the frame, but also protect the hydraulic lines from mechanical damage.

The seatings for the hydraulically operated props are attached to the two sturdy frame side members. The twin tyres of the rear wheels reduce ground pressure and provide stability and driving possibilities on any terrain.

Engine and gearbox are mounted on the rear axle component. The two-cylinder four-stroke Diesel engine (V cylinder block) is air-cooled by a fan. As opposed to water-cooling fan cooling needs no maintenance and ensures that the loader can work even at extreme outside temperatures. The gears are carefully arranged so that speeds can be selected according to the terrain. Under difficult soil conditions the differential can be locked.



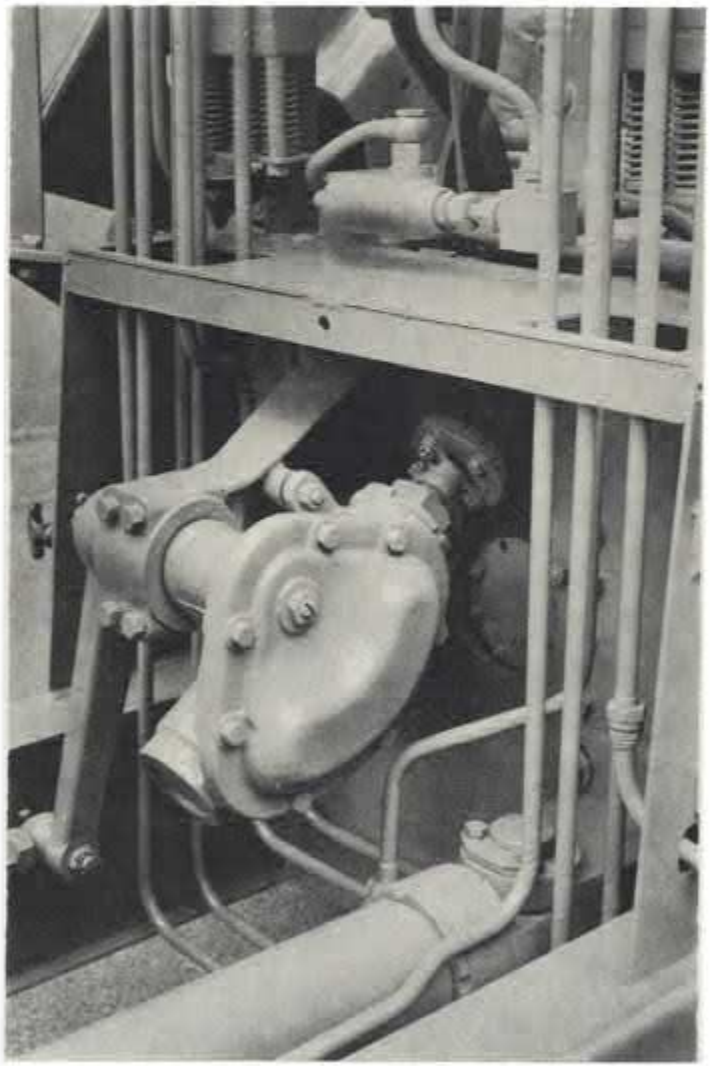


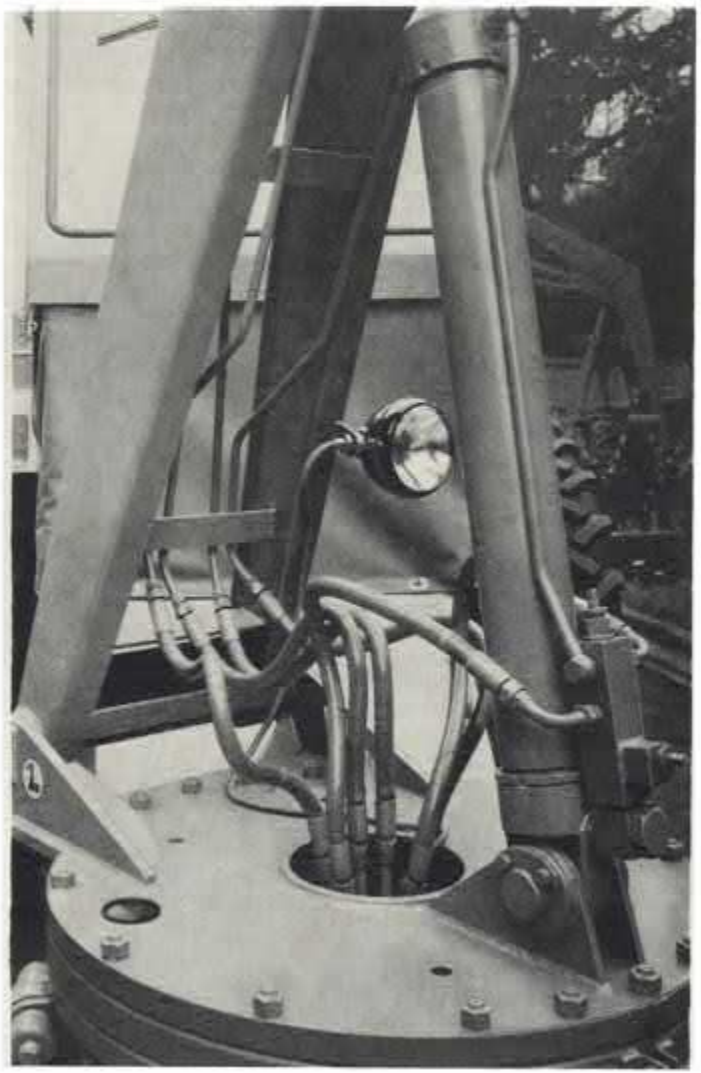


The suspension of the front wheels is so designed that the steering is not effected even when driving the loader under maximum load on difficult terrain. The lubricating points are clearly marked and easy access to them is provided. Wheel changing, if required, is no problem either.

The steering gear is dustproof, maintenance-free and always safe in operation. It is sufficiently rugged to withstand all attacking forces. In spite of this the steering can always be operated without appreciable effort. For checking the steering and hydraulic control elements it suffices to remove the covering plate at the foot of the cabin.

Particular importance has been attached to the design of the slewing ring. Its easy mobility must be maintained even under maximum load. For this reason it is supported on steel balls. The drive of the slewing platform is hydraulic, via a toothed rack. The flexible hydraulic hoses can follow all movements of the slewing ring. In darkness the loader is lit by a spot light.





The composite picture shows the working range of the hinged and load arm of the T 157/2. The slewing range is 115° to either side, thus altogether 230°.

This is amply dimensioned for any work. Should you, in spite of this, not be able to manage with this slewing range, it can be taken for granted that the loader has been unfavourably positioned.

The maximum reach as measured from the centre of the slewing ring is 4000 mm.

The minimum reach of 1500 mm includes a safety factor to avoid reducing the working space of the loader when doing digging work.

For taking pictures the top has been removed. You can see for yourself that all operating elements are within easy reach. The opening and closing of the grab, retraction and extension of the main cylinder, hinged arm cylinder, props and slewing ring motion are hydraulically operated. The work cycles are released by levers which are arranged in two groups of three each near the steering wheel.

Working tools

Grab blades, grab bucket and claw-type grab can be attached to the basic grab frame.

Grab blades (fig. 1) with a capacity of 0.3 m³ for loading all kinds of bulk goods. Working width 1000 mm, weight incl. basic equipment 235 kg.

Claw-type grab (fig. 2) with a capacity of 0.3 m³ for manure, straw, roughage, silage and similar material. Working width 1000 mm, weight incl. basic equipment 180 kg.

Grab bucket with a capacity of 0.5 m³ for tubers and other coarse bulk goods. Working width 1000 mm. Weight incl. equipment 255 kg.

Multi-blade grab (fig. 3) with a capacity of 0.25 m³ for heavy excavation work and for reloading bulk goods. It can also be used without blades for loading bulky material, such as scrap, round billet wood and similar material. Grab opening 1500 mm, weight 240 kg.

Digging grab (fig. 4) with a capacity of 0.24 m³ for excavation and digging work of all kinds. Working width 530 mm, weight 225 kg.

Ditch and foundation grab (fig. 5) with a capacity of 0.17 m³ for foundation and land improvement work. Working depth can be adjusted in 5 stages. Working width 300 mm, weight 250 kg.

Round wood grab (fig. 6) with a capacity of 0.7 m³ with 2 m wood length for round wood, pulpwood and mine props. Grab width 650 mm, weight 200 kg.

Earth drill (fig. 7) with interchangeable drill screw of 500 mm dia. and 2000 mm length or 250 mm dia and 1000 mm length. Drive through hydraulic motor.

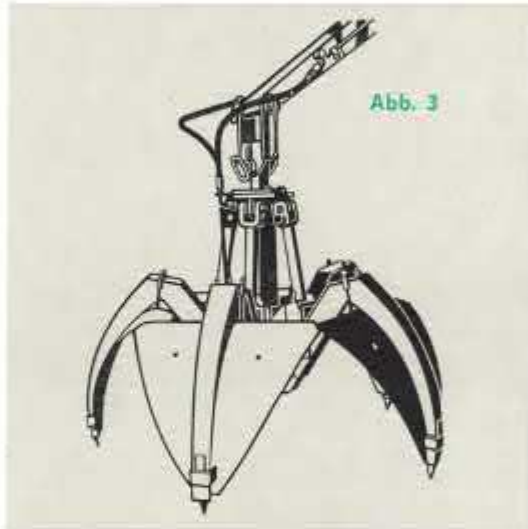
All these working tools are hydraulically operated. In addition, the following tools are available:

Mechanical pole and building block tongs for the transport, stacking and handling of poles, prefabricated concrete parts etc.
Tongs opening (adjustable) 180 . . . 355 mm, weight 50 kg.

Grab extension (1 m) for greater depths below floor level (see diagram on p. 7), weight 18 kg.


Abb. 1


Abb. 2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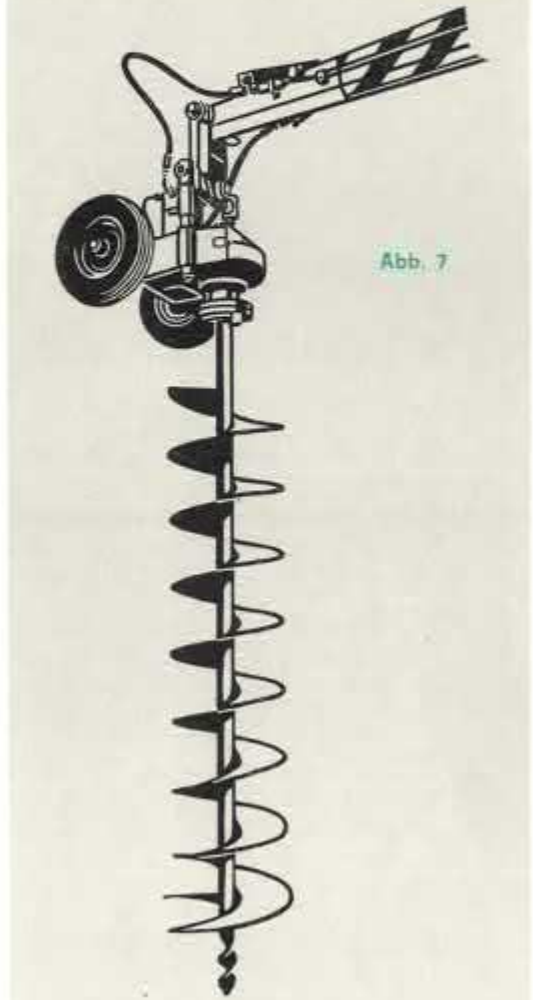
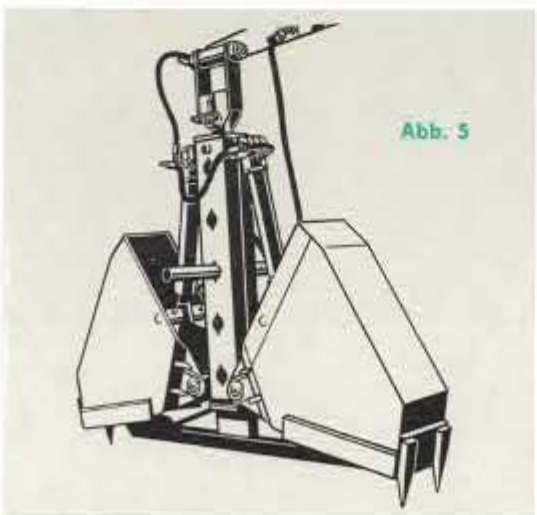


Abb. 7


Abb. 4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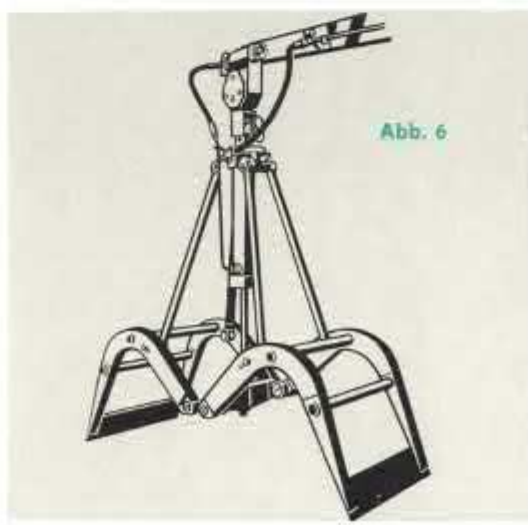
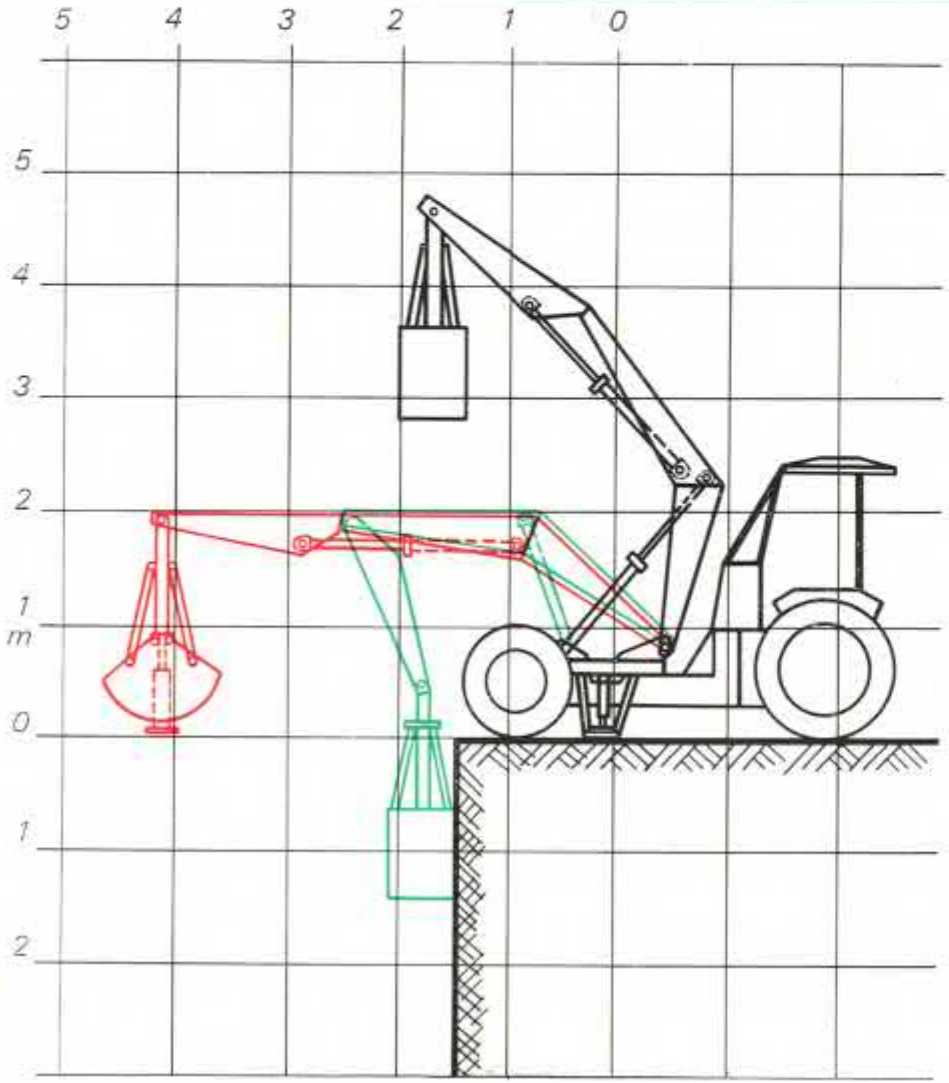
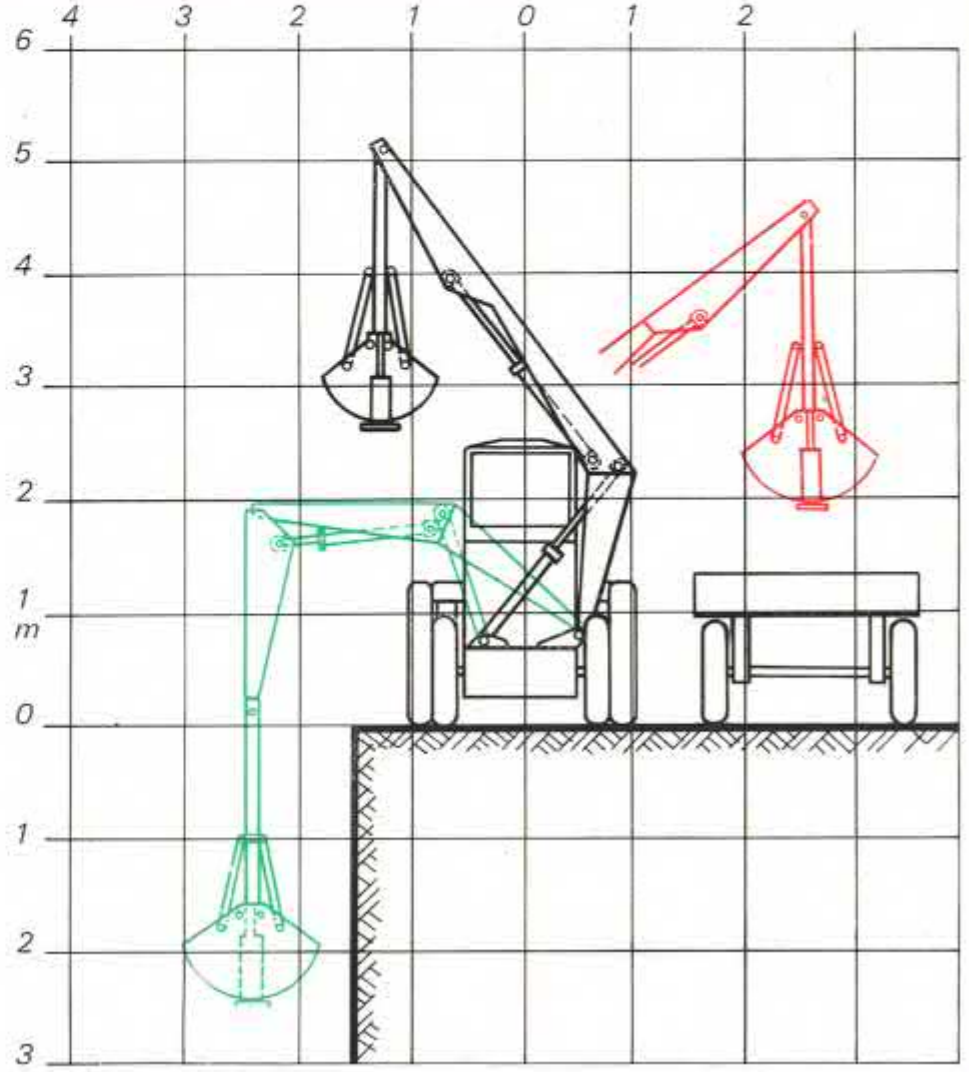


Abb. 6

Technical data

Carrying capacity	750 kg	Hydraulic pump delivery	40 litres/min
Engine output	18 bhp (DIN)	operating pressure	120 kg/cm²
Engine speed	3000 rpm	Work cycle (at a slewing angle of 90°)	approx. 30 secs.
Specific fuel consumption at rated output	225 gms/bhp-hr	Vehicle dimensions (in the transport position)	
Gearbox	8 forward and 8 reverse speeds	length/width/height	5000/2000/2800 mm
Travelling speeds	0.6 . . . 18 kph (0.38 . . . 11.18 mph)	Ground pressure without load (static) front	2.5 kg/cm²
Turning radius	7500 mm	rear	1.7 kg/cm²
Ground clearance	300 mm	Weight	3580 kg

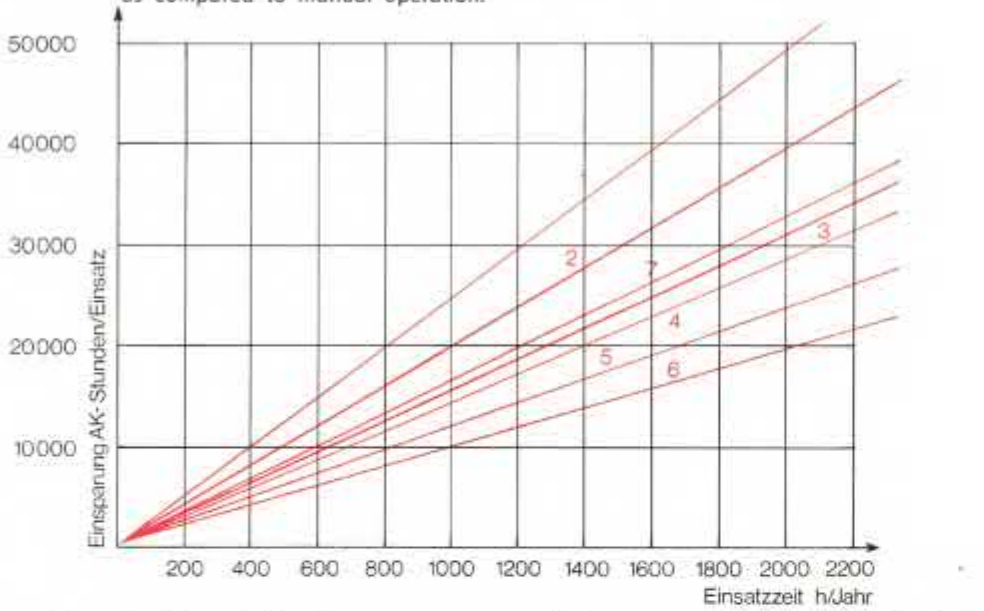




Economic characteristics of the T157/2 hydraulic multi-purpose loader

Output

Saving in labour-hours when using the T 157/2 as compared to manual operation.



1 claw-type grab (manure)
2 grab blades (bulk goods)
3 grab bucket (sugar beet)
4 multi-blade grab (excavation work)
5 digging grab (excavation work)
6 earth drill (large screw)
7 average output

Average outputs

1. loading work
   - sand 40 metric tons/h
   - gravel 40 metric tons/h
   - road stone 35 metric tons/h
   - coal 45 metric tons/h
   - manure 30 metric tons/h
2. excavating and loading with soil class IV (heavy, dry loam, heavy mixed soil with small stones, light blasting slate) 15 . . . 20 tons/h

Saving of labour

Working tool	Work performed	Output per hour (metric tons/h) loader	Output per hour (metric tons/h) manual operation	Saving in labour
Claw-type grab	loading manure in the open	30	1.2	30:1.2 = 25 labour
Grab blades	loading bulk goods	40	2.0	40:2.0 = 20 labour
Grab bucket	loading sugar beets	40	2.5	40:2.5 = 16 labour
Digging grab	excavating soil cl. IV	12	1.0	12:1.0 = 12 labour
Multi-blade grab	excavating soil cl. IV	15	1.0	15:1.0 = 15 labour
Earth drill	drilling holes 500 x 2000 mm	10 holes/h	1 hole/h	10:1.0 = 10 labour

3. drilling by means of the earth drill (soil class IV) 500 mm dia. 5 . . . 8 min; 250 mm dia. 3 min

Return on investment

With an operation time of 1500 hours/year and an average saving of 16 workers, 24 000 labour-hours are saved as compared with manual operation. If the operating costs (depreciation, fuel, lubricants, repairs, spare parts and wages) are subtracted from the above, the calculation will show that the loader pays for itself within a year. If the loader is used exclusively for loading operations or in multi-shifts, savings increase considerably.

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