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LANDWIRTSCHAFT AUF DEN PUNKT GEBRACHT



The 6680 T-2 from Schaffer is a jack-of-all-trades which offers a lift force and lift height that fit most loader jobs.

ONE LOADER FOR MANY YARDS

The Schaffer loader 6680 T-2 fills nearly any trailer, lifts more than 3 tonnes and runs at up to 40km/h. There are many reasons to give the universal and very fuel-efficient machine a closer inspection.



- 1** The spacious cab offers good visibility.
- 2** All secondary functions are operated from the switches on the dash.
- 3** The boom is operated ergonomically from the armrest-mounted joystick and the controls on the console next to it.

The must haves of a loader are plain and simple: a generous lift height, a powerful linkage and swift work cycles. In addition, the machine should be compact enough to go into every corner in the yard and barn. The 6680 T-2 from German manufacturer Schäffer ticks all the boxes. Based in the small town of Erwitte near Soest in North Rhine-Westphalia, Schäffer and its 500-strong workforce have been building compact loaders with up to 12t operating weights since 1956. Their articulated loaders are marketed not only in Schäffer's red livery for the farming community but also in a yellow paintcoat for customers in the construction, horticulture and landscaping industries.

Our test machine, the telescopic 6680 T-2, is Schäffer's fourth model from the top. In addition to telescopic wheel loaders, the company also manufactures wheel loaders with regular booms and ultra compact yard loaders.

A TELESCOPING BOOM

The T in the model badge stands for 'telescopic' and specifies the telescoping boom.

IN A NUTSHELL

- The Schäffer 6680 T-2 loader is a universal loader with a high lift force and height.
- The new transmission makes the loader extremely fuel-efficient.
- Load Sensing and Flow Sharing make it possible to operate all hydraulic functions simultaneously.

On the 6680, this extends to a maximum dump height of 3.98m, which is high enough to fill high-sided trailers. Its 2.36m reach as measured from the front edge of the wheels to the tipped bucket allows operators to load and unload a bale chaser conveniently from one side, for example. A claimed 3.1t lift force and a 3.82t tipping load (when the boom is retracted) suggest

an excellent stability. And with automatic warning and switch-off functions in place, tipping over is not likely to be an issue.

The drawback about articulated loaders is that they are by nature not as stable as non-artic telescopic loaders with 4-wheel steering. Drawbacks of those, however, are shortcomings in manoeuvrability and visibility. Operating the 6680 T-2, we never found ourselves in a hazardous situation.

The model is powered by a 75hp Deutz engine which is absolutely on top of most jobs. Indeed, the loader needn't fear any comparison in terms of lift force and rate. Accelerating the machine to up to 40km/h in the yard is great fun, courtesy of the new SPT hydraulic drive system, whereas maintaining 40km/h in road travel is a bit of a stretch for the 6680 T-2.

But this is something we can easily overlook in view of its good fuel economy when loading hay – 6 litres of diesel are very frugal indeed. This fuel efficiency is partly the achievement of automotive driving, which means that the engine never revs at higher speeds than required by the transmission or the remote services.



- 4** Operator view of the attachment is excellent. So, loader jobs are a peach.
- 5** Z-kinematics ensure high break-out forces.
- 6** As the boom is lowering, the extra spool for lift/lower directs the oil directly to the other side of the hydraulic cylinder instead of sending it back to the pump first. This saves a lot of time and energy.
- 7** Typically Schäffer, the articulated joint is stable and maintenance-free.
- 8** The optional reversible fan cleans the radiator in no time – even with the bonnet closed.

EFFICIENT TRANSMISSION

The new transmission – which is marked out by the figure ‘2’ in the model name – develops a 13% higher maximum lugging power than its predecessor, which is 5.5 tonnes, says Schäffer. At the same time, the maximum forward speed increased from 35km/h to 40km/h and the efficiency of the hydraulic drive system to 68% (8% plus), which is certainly one reason for the good fuel economy.

The boosted efficiency is the achievement of the electronic transmission control and the large angle through which the motor can move. This is 100cm³ larger than its predecessor. As the transmission adapts automatically to the current engine torque, it utilises the engine power very efficiently and yet at the same time it can control the engine speed.

The transmission offers two gears or travel ranges, range 1 is for pushing-only jobs at 0-8km/h. We operated the machine mostly in range 2, because this too gives you the full shove as long as the forward speed is slow.

A very useful feature of the electronic system is the dial that controls the maximum

forward speed which you can also control by shifting into range 1 of course. This is the best option, if you rapidly need to switch to very controlled driving.

The two driving modes are ‘regular’ and ‘eco’. Eco means that the maximum engine speed is limited to 1,900rpm and yet it is possible to drive at the maximum 40km/h. The full lugging power is nevertheless available – the loader is just not as nippy as usual. We usually selected eco mode. Engine output in this mode is fine in 95% of all applications and forward speeds and cycles speeds are also more than okay.

In addition to improving fuel economy, Eco mode also reduces the noise level as the engine is revving at lower speeds. The hydraulic fan drive is another reason for the quieter workplace. The fan is also available as a reversible option. In addition to automotive driving, there is also the accelerator pedal mode which allows operators to preset the engine speed from a speed selector dial and then use the pedal only for forward speed control – a useful feature for operating bedders or sweepers, for example.

GENTLE REVERSING

Another advantage of the electronic control system and the new hydro motors is the smooth way of reversing. You can think of this like a CVT tractor which always decelerates to zero before it accelerates in reverse. The new transmission cuts out any jolting, also at full throttle, which makes the machine extremely pleasant to operate and is surely a boon for those who handle bulk goods that otherwise trickle from the bucket at the slightest movement.

The remote services are supplied by a 45cm³ load-sensing pump with an output

of 104l/min. A 74-litre pump is standard and an 88-litre pump with Flow Sharing is also an option which allows operators to carry out multiple functions simultaneously regardless of the current system pressure.

Courtesy of the load-sensing pump and an intelligent flow divider with load compensation – Schäffer calls this Flow Sharing Hydraulics – the boom is a peach to operate. Load compensation means that all functions that are carried out simultaneously are supplied with the necessary amount of oil and the oil does not seek the path of least resistance.

For example, when the attachment is crowded from the joystick the boom continues lifting the load unabatedly. This makes for well controlled work cycles and a filled bucket is tipped just as quickly as an empty one, regardless of whether the boom is on its way up or down.

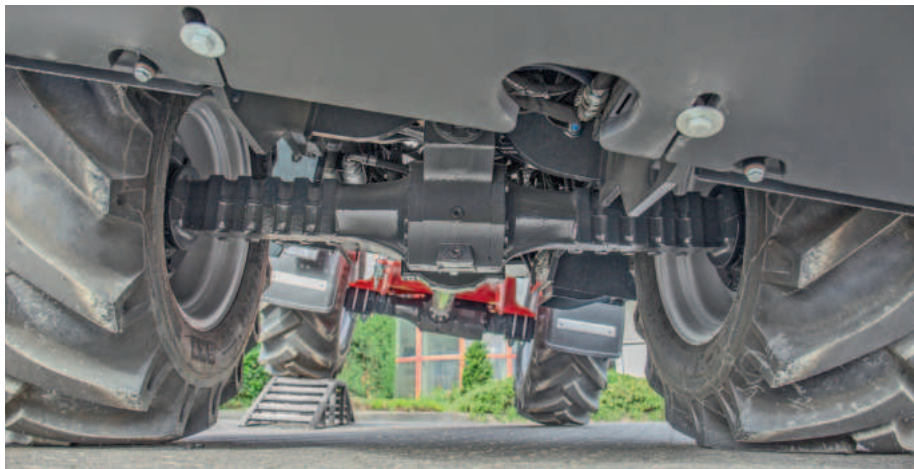
SMART HYDRAULIC CHEST

The secret behind fast work cycles is the hydraulic lift/lower chest on the telescopic boom. When the boom is lowering, the oil flows directly from the lifting to the lowering side of the hydraulic cylinder without flowing back to the spool and the pump – to the effect that the boom lowers faster. We measured around 8 seconds for raising and just under 4 seconds for lowering. This is also energy saving, which translates into better fuel economy. Vibration damping is selectable, which is different from past models where damping was a must for accuracy in materials handling. Otherwise, the boom would rebound all the time.

On the 6680 T-2, you can leave vibration damping enabled during all jobs so it dampens the boom also on its way down without causing hiccups on the attachment. This way, the boom doesn't stop abruptly but is always cushioned. We really liked that, because it gave us excellent control of the boom operations.

These are executed proportionally and with great precision from the joystick which sits comfortably in the hand and also changes the direction of travel so that you never have to move your hand during loader work. The stick sits in the seat-mounted armrest. Most machine functions are retrieved from the right-hand console and the controls are in convenient reach.

Flow rate control for the auxiliary spools is proportionally and in 5-100% increments from an optional dial – a very useful de-



The pivoting rear axle ensures great stability.

tail for operating a hydraulic attachment, because it adapts the oil flow to actual requirements.

The auxiliary spool on the carriage is set to continuous operation either by pressing the appropriate switch or it is operated by flicking a rocker switch on the back of the joystick. Our machine also had a rear coupler for operating a tipping trailer which was controlled from a rocker switch.

PLEASANT CAB

The cab is spacious and with the air-sprung seat also quite comfortable. It has two large doors and the offside door is used rather for ventilation than for accessing the cab, because the console and the armrest occupy the space here. The nearside steps are convenient and sufficiently large.

The doors can be locked in their open position, but sadly they are released only from the outside. Cab heating and air conditioning are also available for those who work in

dusty environments. Visibility of the attachment is good, also thanks to the telescopic boom. The loader has a maintenance-free articulation that makes the connection between its front and rear end. The smooth ride performance comes from the pivoting rear axle which compensates for humps and bumps instead of the articulation. This results in an excellent ride stability, because the entire rear end of the machine serves as counterweight.

Typically Schäffer are the Fero-Form sliding elements inside the telescopic boom, which ensure accurate and backlash-free control and which are also maintenance-free. Our machine had an automatic lubrication system for even less service and maintenance at the cost of almost 4,000 euros. Even in view of the total price of almost 117,000 euros, this is not a petty sum, and yet it's certainly worth recommending as it makes greasing up so much more pleasurable.

Those who look for a loader with a lifting height of almost 5m and lift forces of more than 3 tonnes will get a good product. The transmission delivers the maximum thrust in each gear.

Thanks to the electronic control and Eco mode, the machine is surprisingly fuel-efficient and yet quite nippy – except maybe on the road. Doing 40km/h in road transport, we'd appreciate a little extra engine power.

The hydraulic system for the boom is efficient, fast, easy to operate and makes for fast cycle speeds. Hence our summary – we did enjoy using the loader. ●



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Technical data, see last page »

SCHÄFFER 6680 T – SPECIFICATIONS

PLUS & MINUS

- ➕ This loader is surprisingly fuel-efficient.
- ➕ The new transmission provides the full thrust in either gear.
- ➕ The new lift/lower chest increases the drop rate substantially.
- ➖ The door lock on the opened door is released only from the outside.

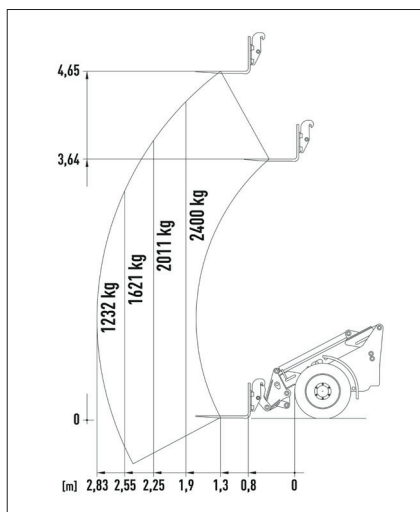
Minimum use: 585 h/year

$$MU = \frac{fc}{rc - vc} = \frac{€11,694/\text{year}}{€25/\text{h} - €5/\text{h}} = 585\text{h}/\text{year}$$

Explanation

MU	Minimum use
fc	fixed costs: €11,694/year (= 10% of the purchase price)
Vc	variable costs/ha: €5/h (wear, service and maintenance)
RC	Rental costs: €25/h

Payload graph Palett fork to ISO 14397 (Source: Schäffer)



Lifting gear 6680 T-2

Lifting force / tipping load straight	3,100 kg (3,820 kg)
Digging depth / range	50 mm / 2.36 m
Maximum height at bucket pivot pin	4.95 m
Pallet fork loading height	4.70 m
Distribution amount / distribution method	3.98 m / 81.5 m

Technical data

Engine	4 cylinders, Deutz TCD 2.9
Displacement	2.9 litres
Engine power	55 kW (75 hp)
Emission treatment technology*	DOC, DPF, Stage V
Transmission	Automotive hydrostat
Hydraulic output	104l/min
Hydraulic system	Load-Sensing
Steering system	Articulation
Brake	Hydrostatic/mechanical
Axles	ZF, pivoting rear axle
Speeds	0 – 40km/h
No. of travel ranges	2
Fuel tank	130 l
Available oil	120 l
Tyres	550/45-22.5
Operating weight	5,800kg – 6,300kg
Total length incl. standard bucket	5.78 m
Total width	2.05 m
Height over cab	2.63 m
Turning circle on outside wheel	3.76 m
Turning circle measured on bucket edge	4.40 m

Prices

Base price with SCV-Plus cab	€90,800
Load Sensing hydraulics	€4,963
Drive pedal control	€1,973
Proportional oil flow control on da spools at the front	€2,120
Reversible fan	€1,183
Tyres (550/55-22.5)	3,937
Registration as a tractor unit	€1.674

Total price with further specifications €116,937

Source: Manufacturer information, list prices without VAT, * DOC = Diesel oxidation catalytic converter, DPF = diesel particulate filter

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