R 145 LUDV
FORESTER

TECHNICAL SPECIFICATIONS

EDIZIONE-EDITION 01/19

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ENGLISH

Model R145 LUDV Forester

Description of the machine

The excavator R145 is nowadays the more powerful excavator in the world; with the maximum power of 266; the excavator R145 can be used in a big and strict application area, mainly in the forest area.
Here below a summary of the most important specifications:

- John Deere engine, 6 cylinders; 266 Hp (2000 rpm) 6800 cm^3 Turbo, direct injection, with variable geometry turbine.
- LUDV SYSTEM (Rexroth): The last generation Load Sensing on the boom movements is managed by an electronic card for the management of the engine overload; the main pump is a variable displacement piston pump with power controls and oil maximum displacement of 320 lit/min.
- ROTATION WITH PRIORITY: the rotation manoeuvre has priority as regards the rotation manoeuvre of the arm.
- HYDROSTATIC TRACTION (Rexroth): variable displacement close circuit pump with maximum pressure 460 bar and maximum displacement 156 lit/min
- TRACTION WITH DIFFERENTIAL LOCKING DEVICE: from the cabin it is possible to make the driving wheels synchronous (in case of high slopes and with precarious adherence) or independent during the normal transfer.
- EXTRA LONG AND BOOMERANG 1st BOOM
- SYMMETRIC CHASSIS WITH 4 BIG DRIVEN WHEELS.
- INDEPENDENT AND FRONT/BACK SYNCHRONOUS DIRECTION ON EACH WHEELS

Main data:

Weight in operative condition Forester	17500 Kg
Dimensions in transport configuration:	
Width (with 600 mm forester wheels)	2430 mm
Height:	2720 mm
Engine data:	
Model:	John Deere
Type:	4 strokes water-cooled turbo Diesel
Cylinders number	6
Displacement	6800 cm³
Max power (ISO/TR 14396)	198 kW (266 Cv) ca. (2000 rpm)
Electric system	24V
Generator	50 A/h
Main Diesel tank capacity	190 l ca.
Secondary Diesel tank capacity	250 l ca.

The excavator is equipped with a pump that can be used to transfer the Diesel from the secondary tank to the main tank or to pump the Diesel out from a canister.

Penetration force (ISO 6015)	83 kN
Brake off force (ISO 6015)	133 kN

The main boom as well as the secondary boom cylinders are equipped with locking valves (standard).

Dimensions of the under carriage:

Minimum spread of the rear legs	2430 mm
Maximum spread of the rear legs	4740 mm

Dimensions of the upper section:

Maximum excavation depth:	5980 mm

Maximum unloading height:	10630 mm
Maximum boom lenght:	8930 mm
Minimum rotation radius of the turret:	1620 mm
Minimum rotation radius of the boom:	2900 mm
Length of boom extensible section:	1800 mm

Motion

The excavator moves with two groups made out of a hydraulic motor, brake and gearbox installed on the rear wheels. A specifically set compensated flow divider controls the motion. The hydraulic motors are of the variable displacement type with hydraulic pilotage; the speed reduction (in 1st gear) is achieved through the increasing of the maximum displacement and thereafter with an increasing of the torque. The braking function is controlled through the two negative brakes. The movement function is controlled with a foot pedal, which controls both the forward and the reverse motion; this function can be feathered. The machine has two speeds that can be selected with a switch.

Maximum speed in 1st gear:	3 km/h
Maximum speed in 2nd gear:	7 km/h

The two groups can be set in neutral condition when the excavator must be pulled through a mechanical system.

Front and rear tyres:	600/65 R34

The machine is equipped with differential locking device (the driving wheels rotate at the same speed indifferently from the adherence). The differential locking device can be activated or deactivated by the operator directly in the cabin.

Rotation

The rotation is achieved through a slew bearing moved by a hydraulic motor coupled with a planetary gearbox and a negative stationary brake. The rotation speed can be feathered. The dynamic braking is controlled by damp valves that limits the shock to the structures.
Rotation maneuver with priority; the speed remains constant during each other movement starting.

Maximum rotation speed:	9 giri/min
Maximum rotation torque:	58650 Nm
Slew bearing external diameter:	1170 mm

Hydraulic system

Description

The excavator is equipped with a L.U.D.V. system that permits the complete use of the power generated by the Diesel engine.
Each individual function receives a predefined quantity of hydraulic oil, when two or more functions are activated at the same time, the oil flow generated by the pump is divided proportionally into the various functions on the base of the predefined oil quantities. The final result is that all functions are running at the same time even if they demand different pressures, on the contrary of the traditional hydraulic system.
The rotation function has the priority, therefore the rotation speeds stay constant whatever other function is going to be activated. The main pump is a load sensing pump and it varies the displacement and therefore the oil flow on the base of the quantity of oil that the function is requiring. This system produces a much lesser oil heating than the traditional hydraulic system, where the oil is circulating even when not used.

Main pump

Variable displacement axial piston pump with constant power governor:

Maximum capacity:	320 lit/min
Maximum pressure:	320 bar
Maximum absorbed power (with one activated function):	80 KW

Motion pump
Variable displacement axial piston pump:

Maximum capacity:	156 lit/min
Maximum pressure:	460 bar
Maximum absorbed power:	95 KW

Fan drive pump
Fixe displacement gear pump:

Maximum displacement:	32 lit/min
Maximum pressure:	230 bar
Maximum absorbed power:	12.3 KW

Main control valve
1 hydraulic control valve with maximum pressure valve located at the inlet and with anti-shock and anti-cavitation valves on all sections. The control valves control the boom cylinders, rotation and motion functions. The oil comes from the main pump.

Secondary control valve
1 electrically actuated control valve, that receives the oil from the secondary pump, controls the under carriage functions.

Boom cylinders
All the boom cylinders are of double effect type and are equipped with end stroke shock absorber in both directions. The cylinders of the inner and outer boom can be equipped with locking valves (Standard ISO 10567).

Under carriage cylinders
All the under carriage cylinders are of the double effect type and are equipped with locking valves.

Operator's cab

The cabin is made out of steel and is installed on shock absorbers.
The cabin is safe against overturning and is verified with following standards:

- ROPS structure following the ISO 3471 standards
- FOPS structure of 1st level following ISO 3449 standards

The cabin can be tilted hydraulically for maintenance purposes.

The windows, in tempered and coloured glass, are of big dimensions and permit full visibility on the working area:

- Front window tilts inside (no external overhang)
- Sliding opening on right hand window (option).

The operator's seat can be adjusted and is constructed in order to minimise the vibrations. The seat is equipped with safety belt and headrest

The board panel is equipped with:

- Inboard computer that permit to enter in all controls and info of the machine
- Heating control box and air conditioner (option)

The cabin is equipped with heating system and it is also possible to install an internal air conditioner (option); no projection over the cabin.

Controls

The working functions are controlled through 2 joysticks, located on the two sides of the seat, and 3 foot pedals.

All boom functions (including bucket and additional accessory), rotation and traction can be feathered. The under carriage functions are of the on/off type and are executed through 3 mini-joysticks installed in each joystick.

The working functions are activated when the micro switch located on the left armrest is activated, the system is activated when the armrest is lowered in working position.

The steering function is activated by the mini joysticks installed on the joystick itself.

Various

- 2 Working lights, located on the rear and on the front side of the turret, illuminate the working area.
- The most stressed parts of the excavator are made out of high strength steel. (minimum warranted yielding load equal to 700 – 900 N/mm2).
- Buckets and legs are made out of special steel that has a high resistance against wearing.
- The pins are made out of tempered 38CrNiMo4 steel and case-hardened 16CrNi4 steel. Maximum strength and resistance against wearing.
- The cylinders piston roads are made out of induction hardened and tempered 42CrMo4 steel successively chromed. The procedure warrants a considerable strength of the cylinders and a surface resistance against shocks.

Standard equipment

- Mechanical and hydraulic provision for the assembly of a winch on the chassis (the winch can be provided as option).
- Locking valves on 1st and 2nd cylinders (ISO standards 8643), a acoustic buzzer is installed standard on the excavators together with the valves; it informs the operator when the maximum capacity is reached.
- Hydraulic provision for revolving bucket und hydraulic hammer.
- Hydraulic provision for an accessory to be mounted on the boom
- Excavating bucket cm 60

DIAGRAMMA DI LAVORO / WORKING DIAGRAM