

# Workshop Service Manual

## FENDT 800 Vario S4

839 .. 1001-  
840 .. 1001-  
841 .. 1001-  
842 .. 1001-



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## **0000 - Overall system/tractor**

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**1 Component overview**

0000	Tractor – overall system

1000	Transmission
1005	Transmission control system
1010	Differential gear
1015	Axle drive
1030	Hand brake
1050	Housing
1070	Brake system
1080	Drive train
1090	Emergency actuation
1100	Clutch actuation
1150	Cardan brake
1170	ML range control
1200	Front PTO
1220	Live PTO
1320	Front wheel drive
1430	Hydrodamp
1432	Hydraulic pump
1470	Transmission lubrication
1490	Pump drive
1530	ML adjustment
1600	Enhanced control actuation valves
1620	Enhanced control actuation pipes

2000	Engine
2010	Cylinder head
2020	Speed setting
2050	Cooling system
2060	Fuel system
2170	Engine brake
2180	Cold-start system
2190	Intercooler
2210	Crankcase
2250	Engine preheater
2312	Lubrication
2710	Injection pump
2712	Injector valves
2714	Governor

<b>3000</b>	<b>Front axle</b>
3010	Front axle chock
3020	Axle body
3050	Suspension
3060	Suspension valve installation
3070	Suspension piping
3100	Track rod
3120	Steering cylinder
3170	Frame
3180	Cardan shaft
3190	Differential lock actuation

<b>4000</b>	<b>Steering</b>
4070	Steering wheel
4090	Hydraulic steering unit

<b>5000</b>	<b>Vehicle layout</b>
5010	Layout
5030	Driver seat
5050	Towing device
5161	Towing hitch
5200	Cab bearing, suspension

<b>5500</b>	<b>Air conditioning system</b>
5520	Compressor drive
5530	Coolant piping
5550	Evaporator
5560	Condenser
5570	Electrical wiring

<b>8100</b>	<b>Cab</b>
8113	Heater
8114	Ventilation
8117	Windscreen wipers
8121	Cable loom

<b>8600</b>	<b>Power lift</b>
8610	Electro-hydraulic EPC control
8618	External control
8631	Power lift control

<b>8700</b>	<b>Three point linkage</b>
8730	Lifting struts
8740	Support

<b>8800</b>	<b>Compressed air system</b>
8810	Air compressor
8820	Brake fittings
8830	Cables
8850	Electric actuation
8890	Air vessel

<b>8900</b>	<b>Front loader</b>
8910	Mounting frame
8915	Hydraulic equipment actuation
8955	3. Hydraulic circuit
8958	Multi coupling
5970	Piping
8990	Lift cylinder

<b>9000</b>	<b>Electrical system</b>
9010	Alternator
9015	Starter lock
9040	Fuses
9050	Battery installation
9060	Starter system

<b>9200</b>	<b>Front power lift</b>
9210	Linkage
9211	External control
9220	Cylinder
9230	Piping
9260	Enhanced power lift control
9280	Frame

<b>9400</b>	<b>Hydraulic pump installation</b>
9410	LS pump
9420	Transmission pump
9430	Steering pump

<b>9500</b>	<b>Hydraulic piping</b>
9510	Basic circuit
9516	Power lift
9525	With oil cooler
9530	Hydraulic trailer brake
9531	Steering
9534	Reverse operation

<b>9600</b>	<b>Hydraulic equipment</b>
9605	Hydraulic connections
9610	Central control block (ZSB)
9620	Valve installation
9666	External pressure supply
9690	Auxiliary valves

<b>9700</b>	<b>Electronics</b>
9710	Instrument panel
9715	Terminal
9717	LBS – agricultural bus system
9720	Sensor
9730	Radar sensor
9740	E-box
9750	Transmission actuator unit
9760	Driving switch
9770	Control panel
9780	Engine EDC
9790	Linkage ECU

<b>9900</b>	<b>Service</b>
9920	Special tools
9970	FENDIAS

## 2 Notes on documentation

To ensure that the information is structured in a user-friendly manner, the service documentation is divided into the operator's manual and the workshop manual.

The operator's manual includes a general description as well as instructions for all necessary maintenance work.

Knowledge of the owner's manual is essential to understand the workshop manual. This is particularly important for safety instructions.

The workshop manual describes repairs to assemblies and components, which will require more effort and suitably qualified specialists to carry out.

### Note

This workshop manual provides notes for trained technicians to maintain our tractors.

Read and observe the information in this documentation. This will help you prevent accidents and safeguard the manufacturer's warranty.

The respective accident prevention rules as well as other generally recognised safety and occupational health rules must be observed.

The tractor is built solely for the purpose defined by the implement manufacturer (intended use). Any other type of use is considered unauthorised. The manufacturer bears no liability for any damage resulting from improper use. The user bears this risk alone. Intended use includes maintaining operating, service and maintenance conditions as specified by the manufacturer.

Operation, maintenance and repair of the tractor may only be carried out by people who are familiar with this equipment and aware of the associated dangers. Ensure that this documentation is available to and understood by everyone involved in operation, maintenance and repair. Not observing this documentation can lead to faults, damage and personal injury, for which the manufacturer assumes no liability. The prerequisite for the tractor being correctly serviced and maintained is the perfect condition and availability of all necessary equipment, standard tools and general workshop equipment as well as special tools. The use of special tools is restricted to where absolutely necessary, and are displayed both where they need to be used and in a summary at the end of the manual.

The machine must be maintained according to its proper use. **Always** replace parts with genuine FENDT spare parts! When ordering parts, please provide the chassis number as per the most up-to-date spare parts documentation.

Only parts approved by the manufacturer for that specific purpose may be used for any alterations. The manufacturer will not accept liability for any damage resulting from unauthorised modifications to the tractor. Non-compliance invalidates the warranty!

Workshops should also refer to documentation on maintenance work and technical data.

Once maintenance is complete, take a test drive to ensure the vehicle's correct operation and road safety.

We reserve the right to make design changes in light of technical developments.

### Notes on repairs

The assembly/disassembly instructions shown correspond to the design status at the time the workshop manual was drawn up.

Further technical development of the product and additions related to different versions may require alternative working processes that do not pose too many difficulties to trained and qualified specialists.

These assembly/disassembly instructions shall be invalidated upon issue of the next version of this document.

### 3 Safety briefing and measures

#### Important notes on work safety

The statutory accident prevention regulations (available from professional associations or specialist shops) must be observed. These depend on the operating site, operating mode and fuels and lubricants used. Special protective measures dependent on the respective procedures are specified in the corresponding repair guidelines and highlighted.

#### This handbook uses the following safety tips



##### **DANGER:**

*Indicates an impending dangerous situation that will lead to serious injury or death if not avoided.*



##### **WARNING:**

*Indicates a potentially dangerous situation that could lead to serious injury or death if not avoided.*



##### **CAUTION:**

*Indicates a potentially dangerous situation that could lead to minor injury if not avoided.*

#### Please observe the following when carrying out maintenance or service work to the tractor:

Only the documentation associated with the vehicle (workshop manual and operator's manual) must be used to complete any pending work.

##### 1. General

- Only briefed personnel may operate the tractor or carry out maintenance work.
- Only use qualified specialists to carry out repairs or service work.
- Nobody may be in the cab while work is being carried out under the jacked-up tractor.
- Relieve pressure from implement lines, e.g. to the front loader.
- All people should keep clear of a lifted, unsecured load (e.g. tilted cab etc.).
- Never open or remove any safety devices while the engine is running.
- Pressurised fluids (fuel or hydraulic oil) escaping under high pressure can penetrate the skin and cause severe injuries. If this should occur, seek medical advice immediately to avoid the risk of serious infection.
- Keep at a safe distance from hot areas.
- Pressure accumulator and connected pipes are highly pressurised. Only remove and repair in accordance with instructions provided in the workshop manual.
- To avoid eye injury, do not look directly at the surface of the activated radar sensor.
- Dispose of oil, fuel and filters properly!
- Specialist knowledge and special fitting tools are required to fit tyres.
- Run the tractor for a short time, then retighten all wheel nuts and bolts and check them regularly. For correct torque values refer to TECHNICAL DATA.
- Before working on the electrical system, always remove the earth strap from the battery. Observe the following when carrying out electric welding. Before carrying out welding work on tractor or mounted implements, ensure that both battery terminals are disconnected. Attach the welding appliance's earth terminal as close to the welding spot as possible.
- Caution is required when dealing with brake fluid and battery acid as these are toxic and corrosive!
- Only use genuine FENDT spare parts.

##### 2. Working on the front axle suspension



**DANGER:**

- **The front axle suspension pressure lines between the central control block (ZSB) and the suspension cylinders, and**
- **the cased ASPL, ASPR and ZSP pressure accumulators**

**are under 200 bar pressure, even when the engine is switched off and the suspension is lowered (= locked).**

**Safety measures:**

**Prior to each repair and after releasing or opening in this area, the pressure must be released manually.**

**NOTE:** The "Lock suspension/lower suspension" command has no effect!

Even externally energising the solenoid valves **Y013** - Suspension lowering solenoid valve and **Y065** - Suspension raise solenoid valve has no effect!

(There are hydraulic pilot-operated non-return valves built in)

**To release pressure:**

- Screw in the knurled-head screw on the **MVFS [Y013]** - Suspension lower solenoid valve; the chassis may be lowered
- Screw in the knurled-head screw on the **MVFH [Y065]** - Suspension raise solenoid valve; the rebound accumulator will be relieved

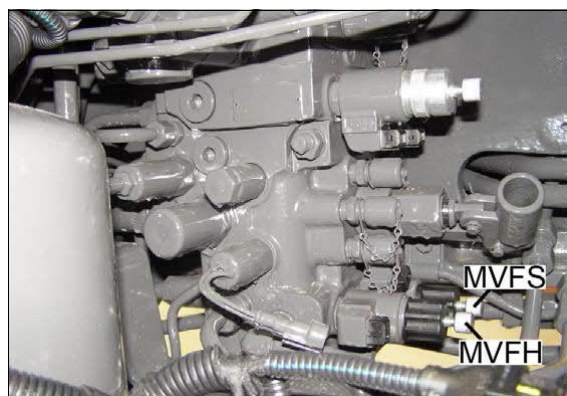


Fig. 1.

I014489

**Check:**

As the oil temperature rises, the emptying accumulator will make a flowing sound (barely audible in winter).

**3. Working on the brake system**



**DANGER:**

**The brake system hydraulic lines remain under pressure even when the engine has been switched off!**

**Safety measures:**

**Before each repair to the brake system or when removing the cab, the pressure must be relieved manually.**

**To release pressure:**

1. Engine must be off
2. Make sure the tractor is secured to prevent it rolling
3. With the hand brake applied, press the foot brake 50x
4. Press the hand brake 20x

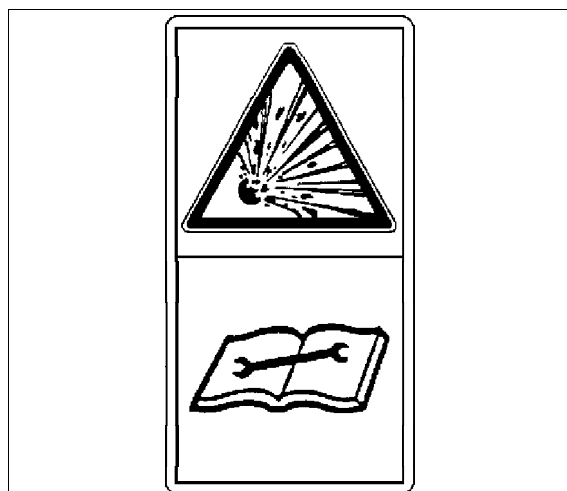


Fig. 2.

I000010

**General notes:**

- Always check the brakes before driving.
- Adjustments and repairs to the brake system must be carried out in specialist workshops or by approved brake repair technicians.
- It must not be possible to brake individual wheels when driving (lock pedals)!

**4. Working on the engine**

- After switching the engine off, wait 30 seconds before carrying out any work on the fuel system.
- Only start the engine once all safety guards have been attached and nobody is standing in the danger area.
- Never let the engine run in enclosed spaces with no exhaust gas suction system.
- Cleaning, maintenance and repair work may only be carried out once the engine is switched off and secured to prevent it starting.
- Injection lines and high-pressure lines must not be deformed.
- Any damaged injection line or high-pressure line must be replaced.
- Do not loosen any injection lines for high-pressure fuel lines while the engine is running.
- Before carrying out checks to the running engine, always perform a visual check of all high-pressure components. Suitable protective clothing (e.g. protective goggles) should be worn while doing this. Leaks indicate potential sources of danger for workshop personnel.
- In the event of leaks to the high-pressure fuel system, always remain out of range of any possible fuel spray to avoid serious injury.
- Even when no leaks to the high-pressure fuel system can be detected, workshop personnel should avoid the immediate danger area and wear suitable protective clothing (such as protective goggles) when carrying out checks to the running engine and during the first test run.
- Smoking is forbidden while carrying out work to the fuel system.
- Do not work in the proximity of sparks or naked flames.
- Never disconnect an injector while the engine is running.

### **5. Working on the PTO**

- Always switch off the engine before fitting or removing the drive shaft. PTO in "0" position!
- When working on the PTO, allow no-one in the vicinity of the rotating PTO or drive shaft.
- Make sure drive shaft and PTO are equipped with shield pipes and protective funnels.
- After deactivating the PTO, it is possible that parts on the mounted implement may continue to run. In this case, do not get too close to the implement. Work may only be carried out to the implement when nothing is moving!
- When the drive shaft is removed, cover the PTO shaft with its protective cap.
- Nobody should be in the cab when installing and removing the drive shaft.  
Operation of controls for the tractor and mounted implements by people in the cab, especially children, may result in severe or fatal injury.

### **6. Working on the front loader**

- Before undertaking maintenance work, lower the front loader to the ground, switch off the engine and remove the ignition key.
- In the event of a collapsed pipe rupture feature, support the load before starting repair work, and slowly retract the cylinder.
- Check hydraulic hoses and lines for signs of damage and aging regularly and replace with genuine spare parts in good time.
- Following installation and repairs, operate the tractor for a short time, then retighten all nuts and bolts and check them regularly.
- Retighten eccentric bolt for front loader attachment, if necessary.

### **Disposal**

The work described in the operator's manual and workshop manual includes replacing parts, fuel and lubricants. These renewed parts/fuel/lubricants must be stored, transported and disposed of in accordance with regulations. The repairing workshop bears responsibility for this. The disposal encompasses the recycling and final disposal of parts/fuel/lubricants with recycling having the higher priority. Details about disposal and monitoring are specified in regional, national and international laws and directives, the observation of which is the sole responsibility of the repairing workshops.

## **4 Biodegradable hydraulic oil**

### **Oil quality**

Use rapeseed-oil and synthetic-based HEES biodegradable hydraulic oil with a viscosity in accordance with ISO VG 32-ISO VG 46.

**NOTE:** *Polyglycol-based synthetic oils cannot be used.*

### **Instructions for use**

Biodegradable hydraulic oil is suitable for winter temperatures down to approx. -15 °C.

Vegetable-based hydraulic oil may thicken in outside temperatures below approx. -15 °C or if the tractor is not used for long periods of time. After a cold start, allow a short warm-up time at medium engine speed to ensure safe operation of the hydraulic steering and linkage. In extremely low temperatures, it may be necessary to warm up the entire tractor.

Avoid mixing with mineral oils, e.g. with any oil remaining in the system or by connecting and operating an external implement. This may affect the positive environmental properties of the fluid, and will make it more difficult to dispose of (it will then have to be considered as special waste).

Current legislation and the instructions of the oil manufacturer must be observed when disposing of oil.

A mixture containing more than 20% may result in alterations in viscosity and may lead to problems with the hydraulic valves.

### **Maintenance intervals**

The oil and oil filter need to be changed every 1000 running hours or every year, whichever occurs first.

When switching to biodegradable hydraulic oil, change the hydraulic oil filter after approx. 50–100 running hours. Since biodegradable hydraulic oil acts as a solvent, any oil residue may block the filter.

### **Special features of biodegradable hydraulic oil**

Biodegradable hydraulic oil is more easily biodegradable and has less of an effect on the ground and ground-water in the event of accidental spills.

**IMPORTANT:** *In spite of the high environmental compatibility of biodegradable hydraulic oil, accidental spills must always be reported.*

## 5 Tightening torques for bolts in Nm (kpm)

### Choose the correct friction coefficient

To ensure that the tightening torque and preload value can be accurately determined, it is essential to know the **friction coefficient ( $\mu_{total}$ )**. Varying surface properties and lubrication conditions give rise to a wide range of friction coefficients. If not otherwise specified, tightening torques can be calculated based on their friction coefficient using the table below.

**NOTE:** Locking screws with retaining ridges on the screw head contact surface have a greater friction coefficient.

### Tightening torques in relation to the friction coefficient

Metric thread with a friction coefficient of $\mu_{total} = 0.14$								
Size	6.9		8.8		10.9		12.9	
	Nm	(kpm)	Nm	(kpm)	Nm	(kpm)	Nm	(kpm)
M6	8.4	0.85	9.8	1	13.7	1.4	16.7	1.7
M8	20.6	2.1	24.5	2.5	34.3	3.5	40.2	4.1
M 10	40.2	4.1	48.1	4.9	67.7	6.9	81.4	8.3
M 12	70.6	7.2	84.4	8.6	117.7	12	142.2	14.5
M 14	112.8	11.5	132.4	13.5	186.4	19	225.6	23
M 16	176.6	18	206	21	289.4	29.5	348.2	35.5
M 18	240.3	24.5	284.5	29	392.4	40	475.8	48.5
M20	338.4	34.5	402.2	41	569	58	676.9	69
M 22	456.2	46.5	539.5	55	765.2	78	912.3	93
M24	588.6	60	696.5	71	981	100	1177.2	120
M27	873.1	89	1030	105	1471.5	150	1765.8	180
M30	1177.2	120	1422.4	145	1962	200	2354.4	240

Metric fine thread with a friction coefficient of $\mu_{total} = 0.14$								
Size	6.9		8.8		10.9		12.9	
	Nm	(kpm)	Nm	(kpm)	Nm	(kpm)	Nm	(kpm)
M8x1	22.6	2.3	26.5	2.7	37.3	3.8	44.1	4.5
M10x1.25	42.2	4.4	51	5.2	71.6	7.3	86.3	8.8
M12x1.25	78.5	8	93.2	9.5	132.4	13.5	157	16
M12x1.5	74.5	7.6	88.3	9	122.6	12.5	147.1	15
M14x1.5	122.6	12.5	147.1	15	206	21	245.2	25
M16x1.5	186.4	19	220.7	22.5	309	31.5	372.8	38
M18x1.5	296.8	27.5	318.8	32.5	451.3	46	539.5	55
M20x1.5	377.7	38.5	451.3	46	627.8	64	755.4	77
M22x1.5	510.1	52	598.4	61	843.7	86	1030	105
M24x2	637.6	65	765.2	78	1079.1	110	1275.3	130
M27x2	951.6	97	1128.1	115	1569.6	160	1912.9	195
M30x2	1324.4	135	1569.6	160	2207.2	225	2648.7	270

## 6 Location of rating plates

### Location of rating plates

#### Vehicle rating plate

##### Stamped chassis number



Right side, front, on frame



Fig. 3.

I047209

#### Front axle rating plate



Right-hand side, on front axle

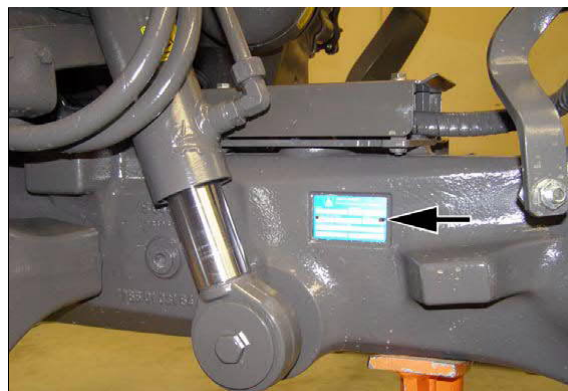


Fig. 4.

I047210

#### Diesel engine rating plate



Top, on valve cover and  
 right side, on crankcase

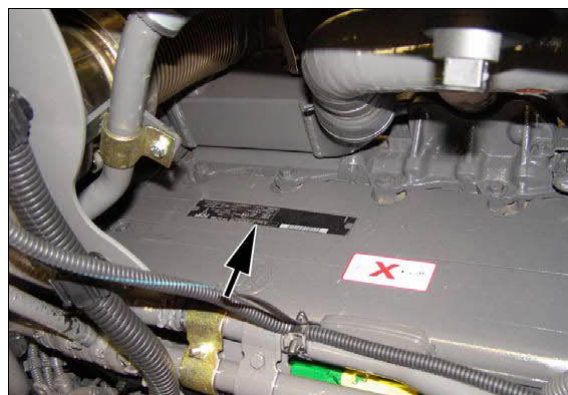


Fig. 5.

I047212

#### Transmission rating plate



right side on transmission housing

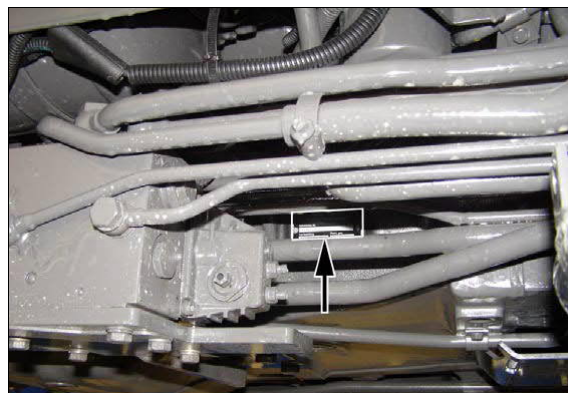


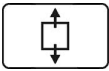
Fig. 6.

I023219

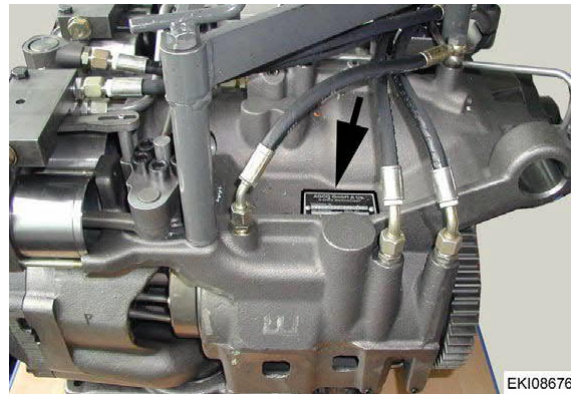
**Vario transmission insert rating plate**



on top of Vario transmission insert



Remove cab, remove transmission cover



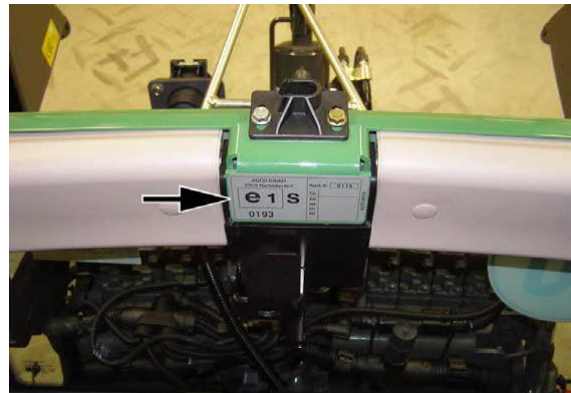
EKI08676  
I002600

Fig. 7.

**Cab rating plate**



in rear of cab



I047232

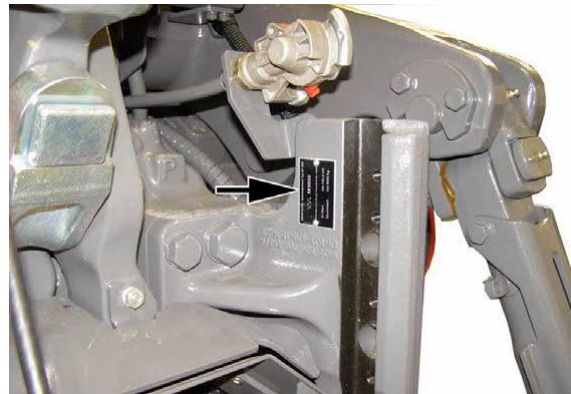
Fig. 8.

**Trailer frame rating plate**

**NOTE:** See also: *Operating Manual*



right side, on trailer frame



I047216

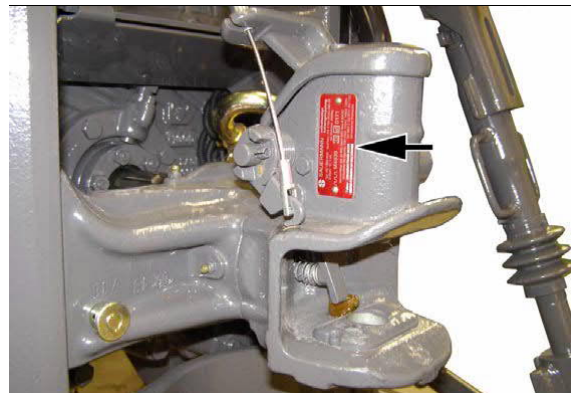
Fig. 9.

**Automatic trailer hitch rating plate**

**NOTE:** See also: *Operating Manual*



on trailer hitch



I047233

Fig. 10.

**Ball-type coupling (height adjustable) rating plate**

**NOTE:** See also: *Operating Manual*



on ball-type coupling

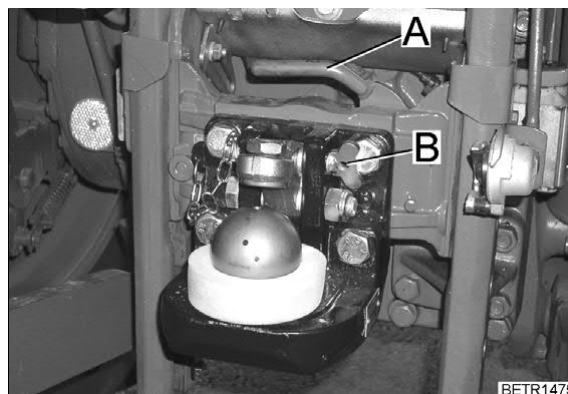


Fig. 11.

BETR1475  
1002601

**Ball-type coupling rating plate**

**NOTE:** See also: *Operating Manual*



on ball-type coupling



Fig. 12.

EK108675  
1002599

**Draw bar rating plate**

**NOTE:** See also: *Operating Manual*



on draw bar

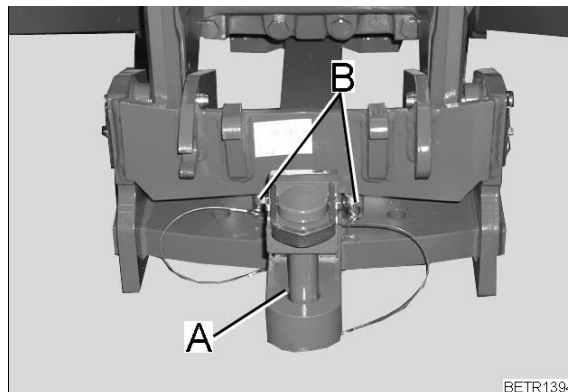


Fig. 13.

BETR1394  
1002602

**Piton Fix rating plate**

**NOTE:** See also: *Operating Manual*



on Piton Fix



Fig. 14.

BETR2544  
1002603

**Hydraulic hitch rating plate**

**NOTE:** See also: *Operating Manual*



on hydraulic hitch

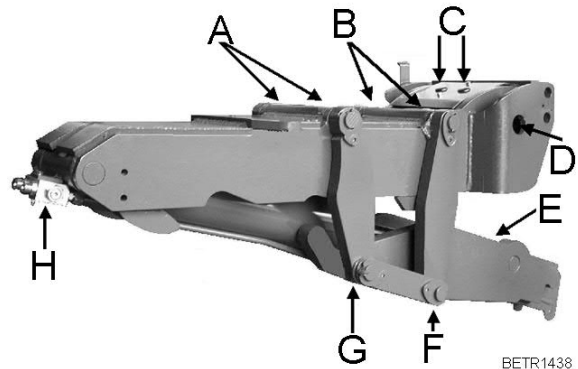


Fig. 15.

BETR1438  
I002605

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**Technical data**

## Technical data

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## 1 Technical data: 0000 general

Technical data: Dimensions and weights					
Tractor type		822 Vario	824 Vario	826 Vario	828 Vario
Chassis number		839/../	840/../	841/../	842/../
<b>Weights</b>					
Unladen weight	kg	9890		9980	
Permissible overall weight	kg	14,000			
Permissible overall weight with dual-circuit brake system and max. 50 km/h	kg	16,000			
Max. permissible front axle load 40 km/h (vehicle licensing regulations)	kg	6500			
Max. permissible front axle load, 8 km/h	kg	8500			
Max. permissible rear axle load	kg	10,500			
Permissible vertical load on trailer coupling	kg	2000			
Permissible vertical drawbar load for a pick up hitch	kg	3000			
<b>Dimensions</b>					
Front tyres	-	540/65/R30		540/65/R34	
Rear tyres	-	650/65R42		650/85R38	
Overall length	mm	5275			
Overall width:	mm	2550			
Overall height with cab	mm	3220		3280	
Ground clearance	mm	517		567	
Wheelbase	mm	2950			
Turning radius without steering brake	mm	5450			5700
Front axle flange width	mm	1955			
Rear axle flange width	mm	1888			
Standard track front	mm	2000			
Standard track rear	mm	1970			
Front bolt pitch-circle diameter	mm	335			
Front axle bolt and thread	-	10 units M20x1.5			
Rear bolt pitch-circle diameter	mm	335			

Technical data: Dimensions and weights					
Tractor type		822 Vario	824 Vario	826 Vario	828 Vario
Chassis number		839/..	840/..	841/..	842/..
Rear axle bolt and thread	-	10 units M22x1.5			
Rear axle ratio	i	29.0895			
Front axle ratio	i	15.149			
Tightening torques					
Front wheel nut	Nm	450			
Rear wheel nuts	Nm	580			

## 2 Technical data: 1000 transmission

**NOTE: Specification applies to: 839/.../...to - 842/.../....**

Transmission oil (Vario transmission - rear axle) (combined oil supply)		
Oil grade	-	FENDT Extra Trans 10W-40 or STOU SAE 10W-40 STOU SAE 15W-40
Transmission, initial fill	I	Approx. 145
Transmission, subsequent fills	I	Approx. 123
Oil quantity between Min. and Max. marks	I	approx. 3
Oil change interval	Op. hrs / years	2000 / 2

Vario: continuously variable transmission		
<b>Model</b>	-	ML 220
Travel range	-	I (Field) II (Road)
<b>Speed (forwards)</b>		
Speed range I (Field)	km/h	0.02 ... 35
Speed range II (Road)	km/h	0.02 ... 60
<b>Speed (backwards)</b>		
Speed range I (field)	km/h	0.02 ... 20
Speed range II (road)	km/h	0.02 ... 33
Acceleration rate I (if the joystick is touched once at rated engine speed)	km/h	0.02 ... 0.5 (adjustable)
Acceleration rate II (if the joystick is touched once at rated engine speed)	km/h	0.5
Acceleration rate III (if the joystick is touched once at rated engine speed)	km/h	1.0
Acceleration rate IV (if the joystick is touched once at rated engine speed)	km/h	2.0
<b>Transmission pressures</b> with transmission oil temperature greater than 40 °C <b>NOTE: See also Workshop Manual (Chapter 1005 Reg. E – Measuring transmission pressure)</b>		
Servo pressure at 2000 rpm engine speed (measuring point PU)	bar	28 +5
System pressure at 2000 rpm engine speed (measuring point P)	bar	27 +5
Feed pressure at 2000 rpm engine speed (measuring point ES)	bar	24 ± 2.5
Outlet pressure at 2000 rpm engine speed (measuring point AS)	bar	15.5 ±2.5

Vario: continuously variable transmission		
Lubrication pressure at 2000 rpm engine speed (measuring point SM)	bar	4.7 ± 0.5
<b>Transmission pressures</b> with transmission oil temperature greater than 80 °C <b>NOTE:</b> See also Workshop Manual (Chapter 1005 Reg. E – Measuring transmission pressure)		
Servo pressure at 2000 rpm engine speed (measuring point PU)	bar	26 + 5
System pressure at 2000 rpm engine speed (measuring point P)	bar	25 + 5
Feed pressure at 2000 rpm engine speed (measuring point ES)	bar	15 ± 2.5
Outlet pressure at 2000 rpm engine speed (measuring point AS)	bar	12 ± 2.5
Lubrication pressure at 2000 rpm engine speed (measuring point SM)	bar	3 ± 0.5
<b>Tightening torques:</b>		
"Forward" high-pressure valve (2V3)	Nm	250 +20
"Reverse" high-pressure valve (2V4)	Nm	250 +20
Flushing or "discharge" valve (2V5)	Nm	250 +20
Vario insert support shaft, M20 nuts (on both sides)	Nm	250
Securing bolts on the Vario insert support shaft	Nm	86
PTO drive fixing bolts (cover on the planetary carrier)	Nm	25
Fixing bolts for the transmission control unit (A009)	Nm	25
Locating screw for the actuator shaft	Nm	25
Valve block for transmission control system (tighten the screws in the specified sequence)	Nm	25

Clutch		
<b>Electrically actuated</b>	-	-

4WD		
Clutch	-	Wet multiple disc clutch
Clutch actuation	-	electro. / hydraulic
<b>Clutch pressure:</b> Clutch disengaged	bar	25 + 2.0
Clutch engaged (Belleville spring force)	bar	0

Differential lock (rear)		
Coupling	-	Wet multiple disc clutch
Clutch actuation	-	electro. / hydraulic
<b>Clutch pressure:</b> Differential lock disengaged	bar	0
Differential lock engaged	bar	25 + 2.0

Differential (rear axle)		
System	-	Bevel pinion shaft/crown-wheel
Number of bevel gears	Qty	4
Bevel pinion shaft/crown-wheel backlash	mm	0.2 +/-0.05
Adjust the rolling resistance of the bevel pinion shaft bearing	Nm (Ncm)	2.0 ... 4.0 (200 to 400)
Adjust the rolling resistance of the crown-wheel	Nm (Ncm)	2.5 ... 3.5 (250 to 350)
<b>Tightening torques:</b>		
Crown-wheel fixing bolts	Nm	120
Crown-wheel bearing flange	Nm	86

Rear wheel brake		
Type	-	Ring piston brake
Discs on each side	Qty	2 brake discs + 1 intermediate disc
Actuation:	-	Hydraulic (transmission oil, servo pump)
Rear brake adjustment:	-	Self-adjusting brake return mechanism

Front axle service brake (Dual-circuit brakes only)		
Type	-	Wet multiple disc brake on the 4WD shaft
Inner/outer toothed discs	Qty	11/10
Actuation:	-	Hydraulic

Hand brake		
Type	-	Integrated spring brake on the 4WD shaft
Inner/outer discs (single-circuit brake)	Qty	6/5
Inner/outer discs (dual-circuit brake)	Qty	11/10
Hand brake opening pressure	bar	90

Front PTO transmission 1000 - standard or 540 - optional		
<b>Front PTO transmission oil</b> Oil grade		FENDT Extra Trans 10W-40
		or
		<b>Universal tractor oil (STOU)</b>
		SAE 10W - 40
		SAE 15W - 40
		acc. to API GL4

Front PTO transmission 1000 - standard or 540 - optional		
Oil quantity: transmission oil inc. pressure filter <b>Note:</b> Oil level up to overflow at filler hole.	l	approx. 3.5
PTO shaft profile	Inches	Splined shaft profile 1 3/8" x 6 splines
Rotational direction of the front PTO	-	Right (clockwise) viewed in the direction of travel
<b>Engine speed for PTO rpm:</b> 1000 rpm (1000 PTO setting) 540 rpm (540 PTO optional setting )	rpm rpm	1939 1954
<b>PTO speed at engine rated speed (2100 rpm)</b> 1000 Setting 540 Setting	rpm rpm	1083 580
<b>Max. permissible torque in front PTO with</b> 1000 Setting 540 Setting	Nm Nm	749 1695

Front PTO clutch		
System	-	Oil supply of front PTO transmission Appropriate oil pump for front PTO clutch
Coupling	-	Wet multiple disc clutch with a brake disc
Clutch actuation	-	electr. / hydraulic
<b>Front PTO disengaged</b> System pressure Clutch pressure	bar bar	approx. 3 0
<b>Front PTO engaged</b> System pressure Clutch pressure	bar bar	approx. 16 approx. 16



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Rear PTO transmission (540E/1000) or (1000/1000E)		
PTO shaft profile	Inches	<b>Splined shaft profile* (standard)</b> 1 3/8" x 6 splines
Flange PTO (standard)	<b>* Only for implements with a max. power requirement of 103 kW / 140 HP</b>	<b>Involute profile*</b> 1 3/8" x 21 splines
		<b>Splined shaft profile</b> 1 3/4 x 6 splines
		<b>Involute profile</b> 1 3/4" x 20 splines
Rotational direction of the rear PTO	-	Right (clockwise) viewed in the direction of travel
<b>Engine speed for PTO rpm:</b>		
750 rpm (540E PTO setting)	rpm	2190
540 rpm (540E PTO setting)	rpm	1580
1000 rpm (1000 PTO setting)	rpm	1882
1400 rpm (1000E PTO setting )	rpm	2210
1000 rpm (1000E PTO setting)	rpm	1580
<b>PTO speed at engine rated speed (2100 rpm)</b>		
540E setting	rpm	719
1000 Setting	rpm	1116
1000E setting	rpm	1330
<b>Max. permissible torque in rear PTO with</b>		
540E setting	Nm	2200
1000 Setting	Nm	1650
1000E setting	Nm	1200
<b>Tightening torques:</b>		
Rear PTO housing	Nm	295
PTO transmission housing (cover)	Nm	49
Fixing bolts for PTO flange	Nm	69

Rear PTO clutch		
Coupling	-	Wet multiple disc clutch with a brake disc
Clutch actuation	-	electr. / hydraulic
<b>Clutch pressure:</b> Rear PTO disengaged:	bar	0

<b>Rear PTO clutch</b>		
Rear PTO engaged:	bar	25 + 2.0
<b>Tightening torques:</b>		
Guide screws on the brake disc	Nm	69
Bearing flange for rear PTO clutch	Nm	86

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