

# Workshop manual

## FENDT 700 / 800 Vario

FENDT 711 Vario from chassis no. 711../8001-

FENDT 712 Vario from chassis no. 712../8001-

FENDT 714 Vario from chassis no. 714../8001-

FENDT 716 Vario from chassis no. 716../8001-

FENDT 815 Vario from chassis no. 715../1001-

FENDT 817 Vario from chassis no. 717../1001-

FENDT 818 Vario from chassis no. 718../1001-



Book 1



Edition  
08/2006

X990.005.051.010 - Englisch

<b>All types</b>	<b>Tractor / General system Assembly overview</b>	<b>A</b>
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<b>0000</b>	<b>Tractor / General system</b>
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<b>1000</b>	<b>Transmission</b>
1005	Transmission control unit
1010	Differential
1015	Axle drive
1030	Handbrake
1050	Housing
1070	Brake system
1080	Vario transmission unit
1090	Emergency control
1100	Clutch actuation system
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 system
1490	Pump drive
1530	ML adjustment
1600	Enhanced control system valves
1620	Enhanced control system pipes

<b>2000</b>	<b>Engine</b>
2010	Cylinder head
2020	Speed adjustment
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	Injectors
2714	Governor

Date	Version	Page	<b>Assembly overview</b>	Capitel	Index	Docu-No.
04/2000	<b>b</b>	1/4		<b>0000</b>	<b>A</b>	<b>000009</b>

<b>All types</b>	<b>Tractor / General system Assembly overview</b>	<b>A</b>
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<b>3000</b>	<b>Front axle</b>
3010	Front axle support
3020	Axle housing
3050	Suspension
3060	Suspension valve fitting
3070	Suspension pipe
3100	Track rod
3120	Steering cylinder
3170	Frame
3180	Cardan shaft
3190	Diff. lock actuation system

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

<b>5000</b>	<b>Vehicle body</b>
5010	Design
5030	Driver seat
5050	Trailer hitch
5161	Trailer hitch coupling
5200	Cab mount, suspension

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

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

<b>8600</b>	<b>Power lift</b>
8610	Electrohydraulic EPC control
8618	External control
8631	Control lifting gear

<b>8700</b>	<b>Three-point hitch</b>
8730	Lift arms
8740	Support

Date	Version	Page	<b>Assembly overview</b>	Capitel	Index	Docu-No.
04/2000	<b>b</b>	2/4		<b>0000</b>	<b>A</b>	<b>000009</b>

<b>All types</b>	<b>Tractor / General system Assembly overview</b>	<b>A</b>
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<b>8800</b>	<b>Compressed air system</b>
8810	Compressor
8820	Brake fittings
8830	Lines
8850	Electrical actuation system
8890	Air tank

<b>8900</b>	<b>Front loader</b>
8910	Mounting frame
8915	Hydraulic implement actuation system
8955	3. hydraulic circuit
8958	Multi-coupling
8970	Pipes
8990	Lift cylinder

<b>9000</b>	<b>Electrics</b>
9010	Alternator
9015	Starter lockout
9040	Fuses
9050	Battery system
9060	Starter motor system

<b>9200</b>	<b>Front power lift</b>
9210	Lift gear
9211	External control
9220	Cylinder
9230	Pipes
9260	Enhanced control power lift
9280	Frame

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

<b>9500</b>	<b>Hydraulic pipes</b>
9510	Base circle
9516	Power lift
9525	with oil cooler
9530	Hydraulic trailer brake
9531	Steering
9534	Reversing system

Date	Version	Page	<b>Assembly overview</b>	Capitel	Index	Docu-No.
04/2000	<b>b</b>	3/4		<b>0000</b>	<b>A</b>	<b>000009</b>

<b>All types</b>	<b>Tractor / General system Assembly overview</b>	<b>A</b>
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<b>9600</b>	<b>Hydraulic equipment</b>
9605	Hydraulic connections
9610	Central control block (ZSB)
9620	Valve assembly
9666	External pressure supply
9690	Valve supplement

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

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

Date	Version	Page	<b>Assembly overview</b>	Capitel	Index	Docu-No.
04/2000	<b>b</b>	4/4		<b>0000</b>	<b>A</b>	<b>000009</b>

<b>All types</b>	<b>Documentation structure</b>	<b>A</b>
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The basic principle of this documentation is that the different tractor types are divided into main assemblies, which correspond to the FENDOS structure with a few exceptions for technical reasons.

These main assemblies are, for example, "0000 - Tractor/General system" ; "1000 - Transmission"; "2000 - Engine", etc.

The main assemblies are sub-divided into subassemblies, e.g. "1005 - Transmission control unit"; "1220 - Live PTO", etc.

Please see document 0000 A 000009 for an overview of the assemblies.

Each assembly is subdivided into various registers which are labelled with an index letter.

**These are as follows.**

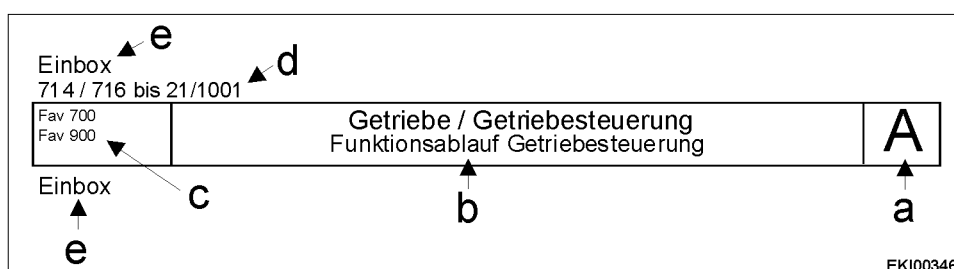
A - General	E - Measuring and testing
B - Faults	F - Settings and calibration
C - Documents and plans	G - Repairs
D - Position of components	H - Service - Information

This documentation is made up of a large number of self-contained individual documents (=worksheets). These documents can be used for various applications and are available in different languages.

Each document is given a unique **document code** (8), which is made up of the **chapter no.** (1) (=assembly / subassembly), the **index letter** (2), and the **document no.** (3), printed on the right of the footer.

A document can, therefore, be clearly assigned to a main assembly/subassembly and the index.

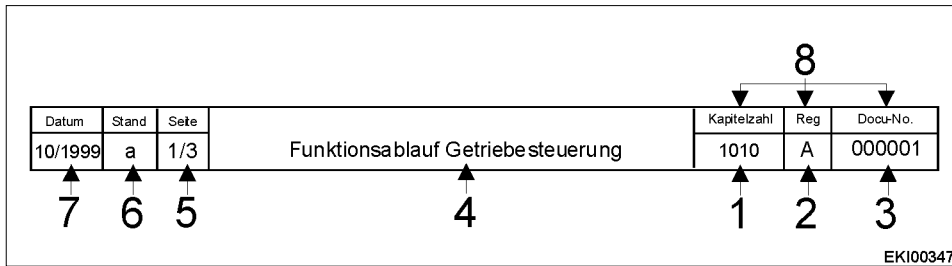
#### Explanation of the header and footer:



a	Index letter	d	Validity: chassis no.
b	Chapter / section	e	Other notes on validity
c	Type validity		

Date	Version	Page	Capitel	Index	Docu-No.
12.4.2000	<b>b</b>	1/2	<b>0000</b>	<b>A</b>	<b>000011</b>

<b>All types</b>	<b>Documentation structure</b>	<b>A</b>
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- |                               |                            |
|-------------------------------|----------------------------|
| 1 Main assembly / subassembly | 5 No. of pages in document |
| 2 Index                       | 6 Revision status          |
| 3 Document no.                | 7 Date created             |
| 4 Section                     | 8 Document code            |

Page numbering for all assemblies is continuous, starting from page 1.

The document codes are not necessarily sequential, i.e. gaps may occur.

"Document no." is not the number of pages in the documentation. The page count is shown on the right in the list of contents.

Date	Version	Page	<b>Documentation structure</b>	Capitel	Index	Docu-No.
12.4.2000	<b>b</b>	2/2		<b>0000</b>	<b>A</b>	<b>000011</b>

	Tractor / General system <b>Notes on documentation</b>	<b>A</b>
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### **Please note**

This Workshop Manual gives the trained expert model-specific information for the repair of our tractors. It is assumed that the commercially available tools and general equipment to be found in a normal workshop will be available. Special tools are kept to the absolute minimum, and are shown both at the point where they are used and in a summary at the end of the manual.

If parts have to be replaced, **only** genuine spare parts may be used. When ordering parts, please always quote the chassis number indicated in the relevant valid spares documentation. Assemblies are divided up in the Workshop Manual in the same way as in FENDOS.

Maintenance documentation and technical specifications must also be taken into account by workshops. When repairs are completed, the person responsible must carry out a test drive to ensure that the tractor is roadworthy and in perfect condition.

We reserve the right to make design changes in the interests of technical progress.

### **Notes on Index G - Repairs**

The present disassembly / reassembly instructions represent the design status at the time the Workshop Manual was produced.

Technical refinements and developments of the product appearing in the various versions may require different work procedures - qualified technicians will find these no more difficult to perform.

These disassembly and reassembly instructions will be superseded by publication of the next edition.

### **Important notes on safety at work**

In principle, those carrying out repairs are responsible for their own safety while working.

**It is essential to comply with all applicable safety regulations and statutory requirements in order to avoid personal injury and damage to the product during maintenance and repair work. Repair staff must familiarise themselves with such regulations and requirements before starting work.**

For the proper repair of Fendt products, it is assumed that the work is carried out by appropriately trained personnel.

It is the responsibility of the workshop to provide such training.

### **The following are used in this manual to draw attention to safety issues**



This pictogram indicates situations where insufficient care may result in personal injury or damage to the product.

Read the relevant instructions thoroughly before starting any tests or repair work.

The photos, drawings and components used do not always represent the original product; they are intended to illustrate the work procedure.

Photos, drawings, and components are not to scale, and should not be used for deducing size and weight (even when these are in the same illustration).

Date	Version	Page	Capitel	Index	Docu-No.
26.03.2001	<b>a</b>	1/1	<b>0000</b>	<b>A</b>	<b>000021</b>



<p><i>Farmer 400 Fav 700 FENDT 800 / 900 Vario Fav 900</i></p>	<p>Working and steering hydraulics / General system <b>Safety instructions and measures</b></p>	<p><b>A</b></p>
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**Reason:**

- The pressure pipes of the front suspension between the central control block ZSB and the suspension cylinders,
- the accumulators ASP1 and ASP2 on the central control block and
- the piped accumulator ZSP

are subject to a pressure of 200 bar even with the engine switched off and the suspension lowered (=locked).

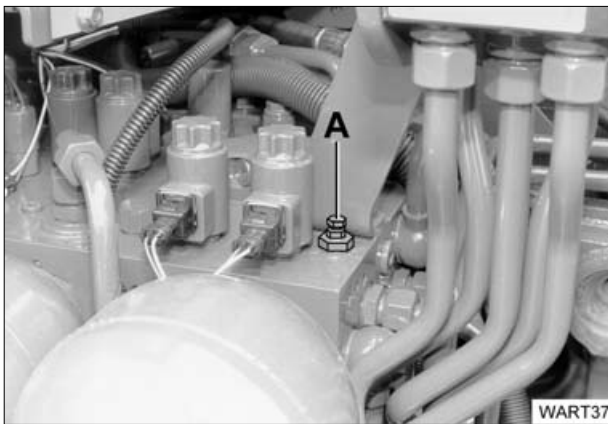
**Action:**

The pressure **β must be relieved manually** before any repair is carried out or anything is released or opened in this area.

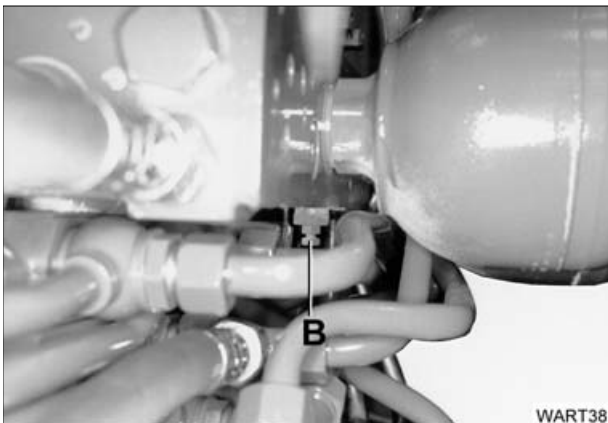
**Note:**

The "Lock suspension / lower suspension" command has no effect.

**Steps:**



1. Loosen stopcock item A (stopcock is labelled AV2 in further documents and circuit diagrams) on top of central control block by approx. 1 turn anti-clockwise.



2. Loosen stopcock item B (stopcock is labelled AV1 in further documents and circuit diagrams) on bottom of central control block by approx. 1 turn anti-clockwise.

**Check:**

Emptying of accumulator sounds like flowing liquid as oil temperature increases (scarcely audible in winter).

**Note and comparison:**

For tractors without a central control block (e.g. Fav 500) it is still necessary to relieve pressure using the external power supply method.

Date	Version	Page	Safety instructions and measures	Capitel	Index	Docu-No.
12/1999	a	1/1		0000	A	000012

<b>All types</b>	<b>Tractor / General system</b> <b>Tightening torques for bolts in Nm</b>	<b>A</b>
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Coefficient of friction:  $\mu$  total 0.14 for nuts and bolts without aftertreatment and for phosphated nuts.  
Tighten by hand.

Tightening torques, unless otherwise specified, can be taken from the following table.

<b>Metrisches Gewinde</b>								
	6,9		8,8		10,9		12,9	
Abmessung	Nm	(kpm)	Nm	(kpm)	Nm	(kpm)	Nm	(kpm)
M 6	8,4	(0,85)	9,8	(1,0)	13,7	(1,4)	16,7	(1,7)
M 8	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	(12,0)	142,2	(14,5)
M 14	112,8	(11,5)	132,4	(13,5)	186,4	(19,0)	225,6	(23,0)
M 16	176,6	(18,0)	206,0	(21,0)	289,4	(29,5)	348,2	(35,5)
M 18	240,3	(24,5)	284,5	(29,0)	392,4	(40,0)	475,8	(48,5)
M 20	338,4	(34,5)	402,2	(41,0)	569,0	(58,0)	676,9	(69,0)
M 22	456,2	(46,5)	539,5	(55,0)	765,2	(78,0)	912,3	(93,0)
M 24	588,6	(60,0)	696,5	(71,0)	981,0	(100,0)	1177,2	(120,0)
M 27	873,1	(89,0)	1030,0	(105,0)	1471,5	(150,0)	1765,8	(180,0)
M 30	1177,2	(120,0)	1422,4	(145,0)	1962,0	(200,0)	2354,4	(240,0)

<b>Metrisches Feingewinde</b>								
	6,9		8,8		10,9		12,9	
Abmessung	Nm	(kpm)	Nm	(kpm)	Nm	(kpm)	Nm	(kpm)
M 8 x 1	22,6	(2,3)	26,5	(2,7)	37,3	(3,8)	44,1	(4,5)
M 10 x 1,25	42,2	(4,4)	51,0	(5,2)	71,6	(7,3)	86,3	(8,8)
M 12 x 1,25	78,5	(8,0)	93,2	(9,5)	132,4	(13,5)	157,0	(16,0)
M 12 x 1,5	74,5	(7,6)	88,3	(9,0)	122,6	(12,5)	147,1	(15,0)
M 14 x 1,5	122,6	(12,5)	147,1	(15,0)	206,0	(21,0)	245,2	(25,0)
M 16 x 1,5	186,4	(19,0)	220,7	(22,5)	309,0	(31,5)	372,8	(38,0)
M 18 x 1,5	296,8	(27,5)	318,8	(32,5)	451,3	(46,0)	539,5	(55,0)
M 20 x 1,5	377,7	(38,5)	451,3	(46,0)	627,8	(64,0)	755,4	(77,0)
M 22 x 1,5	510,1	(52,0)	598,4	(61,0)	843,7	(86,0)	1030,0	(105,0)
M 24 x 2	637,6	(65,0)	765,2	(78,0)	1079,1	(110,0)	1275,3	(130,0)
M 27 x 2	951,6	(97,0)	1128,1	(115,0)	1569,6	(160,0)	1912,9	(195,0)
M 30 x 2	1324,4	(135,0)	1569,6	(160,0)	2207,2	(225,0)	2648,7	(270,0)

A00519

Date	Version	Page	Tightening torques for bolts in Nm	Capitel	Index	Docu-No.
03/2000	a	1/1		0000	A	000007

*Fav 700*  
*FENDT 700 Vario*  
*FENDT 800 Vario*

Tractor / General system  
**History of the Favorit 700 tractor range**

**A**

**Favorit 700 (711, 712, 714, 716) (21/0101 and up)**



Date	Version	Page	Capitel	Index	Docu-No.
22.10.2003	d	1/5	0000	A	000050

*Fav 700*  
*FENDT 700 Vario*  
*FENDT 800 Vario*

Tractor / General system  
**History of the Favorit 700 tractor range**

**A**

**FENDT 700 Vario (711, 712, 714, 716) (21/8001 and up)**



**FENDT 800 Vario (715, 717, 718) (21/0101 and up)**



Date	Version	Page	Capitel	Index	Docu-No.
22.10.2003	d	2/5	0000	A	000050

<b>Fav 700</b> <b>FENDT 700 Vario</b> <b>FENDT 800 Vario</b>	Tractor / General system <b>History of the Favorit 700 tractor range</b>	<b>A</b>
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### **Favorit 700 (Generation 1 - from October 1998)**

Favorit 714 / 21 / 0101 ... 1000 and 716 / 21 / 0101 ... 1000 (pilot production (approx. 50 tractors) from August 1998)

Favorit 714 / 21 / 1001 ... 1139 (1 series from October 1998)

Favorit 716 / 21 / 1001 ... 1354 (1 series from October 1998)

Favorit 714 / 21 / 1139 ... 2000 (redesign of the 1 series)

Favorit 716 / 21 / 1354 ... 2000 (redesign of the 1 series)

### **Favorit 700 (Generation 2 from November 1999 "Agritechnica")**

Favorit 711 / 21 / from 1001 (series start)

Favorit 712 / 21 / from 1001 (series start)

Favorit 714 / 21 / from 2001 (2 series )

Favorit 716 / 21 / from 2001 (2 series)

### **Favorit 700 (Generation 2, Variotronic 2 product update starting November 2001 'Agritechnica')**

Favorit 711 / 21 / 1721 and up, retrofit Chassis No. 21/1001 and up

Favorit 712 / 21 / 2309 and up, retrofit Chassis No. 21/1001 and up

Favorit 714 / 21 / 3450 and up, retrofit Chassis No. 21/2001 ('1 - Box tractor') and up

Favorit 716 / 21 / 4715 and up, retrofit Chassis No. 21/2001 ('1 - Box tractor') and up

### **FENDT 800 Vario (Generation 1 from November 2001 'Agritechnica') / FENDT 700 Vario (Generation 3 from September 2003)**

715 / 21 / from 0101 - FENDT 815 Vario

717 / 21 / from 0101 - FENDT 817 Vario

718 / 21 / from 0101 - FENDT 818 Vario

711 / 21 / from 8001 - FENDT 711 Vario

712 / 21 / from 8001 - FENDT 712 Vario

714 / 21 / from 8001 - FENDT 714 Vario

716 / 21 / from 8001 - FENDT 716 Vario

### **FENDT 800 Vario (Generation 2 from September 2004 "Field Day Wadenbrunn") / FENDT 700 Vario (Generation 4 from September 2004 "Field Day Wadenbrunn") ("stepless roof blower" and "external actuation of auxiliary control valves")**

715 / 21 / from 2001 - FENDT 815 Vario

717 / 21 / from 2001 - FENDT 817 Vario

718 / 21 / from 4001 - FENDT 818 Vario

711 / 21 / from 9001 - FENDT 711 Vario

712 / 21 / from 9001 - FENDT 712 Vario

714 / 21 / from 9001 - FENDT 714 Vario

716 / 21 / from 9501 - FENDT 716 Vario

Date	Version	Page	Capitel	Index	Docu-No.
22.10.2003	d	3/5	History of the Favorit 700 tractor range	0000	A 000050

<b>Fav 700</b> <b>FENDT 700 Vario</b> <b>FENDT 800 Vario</b>	<b>Tractor / General system</b> <b>History of the Favorit 700 tractor range</b>	<b>A</b>
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Type / equipment	711	712	714	716	715 "815"	717 "817"	718 "818"
<b>Vario - transmission</b>	ML 130				ML 160		
	../5176 and up	../5481 and up	../5570 and up	../6105 and up			
	ML 160						
	../8001 and up				B039 - high pressure sensor 2 'push detection'		
	B039 - high pressure sensor 2 'push detection'				Y053 - solenoid valve, cardan brake 'active parking function'		
	Y053 - solenoid valve, cardan brake 'active parking function'						
<b>Rear axle</b>	HA 110		HA 130		HA 160		
<b>Speed selector, rear PTO</b>	electric/hydraulic		mechanical		electric/hydraulic		
			../2001 and up electric/hydraulic				
<b>Engine</b>	BF 6M 2013						
<b>Cold start aid</b>	Cold-start aid				Heating flange		
	../8001 and up						
	Heating flange						
<b>Governor</b>	centrifugal				EMR 2		
	../8001 and up						
	EMR 2						
<b>Belt drive</b>	with auxiliary deflection roller				without auxiliary deflection roller		
	../8001 and up						
	without auxiliary deflection roller						
<b>Open fan</b>	---	---	../9256	../9850	../2057	../2055	../4538
<b>Front axle</b>	ZF APL - 2000 / F6		ZF APL - 2000 / F7		DANA 745 - 110		
	../8025 and up	../8062 and up	../5986 and up	../6847 and up			
	DANA 735 - 110		DANA 745 - 110				
<b>Cab</b>	max. 38' - tyres possible				max. 42' - tyres possible		
			../8001 and up - max. 42' - tyres possible				
<b>Cab suspension"rear</b>	mechanical suspension (shock absorber and spring bracket) (detached design)						
	../9001 and up			../9501 and up	../2001 and up	../4001 and up	
	mechanical suspension (spring strut "helical spring and shock absorber") (standard)				pneumatic suspension (spring strut "air spring bellows and shock absorber") (standard)		
	pneumatic suspension (spring strut "air spring bellows and shock absorber") (optional)						

Date	Version	Page	<b>History of the Favorit 700 tractor range</b>	Capitel	Index	Docu-No.
22.10.2003	d	4/5		<b>0000</b>	<b>A</b>	<b>000050</b>

<b>Fav 700</b> <b>FENDT 700 Vario</b> <b>FENDT 800 Vario</b>	<b>Tractor / General system</b> <b>History of the Favorit 700 tractor range</b>	<b>A</b>
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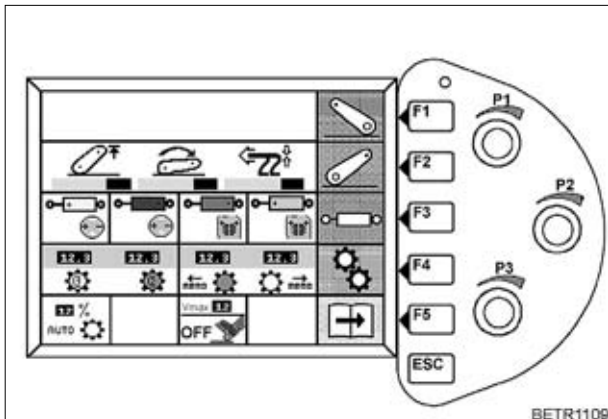
Type / equipment	711	712	714	716	715 "815"	717 "817"	718 "818"	
<b>Rear power lift</b>	Bosch EPC - C				Bosch EPC - OBE			
	../8001 and up EPC OBE							
<b>Working and steering hydraulics</b>	Control pump (110 l/min)							
	Bosch SB 23 auxiliary control valve (max. 80 l/min) and a CAN baudrate of 100 kBit/s				Bosch SB 23 auxiliary control valve (max. 80 l/min) and a CAN baudrate of 250 kBit/s			
	from ../8001 and up, CAN baudrate of 250 kBit/s							
	../9001 and up		../9501 and up		../2001 and up		../4001 and up	
	External valve actuation (optional)				External valve actuation (standard)			
<b>Electrics</b>	3-speed roof blower							
	../9001 and up			../9501 and up		../2001 and up		../4001 and up
	Steplessly adjustable roof blower (retrofit possible)							
	Compact plug for A015 - radio							
	Trailer ABS socket (anti-lock braking system) (optional)							
<b>Electronics</b>	A002 - ECU, enhanced control '1 - Box'		A001 ECU, transmission and A002 - ECU, enhanced control '2 - Box'		A002 - ECU, enhanced control '1 - Box'			
			../2001 and up -- A002 - ECU, enhanced control '1 - Box'					
<b>Electronics box (software programming),</b>	Replace EPROM				Flash programmable			
	from ../8001 and up flash programmable Note: Flash = the EPROM can not be overwritten with EOL.							
<b>Software</b>	Variotronic 1.0				Variotronic TI / TMS			
	../1721 and up	../2309 and up	../3450 and up	../4715 and up				
	Variotronic 2.0							
	../1001 and up		../2001 and up					
	can be updated to Variotronic 2.0							
	../8001 and up Variotronic TI / TMS (optional)							
	../9001 and up			../9501 and up		../2001 and up		../4001 and up
	Variotronic TI / TMS "Generation 2" (optional)				Variotronic TI / TMS "Generation 2"			
	(TMS engine speed can be limited, in pedal mode the joystick can be used to decelerate) <b>Note: Variotronic TI / TMS "Generation 2" can be retrofitted via EOL.</b>							
<b>Additional equipment</b>	../8001 and up				../1001 and up			
	Auto-Guide System (automatic steering system (optional))							

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<p><b>FENDT 700 Vario</b>  <b>FENDT 800 Vario</b>  <b>FENDT 900 Vario</b></p>	<p>Tractor / General system  <b>Tractor diagnostics with terminal A008 (Variotronic Ti)</b></p>	<p><b>A</b></p>
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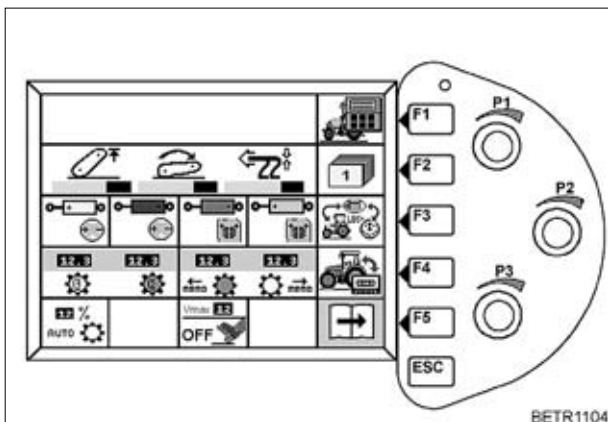
**Ignition ON**

Press **F5** to switch to second main menu level.



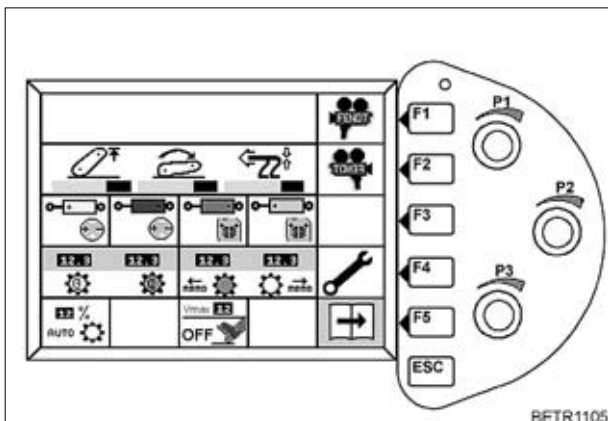
Main menu level two is displayed.

Press **F5** to switch to third main menu level.



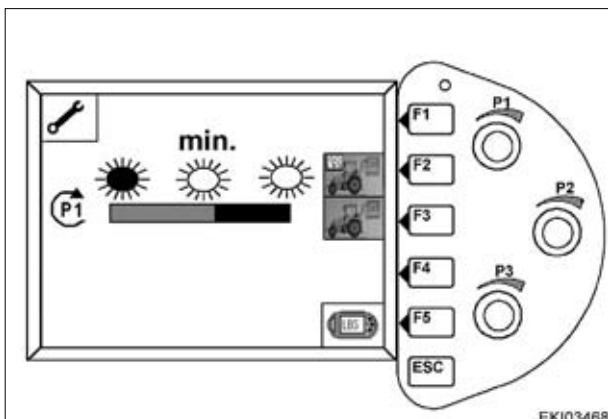
Main menu level two is displayed.

Press **F4** to open Screen Brightness menu.



The Screen Brightness menu is displayed.

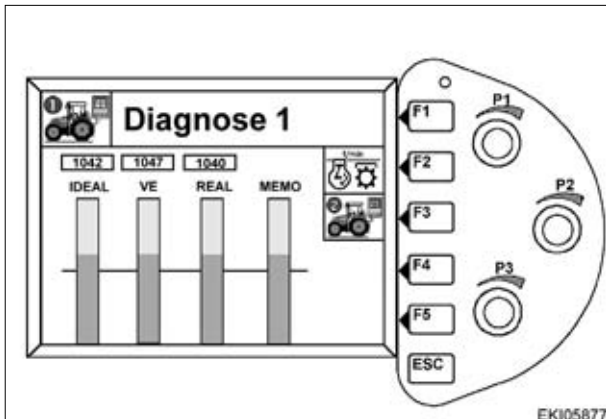
Press **F3** to open Diagnostics Menu 1.



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<p><b>FENDT 700 Vario</b>  <b>FENDT 800 Vario</b>  <b>FENDT 900 Vario</b></p>	<p>Tractor / General system</p> <p><b>Tractor diagnostics with terminal A008 (Variotronic Ti)</b></p>	<p><b>A</b></p>
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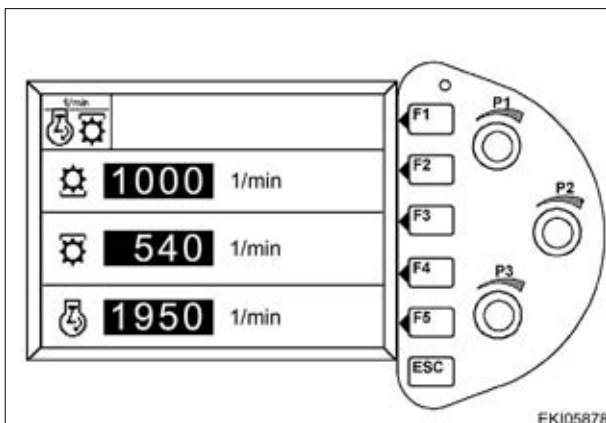


**Diagnostics Menu 1** is displayed.

- **IDEAL** - target value for transmission ratio from **A034** - joystick
- **VE** - feedback from the incremental encoder of the **A009** - actuator unit
- **REAL** - actual transmission adjustment in the transmission unit (**B014** - sensor, accumulator shaft).
- **Memo**- Bar indicator for programmed change of driving direction.

IDEAL / VE / REAL is represented graphically by a bar indicator, and a decimal value from +10000 (forward) to -10000 (reverse) is also displayed. If the transmission adjustment is OK, the decimal values and bar indicator are approximately the same.

Press **F2** to change to the Engine Speed Menu.  
 Press **ESC** to return to Screen Brightness Menu.



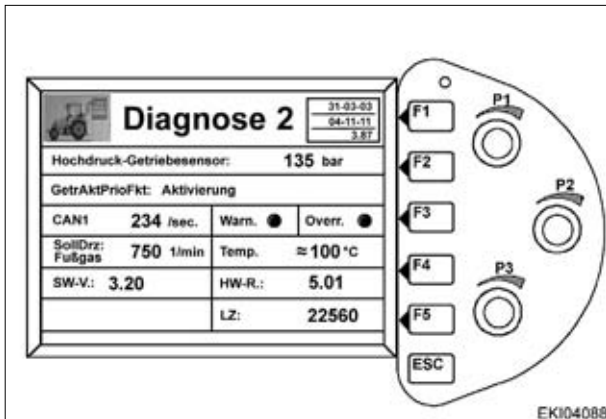
The **Engine Speed Display** menu is displayed

Press **ESC** to return to Diagnostics Menu 1.

**Diagnostics Menu 1** is displayed.

Press **F3** to open Diagnostics Menu 2.

<p><b>FENDT 700 Vario</b>  <b>FENDT 800 Vario</b>  <b>FENDT 900 Vario</b></p>	<p>Tractor / General system</p> <p><b>Tractor diagnostics with terminal A008 (Variotronic Ti)</b></p>	<p><b>A</b></p>
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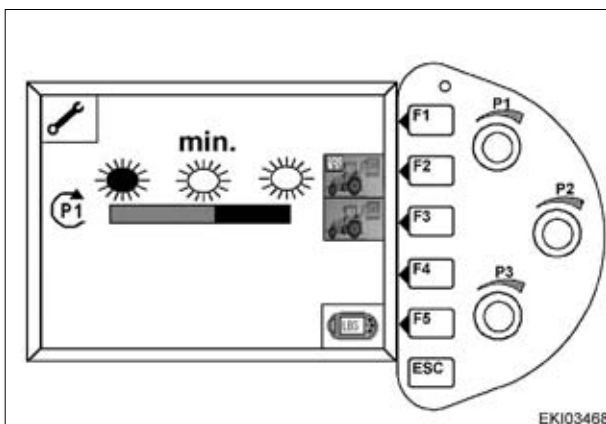
**Diagnostics Menu 2** is displayed.

Press **F1** to display the project version and the date created. This is only displayed while F1 is being pressed.

Press **F3** to open Diagnostics Menu 1.

- High pressure - transmission sensor - Sensor B008, displays oil pressure in the transmission high pressure circuit. (bar)
- Transmission - Action - Priority - Function, indicates the current control status of the transmission. (1. activation, 2. joystick, 3. rapid reverse, 4. clutch, 5. range selector, 6. maximum output control, 7. end speed control, 8. hydrostat pressure limiter, 9. engine stall protection, 10. engine overspeed protection, 11. cruise control, 12. emergency operation, 13. accelerator pedal, 14. none (default)).
- CAN1 messages: - total CAN messages transferred via protocol 1 and 2. Display shows messages per second.
- Target speed accelerator potentiometer **B029** shows target engine speed. (rpm)
- The fault status for CAN **overruns** and CAN **warnings** are shown as LED's, in fault-free status both LED's are green. **Overruns** occur when the CAN controller receives so many messages, that the processing of hardware interrupts can not be carried out fast enough. **Warnings** are reported when the internal error counter exceeds a specific value. That means that the bus is malfunctioning.
- Temperature sensor discharge **B009**, shows discharge temperature from the transmission high pressure circuit. (Temperatures under 50°C are shown as '**Temp. < 50°C**'; temperatures over 120°C are shown as '**Temp. > 120°C**' )
- Software Version, indicates the terminal's software version.
- Hardware Version (Release), indicates the terminal's hardware version.
- Load counter of the **A002** - ECU, enhanced control. If the ECU is unloaded (few signals are analysed), a value of around 22000 is indicated; if ECU loading is increasing, a lower value is shown.

Press **F3** to return to **Diagnostics Menu 1** and continue back to the Screen Brightness menu with **ESC**.

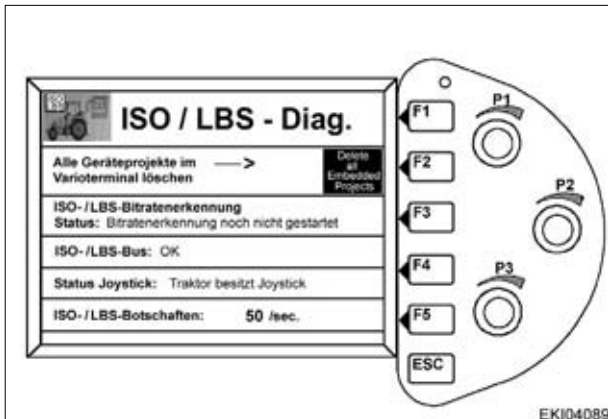


The Screen Brightness menu is displayed.

Press **F2** to change to the ISO / LBS Diagnostics Menu.

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<p><b>FENDT 700 Vario</b>  <b>FENDT 800 Vario</b>  <b>FENDT 900 Vario</b></p>	<p>Tractor / General system</p> <p><b>Tractor diagnostics with terminal A008 (Variotronic Ti)</b></p>	<p><b>A</b></p>
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The **ISO / LBS Diagnostics** menu is displayed.

- **Delete all implement projects from the Varioterminal** - for the case that problems with the implement project occur, all implement projects can be removed from the terminal memory here. To remove the implement projects press the key **F2** .
- **ISO / LBS bit rate recognition status**: - indicates the status of automatic bit rate recognition (rate of data transfer between tractor and implement).
- **ISO / LBS Bus**- status of the ISO / LBS bus.
- **Status Joystick** - indicates if joystick is assigned to the tractor or the implement.
- **ISO / LBS messages**: - shows how many messages are being transferred per second.

Change back to the Main Menu by pressing **ESC** several times.

**Note:**

The **Diagnostics Terminal** is no substitute for transmission pressure measurements or electrical readings.

The **Diagnostics Terminal** provides a reference value for the Vario transmission functions and CAN system.

**Possible applications:**

- Tractor - loss of power (Question: Transmission or engine? )
- Transmission is too hot (Question: How high is the transmission discharge temperature during different operations?)
- Checking the specified engine speed

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<b>FENDT 700 Vario</b>	<b>Tractor / General system</b>	<b>A</b>
<b>Technical specifications FENDT 700 Vario</b>		

Model		711	712
Engine			
Type of engine		BF6M 2013-C	BF6M 2013-C
Turbocharger / intercooler		with / with	with / with
No. of cylinders / cooling		6 / water	6 / water
Bore / stroke	mm	98/126	98 / 126
Effective displacement	l	5.7	5.7
Idle speed	rpm	780 ±30	780 ±30
Rated speed	rpm	2100	2100
No-load engine speed	rpm	2250 ±25	2250 ±25
Fuel	l	300	300
Engine stop		electrical	electrical
Noise level at driver's ear	dB(A)	72	72
Angle of engine			
Tractor stability must be guaranteed			
Lengthwise in travel direction front / rear	degree	25	25
Across travel direction left / right	degree	25	25
Weights and dimensions			
At 50 km/h, with the following tyres and tracks			
Tyres front		420/70R28	420/70R28
Tyres rear		520/70R38	520/70R38
Track width front	mm	1880	1880
Track width rear	mm	1860	1860
Overall length	mm	4615	4615
Overall width	mm	2429	2429
Overall height	mm	2859	2859
Ground clearance	mm	528	528
Wheelbase	mm	2700	2700
Flange centre distance front	mm	1860	1860
Flange centre distance rear	mm	1716	1716
Min. turning circle radius without / with steering brake	M	5.5/4.9	5.5/4.9
Kerb weight	kg	6170	6170
Permissible gross weight with spring accumulator hand brake	kg	10500	10500
Permissible gross weight with mechanical hand brake	kg	9500	9500
Permissible maximum front axle load	kg	4120	4120
Max. perm. rear axle load	kg	6700	6700
Maximal vertical load on trailer coupling	kg	2000	2000
Rear PTOs 540/540E/1000			
PTO profile		1 3/8' 6-spline	1 3/8' 6-spline
PTO speed at rated engine speed and 540 setting	rpm	587	587
PTO speed at rated engine speed and 540E setting	rpm	762	762
PTO speed at rated engine speed and 1000 setting	rpm	1103	1103
Max. permissible torque at 540 setting	Nm	2200	2200
Max. permissible torque for 540E setting	Nm	1650	1650
Max. permissible torque at 1000 setting	Nm	1200	1200
Front PTO 1000 (540 optional)			
PTO speed at rated speed, 1000 / 540 version	rpm	1083/580	1083/580
Max. permissible torque	Nm	749/1397	749/1397
Hydraulics			
Working pressure	bar	200	200
Hydraulic pump	l/min	110	110

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