

FENDT

Werkstatthandbuch

Workshopmanual

Manuel d'atelier

Manual de taller

Manuale per l'officina

Werkplaatshandboek

FENDT 900 Vario COM III

X 990.005.057.012

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FENDT

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F	Setting and calibrating
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F	Setting and calibrating
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FENDT 900 Vario - COM III

Volume 1

0000	Overall system/tractor
1005	Overall system/transmission
1010	Transmission/differential
1015	Transmission/axle drive
1050	Transmission/housing
1070	Transmission / Brake system
1080	Transmission/drive train
1200	Transmission/front PTO
1220	Transmission / Live PTO
1320	Transmission/front wheel drive
2000	Overall system/engine
2010	Engine/cylinder head
2050	Engine/cooling
2060	Engine/fuel system
2210	Engine/crankcase
2312	Engine/lubrication
2400	Engine/exhaust system
2712	Engine/injectors
3000	Overall system/front axle
3120	Front axle/steering cylinder
3180	Front axle/cardan shaft

Volume 2

4000	Overall system/steering
4090	Steering system / hydraulic steering unit
5030	Vehicle layout/operator's seat
5500	Overall system/air conditioning system
8100	Overall system/cab
8610	Power lift/EPC electro-hydraulic control
8631	Power lift/hydraulic lift
8800	Overall system/compressed air system

Volume 3

9000	Overall system/electrical system
9015	Electrical system/starter lockout

FENDT 900 Vario - COM III

Volume 4

- 9410 Hydraulic pump installation/LS pump**
- 9430 Hydraulic pump installation/steering pump**
- 9534 Hydraulic piping/"Rüfa"reverse operation**
- 9600 Overall system/hydraulic equipment**
- 9605 Hydraulic equipment/hydraulic connections**
- 9610 Hydraulic equipment/central control block (ZSB)**
- 9620 Hydraulic equipment/valve fitting**
- 9700 Overall system/electronics**
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F Setting and calibrating

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1 General information on calibration

To compensate for mechanical and electrical tolerances in sensors, the sensors concerned must be calibrated. If a sensor is replaced, it must be calibrated.

The following sensors and functions require calibration

1. Rear EPC calibration (depth control code 8001 and rear power lift position code 8002)
2. Calibration, EPC front (code 9001 and code 9002)
3. Calibration, crossgate lever (hydr. auxiliary valves) (code 1001)
4. Calibration, linear module 1 (hydr. auxiliary control valve) (code 1003)
5. Calibration, linear module 2 (hydr. auxiliary control valve) (code 1004)
6. Calibration, linear module 3 (hydr. auxiliary control valve) (code 1005)
7. Calibration, linear module 4 (hydr. auxiliary control valve) (code 1006)
8. Calibration, front axle suspension (code 7666)
9. Steering calibration (steering angle sensor code 2401/Autoguide control valve code 2403)
10. Calibration, rear PTO coupling time (code 6034)
11. Calibration, front PTO coupling time (code 7034)
12. Calibration, drive clutch pedal (code 4001)
13. Calibration, hand throttle (code 4002)
14. Calibration, travel range selector (code 4003)
15. Calibration, foot throttle pedal (code 4005)
16. Calibration, transmission ratio characteristic (code 4007)
17. Calibration, turbo-clutch function (code 4009)
18. Calibration, throttle pedal resolution (code 4010)
19. Calibration, heater valve (no code)

NOTE: Observe the calibration sequence.

Calibrations 1 to 11 and 19 can be performed in any order.

Calibrations 12 to 18 must be performed in sequence and en block (transmission calibration).
The transmission emergency operation must not be switched on during calibration.
(Transmission oil temperature higher than approx. 40°C during transmission calibration).

If incorrect values are detected or the conditions are not met, an **ERROR** message appears.
If calibration completes successfully, **OK** is displayed, and the new sensor settings are stored.

Data are only accepted when ignition key is turned to position "0".

(Wait for at least 15 seconds before switching on the ignition again!)

Menu levels on the A007 instrument panel

If no error message is present:



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

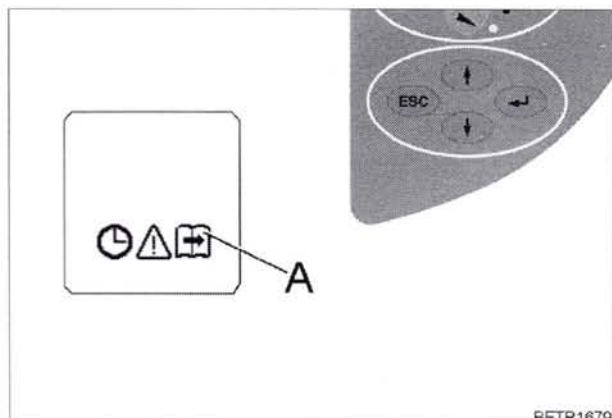
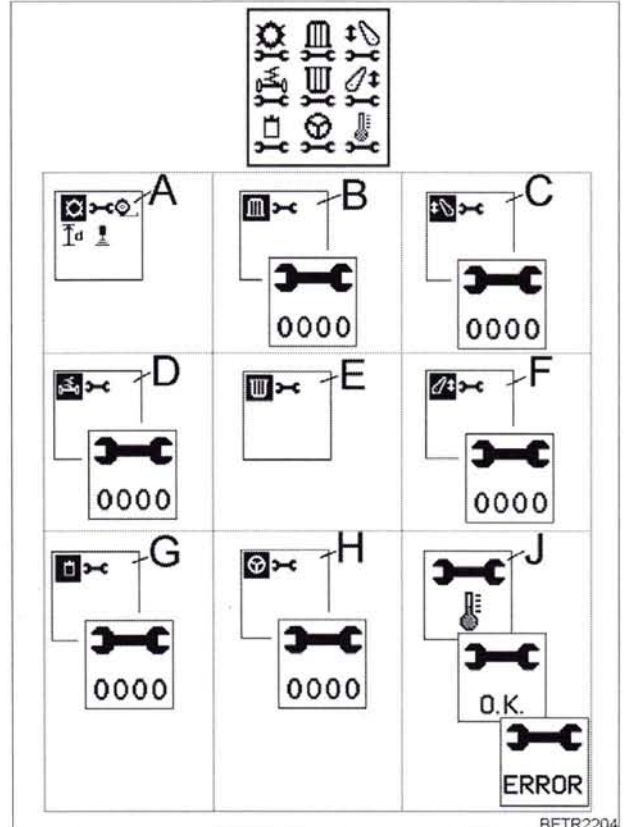


Fig. 1.

BETR1679
1000761

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	

Second main menu in the A007 instrument panel



BETR2204
1001079

Fig. 2.



Transmission menu

Front PTO menu (for front PTO only)

Front power lift menu (for EPC front power lift only)

Front axle suspension menu

Rear PTO menu

Rear power lift menu



Hydraulics menu



Steering menu



Heater valve menu



Transmission menu

Transmission menu

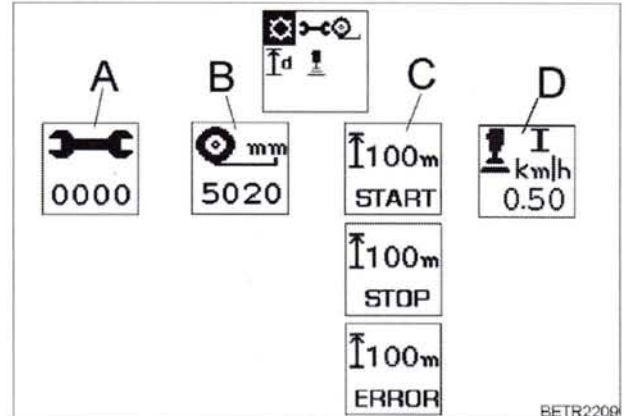


Fig. 3.

BETR2209
 1001091



Transmission calibration, Display (A)



Change wheel circumference, Display (B)



Calibrate speed display, Display (C)



Change acceleration ramp I, Display (D) (Note: adjustment range from 0.02-0.5 km/h possible)

Rear PTO menu

Rear PTO menu

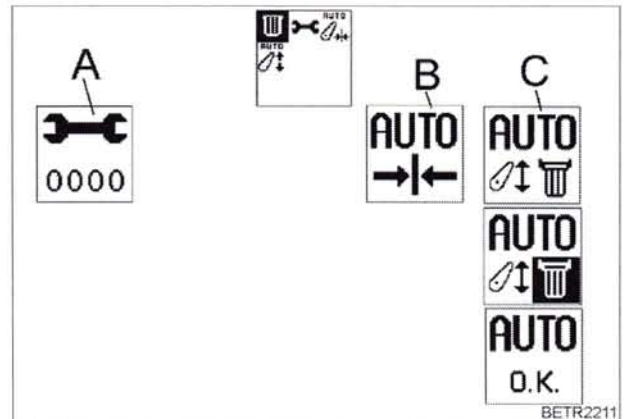


Fig. 4.

BETR2211
1001101

Rear PTO calibration, Display (A)



Select factory setting for auto mode switch-on point, Display (B) (see also: Operating Manual)



Change auto mode switch-on point, Display (C) (see also: Operating Manual)



2 Calibration code 8001, 8002 (EPC rear)

1. Calibration of the EPC rear

Calibration of depth control (8001)

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Ignition ON
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

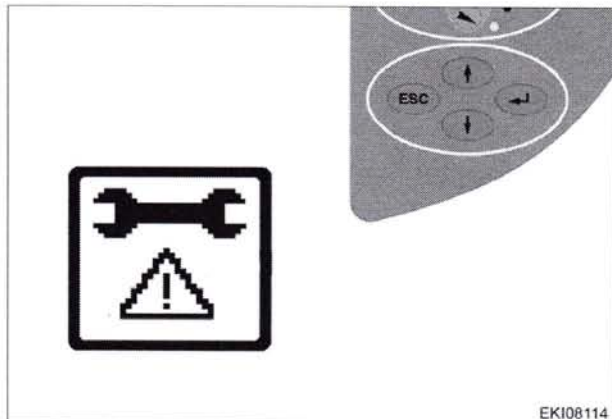


Fig. 5.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press "Return", the second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes

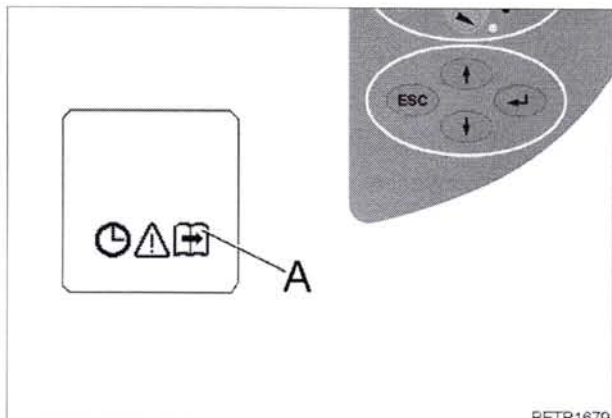


Fig. 6.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

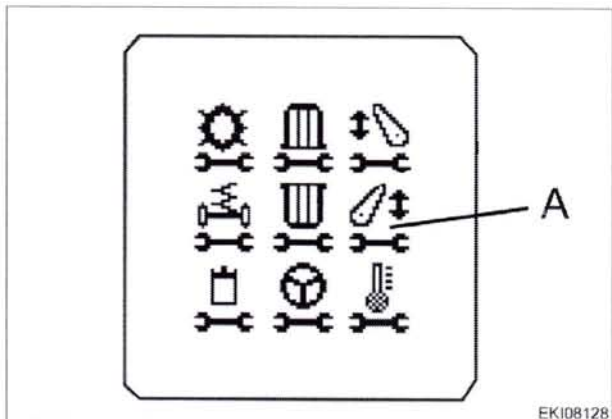


Fig. 7.

EKI08128
1000843

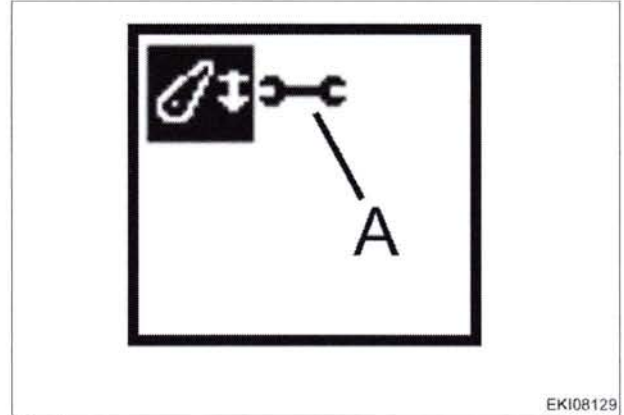
The rear power lift menu level appears on the multi-display.



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EKI08129
1000899

Fig. 8.

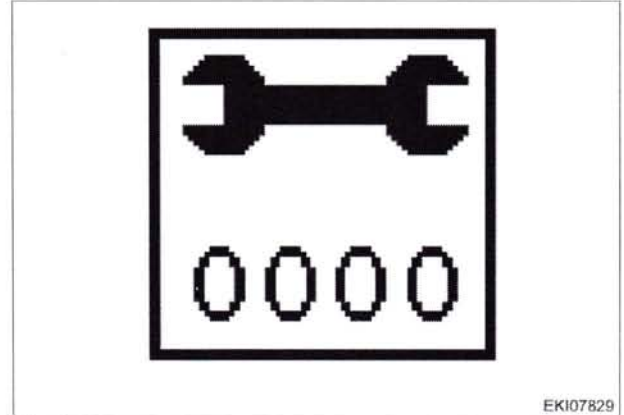
Input code **8001**



Press one of the buttons until the required number is displayed



Press "Return" to confirm



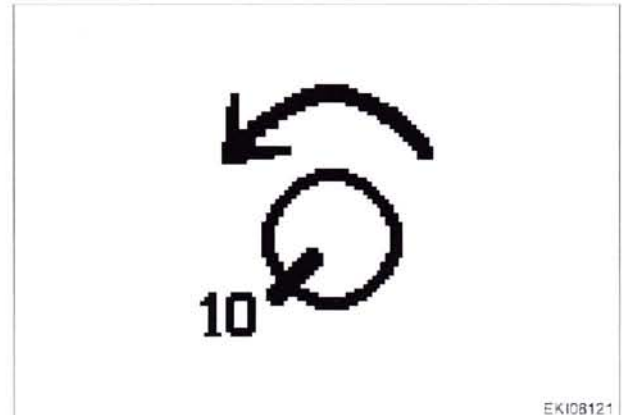
EKI07829
1000773

Fig. 9.

Rotate depth control to Pos. 10 (floating position)



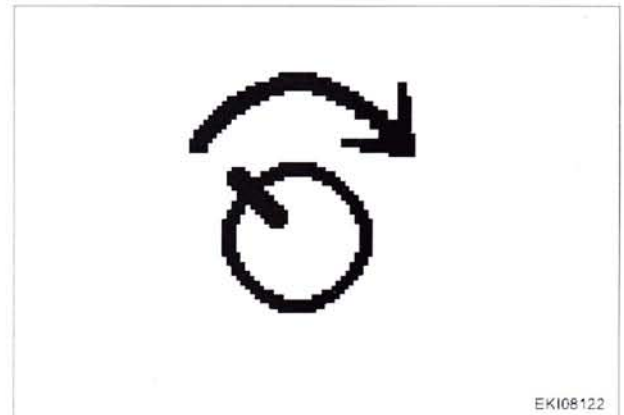
Press "Return" to confirm



EKI08121
1000886

Fig. 10.

Slowly rotate depth control to the right



EKI08122
1000887

Fig. 11.

Slowly rotate depth control to the right

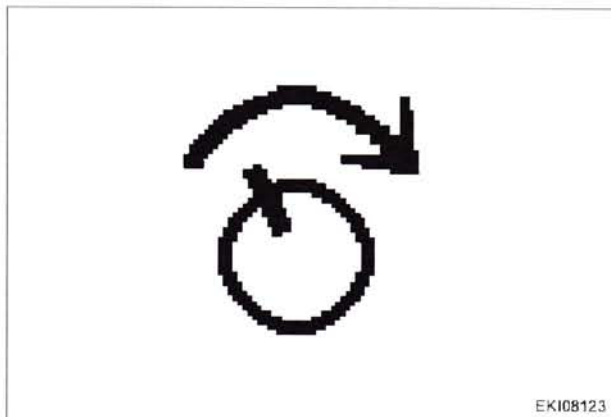


Fig. 12.

EKI08123

1000888

Slowly rotate depth control to the right

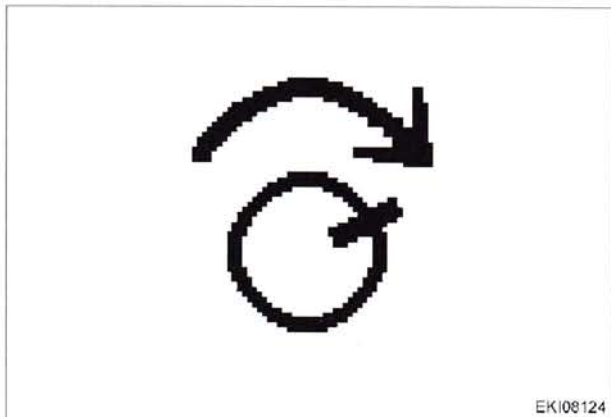


Fig. 13.

EKI08124

1000889

NOTE: If the depth control is rotated too quickly, an image will appear.
 Rotate depth control back slightly

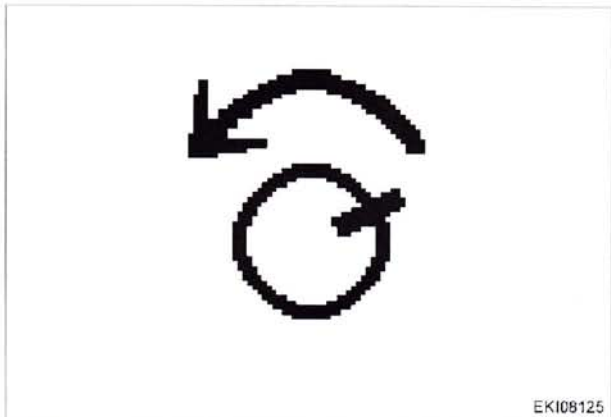


Fig. 14.

EKI08125

1000890

Rotate depth control to Pos. 0

Press "Return" to confirm

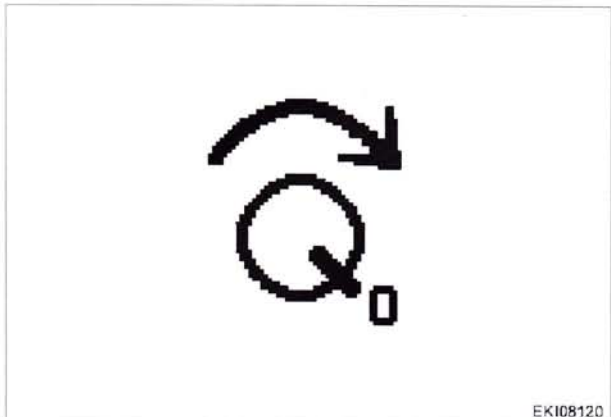


Fig. 15.

EKI08120

1000847

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.

(Wait for at least 15 seconds before switching on the ignition again!)



EKI09015

I003578

Fig. 16.

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

8001 = calibration code

FXX = error code (see table)

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)



EKI09022

I003591

Fig. 17.

Fault code	Cause
F02	Calibrated values are invalid
F03	A039 multifunction armrest failing to report
F08	Calibration taking too long (more than 30 seconds)
F09	User terminated calibration with ESC

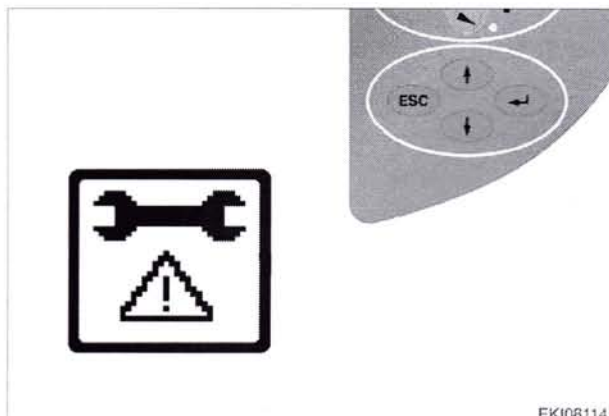
Calibration of rear power lift position (code 8002)

Important: The following preparatory steps must be carried out

- Hand brake applied
- Start engine
- If fault messages are displayed, the faults must be confirmed one by one.



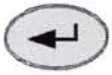
Confirm warning and fault messages shown on the A007 instrument panel with the "ESC" button.



EKI08114

I000760

Fig. 18.



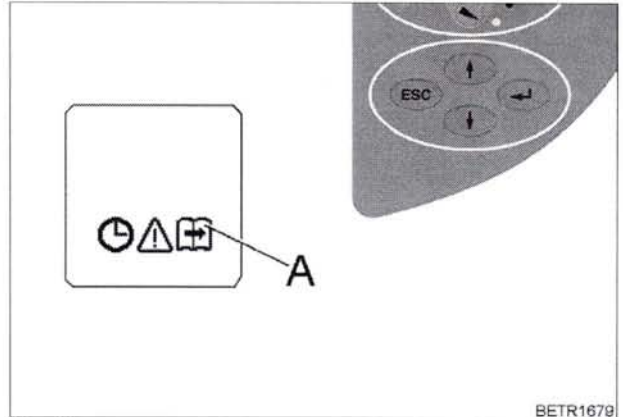
Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display



BETR1679
1000761

Fig. 19.

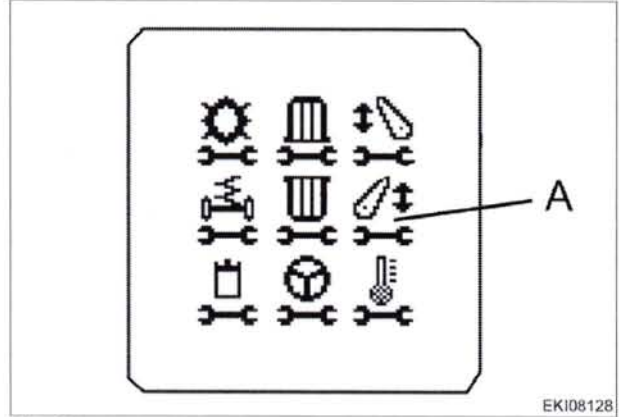
The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EKI08128
1000843

Fig. 20.

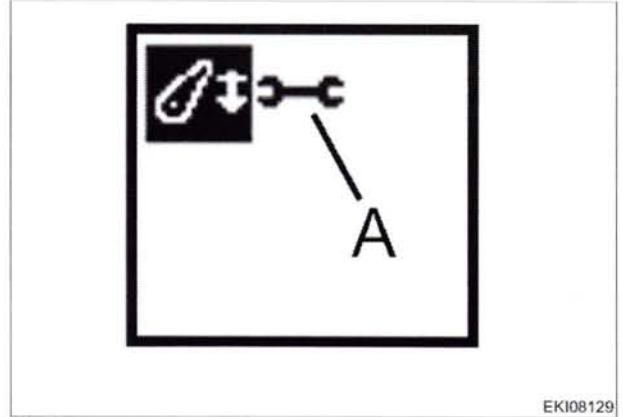
The rear power lift menu level appears on the multi-display.



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EKI08129
1000899

Fig. 21.

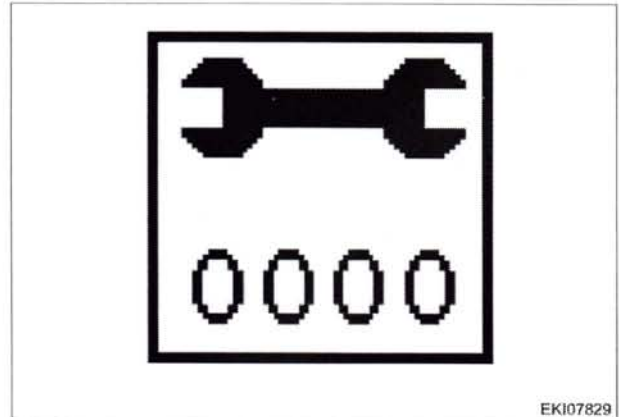
Input code **8002**



Press one of the buttons until the required number is displayed



Press "Return" to confirm

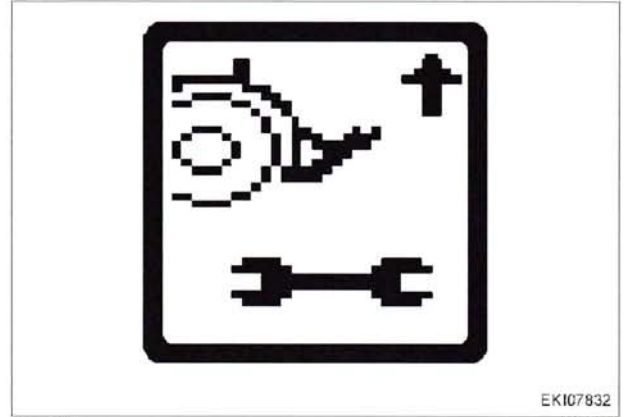


EKI07829
1000773

Fig. 22.

Set quick lift switch to "Raise". The lifting gear rises up and remains in its uppermost position

Press "Return" to confirm



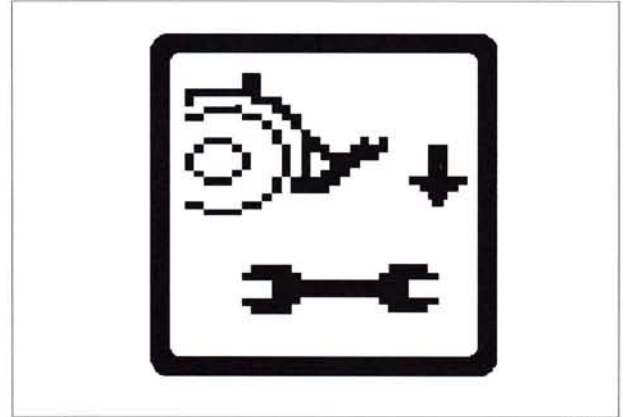
EKI07832

Fig. 23.

1000893

Set quick lift switch to "Lower". The linkage lowers and remains in its lowermost position

Press "Return" to confirm

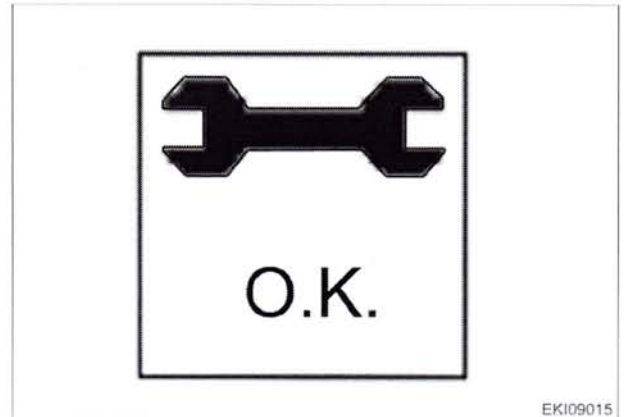


1000532

Fig. 24.

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)

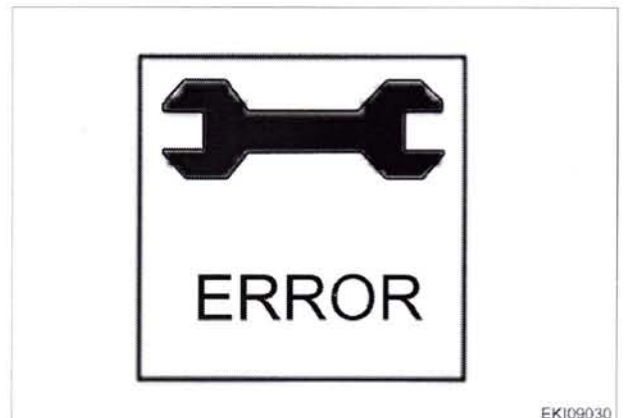


EKI09015

Fig. 25.

1003578

If faulty values are found, is displayed **ERROR**
Place ignition key in position "0"
Wait for at least 15 seconds before switching on ignition again!
Carry out calibration again.



EKI09030

Fig. 26.

1003599

3 Calibration code 9001, 9002 (front EPC)

2. Calibrating the front EPC

Calibrating the depth control (9001)

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Ignition ON
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

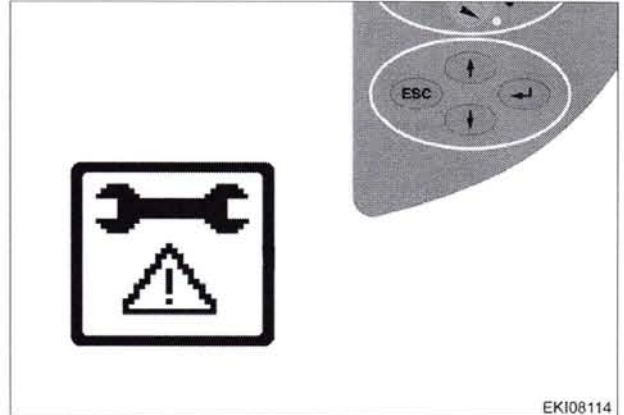


Fig. 27.

EKI08114
 I000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

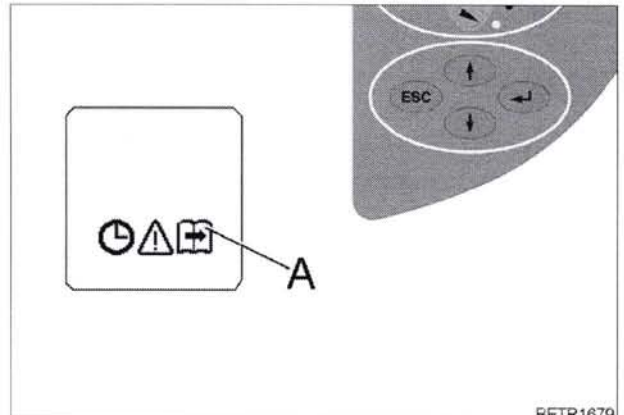


Fig. 28.

BETR1679
 I000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

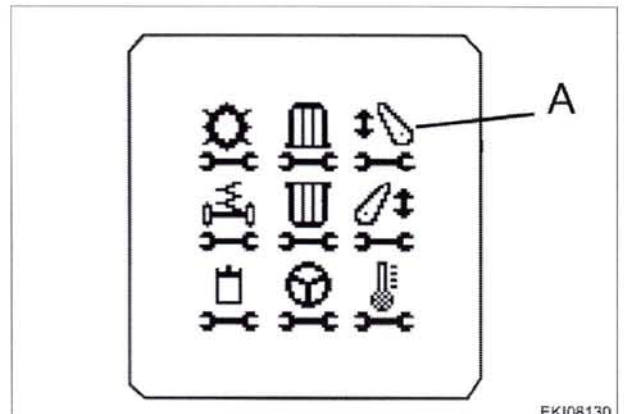


Fig. 29.

EKI08130
 I000910

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	

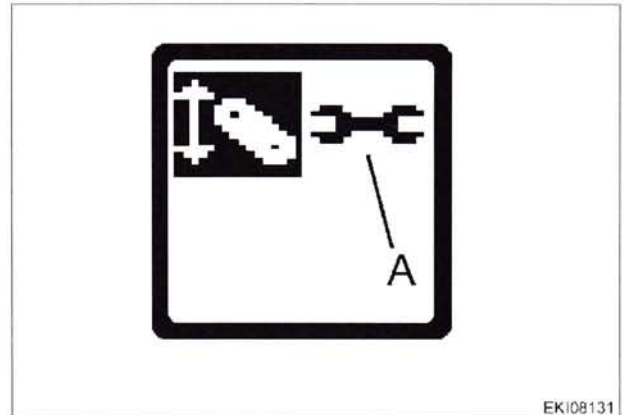
The front power lift menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EKI08131

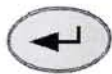
1000911

Fig. 30.

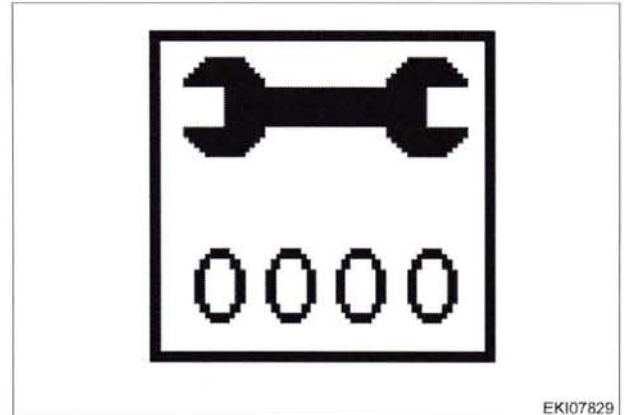
Input code **9001**



Press one of the buttons until the required number is displayed



Press "Return" to confirm



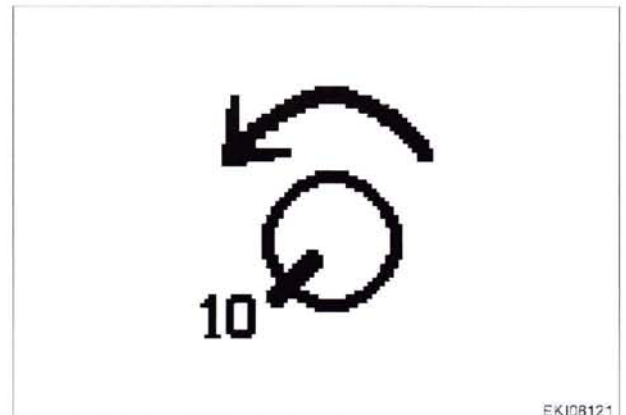
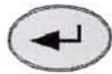
EKI07829

1000773

Fig. 31.

Rotate depth control to Pos. 10 (floating position)

Press "Return" to confirm

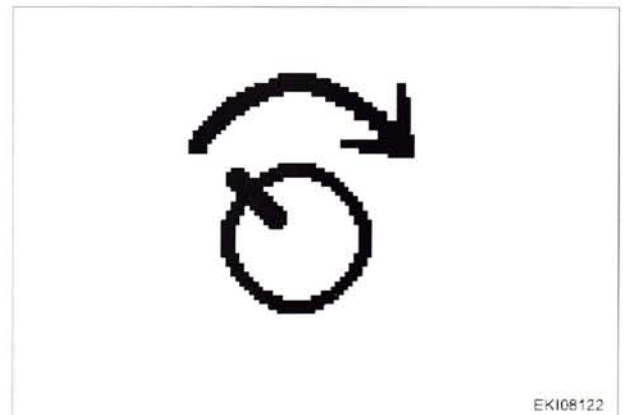


EKI08121

1000886

Fig. 32.

Slowly rotate depth control to the right

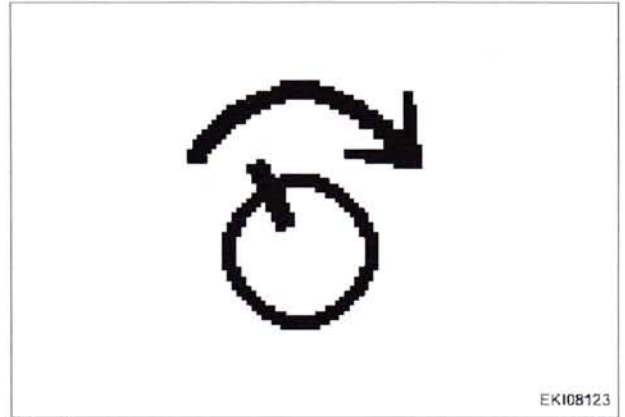


EKI08122

1000887

Fig. 33.

Slowly rotate depth control to the right

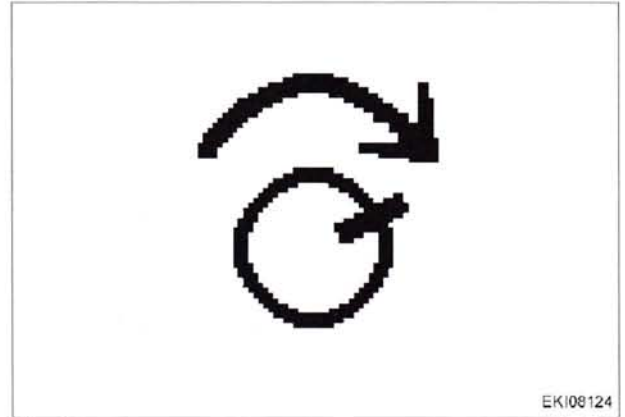


EKI08123

Fig. 34.

1000888

Slowly rotate depth control to the right

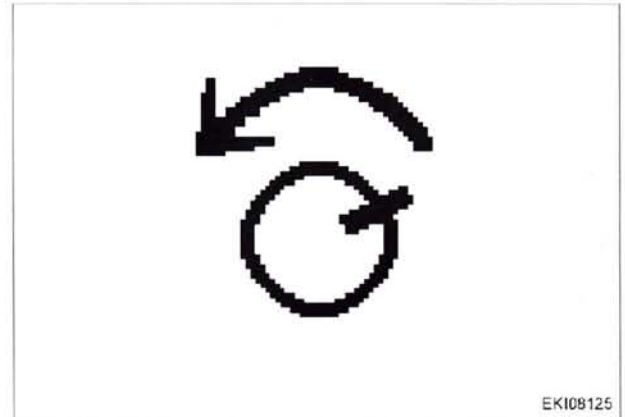


EKI08124

Fig. 35.

1000889

NOTE: If the depth control is rotated too quickly, an image will appear.
 Rotate depth control back slightly



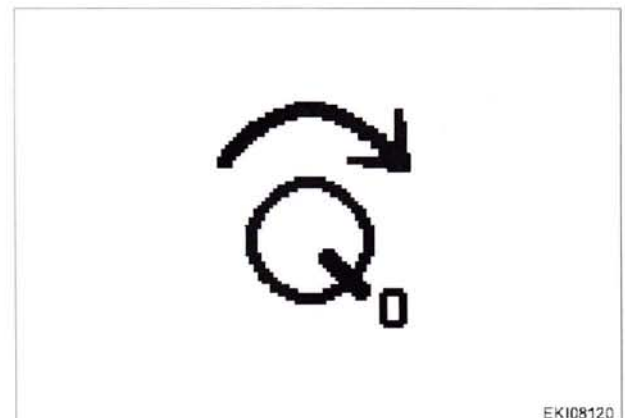
EKI08125

Fig. 36.

1000890

Rotate depth control to Pos. 0

Press "Return" to confirm



EKI08120

Fig. 37.

1000847

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.
 (Wait for at least 15 seconds before switching on the ignition again!)

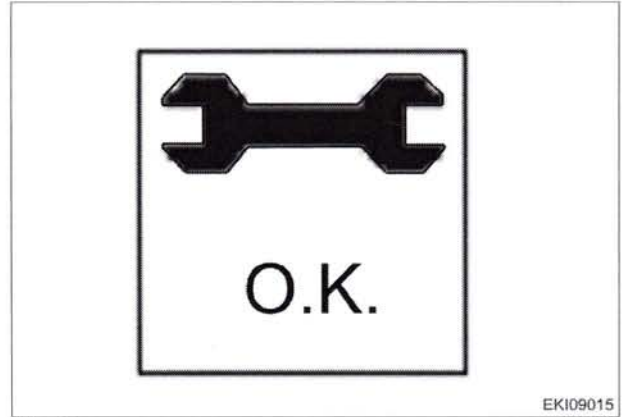


Fig. 38.

EKI09015
 I003578

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

9001 = calibration code
FXX = error code (see table)

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (as of autumn 2007)



Fig. 39.

EKI09024
 I003593

Fault code	Cause
F02	Calibrated values are invalid
F03	A039 multifunction armrest failing to report
F08	Calibration taking too long (more than 30 seconds)
F09	User terminated calibration with ESC

Calibrating the front power lift position (code 9002)

Important: The following preparatory steps must be carried out

- Hand brake applied
- Start engine
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

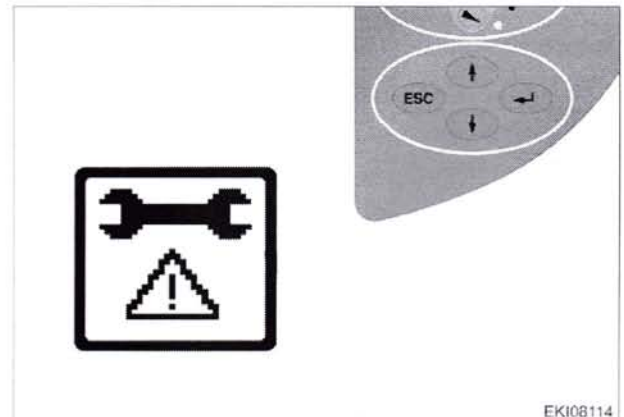


Fig. 40.

EKI08114
 I000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

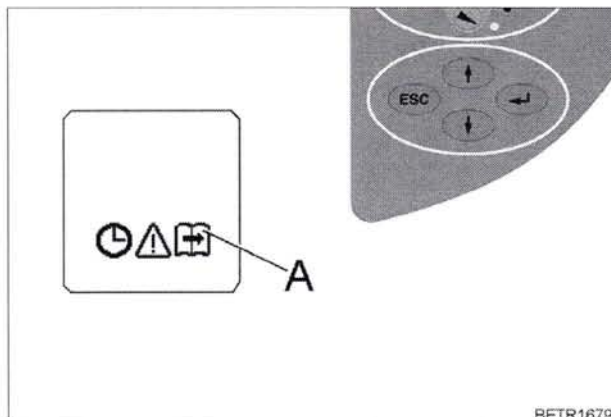


Fig. 41.

BETR1679
 I000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

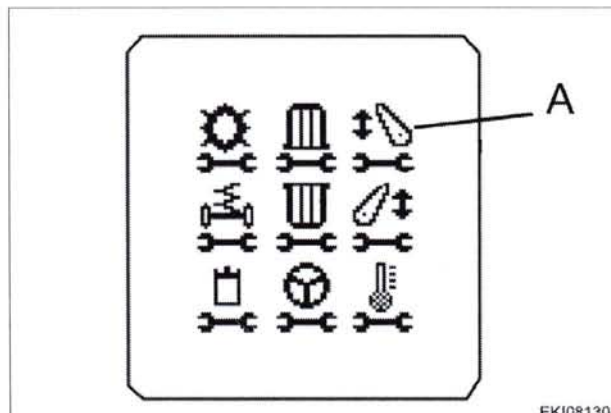


Fig. 42.

EKI08130
 I000910

The front power lift menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

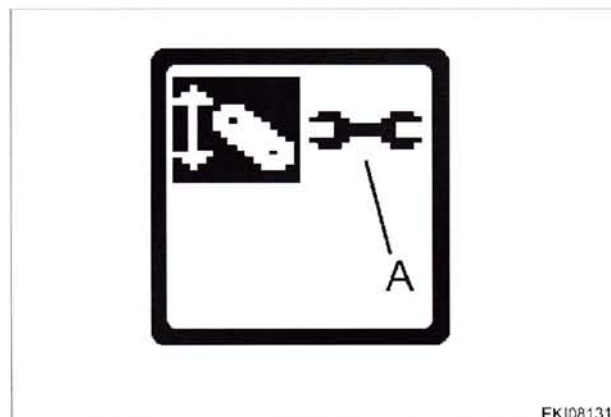


Fig. 43.

EKI08131
 I000911

Input code **9002**



Press one of the buttons until the required number is displayed



Press "Return" to confirm

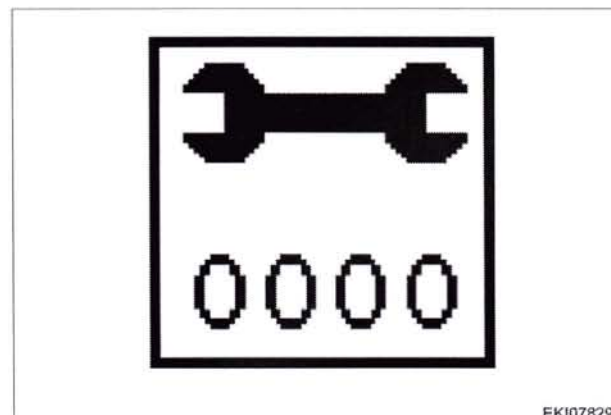


Fig. 44.

EKI07829
 I000773

Set quick lift switch to "Raise". Front power lift will raise and stop at the top



Press "Return" to confirm

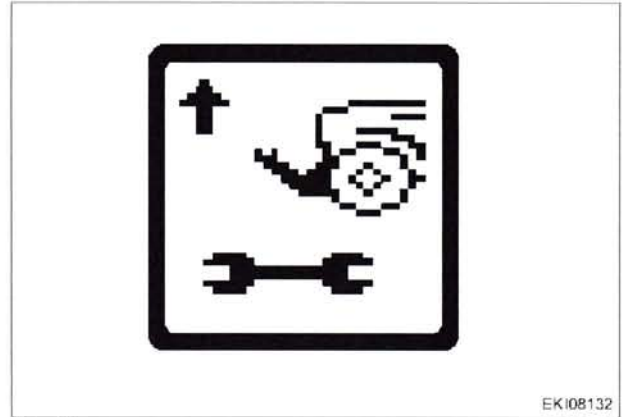


Fig. 45.

EKI08132
1000918

Set quick lift switch to "Lower". Front power lift will lower and stop at the bottom



Press "Return" to confirm

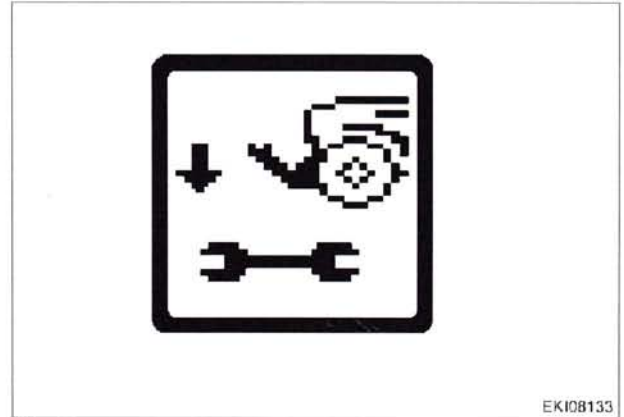


Fig. 46.

EKI08133
1000919

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)



Fig. 47.

EKI09015
1003578

If faulty values are found, is displayed **ERROR**
Place ignition key in position "0"
Wait for at least 15 seconds before switching on ignition again!
Carry out calibration again.

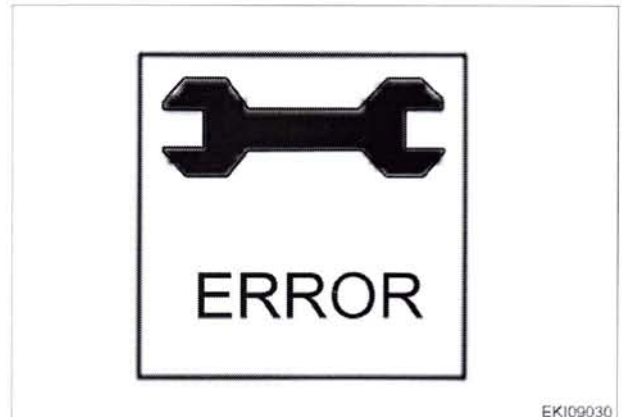


Fig. 48.

EKI09030
1003599

4 Calibration code 1001 (crossgate lever)

3. Calibrating the crossgate lever (1001)

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Ignition ON
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

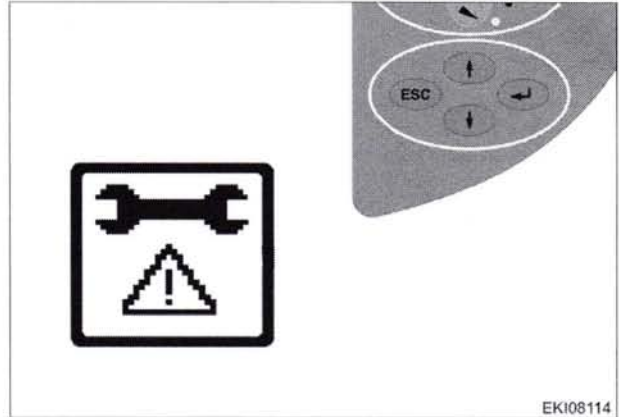


Fig. 49.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

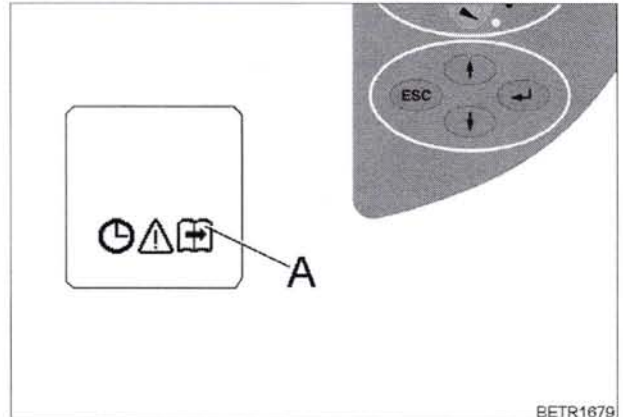


Fig. 50.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

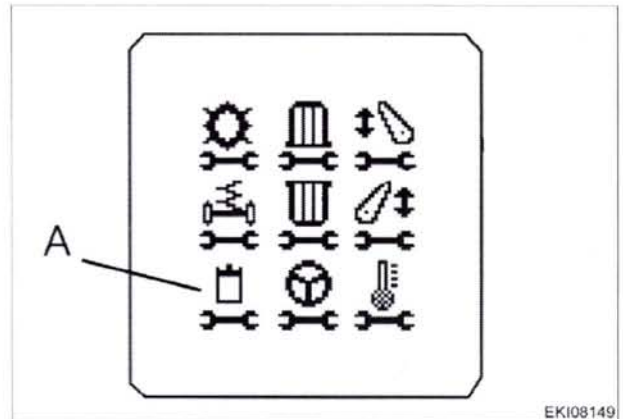


Fig. 51.

EKI08149
1000935

The auxiliary control valve menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

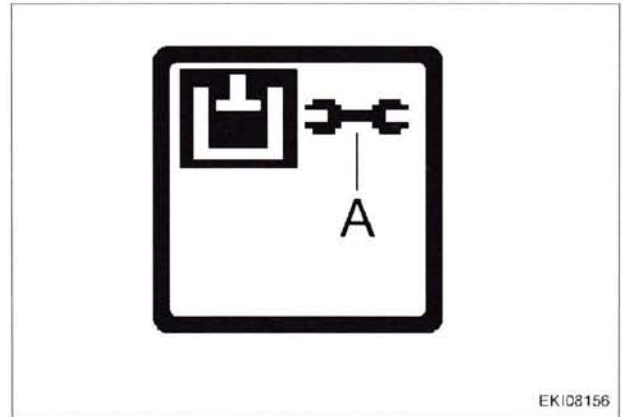


Fig. 52.

EKI08156

1000939

Input code **1001**



Press one of the buttons until the required number is displayed



Press "Return" to confirm

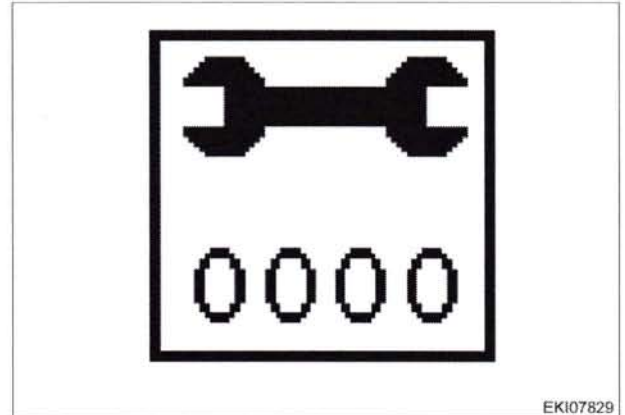


Fig. 53.

EKI07829

1000773

Release crossgate lever (centres automatically)

Press "Return" to confirm this position

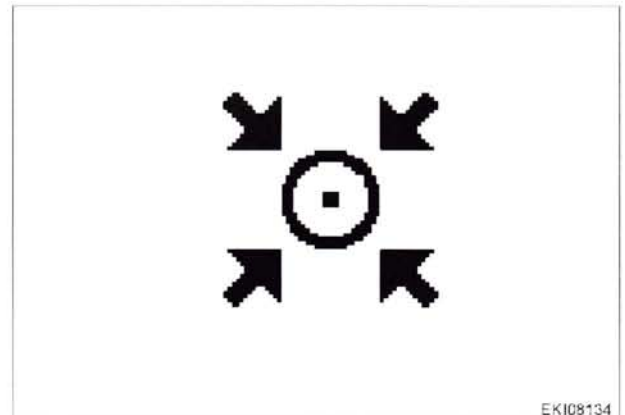


Fig. 54.

EKI08134

1000941

Push crossgate lever to right and exert excessive pressure against spring
Hold crossgate lever

Press "Return" to confirm this position

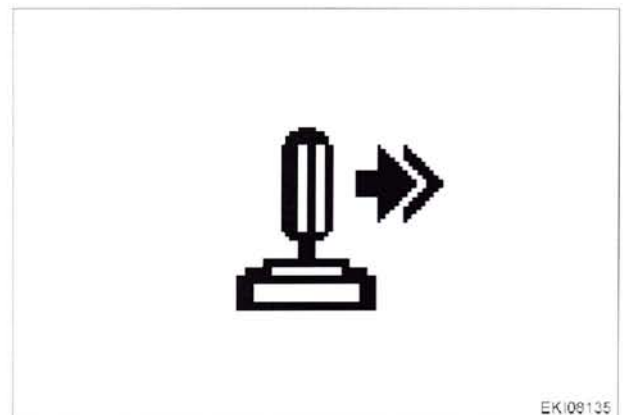
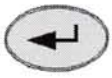


Fig. 55.

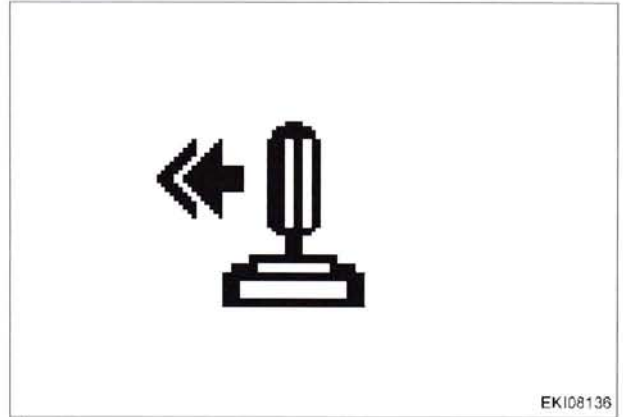
EKI08135

1000942

Push crossgate lever to left (exert excessive pressure against spring)
 Hold crossgate lever



Press "Return" to confirm this position

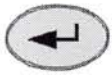


EKI08136

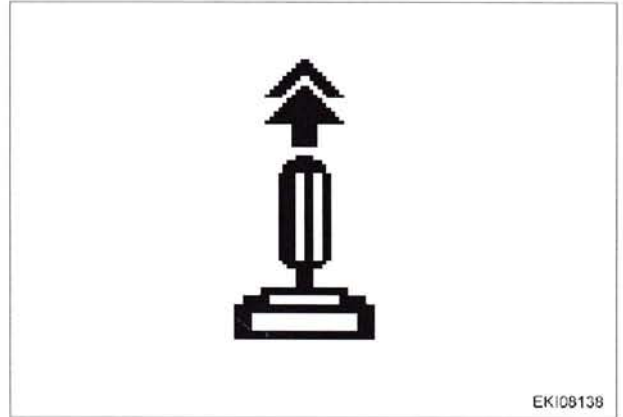
Fig. 56.

1000943

Push crossgate lever forward (exert excessive pressure against spring)
 Hold crossgate lever



Press "Return" to confirm this position



EKI08138

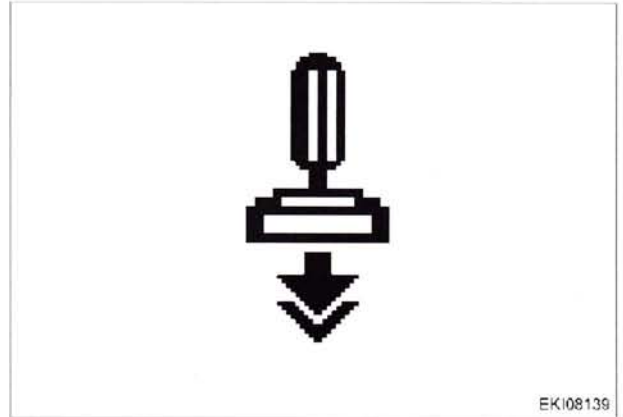
Fig. 57.

1000944

Pull crossgate lever backwards (exert excessive pressure against spring)
 Hold crossgate lever



Press "Return" to confirm this position



EKI08139

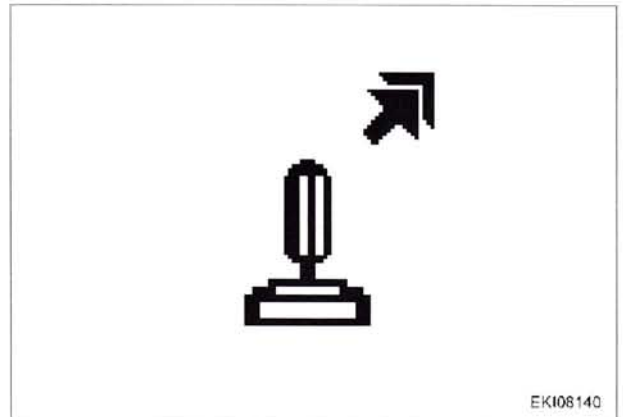
Fig. 58.

1000945

Push crossgate lever at front right into the corner (exert excessive pressure against spring)
 Hold crossgate lever



Press "Return" to confirm this position



EKI08140

Fig. 59.

1000946

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	

Push crossgate lever at rear right into the corner (exert excessive pressure against spring)
Hold crossgate lever



Press "Return" to confirm this position

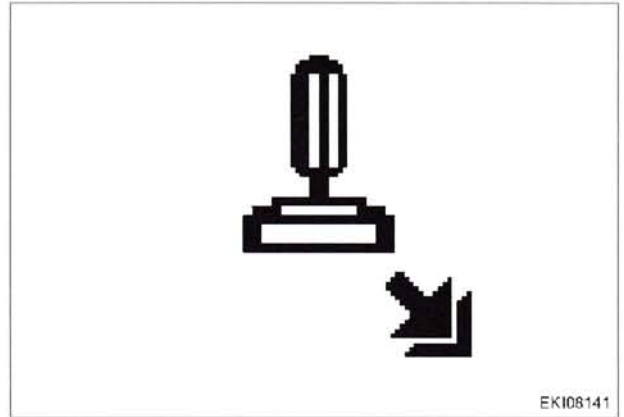


Fig. 60.

EKI08141
1000947

Push crossgate lever at rear left into the corner (exert excessive pressure against spring)
Hold crossgate lever



Press "Return" to confirm this position

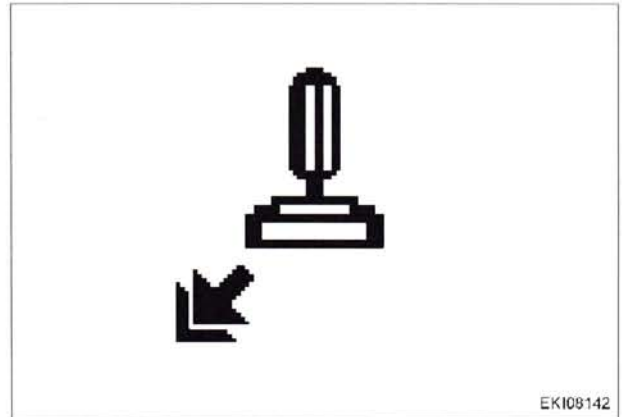


Fig. 61.

EKI08142
1000948

Push crossgate lever at front left into the corner (exert excessive pressure against spring)
Hold crossgate lever



Press "Return" to confirm this position



Fig. 62.

EKI08143
1000949

Push crossgate lever to right (do not exert excessive pressure against spring)
Hold crossgate lever



Press "Return" to confirm this position

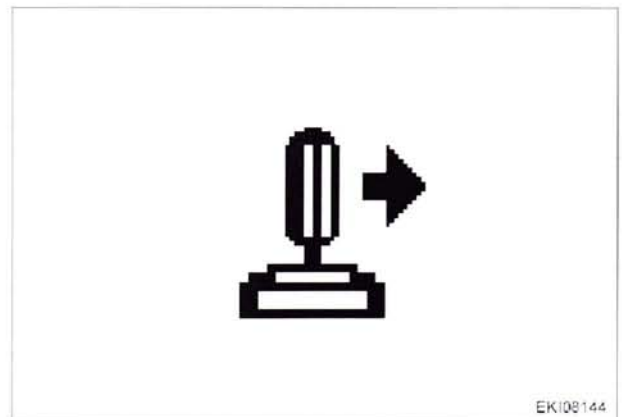


Fig. 63.

EKI08144
1000950

Push crossgate lever to left (do not exert excessive pressure against spring)
 Hold crossgate lever



Press "Return" to confirm this position

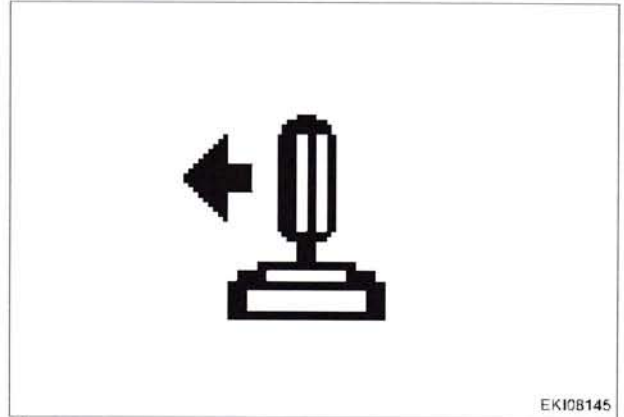


Fig. 64.

EKI08145

I000951

Push crossgate lever forwards (do not exert excessive pressure against spring)
 Hold crossgate lever



Press "Return" to confirm this position



Fig. 65.

EKI08146

I000952

Pull crossgate lever backwards (do not exert excessive pressure against spring)
 Hold crossgate lever



Press "Return" to confirm this position

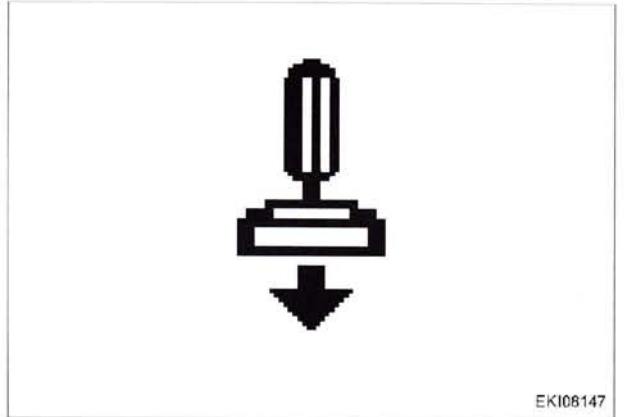


Fig. 66.

EKI08147

I000953

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.
 (Wait for at least 15 seconds before switching on the ignition again!)



Fig. 67.

EKI09015

I003578

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

1001 = calibration code

FXX = fault code

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)



EKI09026
1003595

Fig. 68.

Fault code	Cause
F02	Calibrated values are invalid
F03	A039 multifunction armrest failing to report
F08	Calibration taking too long (more than 30 seconds)
F09	User terminated calibration with ESC

5 Calibration code (1003 ... 1006) (linear module)

4. - 7. Calibrating linear module (1003 ... 1006)

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Ignition ON
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

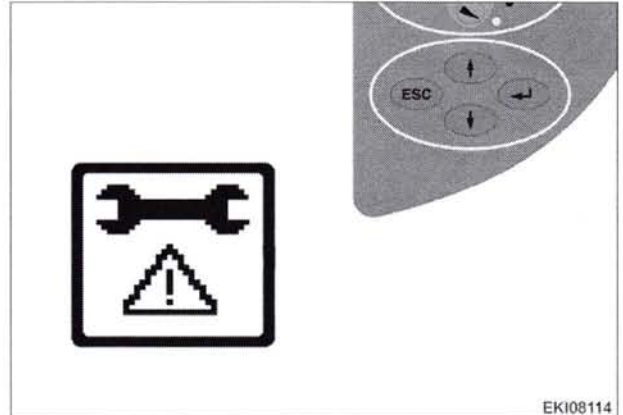


Fig. 69.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

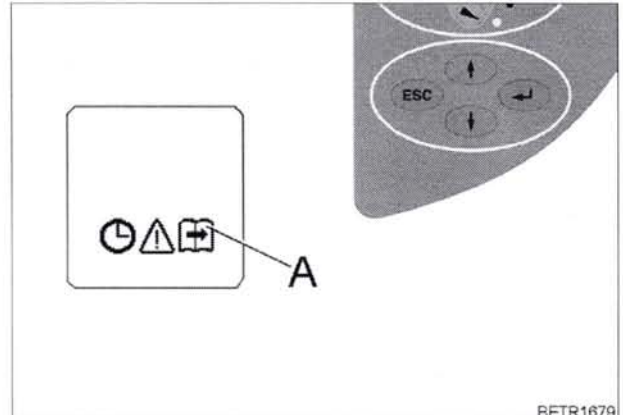


Fig. 70.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

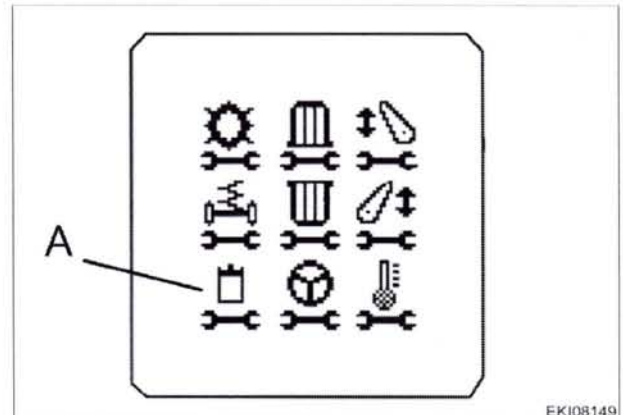


Fig. 71.

EKI08149
1000935

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	

The auxiliary control valve menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

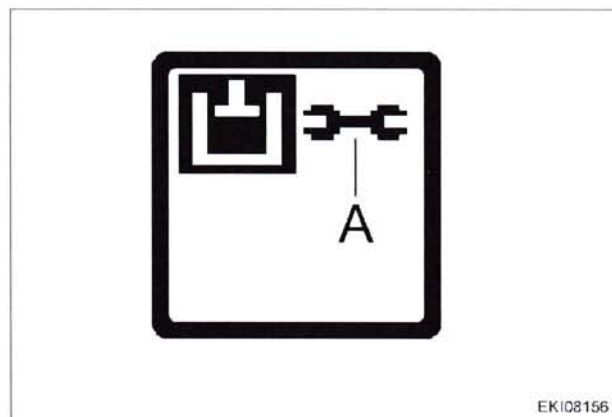


Fig. 72.

EKI08156

1000939

Linear module 1 = **code 1003**

Linear module 2 = **code 1004**

Linear module 3 = **code 1005**

Linear module 4 = **code 1006**



Press one of the buttons until the required number is displayed



Press "Return" to confirm

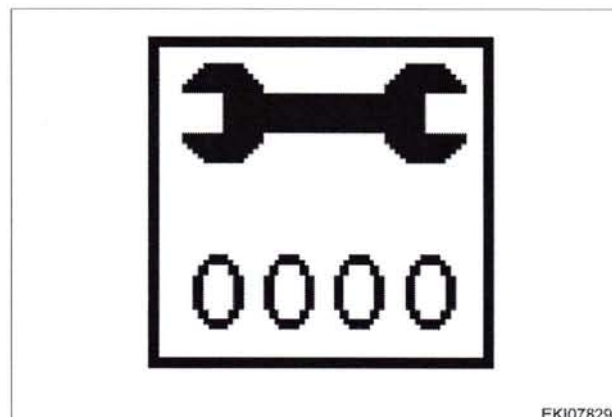


Fig. 73.

EKI07829

1000773

Push linear module forward (exert excessive pressure against spring)

Hold linear module



Press "Return" to confirm

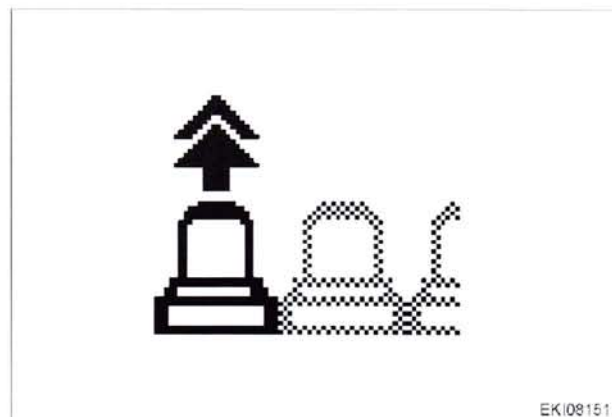


Fig. 74.

EKI08151

1000964

Pull linear module backwards (exert excessive pressure against spring)

Hold linear module



Press "Return" to confirm

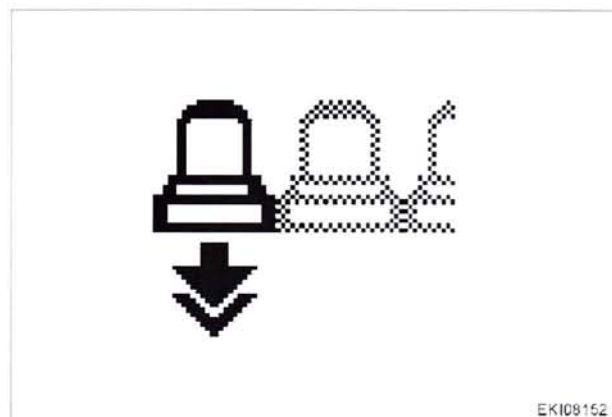


Fig. 75.

EKI08152

1000965

Release linear module (centres automatically)

Press "Return" to confirm this position

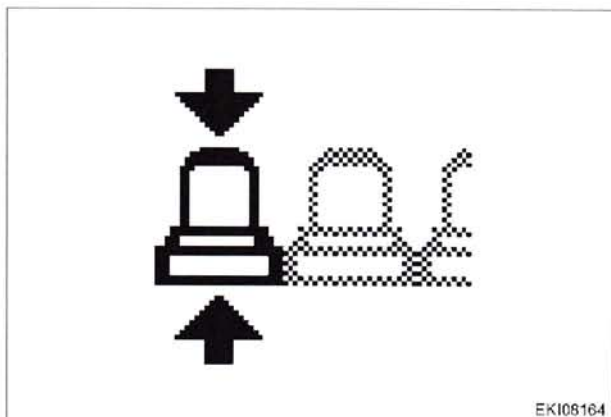


Fig. 76.

EKI08164

1000970

Push linear module forwards (do not exert excessive pressure against spring)

Hold linear module

Press "Return" to confirm

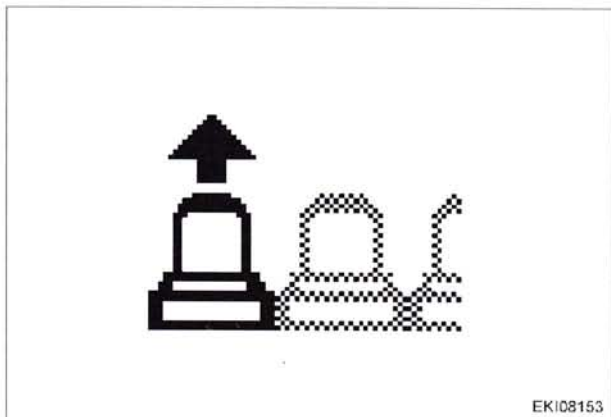


Fig. 77.

EKI08153

1000966

Pull linear module backwards (do not exert excessive pressure against spring)

Hold linear module

Press "Return" to confirm

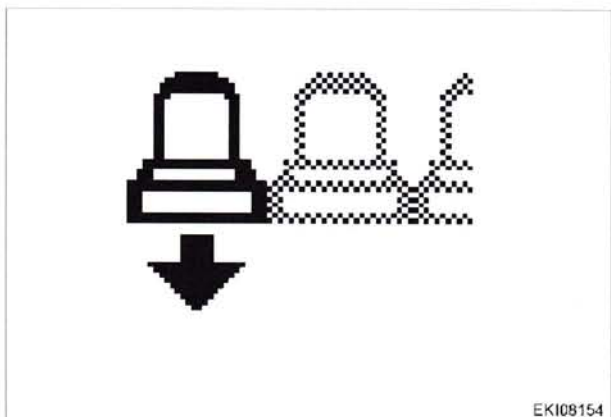


Fig. 78.

EKI08154

1000967

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.

(Wait for at least 15 seconds before switching on the ignition again!)



Fig. 79.

EKI09015

1003578

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

1003 = calibration code, linear module 1

1004 = calibration code, linear module 2

1005 = calibration code, linear module 3

1006 = calibration code, linear module 4

FXX = fault code

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)



EKI09031

1003600

Fig. 80.

Fault code	Cause
F02	Calibrated values are invalid
F03	A039 multifunction armrest failing to report
F08	Calibration taking too long (more than 30 seconds)
F09	User terminated calibration with ESC

6 Calibration code 7666 (front axle suspension)

8. Calibrating the front axle suspension (7666)

WARNING: Calibration operation:

Once the input code has been confirmed, the tractor will raise and lower automatically!

Important: The following preparatory steps must be carried out.

- Position the tractor on a flat, level surface
- Hand brake applied
- Start engine
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

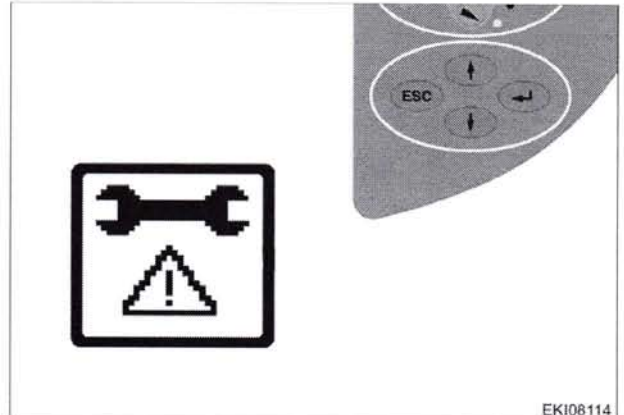


Fig. 81.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

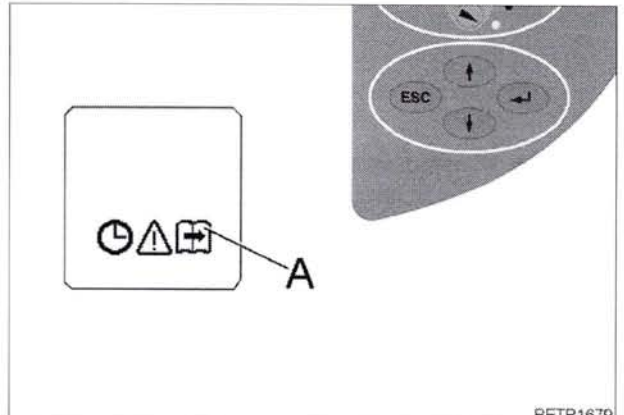


Fig. 82.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

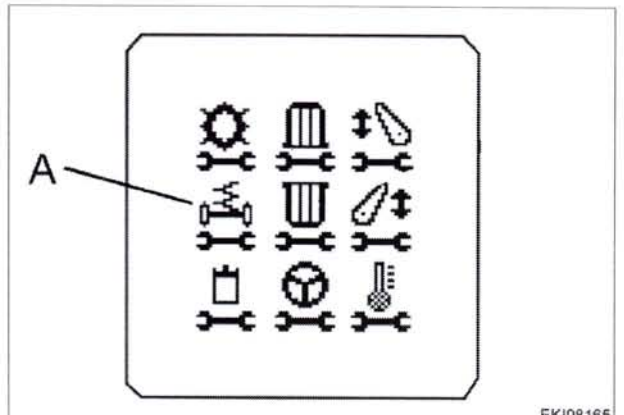


Fig. 83.

EKI08165
1000976



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



WARNING: Once the input code has been confirmed, the tractor will raise and lower automatically!

Input code **7666**



Press one of the buttons until the required number is displayed



Press "Return" to confirm



The flashing arrow indicates the desired limit position
 The tractor is raised to the upper limit position



Press "Return" to confirm the upper limit position

The flashing arrow indicates the desired limit position
 The tractor is lowered to the lower limit position



Press "Return" to confirm the lower limit position

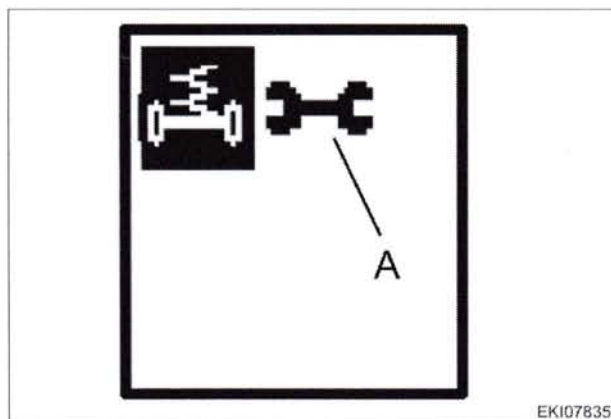


Fig. 84.

EKI07835
 1000977

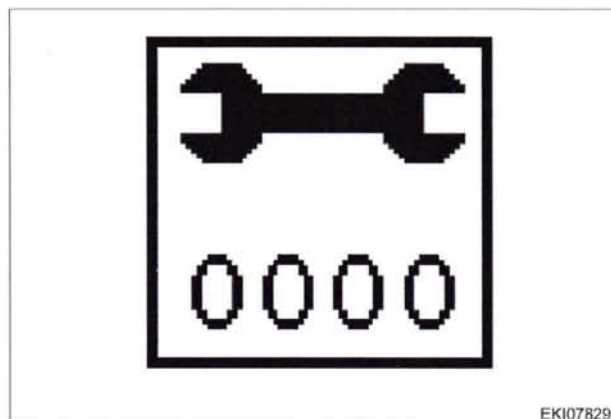


Fig. 85.

EKI07829
 1000773

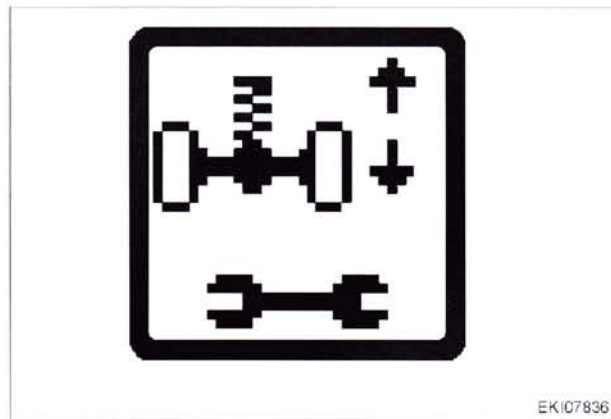


Fig. 86.

EKI07836
 1000978

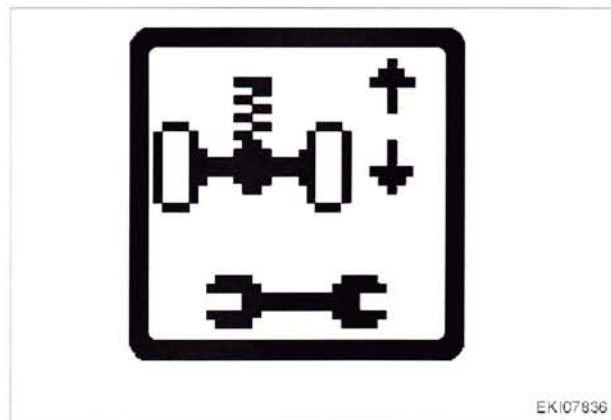


Fig. 87.

EKI07836
 1000978

If incorrect values are detected or the conditions are not met, an **ERROR** message appears

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)

7 Calibration code 2401 (steering angle sensor) (calibration only possible for tractors with Auto-Guide)

9. Calibrating the steering angle sensor (2401)

Important: The following preparatory steps must be carried out.

NOTE: Calibration procedure from end-of-line program EOL 7.60 or higher

- Engine is running
- Switch Auto-Guide standby button to off (LED off) or to partial activation (LED flashes)
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

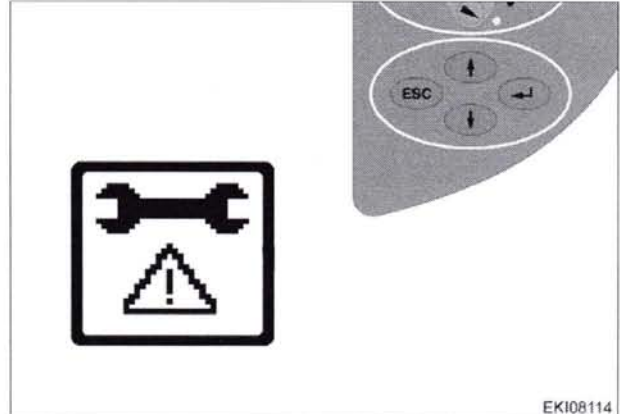


Fig. 88.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

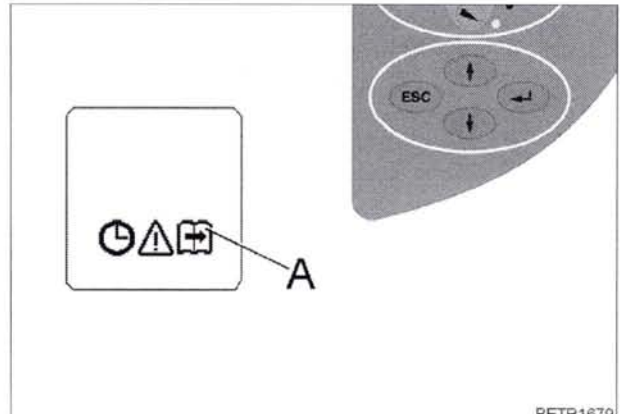


Fig. 89.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

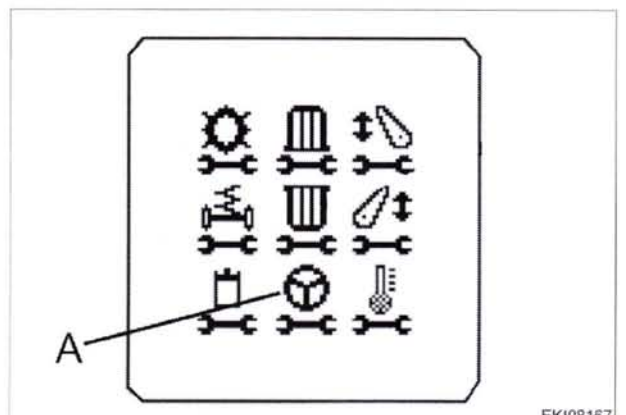


Fig. 90.

EKI08167
1000980



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

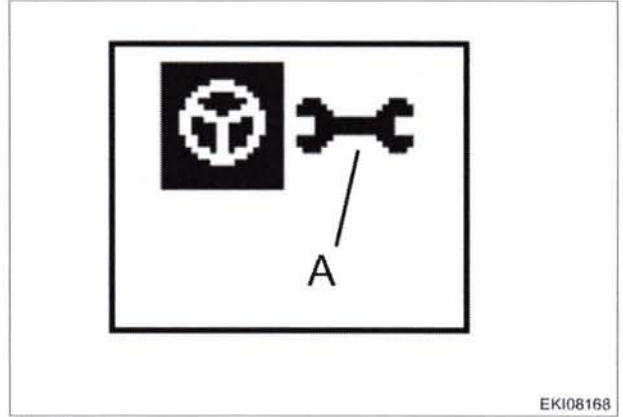


Fig. 91.

EKI08168
 1000984

Input code 2401



Press one of the buttons until the required number is displayed



Press "Return" to confirm

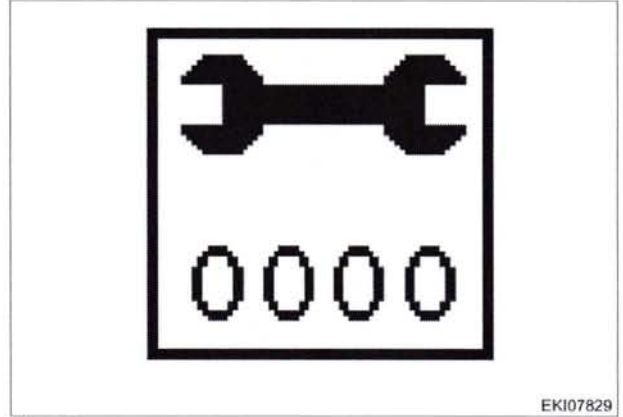


Fig. 92.

EKI07829
 1000773

Turn steering wheel against the left steering lock and hold

Press "Return" to confirm

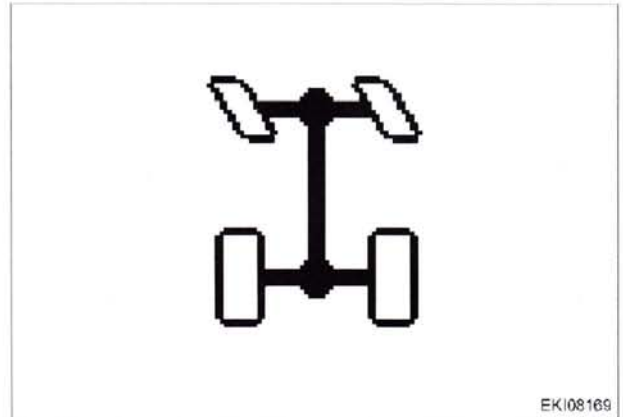


Fig. 93.

EKI08169
 1000961

Turn steering wheel against the right steering lock and hold

Press "Return" to confirm

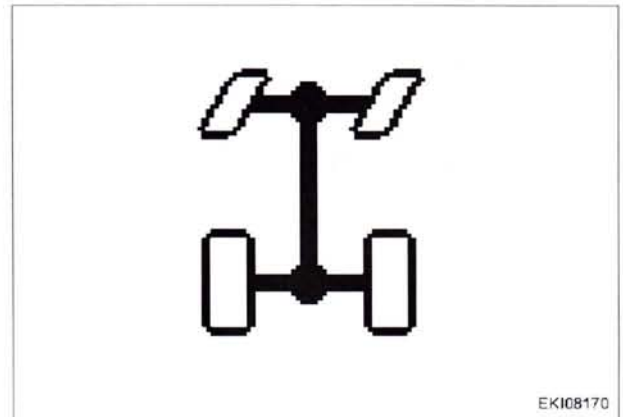


Fig. 94.

EKI08170
 1000982

Move the steering wheel to its centre position and make sure the front wheels are completely straight

NOTE: Release hand brake and advance the tractor slowly, keeping the wheels straight.

Press "Return" to confirm

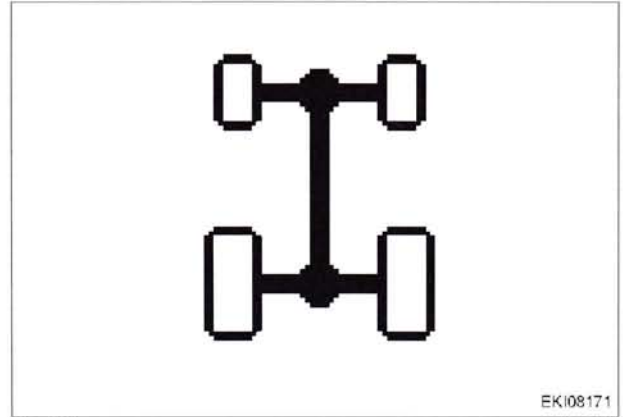


Fig. 95.

EKI08171
1000983

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.
 (Wait for at least 15 seconds before switching on the ignition again!)



Fig. 96.

EKI09015
1003578

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

2401 = calibration code

FXX = fault code

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)



Fig. 97.

EKI09028
1003597

Fault code	Cause
F01	Preliminary conditions not satisfied
F08	Calibration taking too long (more than 30 seconds)
F09	User terminated calibration with ESC
F10	Plausibility: "Centre position" signal
F11	Plausibility: "Left stop" signal
F12	Plausibility: "Right stop" signal
F13	Plausibility: Calibrated values match

8 Calibration code 2403 (Auto-Guide control valve) (calibration only possible for tractors with Auto-Guide)

9. Calibrating Auto-Guide control valve

NOTE: If a new **A050** - ECU, basic control unit has been installed, carry out transmission calibration 4001-4010.

Important: The following preparatory steps must be carried out

NOTE: Calibration procedure from end-of-line program EOL 7.60 or higher

- Seat switch actuated
- Engine is running
- Tractor stationary
- Steering set straight
- Steering wheel not actuated
- Auto-Guide standby button (B) at off (LED off) or partial activation (LED flashes)

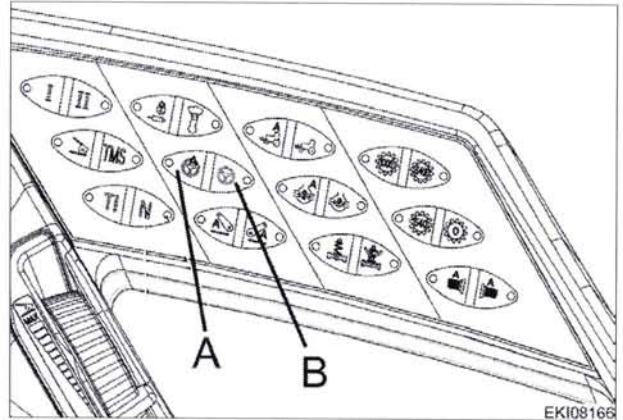


Fig. 98.

EKI08168
1000979

- Warning and fault messages must be confirmed individually



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

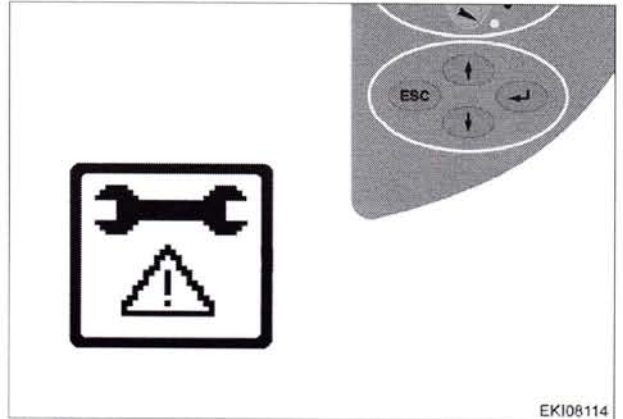


Fig. 99.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

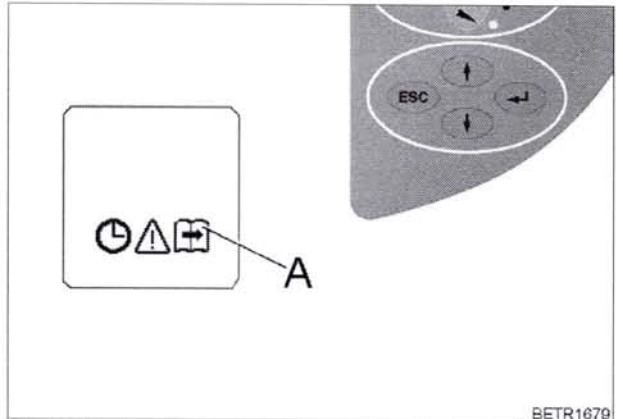


Fig. 100.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

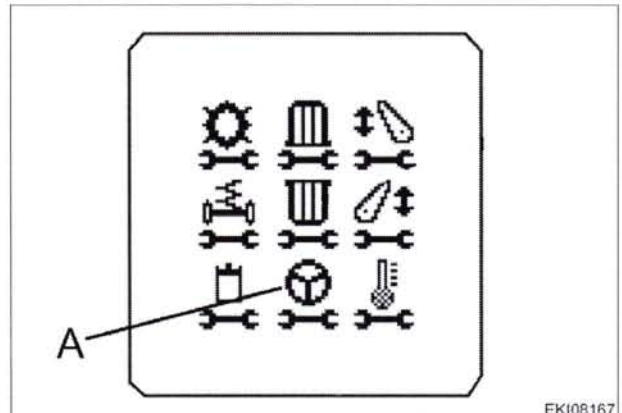


Fig. 101.

EKI08167
1000980



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

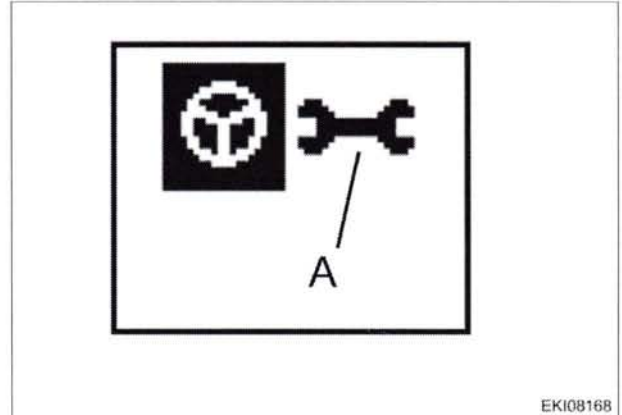


Fig. 102.

EKI08168
1000984

Input code **2403**



Press one of buttons until desired number is displayed



Press "Return" to confirm

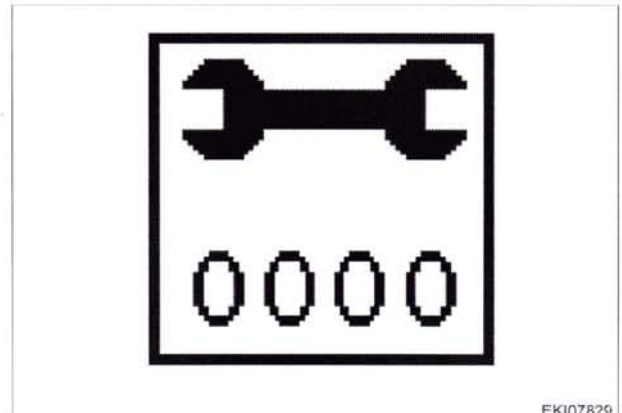


Fig. 103.

EKI07829
1000773

The following image is displayed

NOTE: The calibration is carried out automatically. (approx. 5 minutes max.)
 Do not actuate steering!
 Do not leave driver seat (seat switch) !

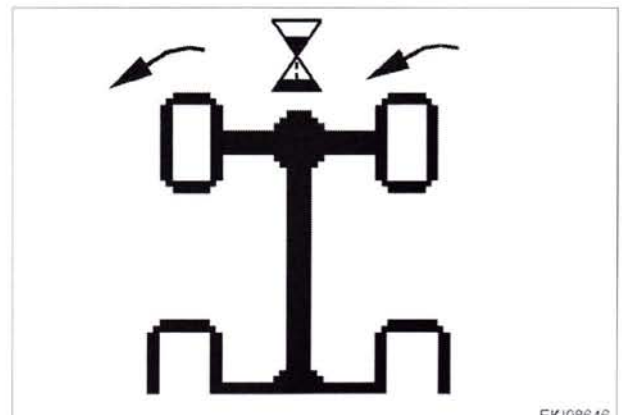


Fig. 104.

EKI08848
1002515

The following image is displayed

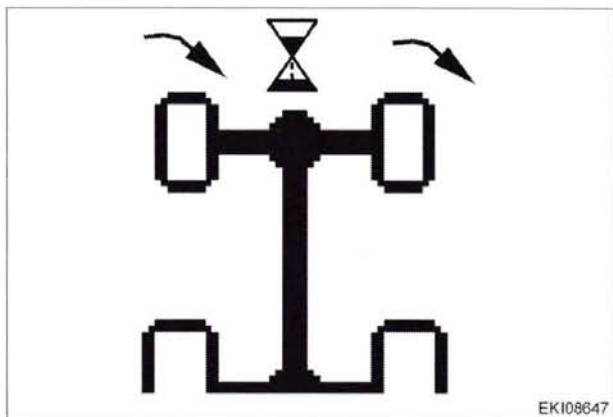


Fig. 105.

EKI08647
 I002516

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when ignition key has been turned to "0" position.
 (Wait for at least 15 seconds before switching on the ignition again!)



Fig. 106.

EKI09015
 I003578

If incorrect values are detected or the conditions are not met, an **ERROR** message appears

2403 = calibration code

FXX = fault code

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)



Fig. 107.

EKI09029
 I003598

Fault code	Cause
F01	Preliminary conditions not satisfied
F02	Front wheels are not straight
F03	Manual steering wheel actuation during calibration
F06	No movement in direction "steering to left"
F07	No movement in direction "steering to right"
F08	Calibration taking too long
F09	User terminated calibration with ESC
F11	Plausibility: Signal in direction "steering to left"
F12	Plausibility: Signal in direction "steering to right"

9 Calibration code 6034 (rear PTO clutch)

10. Calibration of rear PTO coupling time

The load-dependent start-up of the rear PTO is stored in the **A050** - ECU, basic control unit.

The rear PTO clutch is calibrated to adapt the coupling operation to the implement concerned.

The **A050** - ECU, basic control unit can be taught, i.e. after a few coupling operations it adapts the PTO start-up to the respective implement.

NOTE: For optimum adaptation of the PTO start-up, calibrate the rear PTO with the implement connected.

! DANGER: During calibration, the PTO may rotate slightly. Follow all necessary safety procedures.

Calibrating the rear PTO clutch

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Start engine.
- Preselect any PTO setting (540/540E/1000)
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

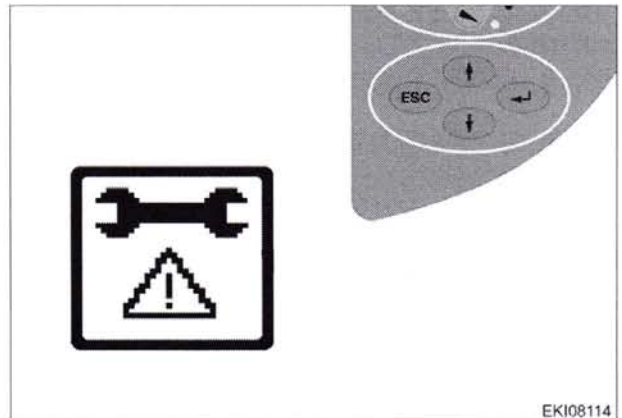


Fig. 108.

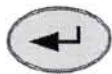
EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

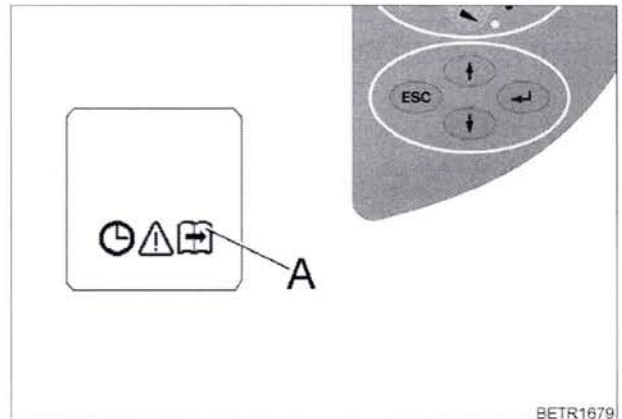


Fig. 109.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

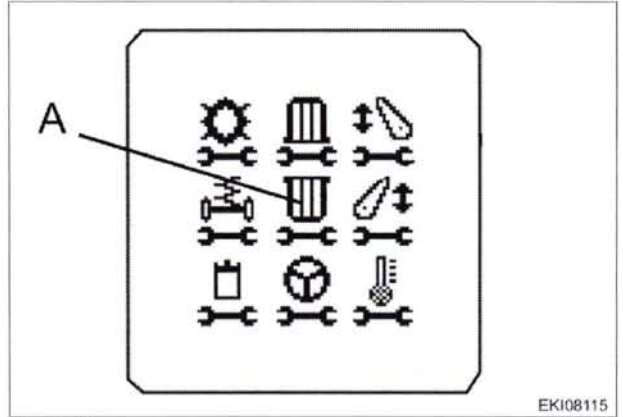


Fig. 110.

EKI08115
 1000765

The rear PTO menu appears on the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

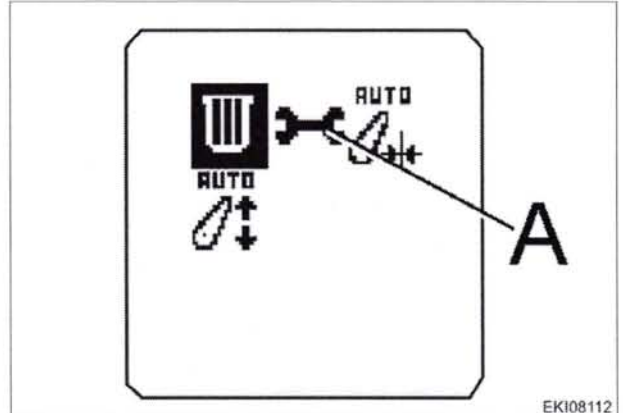


Fig. 111.

EKI08112
 1000770

Input code **6034**



Press one of buttons until desired number is displayed



Press "Return" to confirm

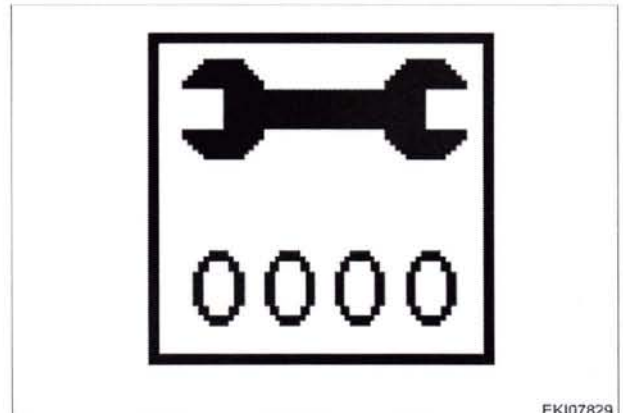


Fig. 112.

EKI07829
 1000773

Preselect any PTO setting (540, 540E, 1000)
 Engage rear PTO

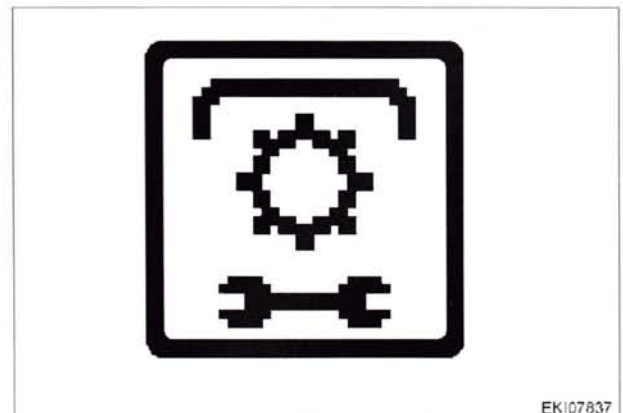


Fig. 113.

EKI07837
 1000775

If incorrect values are detected or the conditions are not met, an **ERROR** message appears

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)

10 Calibration code 7034 (front PTO clutch)

11. Calibration – front PTO coupling time

The load-dependent start-up of the front PTO is stored in the **A050** - ECU, basic control unit.

The rear PTO clutch is calibrated to adapt the coupling operation to the implement concerned.

The **A050** - ECU, basic control unit can be taught, i.e. after a few coupling operations it adapts the PTO start-up to the respective implement.

NOTE: For optimum adaptation of the PTO start-up, calibrate the front PTO with the implement connected.

! DANGER: During calibration, the PTO may rotate slightly.
Follow all necessary safety procedures.

Calibrating the front PTO clutch

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Start engine.
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

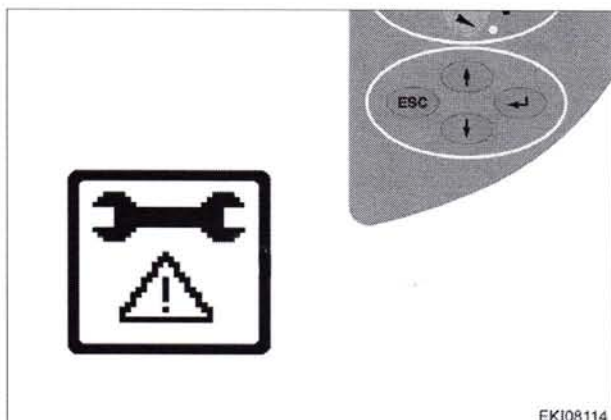


Fig. 114.

EKI08114
 1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes.



Press "Return", the second main menu appears in the multiple display

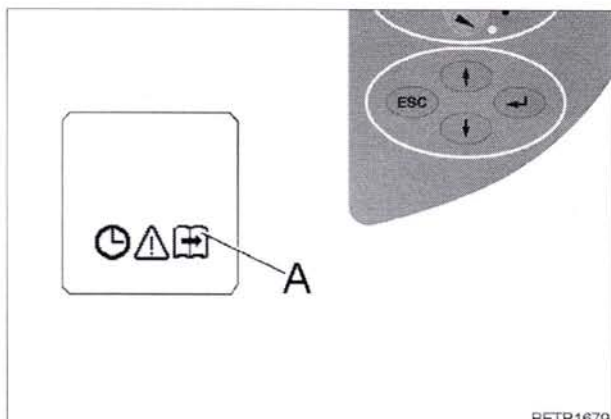


Fig. 115.

BETR1679
 1000761

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	

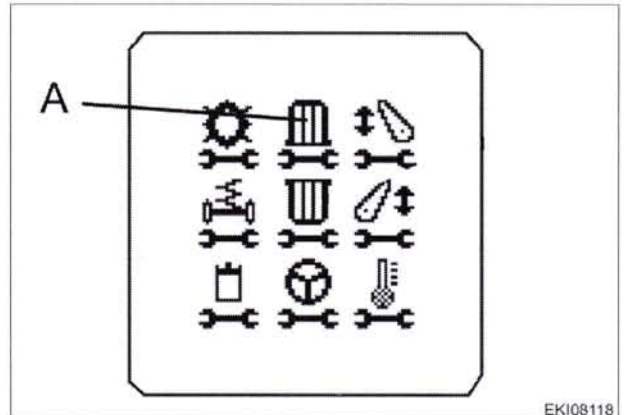
The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

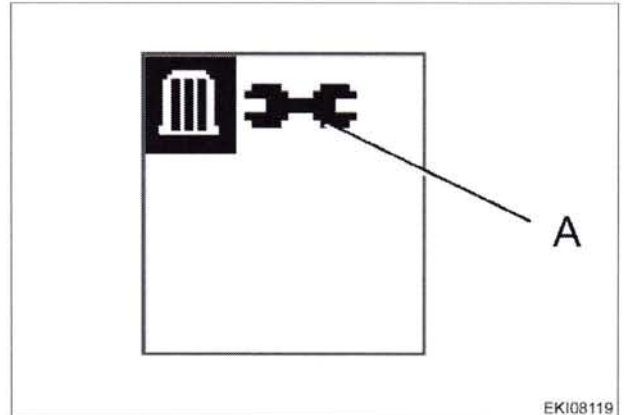


EKI08118
1000802

Fig. 116.

The rear PTO menu appears on the multiple display

Press "Return" to confirm



EKI08119
1000804

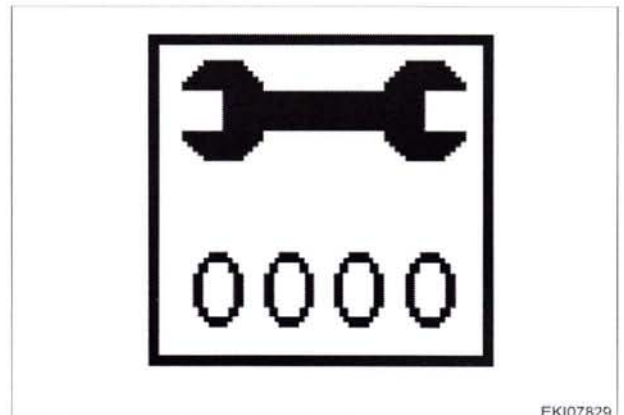
Fig. 117.

Input code **7034**

Press one of buttons until desired number is displayed



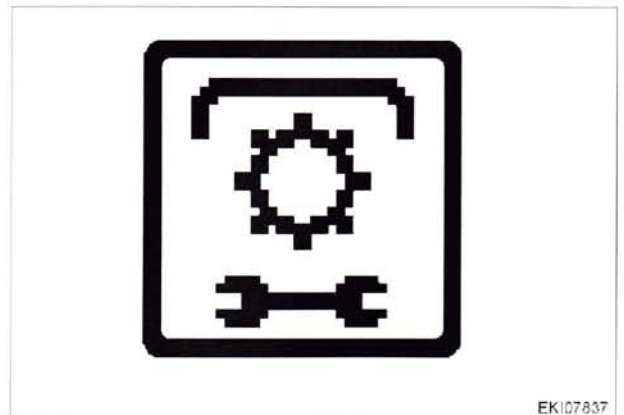
Press "Return" to confirm



EKI07829
1000773

Fig. 118.

Couple the front PTO



EKI07837
1000775

Fig. 119.

If incorrect values are detected or the conditions are not met, an **ERROR** message appears

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)

11 Calibration code 4001 (drive clutch pedal)

12. Calibrating the drive clutch pedal

Important: The following preparatory steps must be carried out.

- Ignition ON
- Hand brake applied
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

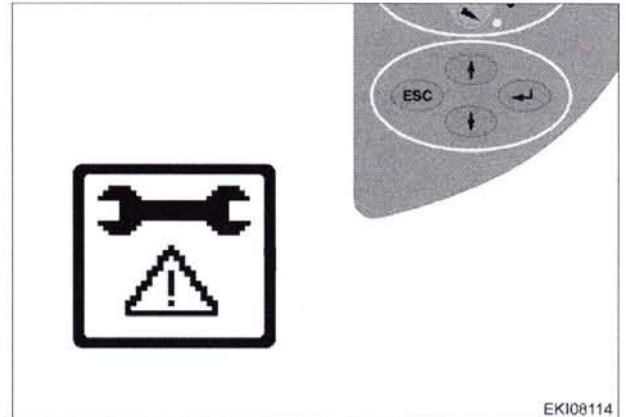


Fig. 120.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

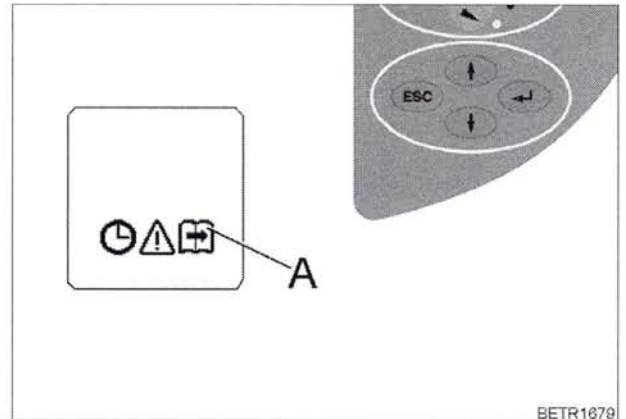


Fig. 121.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

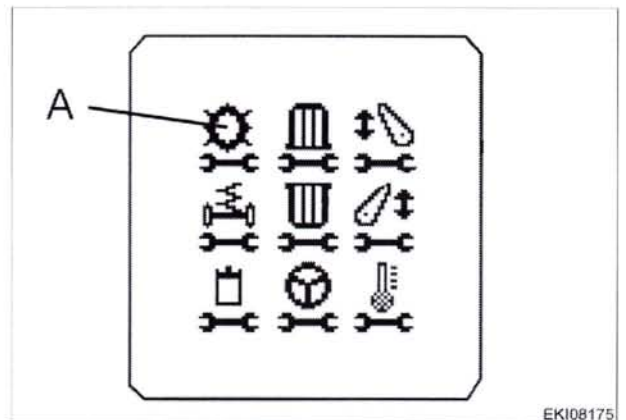


Fig. 122.

EKI08175
1000988

The transmission menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

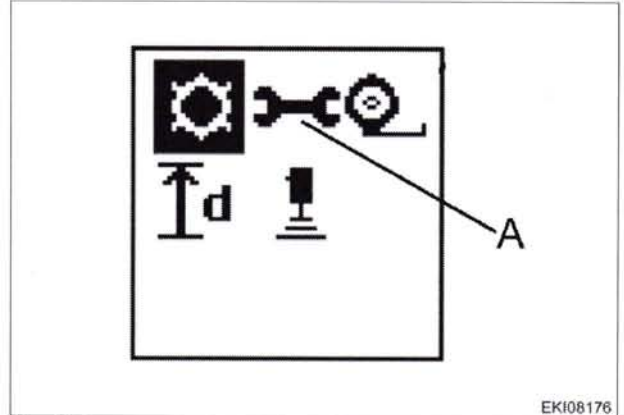


Fig. 123.

EKI08176
 1000989

Input code **4001**



Press one of the buttons until the required number is displayed



Press "Return" to confirm

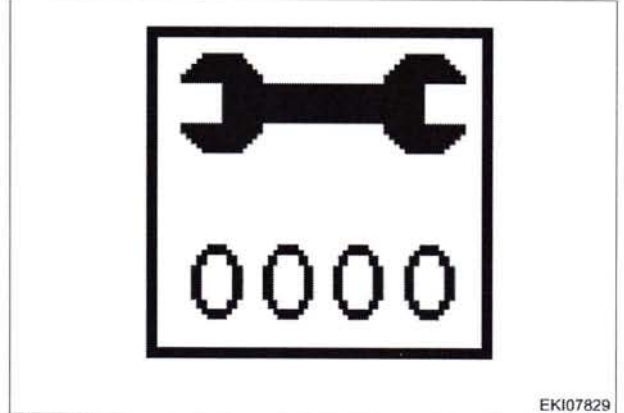


Fig. 124.

EKI07829
 1000773

Clutch pedal **not** depressed

Press "Return" to confirm

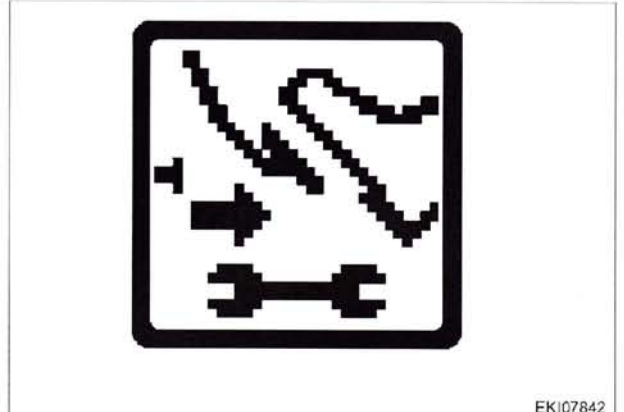


Fig. 125.

EKI07842
 1000990

Clutch pedal depressed

Press "Return" to confirm



Fig. 126.

EKI07843
 1000991

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been switched to "0" position.

(Wait for at least 15 seconds before switching on the ignition again!)



EKI09015

I003578

Fig. 127.

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

4001 = calibration code

FXX = error code (see table)

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)



EKI09014

I003579

Fig. 128.

Fault code	Cause
F01	Terminated by user
F02	Pedal in rest position: Signal greater than allowed (22 mA)
F03	Pedal in rest position: Signal smaller than allowed (2 mA)
F04	Pedal fully depressed: Signal greater than allowed (22 mA)
F05	Pedal fully depressed: Signal smaller than allowed (2 mA)
F06	Calibrated min. and max. values are too close together. Minimum difference of 10 mA necessary
F07	Calibration taking too long (more than 30 seconds)

12 Calibration code 4002 (hand throttle)

13. Calibrating the hand throttle (4002)

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Ignition ON
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

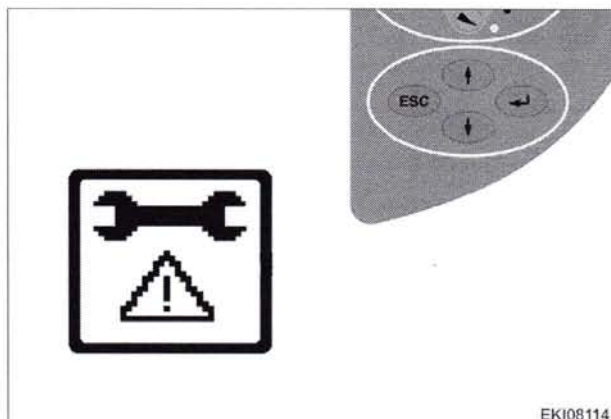


Fig. 129.

EKI08114
 1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

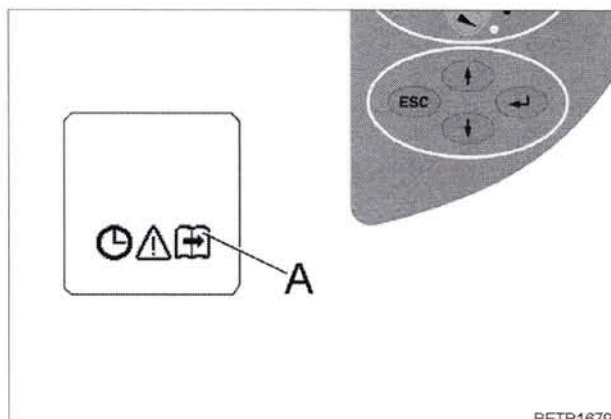


Fig. 130.

BETR1679
 1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

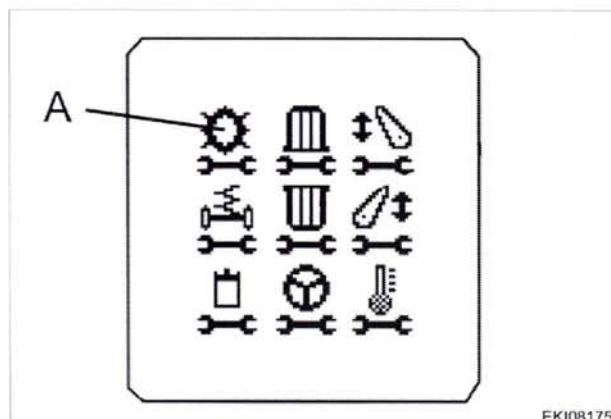


Fig. 131.

EKI08175
 1000988

The transmission menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

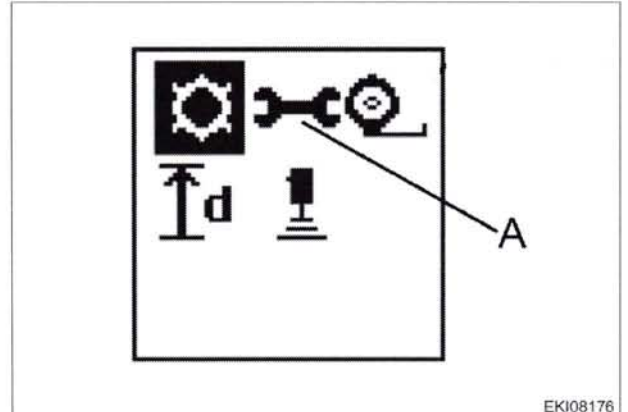


Fig. 132.

EKI08176
 I000989

Input code **4002**



Press one of the buttons until the required number is displayed



Press "Return" to confirm

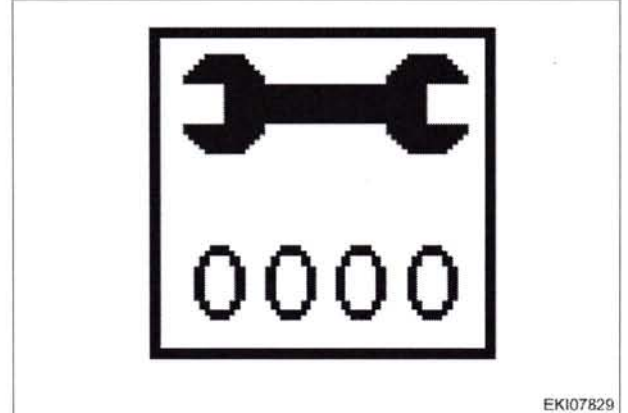


Fig. 133.

EKI07829
 I000773

Turn hand throttle to the **maximum** position

Press "Return" to confirm



Fig. 134.

EKI08178
 I000994

Turn hand throttle to the **minimum** position

Press "Return" to confirm



Fig. 135.

EKI08177
 I000993

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been switched to "0" position.
 (Wait for at least 15 seconds before switching on the ignition again!)



Fig. 136.

EKI09015
 1003578

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

4002 = calibration code
FXX = error code (see table)

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)



Fig. 137.

EKI09016
 1003580

Fault code	Cause
F02	Calibrated values of current hand throttle position invalid
F03	A039 multifunction armrest failing to report
F08	Calibration taking too long (more than 30 seconds)
F09	Terminated by user

13 Calibration code 4003 (travel range selector)

14. Calibrating the travel range selector (4003)

Important: The following preparatory steps must be carried out.

- Transmission oil temperature approx. 40°C
- Hand brake applied
- Start engine
- Clutch pedal actuated
- Engine speed approx. 800 rpm (idle speed)
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

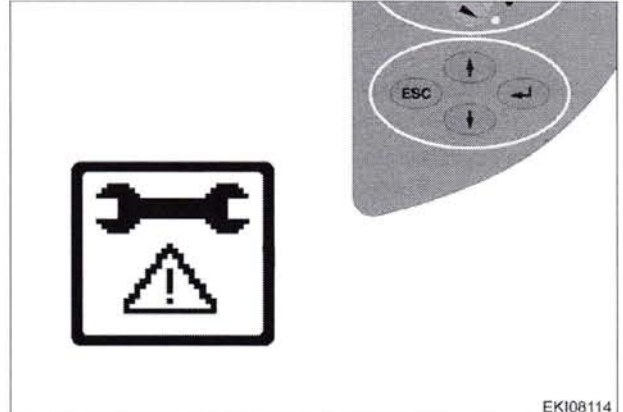


Fig. 138.

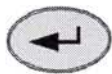
EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

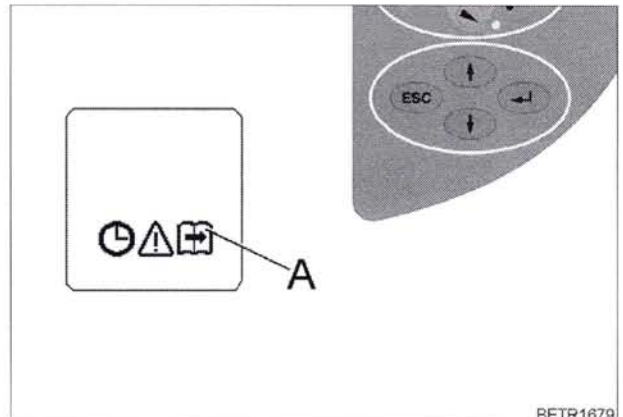


Fig. 139.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

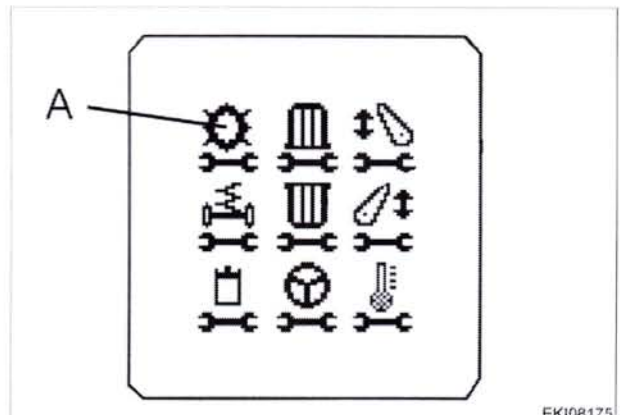


Fig. 140.

EKI08175
1000988

The transmission menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

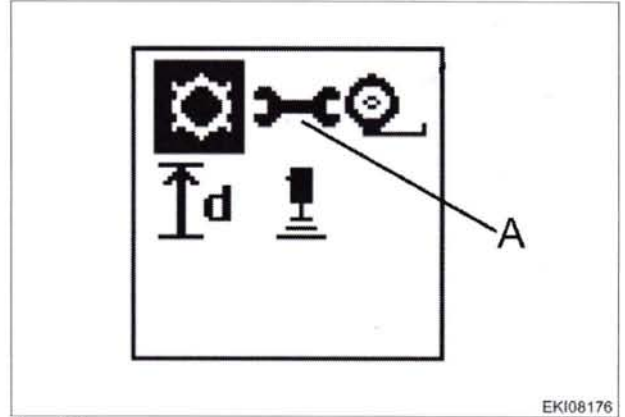


Fig. 141.

EKI08176
 1000989

Input code **4003**



Press one of buttons until desired number is displayed



Press "Return" to confirm

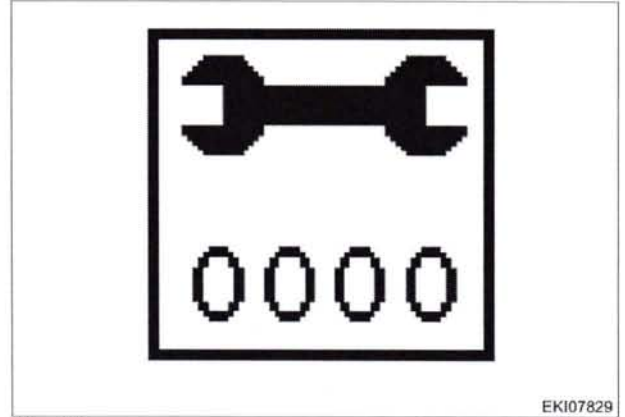
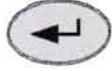


Fig. 142.

EKI07829
 1000773

Travel range I is displayed and enabled automatically

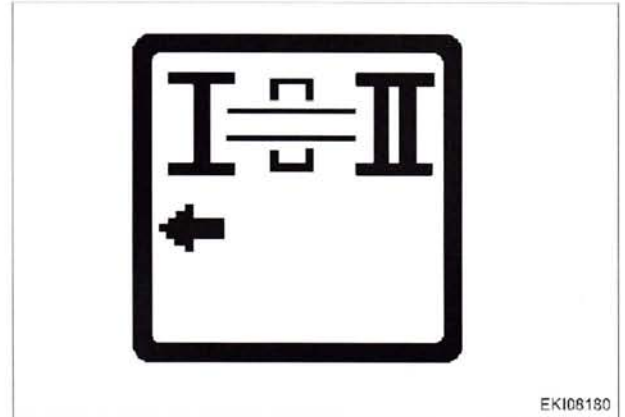


Fig. 143.

EKI08180
 1001005

Travel range II is displayed and enabled automatically

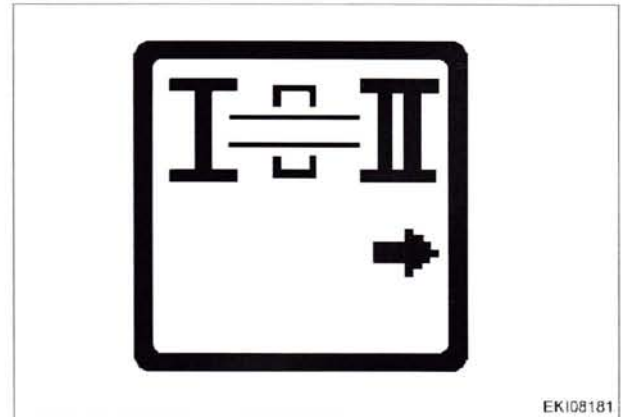


Fig. 144.

EKI08181
 1001006

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	

The centre position is displayed and enabled automatically

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

If calibration is completed without errors, the screen appears and the new settings are saved.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

4003 = calibration code

FXX = fault code

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)

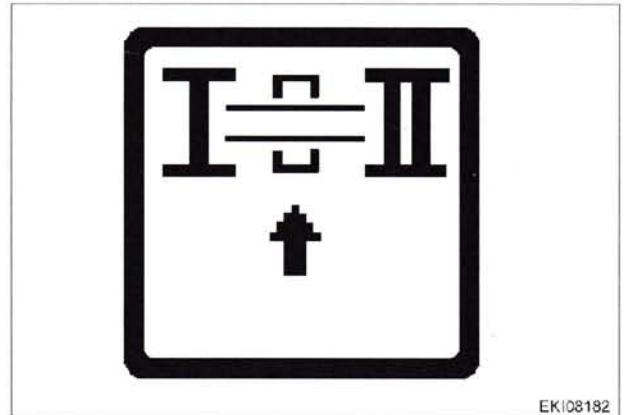


Fig. 145.

EKI08182
1001008

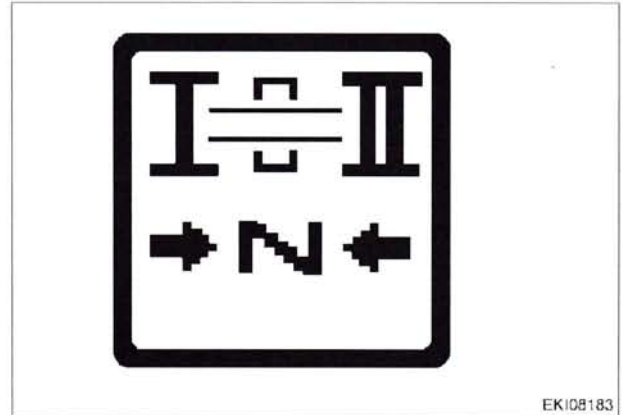


Fig. 146.

EKI08183
1001009

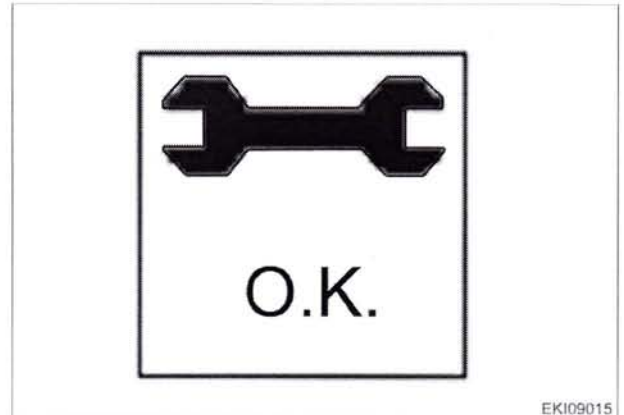


Fig. 147.

EKI09015
1003578



Fig. 148.

EKI09017
1003583

Fault code	Cause
F01	Terminated by user
F02	Speed above 0.1 km/h
F03	Engine speed below 600 rpm
F04	Engine speed above 900 rpm
F05	Transmission not in neutral
F06	Clutch not depressed
F07	B015 bevel pinion sensor faulty
F08	B014 hydrostatic collecting shaft sensor faulty
F09	B010 engine speed sensor faulty
F10	Neutral button, driving switch faulty (A039 multifunction armrest)
F11	B016 travel range detection sensor faulty
F12	Y002 travel range I solenoid valve faulty
F13	Y003 travel range II solenoid valve faulty
F20	Calibrated values for neutral position incorrect
F23	Calibrated values do not match
F30	Error while reading from EEPROM (A050 ECU, basic control unit)
F31	Error while writing to EEPROM (A050 ECU, basic control unit)

14 Calibration code 4005 (foot throttle/throttle pedal)

15. Calibrating the foot throttle/throttle pedal (4005)

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Ignition ON
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

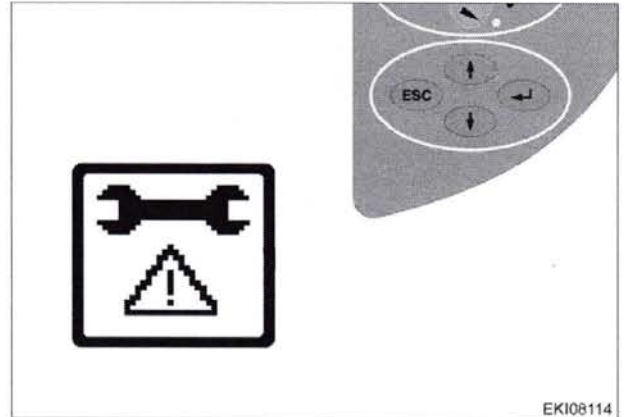


Fig. 149.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

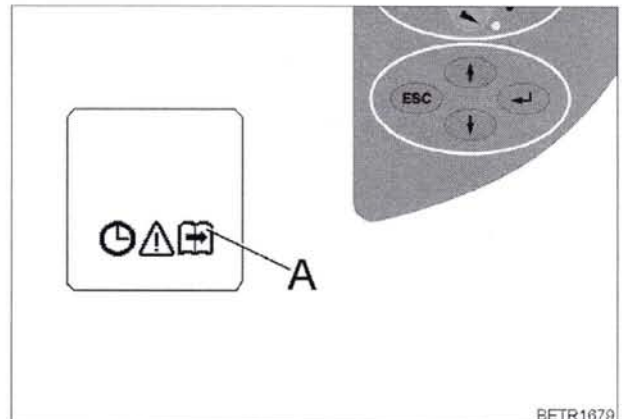


Fig. 150.

BETR1879
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

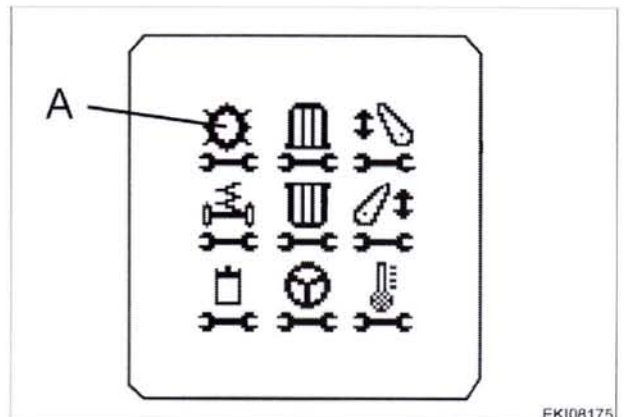


Fig. 151.

EKI08175
1000988

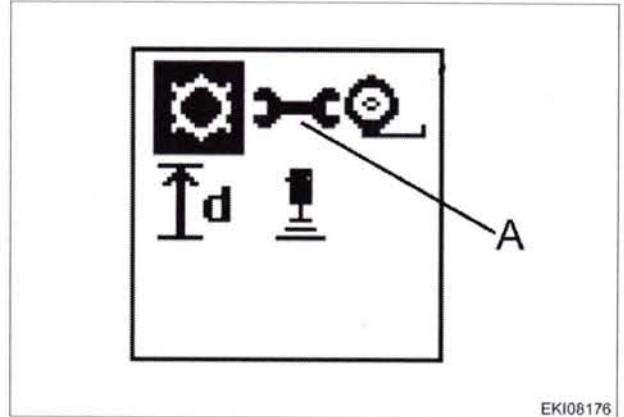
The transmission menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EKI08176
1000989

Fig. 152.

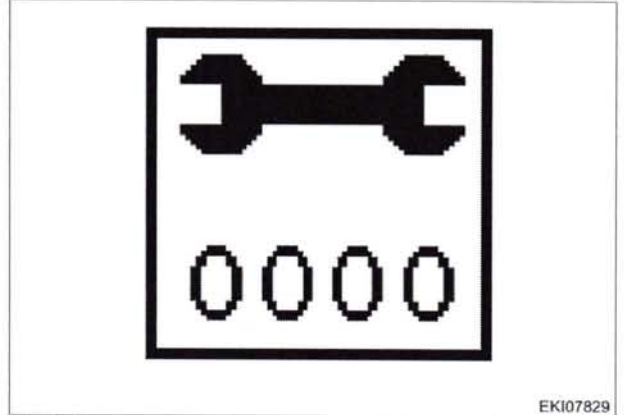
Input code **4005**



Press one of buttons until desired number is displayed



Press "Return" to confirm



EKI07829
1000773

Fig. 153.

Depress foot throttle/throttle pedal **fully**



Press "Return" to confirm



EKI08194
1001121

Fig. 154.

Foot throttle/throttle pedal **in idle position**



Press "Return" to confirm



EKI08193
1001120

Fig. 155.

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)

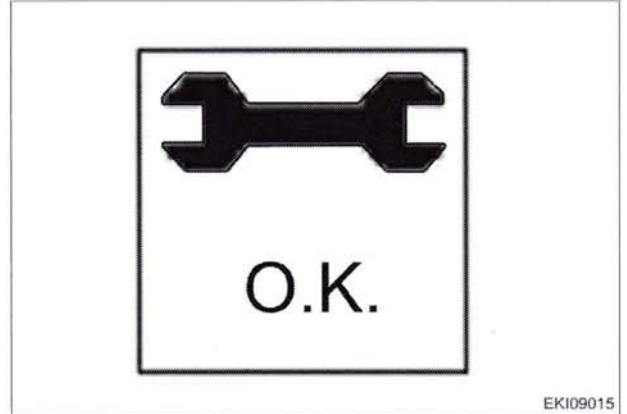


Fig. 156.

EKI09015
I003578

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

4005 = calibration code

FXX = fault code



Fig. 157.

EKI09018
I003584

Fault code	Cause
F21	Transmission not in neutral
F22	Current from B055 sensor (A050 ECU, basic control unit) too low (below 3 mA)
F23	Current from B055 sensor (A050 ECU, basic control unit) too high (above 21 mA)
F24	Rotation angle of B055 sensor (A050 ECU, basic control unit) too great (more than 250 steps)
F25	B055 sensor (A050 ECU, basic control unit): Distance between idle and full throttle too short (less than 12 mA) or B055 sensor, foot throttle incorrectly calibrated
F26	B055 sensor (A051 ECU, engine control unit): Distance between idle and full throttle too short (less than 70%) or B055 sensor, foot throttle incorrectly calibrated
F27	Time for a calibration increment exceeded (more than 60 seconds)
F28	Error on saving the calibration to the EEPROM of the A050 base control unit

15 Calibration code 4007 (transmission ratio characteristic)

16. Calibrating the transmission ratio characteristic

Important: The following preparatory steps must be carried out.

- Transmission oil temperature approx. 40°C
- Hand brake applied
- Start engine
- Tractor stationary (below 0.01 km/h)
- Engine speed 1600 rpm +/- 30
- The engine speed must not drop below 1400 rpm during calibration
- No error messages from speed sensors (B010 sensor, engine speed and B014 sensor, hydrostatic collecting shaft)
- Neutral switch not in neutral (LED off). Transmission is engaged ("ACTIVE STATIONARY")
- Range selector in neutral (normal after calibration of the travel range selector (code 4003))
Manually set the transmission to neutral via the emergency operation if necessary.
- Clutch pedal not depressed
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

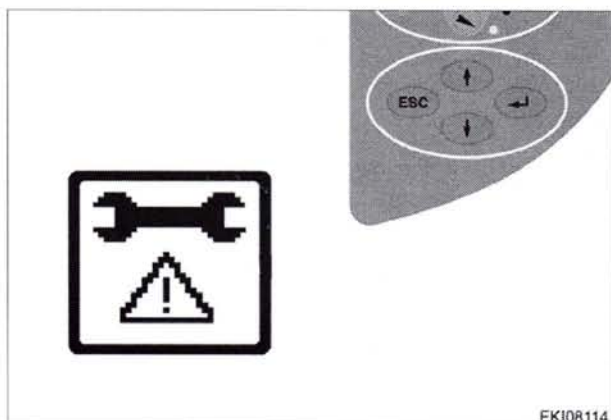


Fig. 158.

EKI08114
1000760

"Transmission in ACTIVE STATIONARY" display



Press "ESC" to confirm

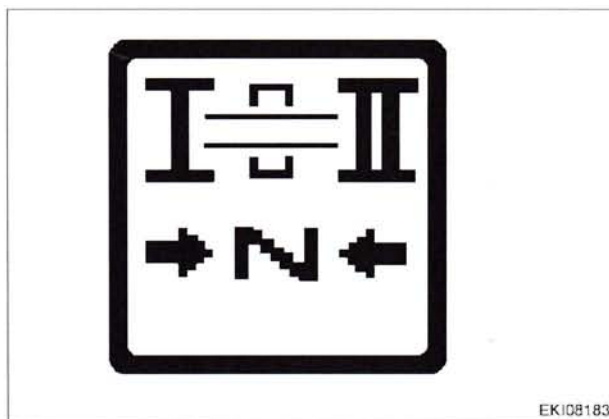


Fig. 159.

1000554

"Transmission in neutral" display

Press "ESC" to confirm



EKI08183

1001009

Fig. 160.

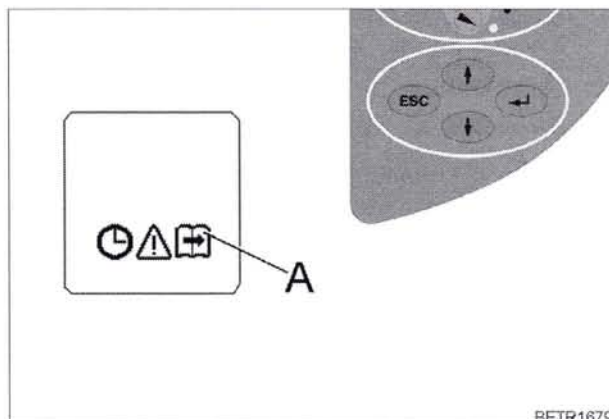
Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display



BETR1879

1000761

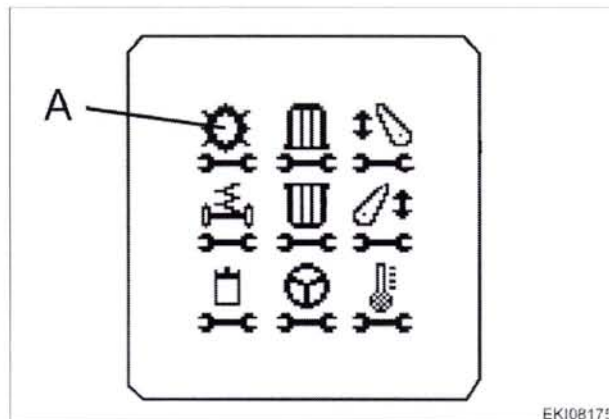
Fig. 161.

The second main menu appears in the multiple display

Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EKI08175

1000988

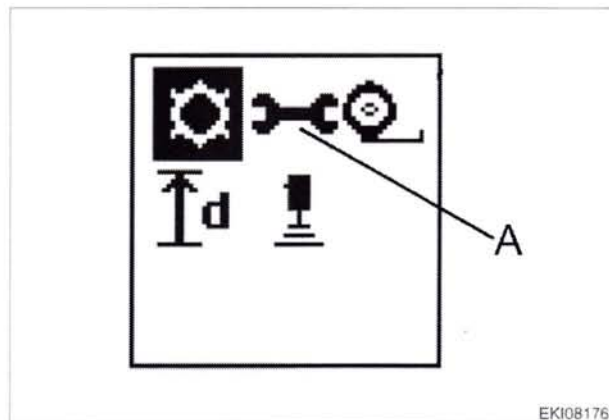
Fig. 162.

The transmission menu appears in the multiple display

Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EKI08176

1000989

Fig. 163.

NOTE: Since the transmission automatically reverts to neutral after 15 sec, if the hand brake is applied, reactivate the transmission if necessary.

Input code **4007**



Press one of the buttons until the required number is displayed



Press "Return" to confirm

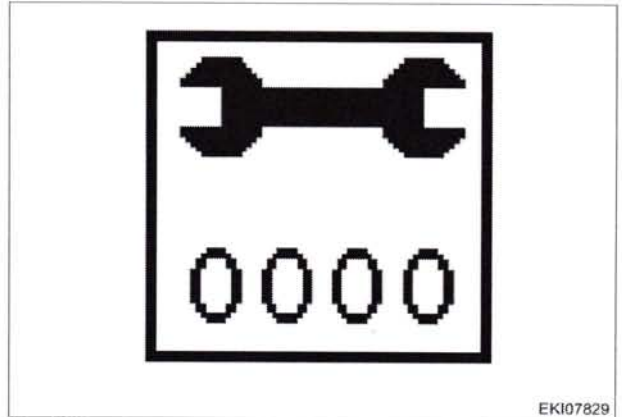


Fig. 164.

EKI07829
 I000773

Step1 (test step 1) to ...

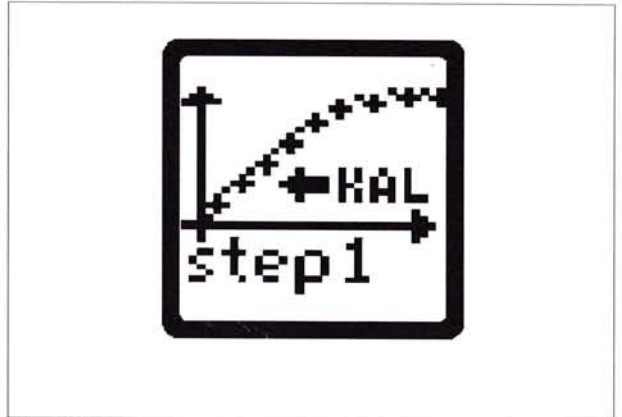


Fig. 165.

I000555

... Step7 (test step 7) run automatically

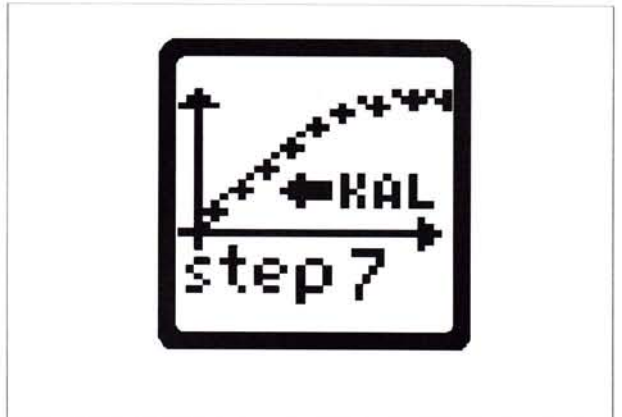


Fig. 166.

I000556

If calibration completes successfully, the image is displayed and the new sensor values are saved

Press "ESC" to confirm

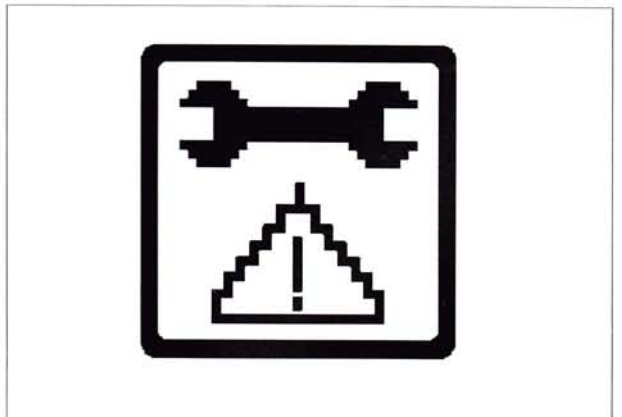


Fig. 167.

I000558

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.
 (Wait for at least 15 seconds before switching on the ignition again!)

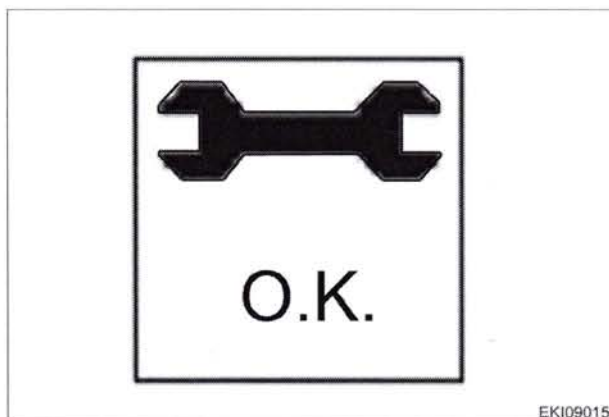


Fig. 168.

EKI09015
 1003578

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

If incorrect values are detected or the conditions are not met, a fault code is displayed, F1 ... F15

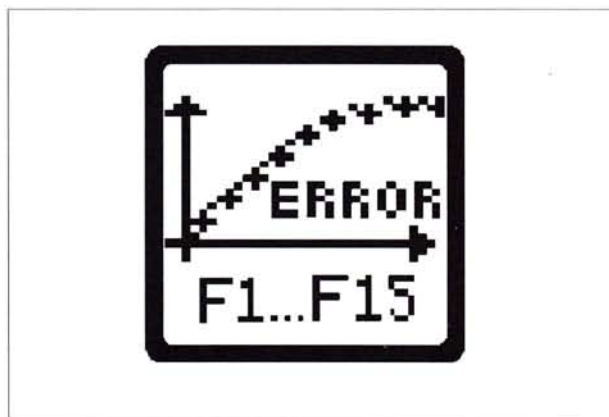


Fig. 169.

1000557

Possible fault codes with transmission ratio calibration code 4007

Fault code	Cause
F 1	Preliminary conditions not satisfied
F 2	1. The A050 basic control unit is not released immediately when the ignition is switched off. Approx. 15 seconds will lapse from the ignition being switched off to the release of the A050 basic control unit 2. Check connectors to the A009 actuator unit.
F 3	A009 actuator unit does not actuate the precise setpoint value. Check that the transmission control runs smoothly, e.g. engage and check emergency operation.
F 4	Transmission ratio adjustment not effected within 8 sec. Check that the transmission control runs smoothly, e.g. engage and check emergency operation.
F 5	Step 1: A009 actuator unit does not find neutral point 0 in forwards direction. Step 2: A009 actuator unit does not find neutral point 0 in reverse direction. Check A009 actuator unit to actuator shaft connection.
F 6	See error message F 5
F 7	Step 2: neutral points of transmission control for forward and reverse movement are too far apart, greater than 8°. Check A009 actuator unit to actuator shaft connection.
F 8	Step 3: max. transmission ratio forward point not found. Min. setpoint value 155°, max. 187°. Step 4: max. transmission ratio reverse point not found. Min. setpoint value 136°, max. 165°. Check A009 actuator unit to actuator shaft connection.
F 9	Step 3: forward actuator shaft adjustment greater than 155°, but transmission adjustment reacts less than 155°. Step 4: reverse actuator shaft adjustment greater than 135°, but transmission adjustment reacts less than 135°. Check A009 actuator unit to actuator shaft connection. Actuator unit.

Fault code	Cause
F 10	Transmission ratio characteristic not logical, e.g. shifted forward and reverse detected. Repeat calibration. See also error message F 2. Check rotational direction signal from B014 hydrostatic sensor (collecting shaft)
F 11/F 12	Step 7: check Step 1 to Step 6 values. ML transmission ratio not OK. Repeat calibration. See also error message F 2. Then check hydrostatic power branch, e.g. via emergency operation.
F 13	1. EOL programmed incorrectly (prior to Step 1) 2. Values stored in A050 basic control unit not logical. Remedy: 1. Reprogram EOL. 2. See 1. Replace A050 basic control unit where necessary.
F 14	See F 11/F 12
F 15	1. Maximum forward and/or reverse transmission ratio not achieved. 2. Y005 speed governor solenoid valve (30 km/h) not OK Remedy: 1. Repeat calibration (see also F2). Then check hydraulic power distribution system if necessary, e.g. via emergency operation. 2. Y005 speed governor solenoid valve

The fault code is displayed from end-of-line program (EOL) 7.60 onward (as of autumn 2007)

If incorrect values are detected or the conditions are not met, an **ERROR** message is displayed.

4007 = calibration code

FXX = fault code



Fig. 170.

EKI09019
1003585

Fault code	Cause
F02	A009 actuator unit reports a fault Frequent cause of fault: During previous fault-generated calibration exit, no "Key reset (ignition OFF/ON)" was carried out
F03	A009 actuator unit does not actuate the precise setpoint value. Check that the transmission control runs smoothly, e.g. engage and check emergency operation.
F04	Transmission ratio adjustment not effected within 8 sec. Check that the transmission control runs smoothly, e.g. engage and check emergency operation.
F05	Step 1: A009 actuator unit does not find neutral point 0 in forwards direction. Step 2: A009 actuator unit does not find neutral point 0 in reverse direction. Check A009 actuator unit to actuator shaft connection.
F06	See under error message F05
F07	Step 2: neutral points of transmission control for forward and reverse movement are too far apart, greater than 8°. Check A009 actuator unit to actuator shaft connection.
F08	Step 3: Max. transmission ratio forward point not found. Specified value min. 155°, max. 187° Step 4: Max. transmission ratio reverse point not found. Specified value min. 136°, max. 165°. Check A009 actuator unit to actuator shaft connection.

Fault code	Cause
F09	Step 3: forward actuator shaft adjustment greater than 155°, but transmission adjustment reacts less than 155°. Step 4: reverse actuator shaft adjustment greater than 135°, but transmission adjustment reacts less than 135°. Check A009 actuator unit to actuator shaft connection. Actuator unit.
F10	Transmission ratio characteristic not logical, e.g. shifted forward and reverse detected. Repeat calibration. See also error message F 2. Check rotational direction signal from B014 hydrostatic sensor (collecting shaft)
F11/F12	Step 7: check Step 1 to Step 6 values. ML transmission ratio not OK. Repeat calibration. See also error message F 2. Then check hydrostatic power branch, e.g. via emergency operation.
F13	1. EOL programmed incorrectly (prior to Step 1) 2. Values stored in A050 basic control unit not logical. Remedy: 1. Reprogram EOL. 2. See 1. Replace A050 basic control unit where necessary.
F14	See F 11/F 12
F15	1. Maximum forward and/or reverse transmission ratio not achieved. 2. Y005 speed governor solenoid valve (30 km/h) not OK Remedy: 1. Repeat calibration (see also F2). Then check hydraulic power distribution system if necessary, e.g. via emergency operation. 2. Y005 speed governor solenoid valve
F50	User interrupted with ESC
F51	Speed above 0.1 km/h
F52	Engine speed below 1400 rpm
F53	Handbrake not applied
F54	Faulty speed signal from B015 bevel pinion speed sensor
F55	Faulty speed signal from B014 hydrostatic collector shaft sensor
F56	Faulty speed signal from B010 engine speed sensor
F57	Clutch pedal depressed
F58	B017 clutch pedal sensor faulty
F59	Travel range I key pressed (A039 multifunction armrest)
F60	Travel range I key faulty (A039 multifunction armrest)
F61	Travel range II key pressed (A039 multifunction armrest)
F62	Travel range I key faulty (A039 multifunction armrest)
F63	Range control I/II is not in neutral - Range selector in neutral (normal after calibration of the travel range selector (code 4003)) - Manually set the transmission to neutral via the emergency operation if necessary
F64	Y005 speed governor solenoid valve electrical fault

Graphic overview of transmission ratio calibration

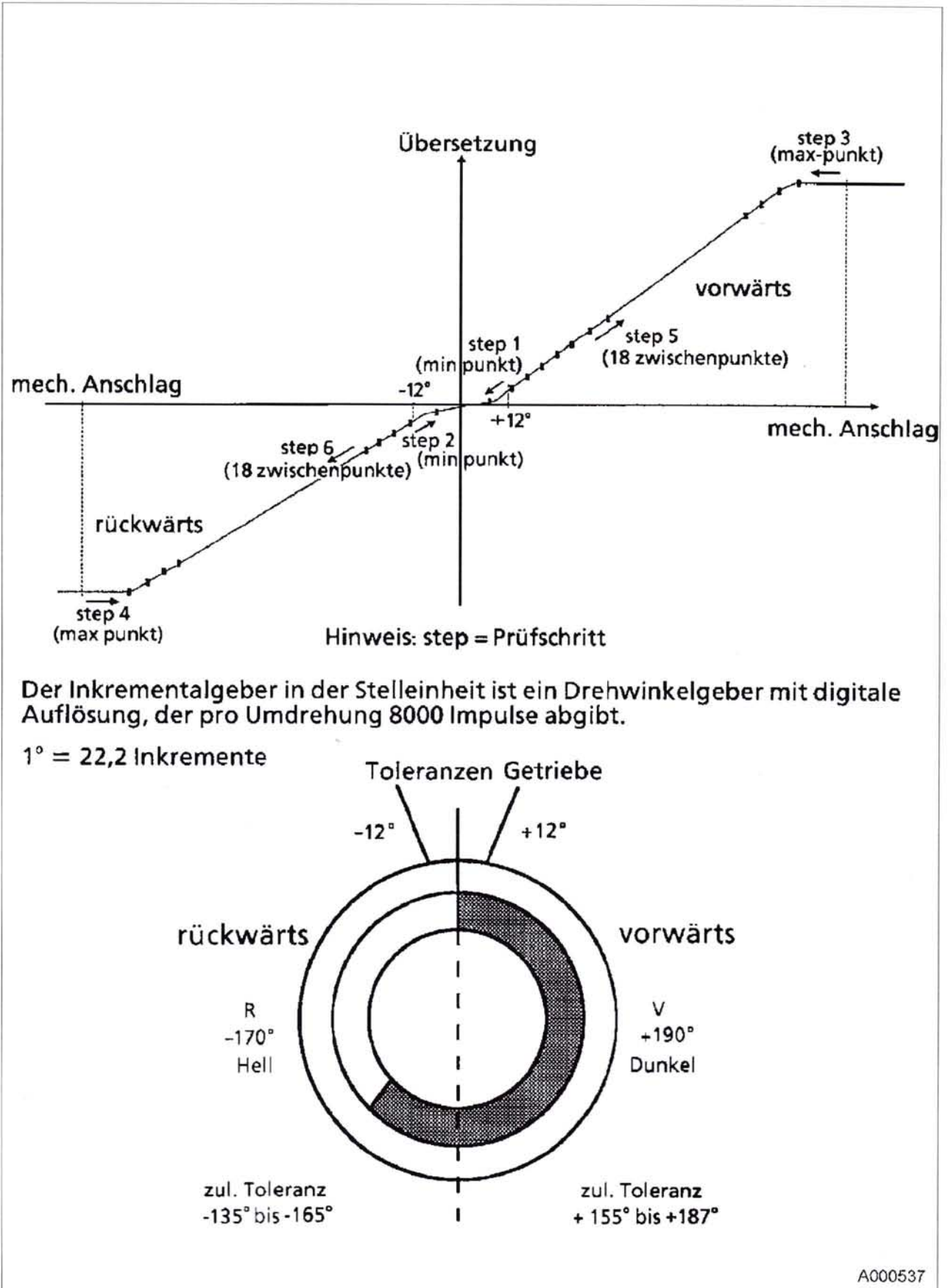


Fig. 171.

1001031

16 Calibration code 4009 (turbo-clutch function)

17. Calibrating the turbo-clutch function (4009)

Important: The following preparatory steps must be carried out.

- Transmission oil temperature approx. 40°C
- Start engine
- Engage transmission travel range II via the switch in the A039 multifunction armrest
- Hand brake applied. Caution: the tractor may set in motion during the calibration operation
- Tractor stationary (below 0.01 km/h)
- Engine speed 1100 rpm +/- 40
- Engine speed drops to approx. 800 rpm during the calibration operation
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

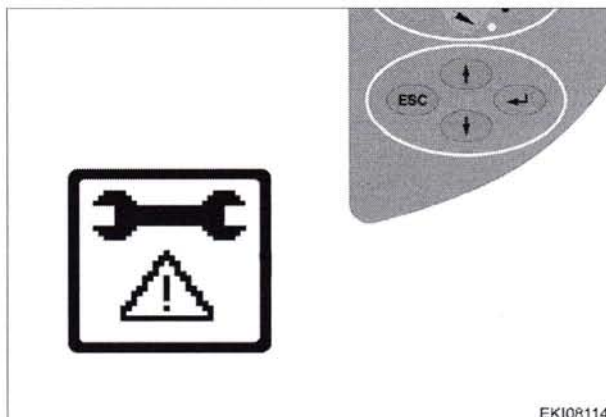


Fig. 172.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

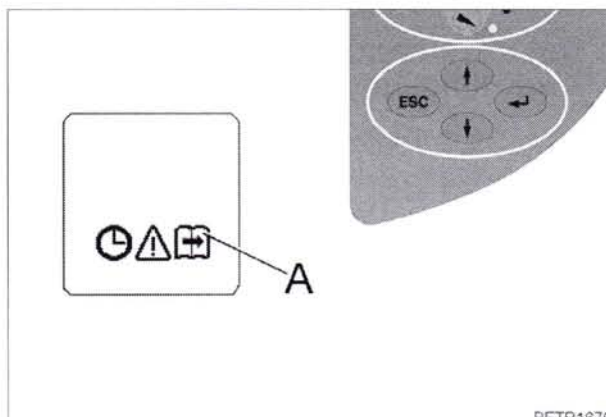


Fig. 173.

BETR1679
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

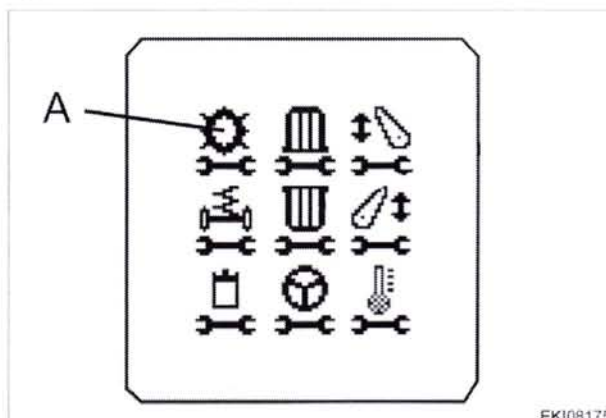


Fig. 174.

EKI08175
1000988

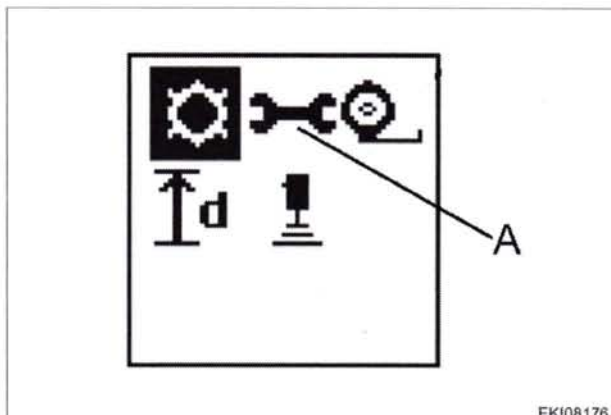
The transmission menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EKI08176
 I000989

Fig. 175.

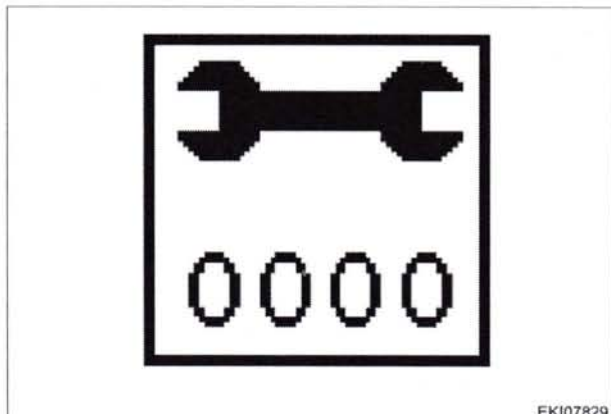
Input code **4009**



Press one of the buttons until the required number is displayed



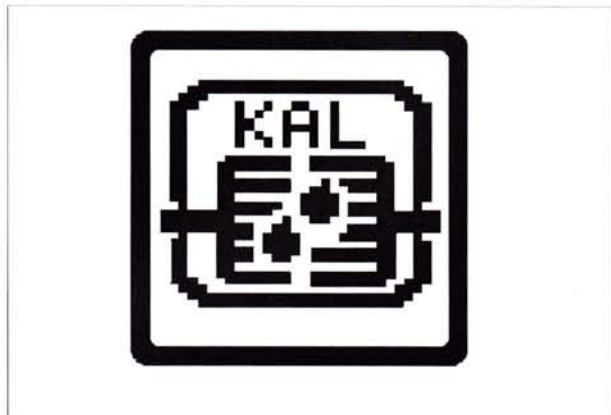
Press "Return" to confirm



EKI07829
 I000773

Fig. 176.

Calibration will continue automatically



I000550

Fig. 177.



EKI07849
 I001033

Fig. 178.

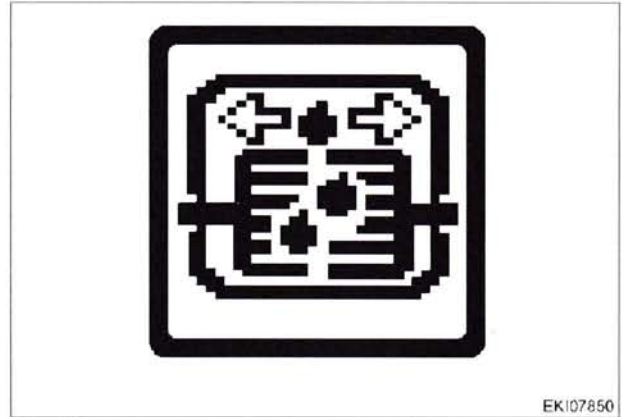


Fig. 179.

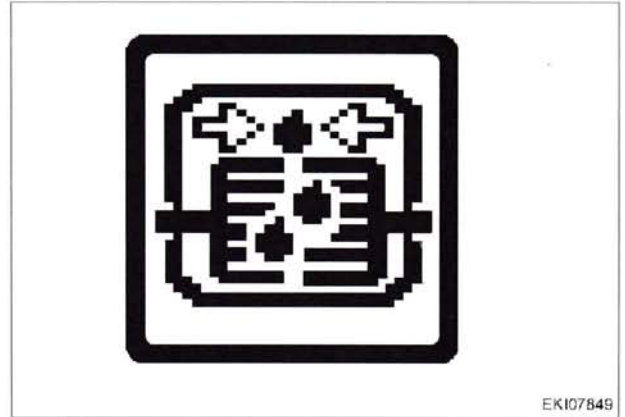


Fig. 180.

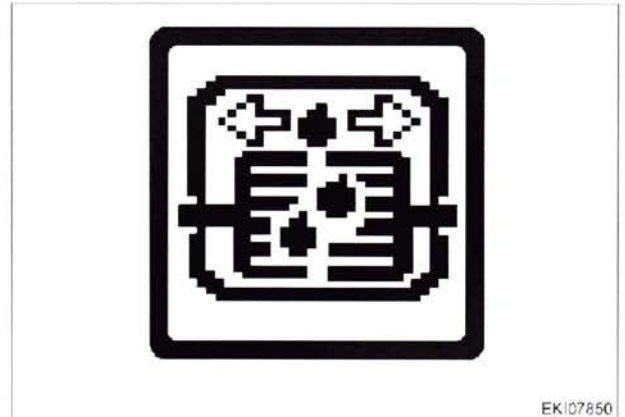


Fig. 181.

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when the ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)



Fig. 182.

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

4009 = calibration code
FXX = fault code

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (Autumn 2007)



Fig. 183.

EK109020
 1003586

Fault code	Cause
F01	User terminated calibration with ESC
F02	Calibration in emergency mode not possible
F03	Error while saving calibrated values
F04	Speed above 0.1 km/h
F05	Engine speed too low when starting calibration Nominal engine speed = 1100 +/- 40 rpm
F06	Engine speed too low during calibration Nominal engine speed = 1100 +/- 400 rpm
F07	B010 engine speed sensor faulty
F08	Driving range II not engaged
F09	B016 driving range detection sensor faulty
F10	Transmission not in neutral
F11	Neutral button faulty (A039 multifunction armrest)
F12	Clutch pedal depressed
F13	B017 clutch pedal sensor faulty
F14	Transmission pressure too high when starting calibration (above 100 bar)
F15	Transmission pressure too high when starting calibration (above 200 bar)
F16	B008 high pressure sensor 1 faulty
F17	S080 hand brake switch faulty
F18	Handbrake not applied
F19	Fault in A009 actuator unit
F20	Fault in Y004 turbo clutch/transmission neutral solenoid valve
F21	Plausibility error: Power consumption of Y004 turbo clutch/transmission neutral solenoid valve to transmission high pressure
F22	Error in transmission ratio
F23	Plausibility error: Power consumption of Y004 turbo clutch/transmission neutral solenoid valve e.g. short-circuit in Y004 solenoid valve

17 Calibration code 4010 (throttle pedal resolution)

18. Calibrating the throttle pedal resolution (4010)

Important: The following preparatory steps must be carried out.

- Hand brake applied
- Ignition ON
- If fault messages are displayed, the faults must be confirmed one by one.



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

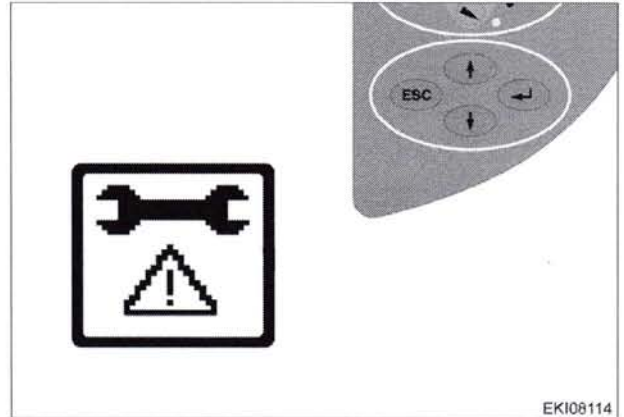


Fig. 184.

EKI08114
1000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

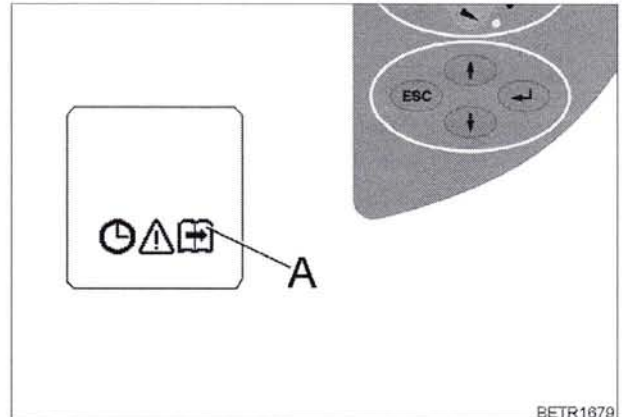


Fig. 185.

BETR1879
1000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

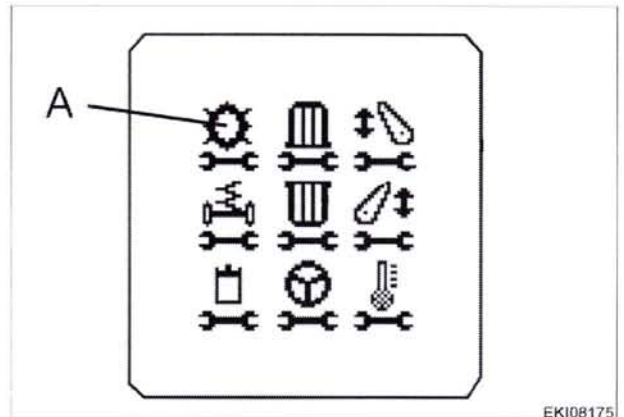


Fig. 186.

EKI08175
1000988

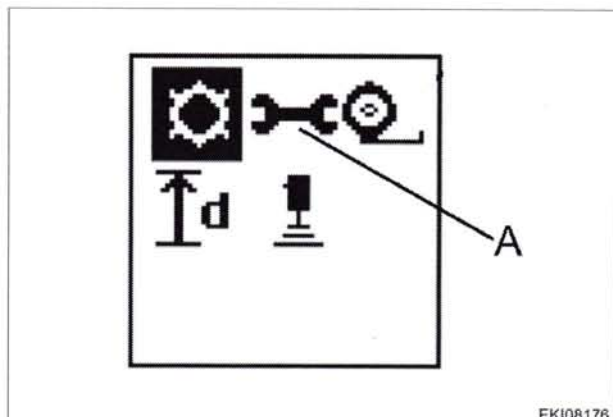
The transmission menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm



EK108176
1000989

Fig. 187.

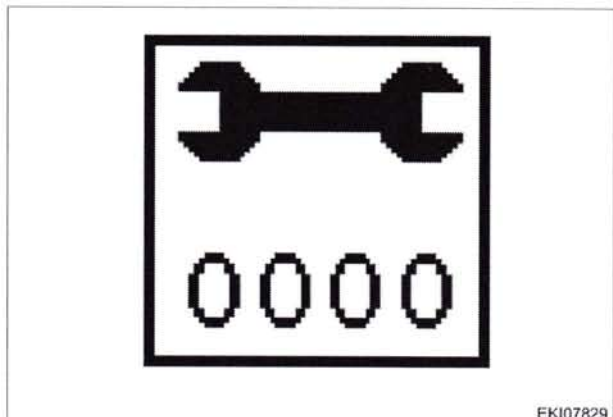
Input code **4010**



Press one of buttons until desired number is displayed



Press "Return" to confirm



EK107829
1000773

Fig. 188.

Set "throttle pedal resolution" sliding switch to maximum

Press "Return" to confirm



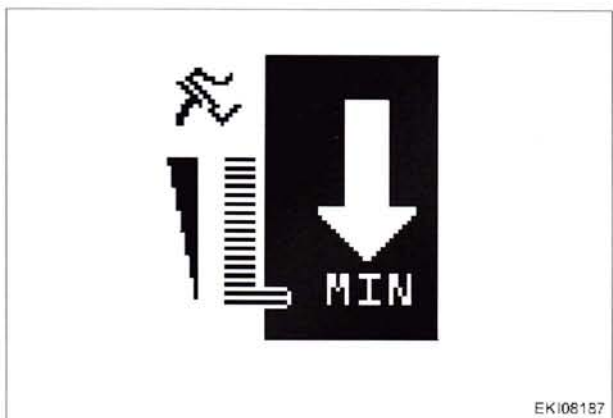
EK108188

Fig. 189.

1001042

Set "throttle pedal resolution" sliding switch to minimum

Press "Return" to confirm



EK108187

Fig. 190.

1001040

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: Settings are only transferred when ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)



EKI09015

I003578

Fig. 191.

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

4010 = calibration code

FXX = fault code

NOTE: The fault code is displayed from end-of-line program (EOL) 7.60 onward (as of autumn 2007)



EKI09021

I003590

Fig. 192.

Fault code	Cause
F02	Calibrated value of the current actuator position is invalid
F03	A039 multifunction armrest is not responding
F08	Calibration lasting too long (longer than 30 seconds)
F09	User terminated calibration with ESC

18 Calibrating the heater valve (no code)

19. Calibrating the heater valve (no code)

Important: The following preparatory steps must be carried out.

- Ignition ON
- Diesel engine running



Press "ESC" to confirm the warning and fault messages displayed on the A007 instrument panel

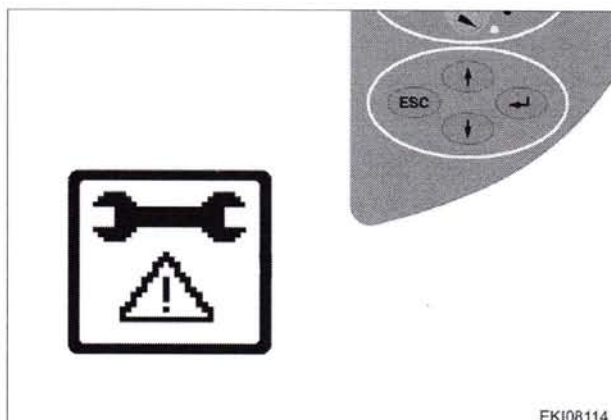


Fig. 193.

EKI08114
 I000760



Press "Return", the first main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return", the second main menu appears in the multiple display

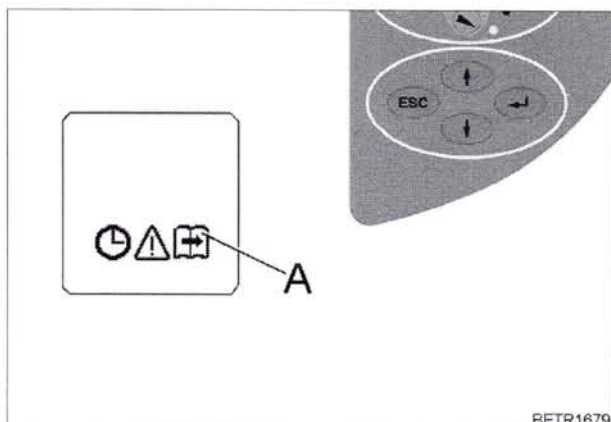


Fig. 194.

BETR1679
 I000761

The second main menu appears in the multiple display



Press one of the buttons repeatedly until the symbol (A) flashes



Press "Return" to confirm

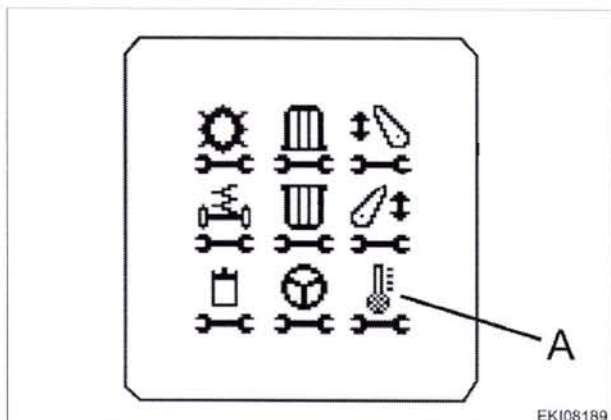


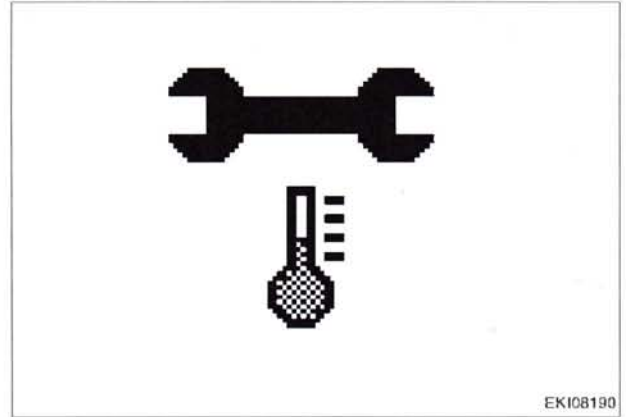
Fig. 195.

EKI08189
 I001046

The calibration process is automatic (approx. 30 seconds)

The heater valve stepper motor is opened and closed slowly

NOTE: *The display flashes during the calibration process*



EK108190

Fig. 196.

I001047

If incorrect values are detected or the conditions are not met, an message appears **ERROR**

If calibration is completed without errors, **O.K.** appears and the new sensor settings are saved.

NOTE: *Settings are only transferred when ignition key has been turned to "0" position.
(Wait for at least 15 seconds before switching on the ignition again!)*

19 Calibrating the speed display (A007 instrument panel and A011 radar sensor)

Calibrating speed display

- Transmission signals (actual tyre circumference) **"theoretical speed"**
- A011 radar sensor **"actual speed"** (from EOL 7.60/Nov. 07)

Preliminary conditions:

- Accurately measure and mark out a track of 30 m (min.) and 100 m (max.).
- Position the tractor, e.g. with its front wheels, precisely on the start mark (stop with clutch)

NOTE: We recommend:

Choose the longest possible track (100 m)

Carry out the calibration on a dry and level surface

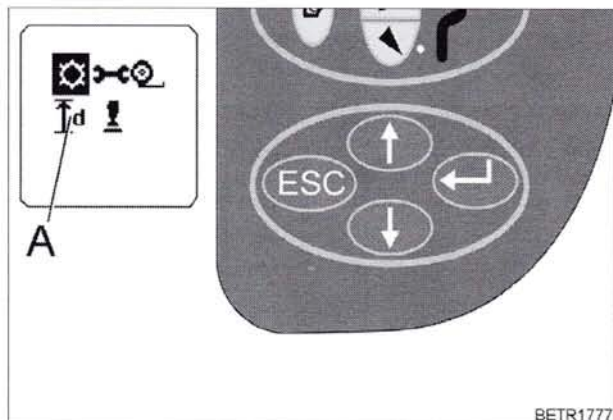
The calibration is carried out in the transmission menu



Press one of the buttons repeatedly until the symbol (A) flashes



Press the "Enter" key, the following screen is displayed.



BETR1777
1002923

Fig. 197.

The first digit for the track information flashes.
 The measured track length for the track information must now be entered.
 E.g. 100 m



Repeatedly press one of the keys repeatedly until the desired figure shows. E.g. 1



Press "Enter" to confirm. Enter the remaining two positions in the same manner.



BETR2248
1002924

Fig. 198.

After confirming the last digit, "START" will flash.

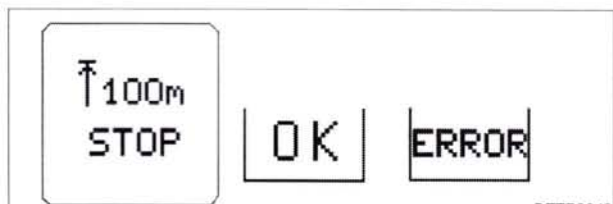


Press the key, the display changes from "START" to "STOP".

Drive off with the tractor and stop with the front wheel on the end marker of the measured distance (stop with clutch).



Press "Enter" to confirm.



BETR2249
1002925

Fig. 199.

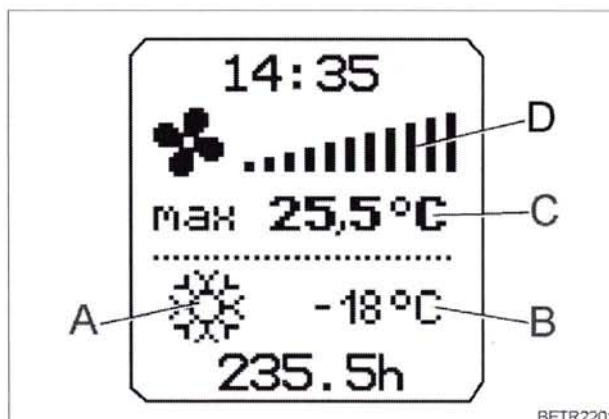
If incorrect values are detected or the conditions are not met, an **ERROR** message appears

If the calibration has run correctly the message **OK** is displayed and the new tyre circumference and the radar impulses are saved.

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	



Using the "ESC" key, work back until Time and Operating Hours are displayed



BETR2201
1002926

Fig. 200.

NOTE: Transfer of tyre circumference and radar impulses only takes place when the ignition key is set to the "0" position. (Wait for at least 15 seconds before switching on the ignition again!)

ERROR messages	Cause
F01	Calculated tyre circumference is too small (e.g. clearly greater distance travelled than input)
F02	Calculated tyre circumference is too large (slightly less distance travelled than input e.g. at 100 m calibrated as 95 m travelled)
F03	Radar impulse total is clearly less than the nominal impulse total (e.g. obviously less distance travelled than input)
F04	Radar impulse total is clearly greater than the nominal impulse total (e.g. clearly greater distance travelled than input)
F06	Calculated values could not be written to the A050-ECU, basic control unit (write error in EEPROM)

20 Auto-Guide system: calibration of roll bias (DMU) (only with OmniStar HP or basic station)

When operating the Auto-Guide system with the patch:

- OmniStar HP
- or
- Basic station (local base)

the DMU (gyro compass) roll bias must be calibrated.

NOTE: When operating the Auto-Guide system with the OmniStar VBS patch, calibration of the roll bias is not necessary.

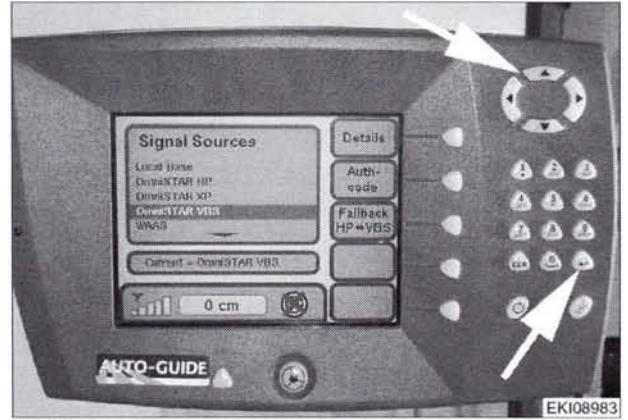


Fig. 201.

EK108983
1003371

DMU (gyro compass)



The **DMU (gyro compass)** is built into the A058 Auto-Guide TopDock

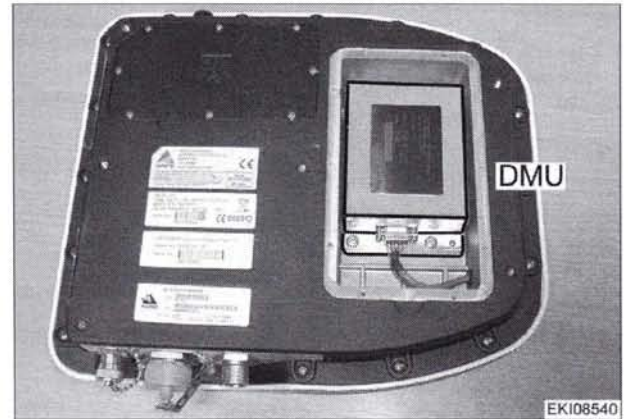


Fig. 202.

EK108540
1002355

Description

In addition to GPS navigation, the Auto-Guide system also includes a dynamic measurement unit **DMU (gyro compass)**. The sensors inside the DMU measure angular rates and acceleration, in order to determine the precise orientation of the vehicle (over 70 times a second).

This enables the Auto-Guide system to measure roll, pitch and yaw of the tractor very precisely and can guide the tractor very accurately along the path.

The DMU (gyro compass) has been especially developed for vehicles that are subject to vibrations.

The DMU (gyro compass) does not have any moving parts

Calibrating for roll bias

Roll bias calibration must be carried out under the following circumstances:

- When using the OmniStar HP patch
- When using a basic station
- Following fitment of the Auto-Guide system into the tractor (after ordering and commissioning of the patch)
- Periodically (at the beginning of the season, or on a monthly basis)
- When the A058 Auto-Guide TopDock is transferred to another tractor
- If the Auto-Guide system has been inactive for a long period
- When the DMU (gyro compass) is replaced

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	

Conditions for roll bias calibration

- Scroll with the **arrow key**



Fig. 203.

EKI08912
1003307

- Switch to the status indicator with the **measuring gauges**



Fig. 204.

EKI08913
1003308

Press **DETAILS** in the "Status" screen



Fig. 205.

EKI08917
1003311

The accuracy of the GPS positioning can be viewed on the "GPS Details" page.

The **Accuracy** value shows an estimate of the difference between the position determined by the GPS satellites and the actual position of the tractor (static accuracy). The longer the Auto-Guide system is operating, the more accurate it becomes.

To calibrate the DMU "gyro compass" an accuracy of at least 0.5 m must be available.

NOTE: See also:
 Chapter 0000 Reg. E Reading out Auto-Guide system information "Details".

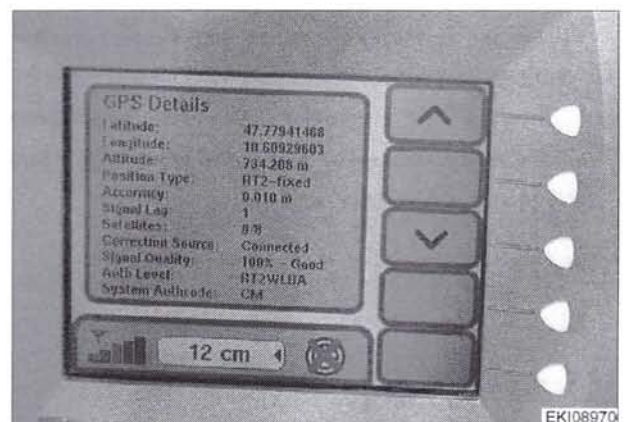


Fig. 206.

EKI08970
1003339

Perform calibrating roll bias without mounted implement

302	T001196	919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
	Version 1	919 .. 1001-	928 .. 0101-1000	934 .. 1001-
	07-11-2007	922 .. 0101-1000	928 .. 1001-	
		922 .. 1001-	931 .. 0101-1000	
		925 .. 0101-1000	931 .. 1001-	

Set the following parameters on the A059 Auto-Guide terminal:

Implement width = 10 m

Implement offset = 0 m

Way line offset = 0 m

On flat, reasonably level ground, align the tractor at the start of the wayline.

Move the tractor forwards and switch on the automatic track guide.

Maintain a speed of approx. 7 km/h .

Drive for at least 100 m along the way line.

Turn around at the end of the wayline and align wheels in the same wheel tracks going the opposite direction.

Move the tractor forwards and switch on the automatic track guide.

Maintain a speed of approx. 7 km/h .

Drive for at least 100 m along the way line.

At the end of the second run, turn the tractor around again and align wheels in the same wheel tracks.

Wait at least 30 seconds.

In these 30 seconds the Auto-Guide system performs a mean roll bias calculation.

Procedure

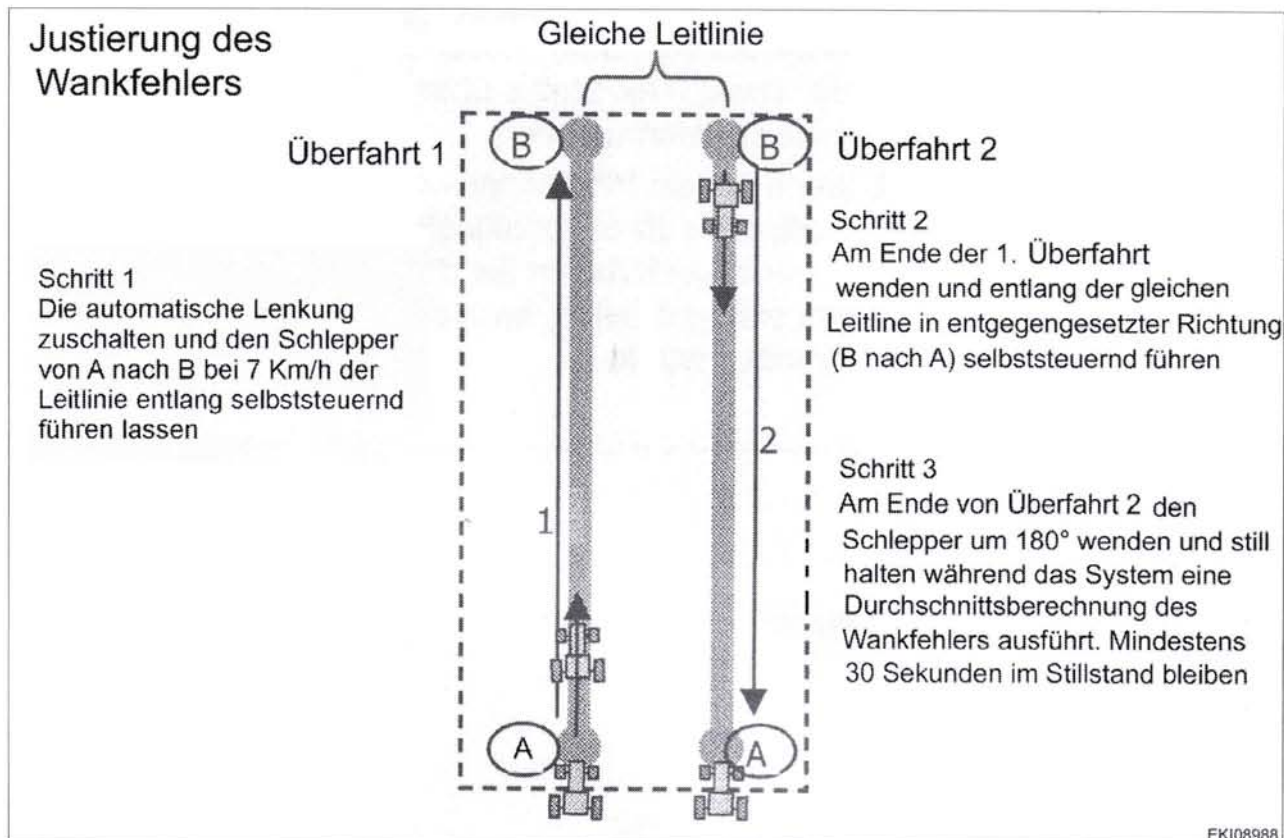


Fig. 207.

EKI08988
1003504

System information from the DMU (gyro compass)

In the Details status screen

Overview with system information "**General Information**"

Roll Bias

If the calibration of the DMU "gyro compass" shows

Value = 0 (DMU not calibrated)

Value = 0 +/-5° (DMU calibrated)

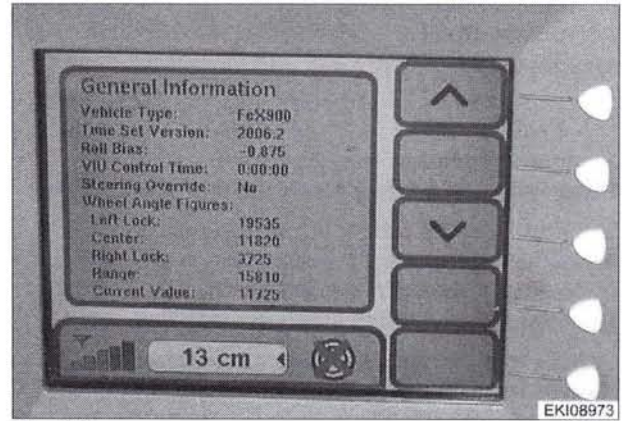


Fig. 208.

EKI08973
I003342

In the Details status screen

Overview with system information "**Hardware Details**"

NOTE: On the "Hardware Details" screen there is further information about the DMU (gyro compass)

Scroll with the arrow keys

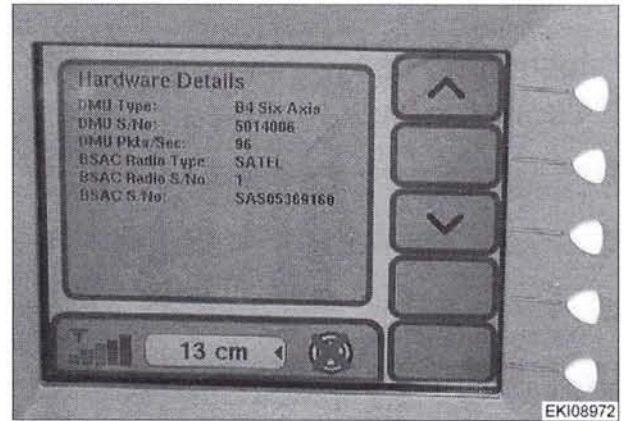


Fig. 209.

EKI08972
I003341

Hardware Details		
Detail	Description	Note
DMU Type	Type of DMU (gyro compass) in A058 Top-Dock.	Example: Six Axis (6 axis compass)
DMU S/No	Serial number of DMU (gyro compass)	Example: 060 1000021
DMU Pkts/Sec.	The total number of readings sent by the DMU per second to the A058 Auto-Guide Top-Dock (ECU, GPS).	70 messages per second or more indicates "good operation"