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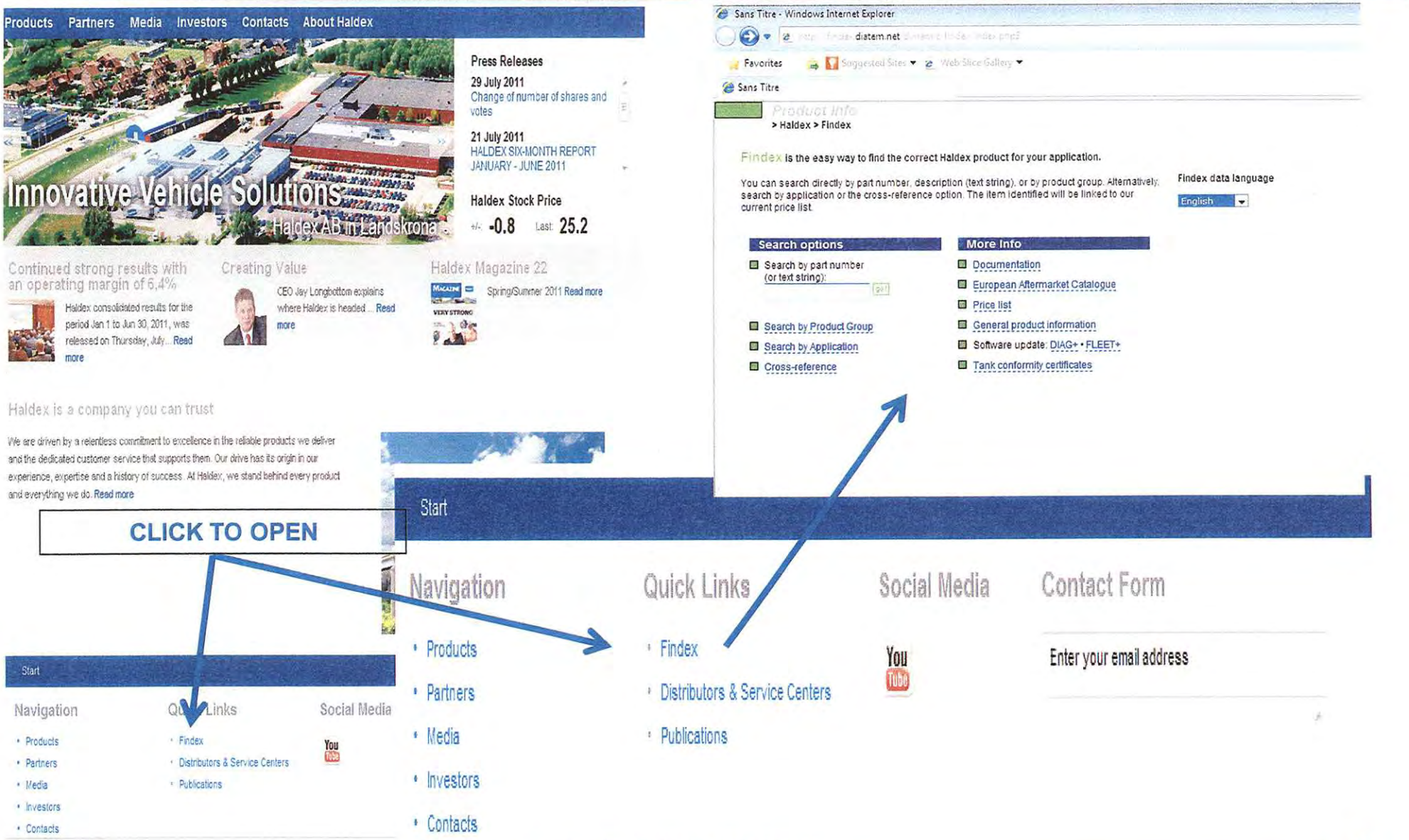

Air Brake valve port Identification [ISO686]

- 0 Suction
- 1 Energy Inlet
- 2 Delivery/Output
- 3 Exhaust
- 4 Pilot Connection [Inlet]
- 5 Spare
- 6 Spare
- 7 Anti-freeze liquid connection
- 8 Lubrication oil connection [compressor]
- 9 Coolant connection
- A second digit may be added when several similar connections are available e.g. 1-2, 41 ,42

Haldex Part No. 950 364 436

NEW UNIVERSAL ABS/EBS 7-PIN SOCKET w/SCREW TERMINALS

- **7-pin replacement headboard socket for trailer ABS / EBS systems**
- **Contains screwed pins and wire crimp terminals**
- **Includes fused and non-fused pin 1**
- **Can replace Haldex part no's 950 364 072 (Green cover), 950 364 402 (Black cover), 950 364 420 (Red cover)**

Please note not suitable for replacement on ISO7638 with 6mm^2 wire.

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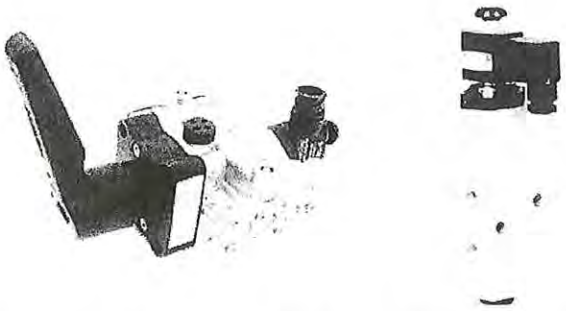
Bulletin Haldex

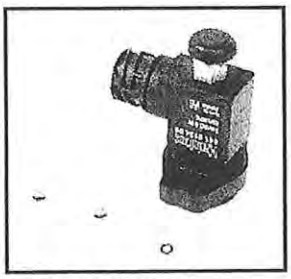
Issued by	Introduction from serial No	Date	Product affected	P/B No
Brian Robertson		15.1.09	Colas / ILAS E	005

Title / Subject	Reg No	Edition / Ref No	Page
Solenoid Housing			1/1

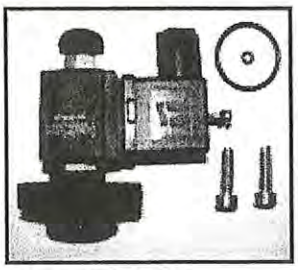
Spare parts for Colas / ILAS E



In many cases it is not necessary to change the complete valve due to problem with the solenoid or damage to the threads on the solenoid mounting plate. Spare solenoids with the mounting plates are available through the Haldex distributor network.



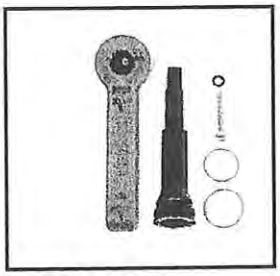
950 352 011



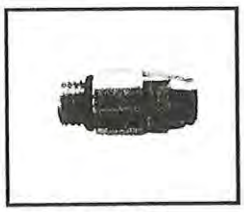
950 352 010

In addition to the solenoids a spare handle and shaft kit is also available for the Colas Valve.

Note: The shaft will break if the handle is not pushed in before attempting to raise or lower the trailer.



950 338 027



032 072 819

The brass push-in fittings on the newer 8mm Colas valves are replaceable and should be changed rather than fitting a new valve. These can be obtained from your local Haldex distributor.

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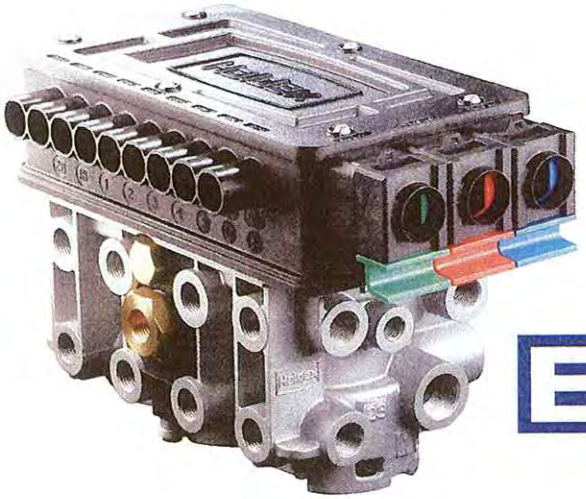
EB+ Gen 2 Retrofit Kits

Haldex

Technical Info



EB+ GEN 2

Part numbers:

EB+ Generation 2 retrofit;

Kit c/w Trailer Control Module
393 785 001

Kit c/w Relay Emergency Valve
393 785 011

Specification:

Temperature range: -40 °C to +70 °C

Kit c/w TrCM 393 785 001

Kit c/w REV 393 785 011

EB+ Generation 2 is the latest Haldex electronic braking system for trailers. It is now available as a retrofit kit allowing its features to be incorporated into older trailers.

This means that most semi-trailers with air suspension and 80-100 tooth exciters can be upgraded including those fitted with alternative manufacturers systems. The system is straight forward to fit and reduces the number of valves fitted on the trailer (e.g. no load sensing valve required, external double check valve and quick release valve optional).

Key Benefits

- Choice of Relay Emergency valve kit (utilises existing Park & Shunt valve) or Trailer Control Module kit (allows removal of REV and Park & Shunt Valves replaced with TrCM)
- Offers all the features of the newest trailers fitted with Haldex EB+
- Can include roll stability (requires activation during ECU programming)
- Serviceable double check valve and quick release valve components
- Screw terminal ISO connector supplied loose makes installation simpler
- Installation sign off arranged by Haldex
- Directly compatible with EB+ Info Centre and Diag+ diagnostics

For further information contact your local distributor or call the Haldex service helpline directly Tel. 01325 311834

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Haldex ABS/EBS Diagnostic Equipment

ABS Info Centre 903 045 001

- Workshop tool for use with Haldex Modal & Modular ABS systems
- Read / Clear active and stored fault codes
- Read mileage (Modular only)
- No PIN number needed, workshop tool

EB+ Info Centre 903 047 001

- Workshop tool for use with Haldex EB+ EBS system
- Plugs into side of vehicle connector or ecu
- Read / clear active and stored fault codes
- Read mileage
- Read air pressures in the trailer system
- Read ECU configuration & version
- Trailer load indication
- No PIN number needed

EB+ Diag+ 815 028 001 new USB version

- Use with Haldex EB+ EBS systems
- Requires laptop/PC with Win98 or later
- Read/clear active and stored faults, access extended fault data
- Live graphical trailer system display
- Programme / modify ECU parameters
- Run end-of-line test
- No subscription – free updates via Haldex website

Diag+ Headboard Interface 815 018 001

- Use with EB+ and Diag + interface
- Allows connection to EB+ ECU via the ISO 7638 headboard socket
- Eliminates the need to crawl under the trailer
- Compatible with EB+ systems from August 2005

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product Bulletin Haldex

Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	EB+	001
Title / Subject		Reg No.	Edition / Ref. No.	Page 1
Config Error				

Flash Updating EB+ ECU's

Please be aware that there is no need to increase the level of Software above B377 on any EB+ 2S/1M ECU and we do not recommend that they are updated beyond this. Please refer to Haldex Technical Services before flash updating the software level on any 2S/2M ECU above B377.

Note : Never flash an ECU to a lower level than it is currently programmed at e.g. B413 back to say B399. We have had several Gen 2 assemblies returned where for some reason they were flashed updated with older software versions. The earliest Gen 2 build level was B413 and there is no need to flash these.

Configuration error Aux 4

The standard EB+ ECU has 5 Auxiliaries, but we also offered a 1 Auxiliary version on 2S/1M systems (as shown below) and a 3 Auxiliary version on 2S/2M systems. As we introduced new software features we have found a potential issue on ECU's with a reduced number of Auxiliaries when running on B399 or higher software. If the air bellow pressure is above approx 4.1B and the ignition is reset there will be a **Configuration error Aux 4** fault generated. Once the bellow pressure reduces below 4.1B and the ignition is reset then the fault is no longer active but will become stored.

Example of 1Auxiliary EB+ ECU

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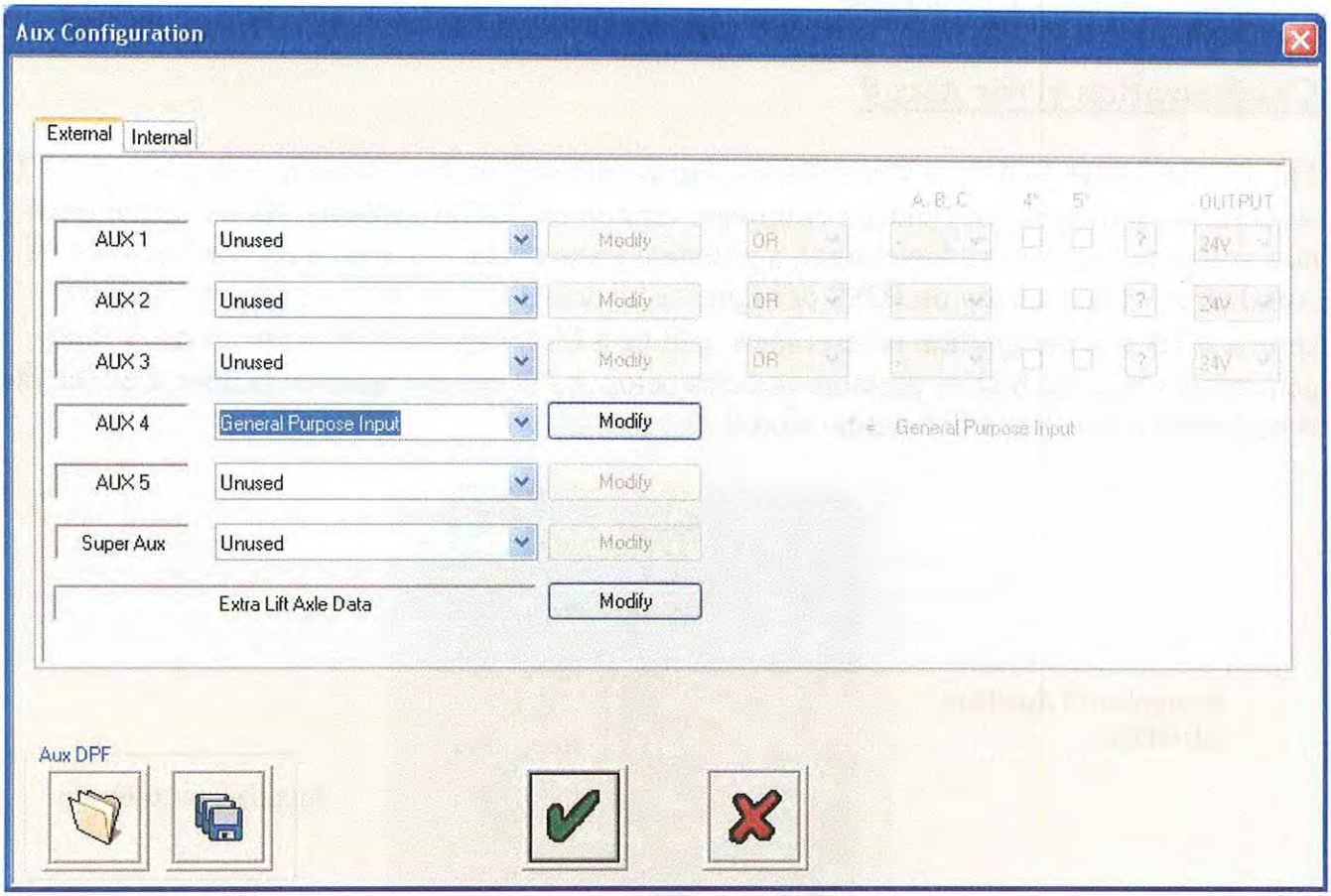
If you come across this problem then the ecu will need to be re-programmed.

You will need to read the data from ECU and then go to the Aux configuration menu. In this menu select Aux 4 and program to **General Purpose Input.** Once selected re send the information back to the ECU and check that there are no other faults present. (See screen shot below)

Please Note that you will require V5.10 or V5.12 of Diag+ , older versions do not have the General Purpose Input option.



Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	EB+	002
Title / Subject		Reg No.	Edition / Ref. No.	Page 1/6
EB+ Leaking Modulator				

EB+ Leaking Modulator Valves

We have had several cases of reported leaking EB+ Modulator valves. However when the trailers have been inspected the cause has found to be a leaking spring brake chamber or in several cases multiple leaking brake chambers.

We would ask that before a valve is changed for a reported leak that the brake chambers are checked.

If the leak occurs when the truck hand brake is applied (Park on air truck) then the pipes going to the emergency side of the spring brake chamber should be removed from the QRV on a Gen 1 or the Spring brake feed ports on a Gen2. You can remove all the pipes at once if enough blanking plugs are available or 1 at a time. Once the pipe or pipes have been removed re-apply the handbrake and then check the pipe which is still connected to the brake chamber emergency side. Any air coming back through this pipe is leaking through the centre seal on the brake chamber and therefore the brake chamber will need to be replaced.

If the leak is present without the brakes applied then remove the pipes from the service ports in the EBS modulator and with red line connected check the removed pipes for any sign of air coming back through the pipe. Any air coming back through this pipe is leaking through the centre seal on the brake chamber and therefore the brake chamber will need to be replaced.

Schematics of the most common EB+ Generation 1 and Generation 2 system are attached.

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Brake piping layout - 2M

Side by Side Configuration

3 axle Semi-Trailer - 2 line air brake system - **w/o Relay Emergency Valve**

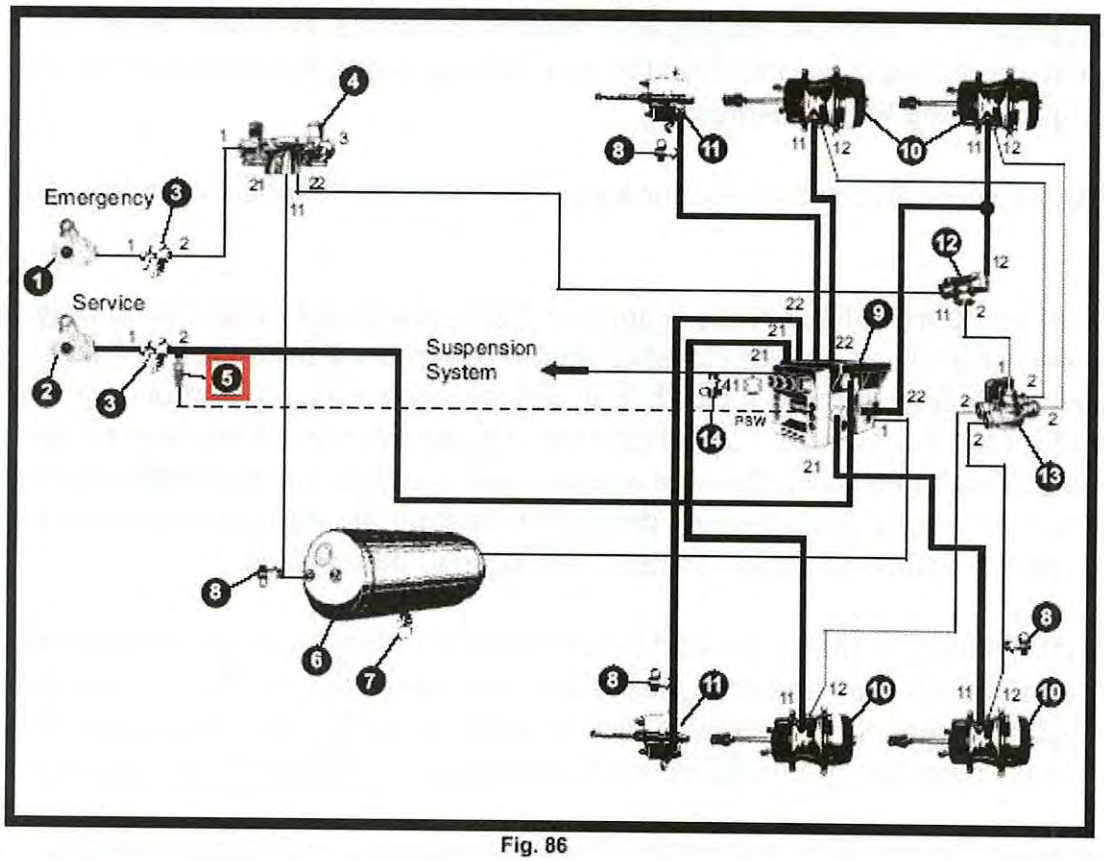
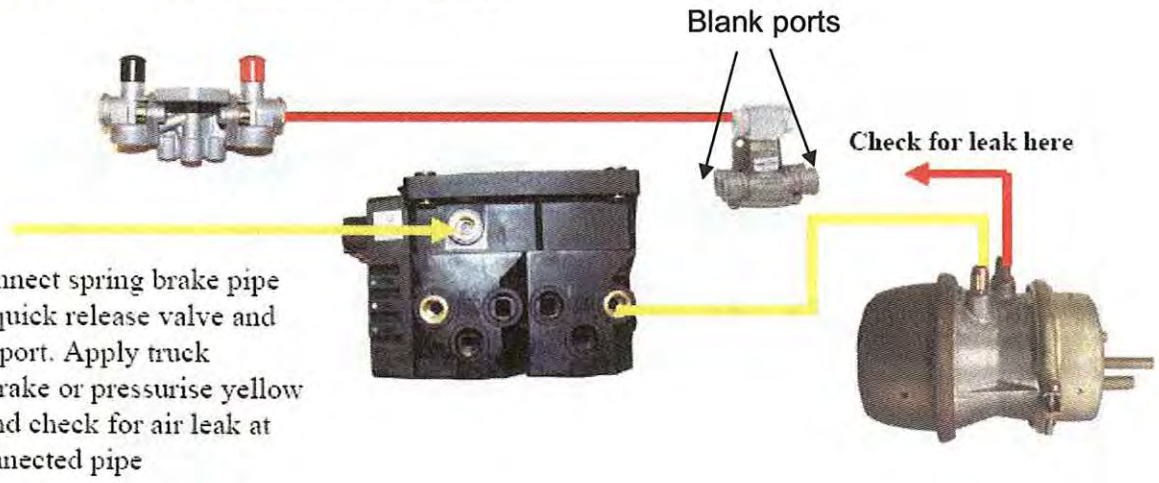


Fig. 86

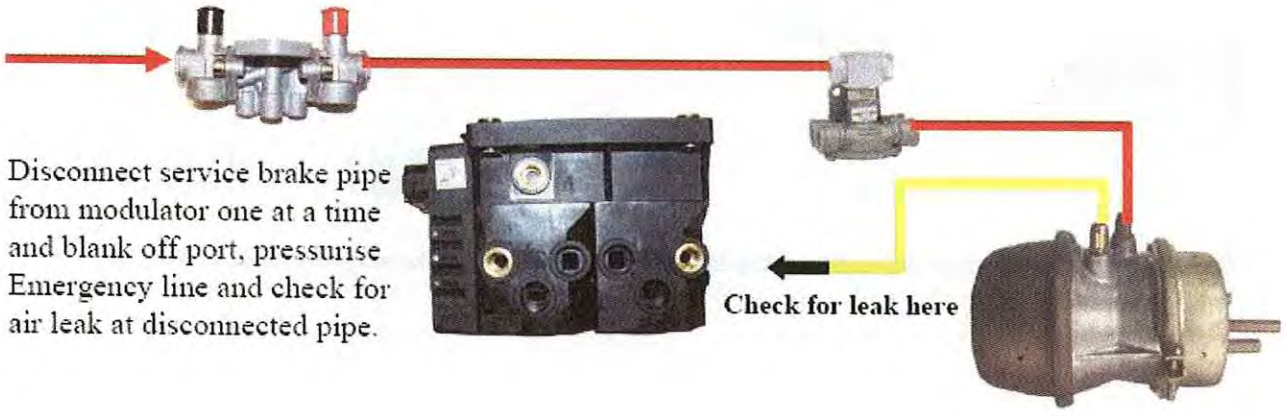
ITEM	DESCRIPTION
1	Emergency coupling
2	Service coupling
3	Pipe filter
4	Combined Park and Shunt valve (364 046 ...)
5	Pressure switch **Installation Option**
6	Air reservoir
7	Drain valve
8	Test point
9	EB+ Assembly
10	Spring Brake chamber
11	Single Diaphgram Brake chamber
12	Double check valve
13	Quick release valve
14	Test point simulator

Valve leaking when truck handbrake applied



Disconnect spring brake pipe from quick release valve and blank port. Apply truck handbrake or pressurise yellow line and check for air leak at disconnected pipe

Valve leaking without handbrake applied



Disconnect service brake pipe from modulator one at a time and blank off port, pressurise Emergency line and check for air leak at disconnected pipe.

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Brian Robertson		15.1.09	EB+	002
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EB+ Leaking Modulator				

Gen 2 Brake piping layout - 2M

3 axle Semi Trailer, 2 line air brake system, Spring brake chambers, Combined Park & Shunt without REV

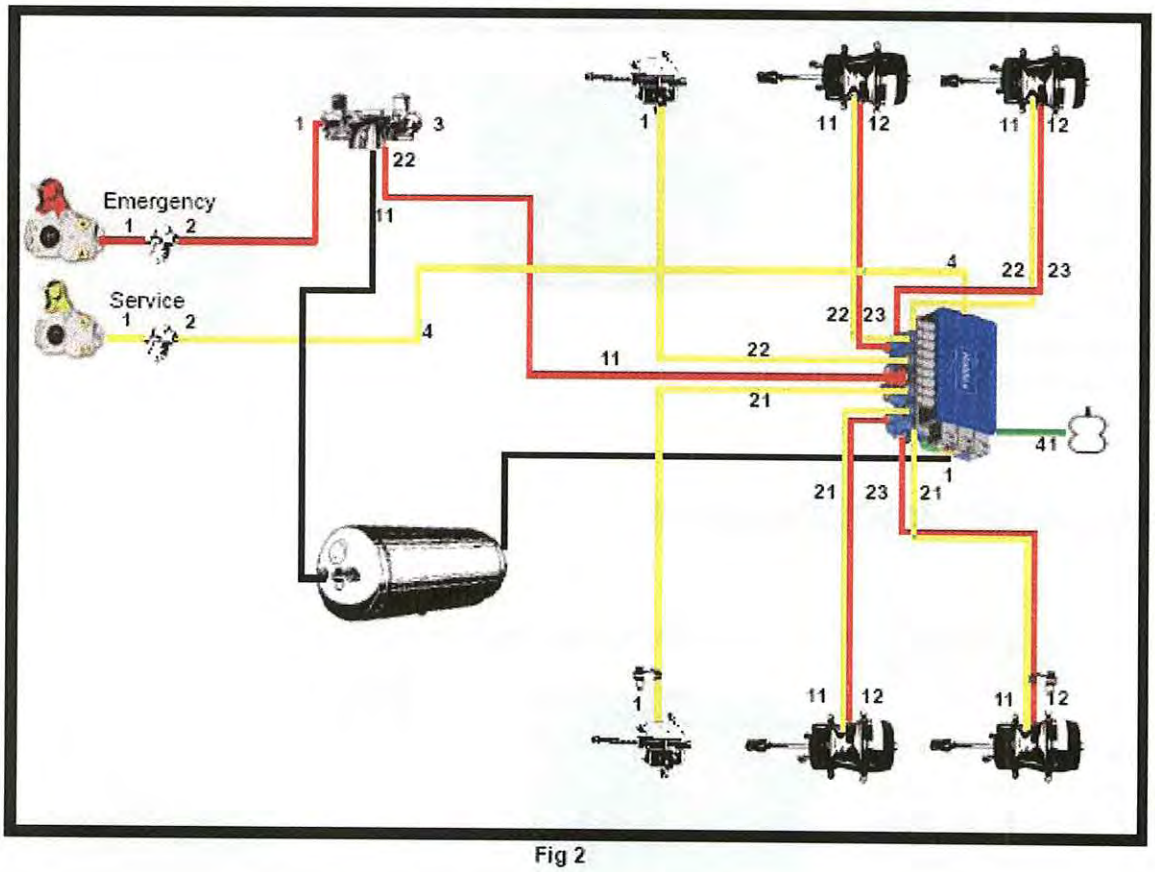

Fig 2

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Brian Robertson		15.1.09	EB+	002
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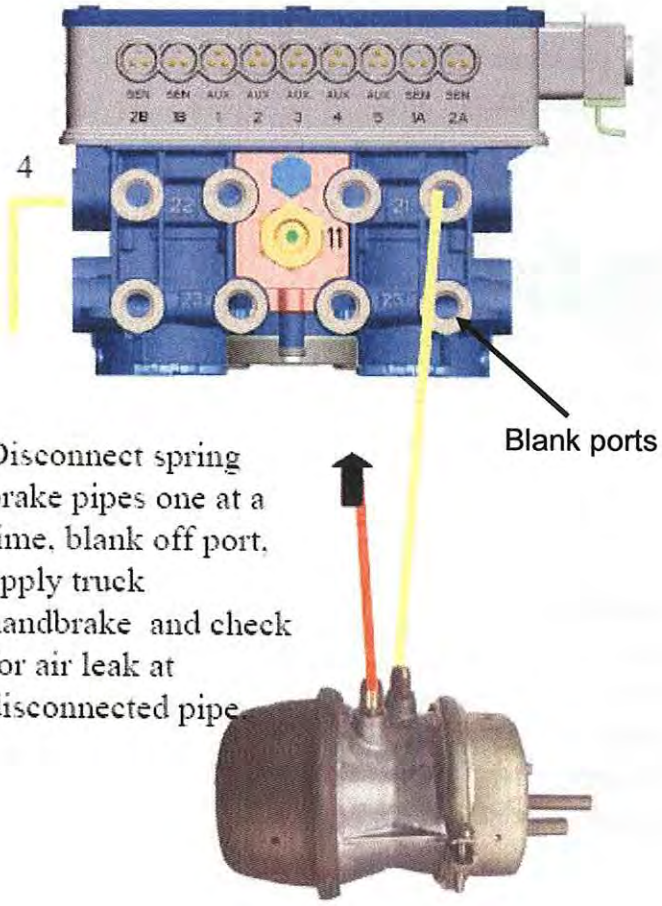
EB+ Leaking Modulator				

Valve leaking when truck handbrake applied



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Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	EB+	002
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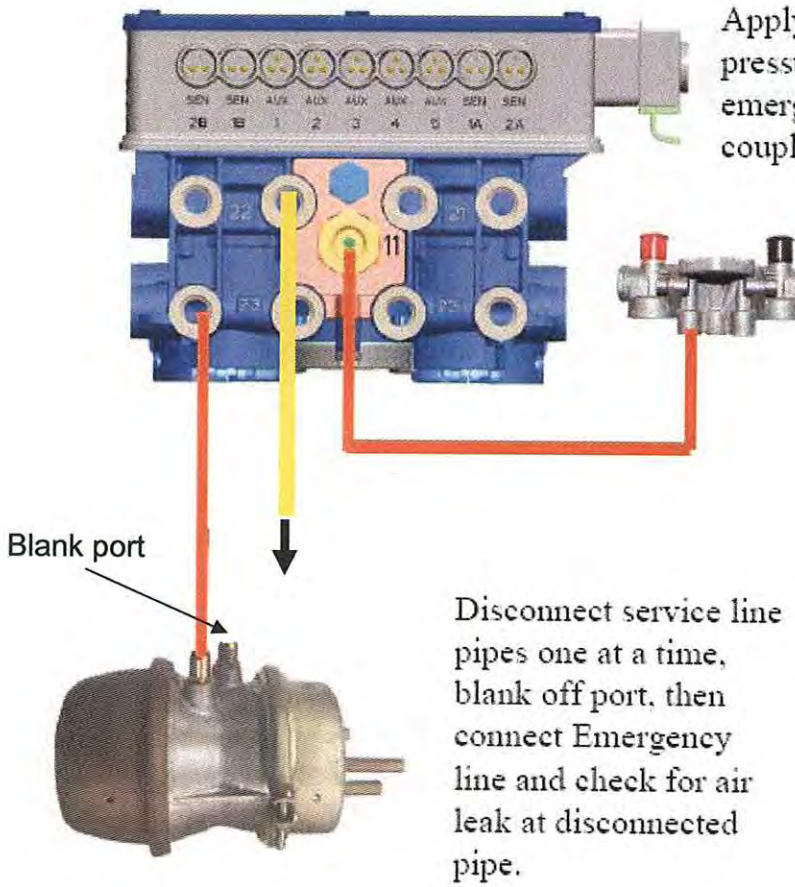
EB+ Leaking Modulator				

Valve leaking without handbrake applied



If the chambers are found to be OK then the integrated DCV can be checked refer to technical sheet 000 700 329 for Gen 2 and 000 700 319 for Gen 1. Inspect the actual shuttle for any sign of damage.

Finally remove quick release valve and check diaphragm for any particles of swarf etc.

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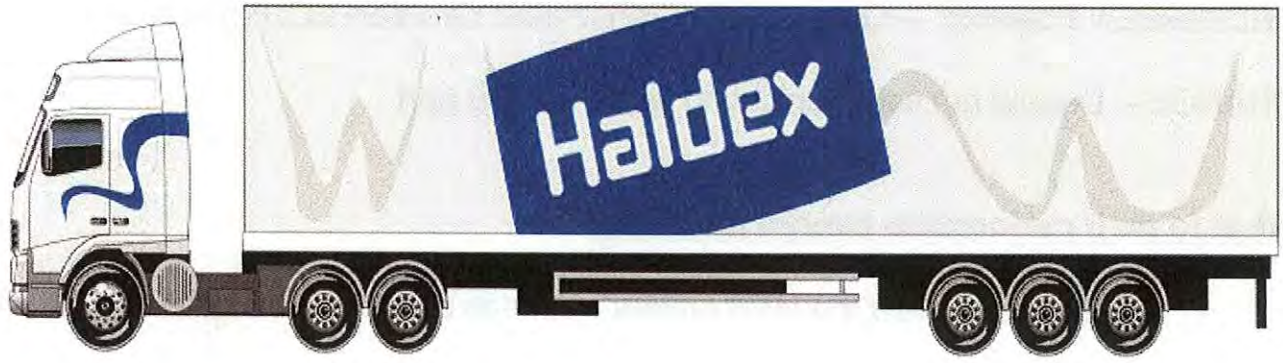
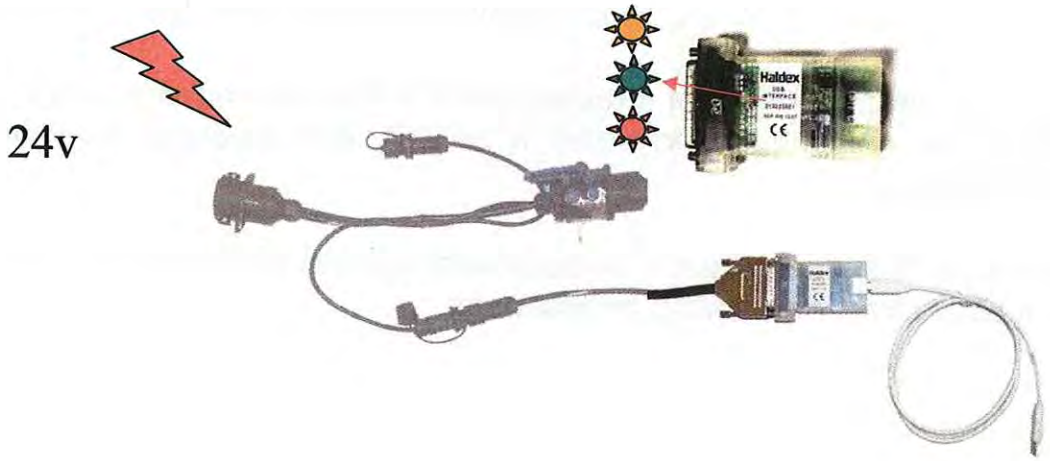
Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	DIAG + USB Dongle	003
Title / Subject		Reg No.	Edition / Ref. No.	Page 1/3
DIAG+ Connection				

Diag+ Connection



When using the Diag+ program, through the front of trailer ISO 7638 Headboard interface connector and USB Diag interface ensure that voltage used to power up EB+ ECU is NOT above 25v.

If voltage is above 25v there will be NO LINK to ECU, and the light on the interface will remain RED. It is therefore recommend to plug directly into ECU through the Green Diagnostic socket.



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Interpretation of Interface lights

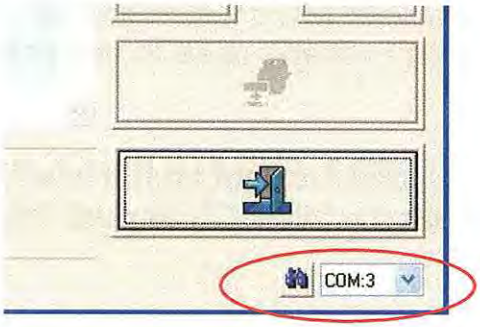
RED - ECU is receiving power but no connection to computer

RED/GREEN Flashing --- Data is being transmitted between ECU/Computer

ORANGE – Dongle not communicating with PC USB port

What to do if connection cannot be made.

- Have you installed the USB drivers? – these are on the installation CD
- Click on the binoculars to scan for the correct Com port



- Apply the footbrake to see if the system will power from the 24N connector
- On a Generation 1 system remove the ECU from the valve to check that the valve is not causing a short circuit, if the ECU then connects the valve needs to be replaced.
- If using a USB dongle and connected through the ISO socket try to connect in to ECU direct as detailed on first page.

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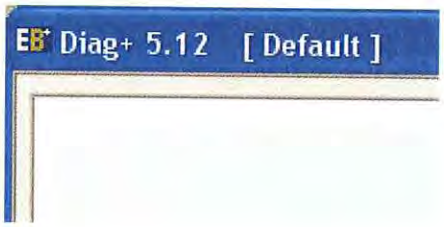
Keep up to date

New releases of Haldex Diag+ are published in the Findex section of our website. There is no charge so it is recommended that you keep your version up to date. The current latest version is v5.12 and this will diagnose all EB+ systems. To check which version you have installed look at the top of your Diag+ window.



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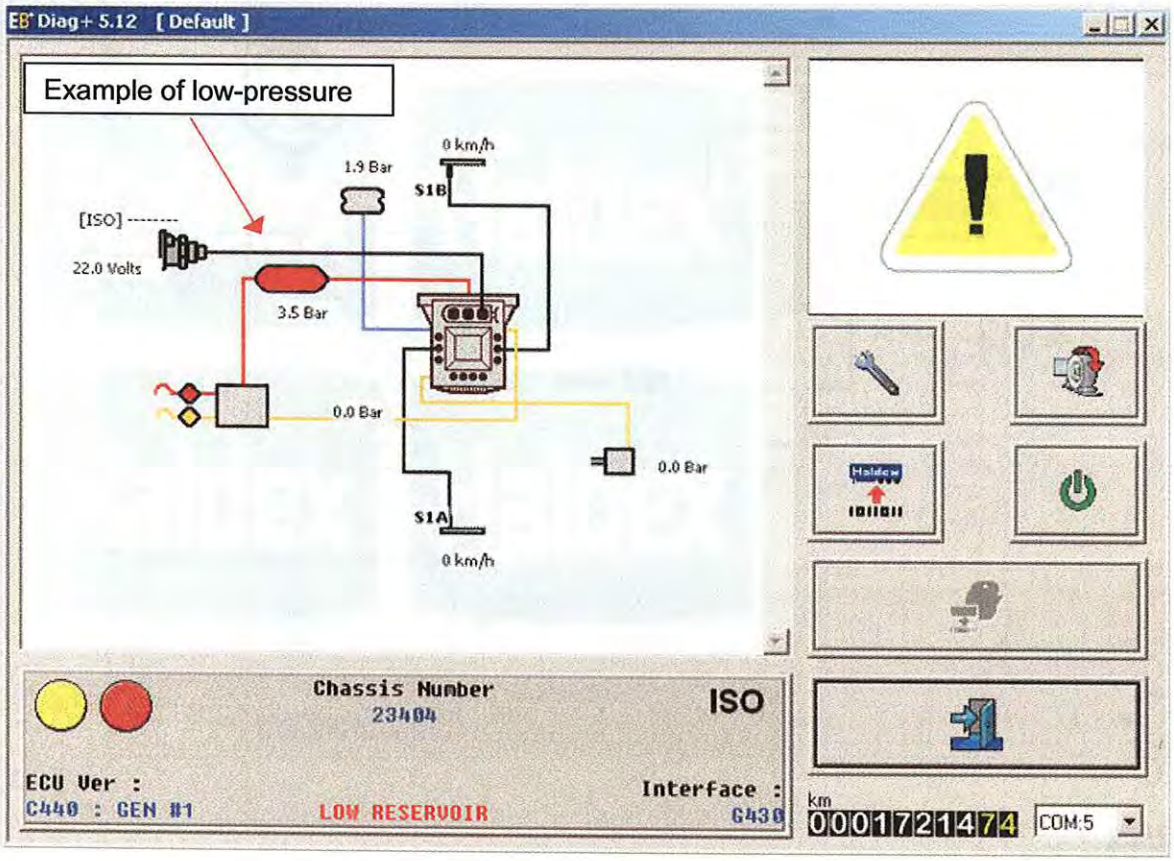
Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	EB+	004
Title / Subject		Reg No.	Edition / Ref. No.	Page 1/3
Lamp On No DTC				

EBS Lamp on – no DTC (diagnostic trouble code)

There are several scenarios where an EBS lamp will be illuminated in the cab but no DTC is generated. These "faults" are prescribed to be system faults not actual faults with the ECU or Valve block and therefore no DTC is generated.

Low Pressure

If the air reservoir on the trailer is below 4.5B then you will have a lamp on in the truck. Connecting the laptop and you will have an air gauge alternating with the warning triangle and a message of **Low reservoir**. As can be seen below the air reservoir only reads 3.5B, once it reaches 4.5B the lamp will go out and the Haldex Logo will return to the screen.



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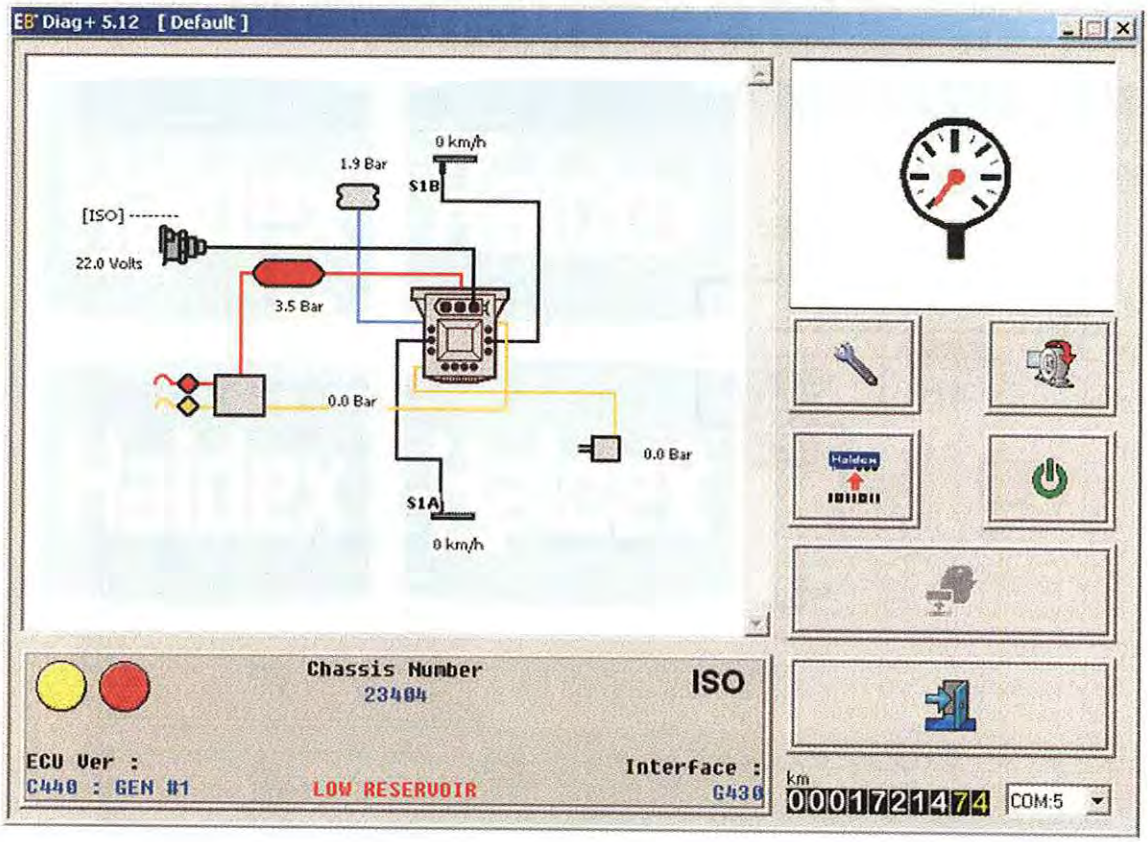
Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	EB+	004
Title / Subject		Reg No.	Edition / Ref. No.	Page 2/3
Lamp On No DTC				

Checks to carry out if the lamp remains illuminated once the air was been fully charged on tractor unit;

1. Check the single check valve function in combined park and shunt 352 046 001 see Product Bulletin 007.
2. Using a pressure gauge connected direct to tank, check pressure, if pressure in tank is more than what reading is shown on screen then possible faulty reservoir pressure transducer inside valve block.
3. Make sure the valve lifter on the coupling is operating and check for any kinked pipes.



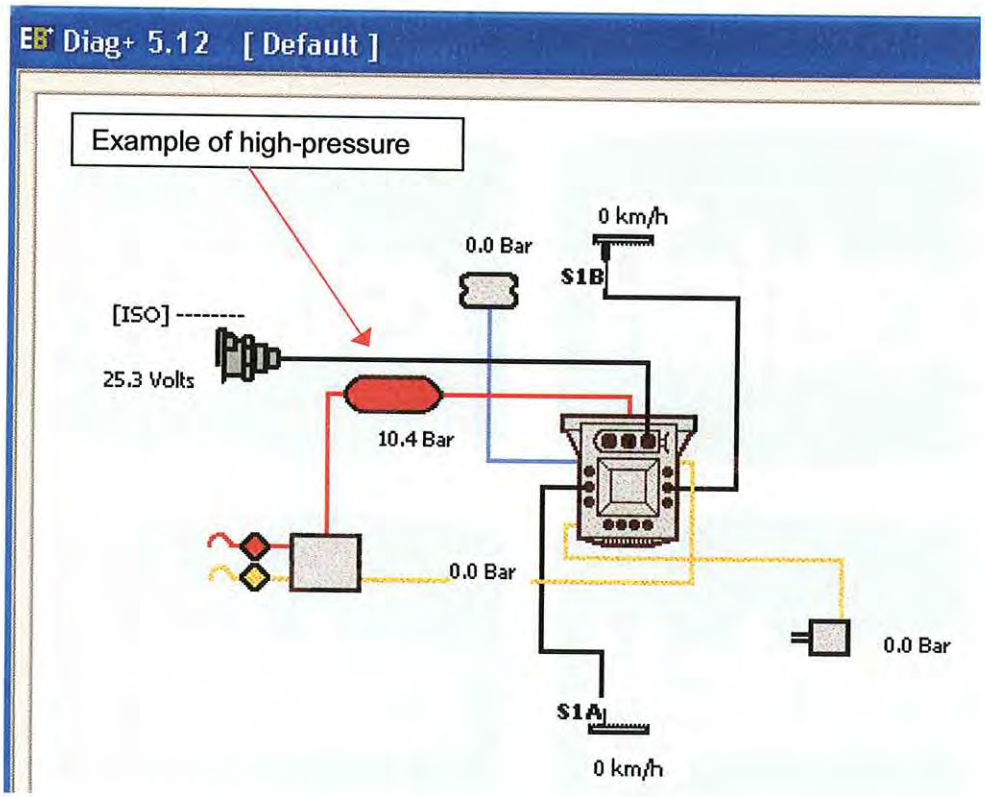
High Pressure

Exactly the same will happen when the air reservoirs on the trailers reach above 9.75B, you will get a lamp on in the cab and when connected to Diag+ you will see the same information as Low

Pressure. Note the message at the bottom will say **Low Pressure** but check the pressure reading on the screen, it may be above 9.75B.

On later levels of software we have now introduced at DTC of High Res Pressure and this will be stored.

The truck will have to be limited to 8.5B which is the legal maximum for a trailer.



Open circuit Lamp

Go to the EOLT (end-of-line test) and do the Auxiliary checks, does the lamp test pass? if not then there is a possible issue on the truck lamp or ISO 7638 suzie.

Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	EB+	006
Title / Subject		Reg No.	Edition / Ref. No. 1	Page 1/2
EEPROM Error				

EB+ ECU EEPROM Error

If this fault is flagged up as a diagnostic trouble code on an EB+ system, then first follow the steps below before changing the ECU or valve assembly.

It maybe that the ECU has been programmed using an early version of DIAG+ ECU set up file (i.e. V3.34) and has created an .elt file instead of a .dpf file.

Rectification Procedure (note also pictures on next page)

1. Make sure that your lap top has the latest version of DIAG V5.12. (this can be downloaded free from website www.haldex.com)
2. Extract ECU set up file from ECU.
3. Read file.
4 Click on black arrow.
5 Each dialogue box will open (do not change anything).
6. Tick green arrow at bottom and the next box will open.
7. When all boxes have been ticked click on green tick at end.
8. Now send configuration into the ECU and return back to main screen.

ECU EEPROM ERROR should now have disappeared.

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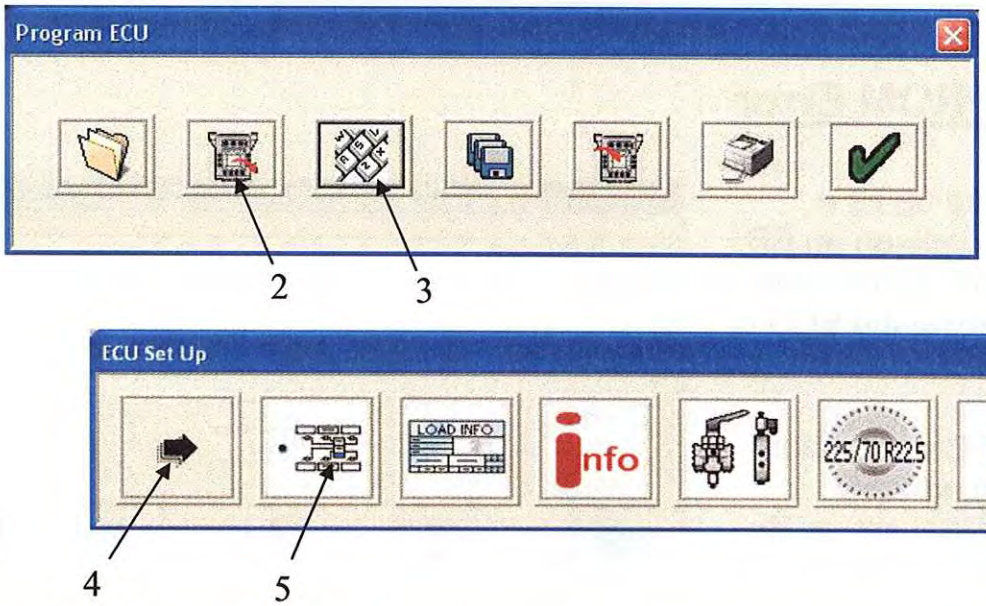
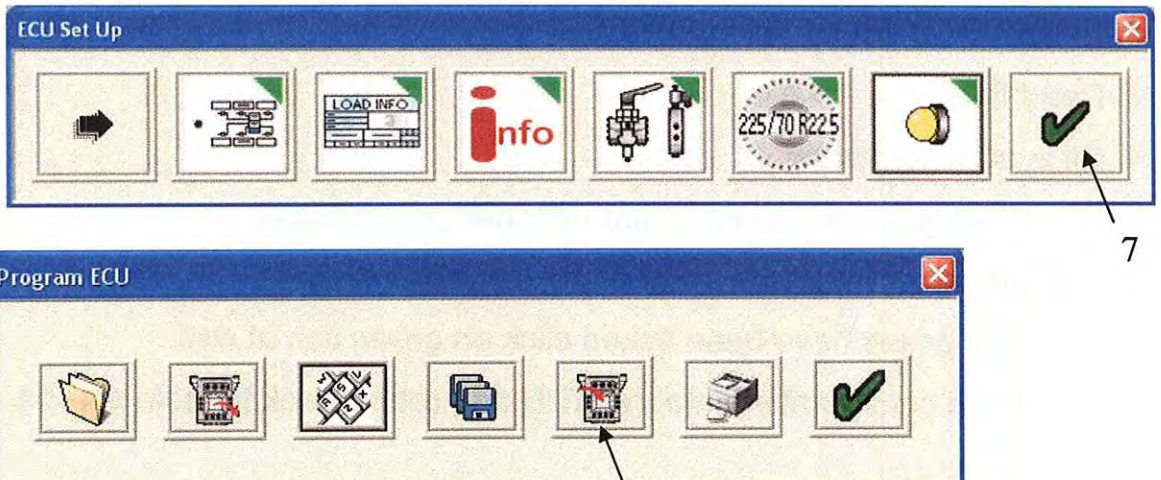
Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	EB+	006
Title / Subject		Reg No.	Edition / Ref. No. 1	Page 2/2
EEPROM Error				





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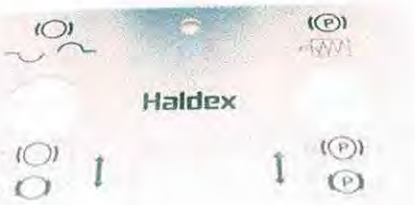
Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	352 046 001	007
Title / Subject		Reg No.	Edition / Ref. No.	Page 1/3
Combined Park and Shunt				

Combined Park and Shunt 352 046 001



We have had a number of failures where the non return valve in port 11 has become stuck and stops air being delivered to the trailer air tanks. The EBS warning lamp will come on in the cab once the trailer air tank drops to 4.5B.
In all the returned units the reason for the failure has been oil contamination which has caused the rubber part of the non return valve to swell. Below is a photo showing the amount of oil present in one trailer, the air tank pipe was removed from port 11 with full air tank pressure and we were able to spray the area shown on the main beam with oil.

We are no longer prepared to accept these returns as warranty as the valve is being subjected to contamination which is being delivered from the truck.

We are prepared to offer a small quantity of parts free of charge for those who wish to repair these contaminated valves. (Contact Haldex Technical direct.)

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Issued by	Introduction from serial No.	Date	Product affected	P/B No
Brian Robertson		15.1.09	352 046 001	007
Title / Subject		Reg No.	Edition / Ref. No.	Page 2/3
Combined Park and Shunt				

How to repair Park & Shunt 352046001 with contaminated port 11

Remove fitting from port "11"unscrew punch plate anti-clockwise from port 11 and remove spring and rubber seal, clean out port.
Re-assemble placing new seal onto spring making sure it is in correct position as shown below and insert into port 11, screw in punch plate until it stops [see diagram on depth] replace fitting

Port 11

Punch plate

NOTE

Before replacing pipe fitting make sure that the punch plate has been screwed in to the stop and the measurement from top of punch plate to the face of port 11 is at least 17.5 mm [see diagram]

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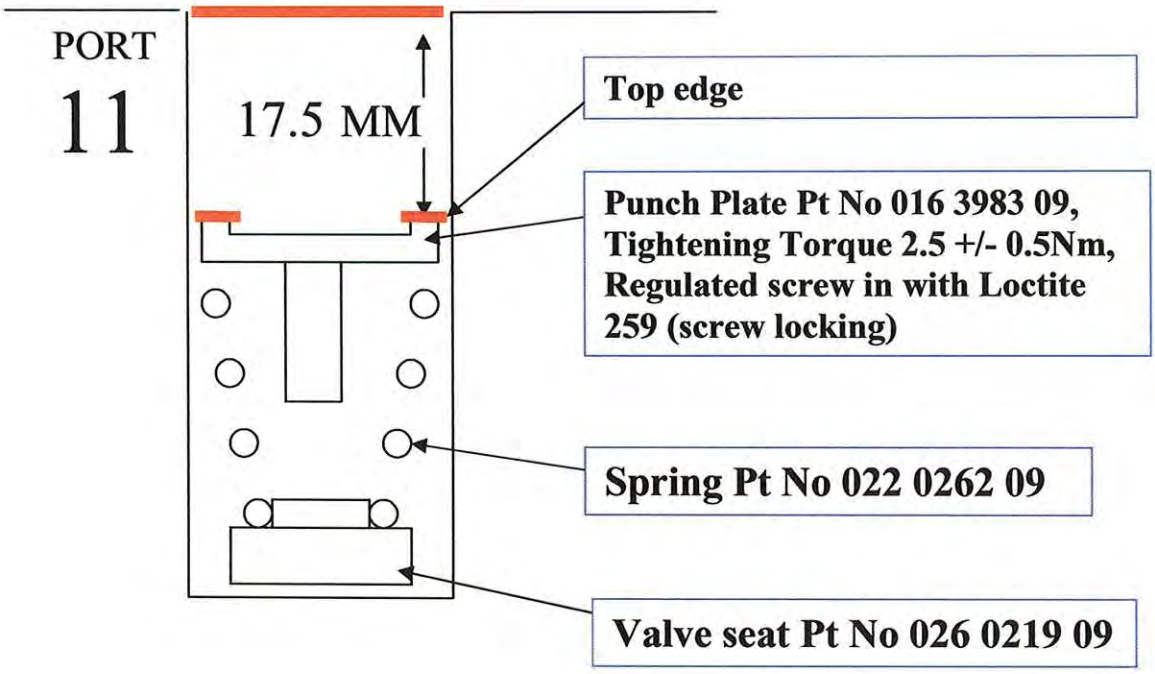
Combined Park and Shunt				

Replace internal components in same order as removed into Port 11, ensure that the measurement [17.5 mm] is correct; **measurement is from face of Port 11 to the punch plate "top edge"!**



Important

Function Test after re-working,

- Remove Red line and make sure that trailer air tank does not drain.

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Issued by	Introduction from serial No.	Date	Product affected	P/B No
Jonna Wakeman		15.8.2008	EB+ Switch box	0062R

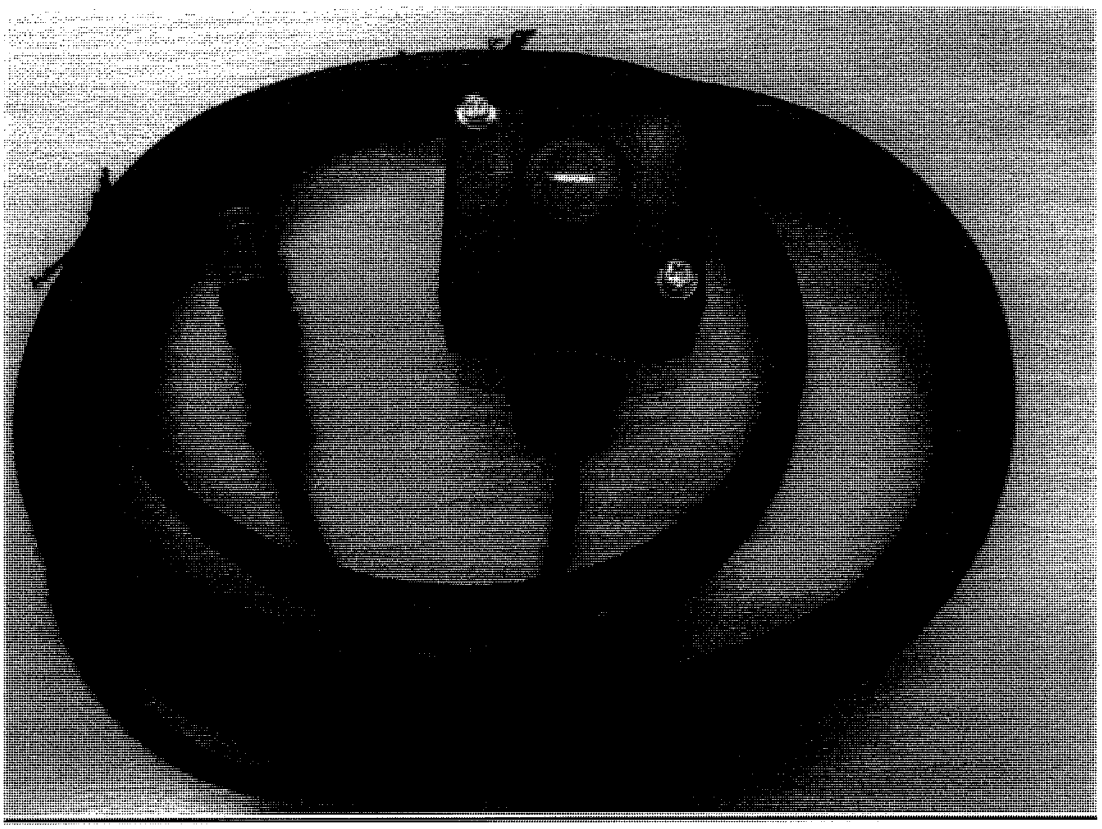
Title / Subject	Reg No.	Edition / Ref. No.	Page
EB+ switch box available now			

Traction Assist Update

It is now possible to simplify the installation on a trailer fitted with ILAS E and requiring the traction assist feature. Haldex now offer a pre- wired traction switch in two models as outlined below that will operate the traction facility. All that is required is to plug the switch into either AUX 4 or Aux 5 and program the feature. No other additional wiring is required.

In addition if the operator also requires operation from the truck then all that is required is an additional Aux cable connected to Aux 4 or 5 which is wired to the switch in the cab and programming of the feature.

Drawings for the switches are attached are as the wiring and programming options.



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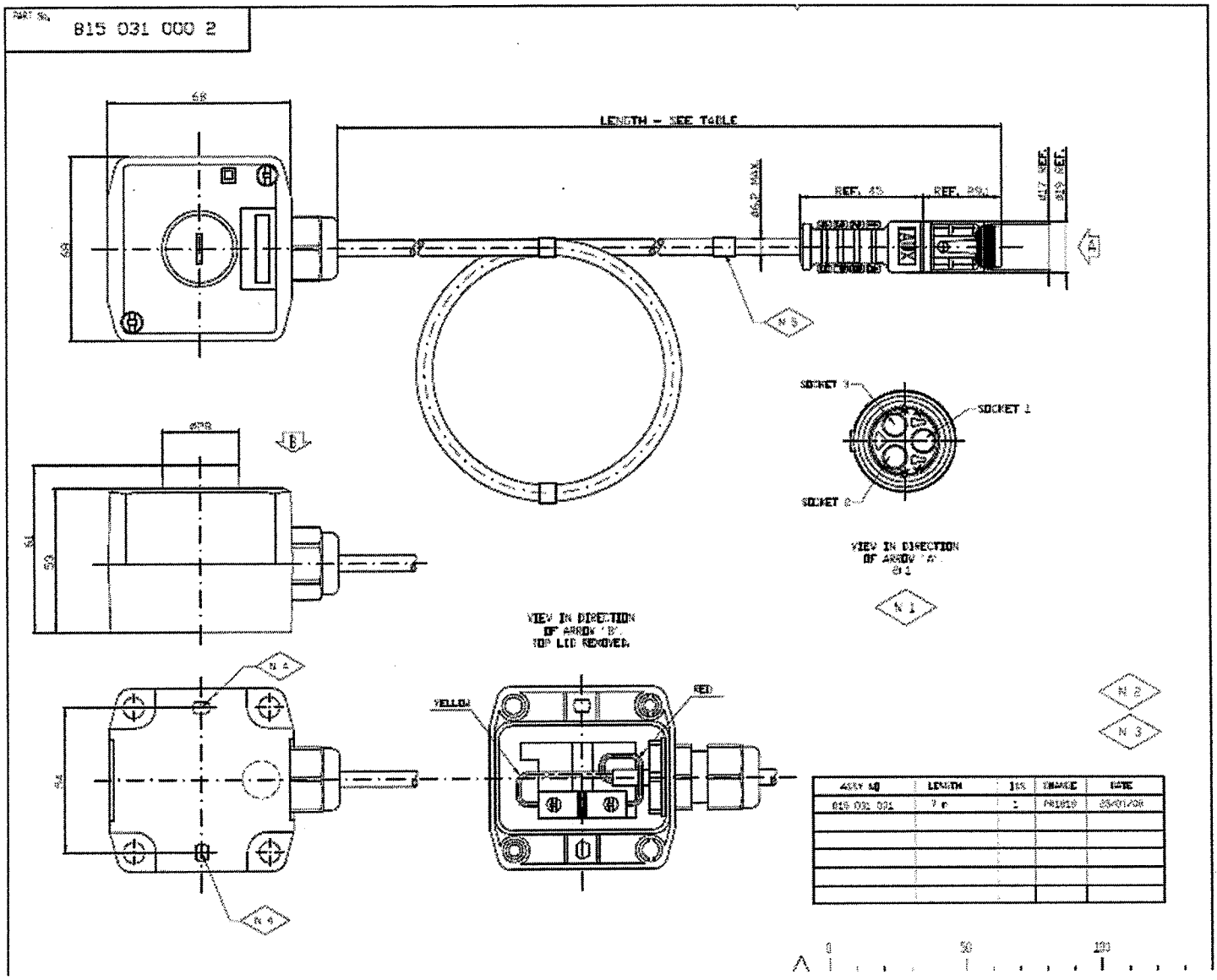
Jonna Wakeman		15.8.2008	EB+ Switch box	0062R

Title / Subject	Reg No.	Edition / Ref. No.	Page
EB+ switch box available now			

There are two switch boxes available for EB+.

Part number 815 031 001 with 7 Meter cable

This switch box is mounted on back face by taking off the cover and mounting it to the side of the trailer.



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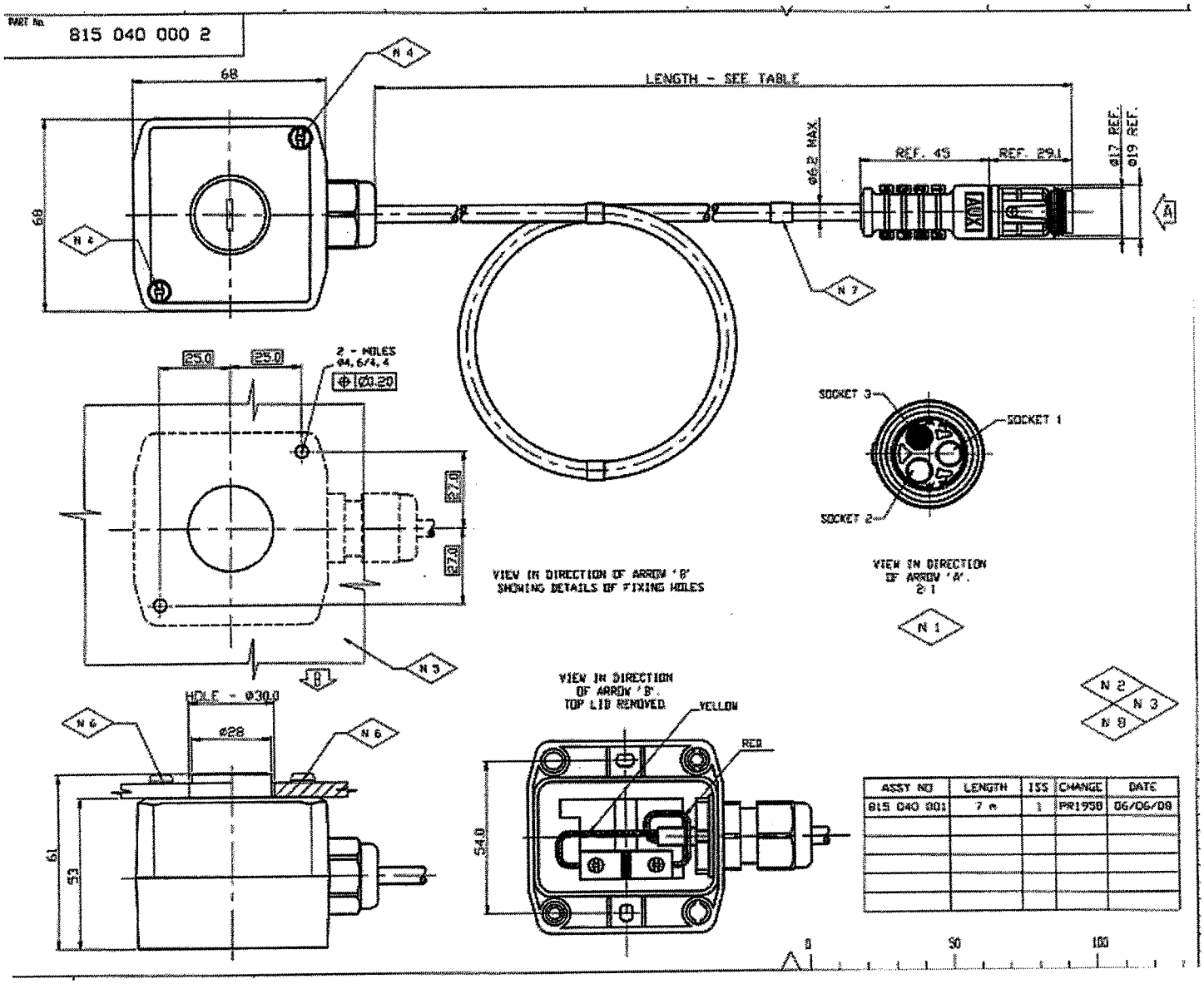
Jonna Wakeman		15.8.2008	EB+ Switch box	0062R
Title / Subject		**Reg No.**	**Edition / Ref. No.**	**Page**
EB+ switch box available now				

Part number 815 040 001 with 7 meter cable.

This switch box will be mounted on front face though a plate so that only the button is on view.



ASSY NO	LENGTH	ISS	CHANGE	DATE
815 040 001	7 m	1	PR1958	06/06/08

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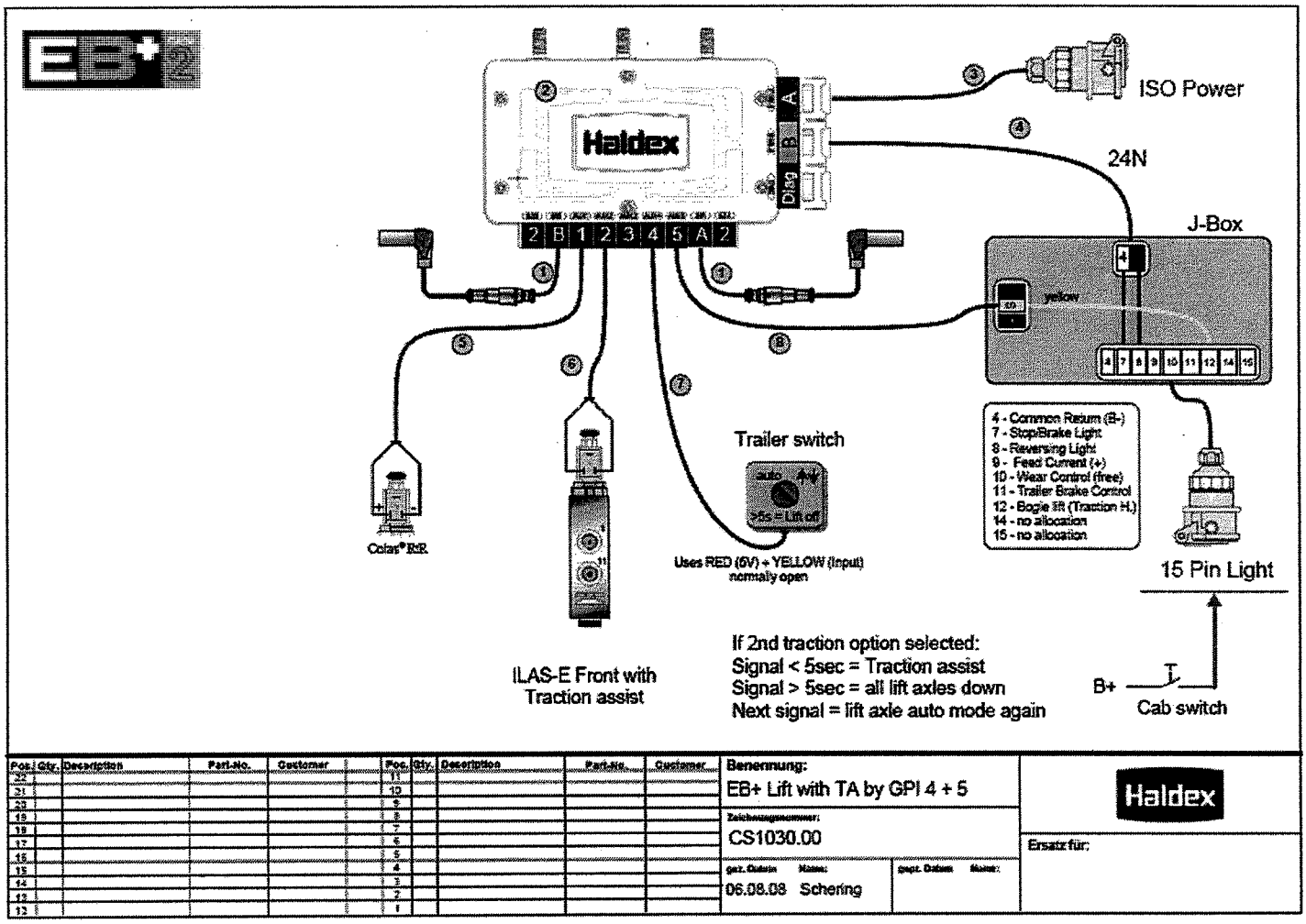
EB+ switch box available now			



Pos.	Qty.	Description	Part-No.	Customer
22				
21				
20				
19				
18				
17				
16				
15				
14				
13				
12				

Pos.	Qty.	Description	Part-No.	Customer
11				
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				

Benennung:
EB+ Lift with TA by GPI 4 + 5

Zeichnungsnummer:
CS1030.00

gez. Datum	Name:	gepr. Datum	Name:
06.08.08	Schering		

Haldex

Ersatz für:

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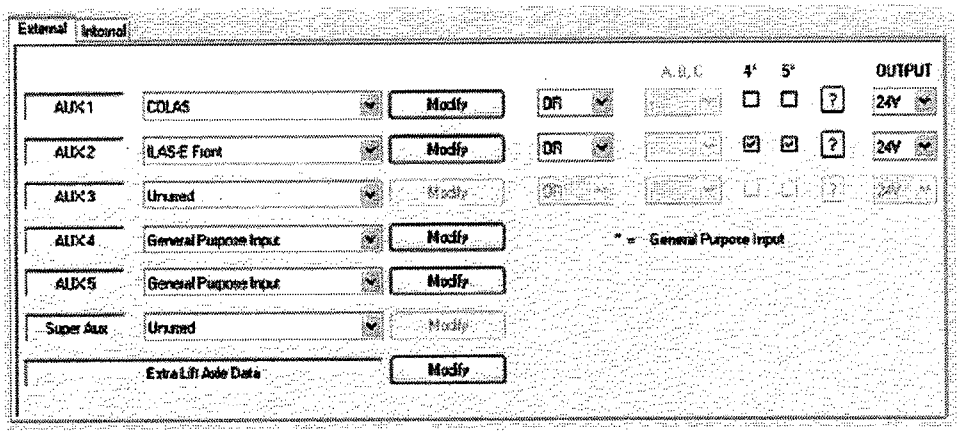
EB+ switch box available now			

N.B.:
- For these settings not latching switches must be used!!
- AUX 4 and 5 Standard „General Purpose Input" settings, no modification required



Extra Lift Axle Data :

Pos	Qty	Description	Part-No.	Customer	Pos	Qty	Description	Part-No.	Customer
22					11				
21					10				
20					9				
19					8				
18					7				
17					6				
16					5				
15					4				
14					3				
13					2				
12					1				

Benennung: EB+ Lift with TA by GPI 4 + 5

Zeichnungsnummer: CS1030.00

gez. Datum	Name:	gepr. Datum	Name:
06.08.08	Schering		

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Ersatz für:

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S1A CONT = *WHEEL SENSOR 1A CONTINUITY*
S2A CONT = *WHEEL SENSOR 1B CONTINUITY*
S1B CONT = *WHEEL SENSOR 2A CONTINUITY*
S2B CONT = *WHEEL SENSOR 2B CONTINUITY*

Open or short circuit in the wiring to wheel speed sensor.

Check the electrical connectors for correct installation and for corrosion,
also check the wiring for damage and possible scuff marks.

If the failure occurs at first start-up, please check:
-> Is ECU programming in accordance with the wheel sensor configuration (2 or 4 sensors)?
-> Is the sensor extension cable linked to the correct ECU port?
-> Is the wheel speed sensor correctly connected to the sensor extension cable?

If the above is OK, check wheel speed sensor and the extension cable (Multimeter):
-> Is an alternating current output voltage generated by the wheel speed sensor (min. 0.2 VAC)?
-> Is the resistance of the sensor in the permissible area (> 1.0 < 2.4 kOhm)?
-> Is there a short circuit possible in the wiring?

If no failure is detected check the internal ECU control circuit:
-> Connect the plug of the defective side (e.g. S1A) to the ECU port of the opposite side (in this case S1B), and the plug S1B with the port S1A.
Reset ECU and erase all DTC's.
- If the initial DTC is displayed again then the ECU is faulty.
- If a different DTC is monitored (instead of S1A.. -> now S1B..) the sensor extension cable or the sensor is faulty. In this case repeat the tests above.
-> After this test don't forget to RESET the original configuration!!

After repairing in all cases run the EOLT!

Position of the wheel speed sensor in the driving direction:
For all configurations (ECU right/left) and systems (1M/2M/3M)

1st sensed axle:
S1A = left / S1B = right

2nd sensed axle:
S2A = left / S2B = right

S1A SIGNAL = *WHEEL SENSOR 1A SIGNAL INTEGRITY*
S2A SIGNAL = *WHEEL SENSOR 1B SIGNAL INTEGRITY*
S1B SIGNAL = *WHEEL SENSOR 2A SIGNAL INTEGRITY*
S2B SIGNAL = *WHEEL SENSOR 2B SIGNAL INTEGRITY*

Signal from wheel speed sensor is suspect.

-> Check exciter for true running (runout) and contamination.
-> Check and if necessary adjust wheel bearing clearance.
-> Check/adjust sensor clearance. Air gap sensor - Exciter max. 0.7 mm.
-> Check sensor mounting and sleeve.

If above is OK, check the wheel speed sensor (Multimeter):
-> Is an alternating current output voltage generated by the wheel speed sensor (min. 0.2 VAC)?
-> Is the resistance of the sensor in the permissible area (> 1.0 < 2.4 kOhm)?

If no other failure can be detected and the DTC is still active:
-> Replace the wheel speed sensor.

Position of the wheel speed sensor in the driving direction:
For all configurations (ECU right/left) and systems (1M/2M/3M)

1st sensed axle:
S1A = left / S1B = right

2nd sensed axle:
S2A = left / S2B = right

S1A OUTPUT = *WHEEL SENSOR 1A OUTPUT LEVEL*
S2A OUTPUT = *WHEEL SENSOR 1B OUTPUT LEVEL*
S1B OUTPUT = *WHEEL SENSOR 2A OUTPUT LEVEL*
S2B OUTPUT = *WHEEL SENSOR 2B OUTPUT LEVEL*

No output or low output from wheel speed sensor.

-> Check/adjust sensor clearance. Air gap sensor - exciter max. 0.7 mm.

In addition please conduct the following tests to avoid an additional displacement of the sensor:
-> Check exciter for true running (runout) and contamination.
-> Check and if necessary adjust wheel bearing clearance.
-> Check sensor mounting and sleeve.

If no other failure can be detected and the DTC is still active:
-> Replace the wheel speed sensor.

Position of the wheel speed sensor in the driving direction:
For all configurations (ECU right/left) and systems (1M/2M/3M)

1st sensed axle:
S1A = left / S1B = right

2nd sensed axle:
S2A = left / S2B = right

REMOTE VALVE SENSOR

Faulty signal from pressure sensors in remote valve.

This is a general DTC and is linked to following internal components:
- Suspension pressure sensor remote axle modulator and/or
- Delivery pressure sensor remote axle modulator

-> Check suspension and delivery pressures and compare with values in DIAG+.
-> Check link cable (3M) for continuity and damage/cable breakage.
-> Check plug (RED) for corrosion, damage and correct assembly.

If the failure frequently occurs leading to malfunction:
-> Replace 3M remote modulator!

REMOTE VALVE MODULATOR

Fault detected with remote valve.

-> Check suspension and delivery pressures and compare with values in DIAG+.
-> Check link cable (3M) for continuity and damage/cable breakage.
-> Check plug (RED) for corrosion, damage and correct assembly.

If the failure frequently occurs leading to malfunction:
-> Replace 3M remote modulator!
-> Replace main ECU first only if '...SHORT_TO_B+'

REMOTE VALVE CABLE

Fault detected with remote valve cable.

-> Check link cable (3M) for continuity and damage.
-> Check plug (RED) for corrosion, damage and correct assembly.

If the failure frequently occurs leading to malfunction:
-> Replace (3M) link cable!

EPRV 21 SLOW REC = *EPRV 21 SLOW WHEEL RECOVERY*
EPRV 22 SLOW REC = *EPRV 22 SLOW WHEEL RECOVERY*
REMOTE VALVE SLOW RECOVERY

Slow wheel speed recovery during ABS event.

-> Check sensor configuration (Sensor-Modulator Test).
-> Check for free movement of the wheel brake.
-> Check for free movement of the wheel bearing.
-> Check return mechanism, return springs.
-> Check piping for bends and throttling/restrictions.
-> Compare pressure decay at actuator with the other channel, if fitted.
(Use control pressure simulation from EOLT!)

If the failure frequently occurs leading to malfunction:
-> Replace Modulator!

AUX1
AUX2
AUX3
AUX4
AUX5

Fault on device connected to Aux port.

If the failure occurs at first start-up, please check:
-> Read out AUX configuration and compare with fitted components.
Is it OK? If not, change configuration or add missing components.

Else:
Failure at AUX 1-3 :
-> Check respective wiring, connections and solenoids or warning lamps.
-> Readings for standard COLAS + ILAS-E solenoid:
Resistance: >79 <96 Ohm, measured directly at solenoid

Failure at AUX 4 :
If Lining Wear Fitted :
Lining wear limit of least at one wheel brake exceeded, or cable broken.
-> Check wiring and, if necessary, replace brake linings and damaged lining wear indicators.
(Remark: DTC still active at this point and cannot be deleted in this window!)

-> Click the lining wear replacement confirmation button OR use the ignition key sequence (see manual).
DTC is then deleted and service lamp sequence is reset.

LAT ACC SC = *LATERAL ACCELEROMETER SHORT CIRCUIT*

EB+ Stability sensor (lateral accelerometer) appears short circuit.

Please check: Is ECU configured with an internal or external stability sensor?

For INTERNAL stability sensor [inside ECU]:
1. Deactivate the internal sensor in the configuration. Run vehicle without EB+ Stability.
2. Or deactivate the internal sensor in the configuration and retrofit an external sensor on AUX5. Set configuration for AUX5.
3. Or read out configuration from ECU and save it to disk. Replace ECU. Configure new ECU with stored configuration.

For EXTERNAL stability sensor [on AUX5]:
-> Check plug and wiring from stability sensor!
-> Check correct wiring at AUX5 plug.
-> If no failure can be detected, replace stability sensor (observe mounting position!).

CAUTION: The End-of-Line Test must be carried out after every change/replacement to recalibrate the mounting position of the external or internal stability sensor!

LAT ACC OC = LATERAL ACCELEROMETER OPEN CIRCUIT

EB+ Stability sensor (lateral accelerometer) appears open circuit.

Please check: Is ECU configured with an internal or external stability sensor?

For INTERNAL stability sensor [inside ECU] there are two possibilities for this DTC:
1. The ECU has no internal stability sensor, please change configuration and retrofit an external sensor on AUX5 (observe mounting position!). Set configuration for AUX5.
2. Internal sensor is defective.
   - read out configuration from ECU and save it to disk. Replace ECU.
   Configure new ECU with stored configuration.
   - or deactivate the internal sensor in the configuration and retrofit an external sensor on AUX5 (observe mounting position!). Set configuration for AUX5.

For EXTERNAL stability sensor [on AUX5]:
-> Check plug and wiring from stability sensor!
-> Check correct wiring at AUX5 plug.
-> If no failure can be detected, replace stability sensor (observe mounting position!).

CAUTION: The End-of-Line Test must be carried out after every change/replacement to recalibrate the mounting position of the external or internal stability sensor!

LAT ACC SIGNAL = *LATERAL ACCELEROMETER SIGNAL*

EB+ Stability sensor (lateral accelerometer) output is suspect.

-> Read ECU configuration and check especially the ECU mounting orientation.
-> Check Sensor - Modulator orientation.
-> Check mounting position and location (horizontal/vertical).
-> The End-of-Line Test must be carried out to to recalibrate.
the mounting position of the stability sensor.

If the failure frequently occurs leading to malfunction:
-> Replace stability sensor, if there are no other DTC's at the same time!

CAUTION: The End-of-Line Test must be carried out after every change/replacement to recalibrate
the mounting position of the external or internal stability sensor!

BRK APPLY SC = *BRAKE APPLY SOLENOID SHORT CIRCUIT*
BRK APPLY SC DRIVE = *BRAKE APPLY SOLENOID SHORT TO B+*
BRK APPLY OC = *BRAKE APPLY SOLENOID OPEN CIRCUIT*
BRK APPLY UNSPEC = *BRAKE APPLY UNSPECIFIED FAULT*

Brake apply solenoid within valve is suspect.

These DTC's can occur for the following reasons:
* Defect in solenoid or wiring of the EB+ valve
* Faulty connection ECU - EB+ valve
* Faulty ECU control circuit

-> Check all pressures and compare with DIAG+ values.
-> Check electrical connection between ECU and valve.

If the failure frequently occurs leading to malfunction:
-> Replace EB+ valve, if there are no other DTC´s at the same time!
-> Replace ECU first only if '...SHORT_TO_B+'

EPRV 21 HOLD SC = EPRV 21 HOLD SOLENOID SHORT CIRCUIT
EPRV 21 HOLD OC = EPRV 21 HOLD SOLENOID OPEN CIRCUIT
EPRV 21 HOLD SC DRIVE = EPRV 21 HOLD SOLENOID SHORT TO B+
EPRV 21 HOLD UNSPEC = EPRV 21 HOLD SOLENOID UNSPECIFIED FAULT
EPRV 21 DUMP SC = EPRV 21 DUMP SOLENOID SHORT CIRCUIT
EPRV 21 DUMP OC = EPRV 21 DUMP SOLENOID OPEN CIRCUIT
EPRV 21 DUMP SC DRIVE = EPRV 21 DUMP SOLENOID SHORT TO B+
EPRV 21 DUMP UNSPEC = EPRV 21 DUMP SOLENOID UNSPECIFIED FAULT

Solenoid within valve 2.1 is suspect.

These DTC's can occur for the following reasons:
* Defect in solenoid or wiring of the EB+ valve
* Faulty connection ECU - EB+ valve
* Faulty ECU control circuit

-> Check all pressures and compare with DIAG+ values.
-> Check electrical connection between ECU and valve.

If the failure frequently occurs leading to malfunction:
-> Replace EB+ valve, if there are no other DTC's at the same time!
-> Replace ECU first only if '...SHORT_TO_B+'

EPRV 22 HOLD SC = *EPRV 22 HOLD SOLENOID SHORT CIRCUIT*
EPRV 22 HOLD OC = *EPRV 22 HOLD SOLENOID OPEN CIRCUIT*
EPRV 22 HOLD SC DRIVE = *EPRV 22 HOLD SOLENOID SHORT TO B+*
EPRV 22 HOLD UNSPEC = *EPRV 22 HOLD SOLENOID UNSPECIFIED FAULT*
EPRV 22 DUMP SC = *EPRV 22 DUMP SOLENOID SHORT CIRCUIT*
EPRV 22 DUMP OC = *EPRV 22 DUMP SOLENOID OPEN CIRCUIT*
EPRV 22 DUMP SC DRIVE = *EPRV 22 DUMP SOLENOID SHORT TO B+*
EPRV 22 DUMP UNSPEC = *EPRV 22 DUMP SOLENOID UNSPECIFIED FAULT*

Solenoid within valve 2.2 is suspect.

These DTC's can occur for the following reasons:
* Defect in solenoid or wiring of the EB+ valve
* Faulty connection ECU - EB+ valve
* Faulty ECU control circuit

-> Check all pressures and compare with DIAG+ values.
-> Check electrical connection between ECU and valve.

If the failure frequently occurs leading to malfunction:
-> Replace EB+ valve, if there are no other DTC's at the same time!
-> Replace ECU first only if '...SHORT_TO_B+'

DEMAND SC = *PRESSURE DEMAND SENSOR SHORT CIRCUIT*
DEMAND OC = *PRESSURE DEMAND SENSOR OPEN CIRCUIT*
DEMAND PNEUMATIC = *PRESSURE DEMAND FAULT*

Control line pressure is suspect.

These DTC's can occur for the following reasons:
* Pneumatic fault in the control line between truck and trailer
* Defect in pressure transducer or wiring of the EB+ valve
* Faulty connection ECU - EB+ valve
* Faulty ECU control circuit

-> Check the complete pneumatic control line for other system faults.
-> Check all pressures and compare with DIAG+ values.
-> Check electrical connection between ECU and valve.

If the failure frequently occurs leading to malfunction:
-> Replace EB+ valve, if there are no other DTC´s at the same time!

EPRV 21 DEL SC = *EPRV 21 DELIVERY SENSOR SHORT CIRCUIT*
EPRV 21 DEL OC = *EPRV 21 DELIVERY SENSOR OPEN CIRCUIT*

Delivery pressure 2.1 is suspect.

These DTC's can occur for the following reasons:
* Pneumatic fault in the delivery circuit e.g. trapped pressure
* Defect at pressure transducer or wiring of the EB+ valve
* Faulty connection ECU - EB+ valve
* Faulty ECU control circuit

-> Check all pressures and compare with DIAG+ values.
-> Check electrical connection between ECU and valve.

If the failure frequently occurs leading to malfunction:
-> Replace EB+ valve, if there are no other DTC's at the same time!

EPRV 22 DEL SC = *EPRV 22 DELIVERY SENSOR SHORT CIRCUIT*
EPRV 22 DEL OC = *EPRV 22 DELIVERY SENSOR OPEN CIRCUIT*

Delivery pressure 2.2 is suspect.

These DTC's can occur for the following reasons:
* Pneumatic fault in the delivery circuit e.g. trapped pressure
* Defect at pressure transducer or wiring of the EB+ valve
* Faulty connection ECU - EB+ valve
* Faulty ECU control circuit

-> Check all pressures and compare with DIAG+ values.
-> Check electrical connection between ECU and valve.

If the failure frequently occurs leading to malfunction:
-> Replace EB+ valve, if there are no other DTC´s at the same time!

RESR SC = *RESERVOIR SENSOR SHORT CIRCUIT*
RESR OC = *RESERVOIR SENSOR OPEN CIRCUIT*

Reservoir pressure is suspect.

These DTC's can occur for the following reasons:
* Reservoir significantly over-pressure
* Defect in pressure transducer or wiring of the EB+ valve
* Faulty connection ECU - EB+ valve
* Faulty ECU control circuit

-> Check the red line supply pressure to the trailer.
-> Check the pneumatic line between reservoir and EB+ port 1.
-> Check reservoir pressure and compare with DIAG+ values.
-> Check electrical connection between ECU and valve.

If the failure frequently occurs leading to malfunction:
-> Replace EB+ valve, if there are no other DTC's at the same time!

SUSP SC = *SUSPENSION SENSOR SHORT CIRCUIT*
SUSP OC = *SUSPENSION SENSOR OPEN CIRCUIT*

Suspension pressure is suspect.

These DTC's can occur for the following reasons:
* Defect at pressure transducer or wiring of the EB+ valve
* Faulty connection ECU - EB+ valve
* Faulty ECU control circuit

-> Check the pneumatic line between air suspension and EB+ port 41.
-> Check air suspension pressure and compare with DIAG+ values.
-> Check electrical connection between ECU and valve.

If the failure frequently occurs leading to malfunction:
-> Replace EB+ valve, if there are no other DTC´s at the same time!

SUSP LOW = *SUSPENSION PRESSURE LOW*

Suspension pressure appears low.

-> Check connection between air suspension and port 41
-> Check ride height (air bags on bumpers?)
-> If Colas with RtR is fitted check the RtR function
-> Compare ECU configuration with actual air bag pressure unladen in drive position

SLAVE SUSP LOW = *SLAVE SUSPENSION PRESSURE LOW*

Remote valve suspension pressure appears low.

-> Check connection between air suspension and port 41 of remote valve
-> Check ride height (air bags on bumpers?)
-> If Colas with RtR is fitted check the RtR function
-> Compare ECU configuration with actual air bag pressure unladen in drive position

REV SWITCH SC = *REV PRESSURE SWITCH SHORT CIRCUIT*
REV SWITCH OC = *REV PRESSURE SWITCH OPEN CIRCUIT*

Problem detected with external control line pressure switch.

The switch is mounted in the control line, normally in port 4-2 of the REV.
The cable is routed to ECU connector PSW.

-> Check cable and connectors for damage and correct installation.
-> Check pneumatic control pressure.
-> Check the REV for correct function, if used.

If no other failure can be detected:
-> Replace pressure switch.

REV SWITCH SIGNAL = *REV PRESSURE SWITCH SIGNAL FAULT*
REV SWITCH PNEUMATIC = *REV SWITCH PNEUMATIC FAULT*

Signal from control line pressure switch is not consistent with either ISO11992 CAN demand or control line pressure sensor.

-> Check pressure switch for leakage. (Pressure in service line!)
-> Check pneumatic control pressure.
-> Check the REV for correct function, if used.

If no other failure can be detected:
-> Replace pressure switch.

PNEUMATIC DEMAND LOSS

ISO11992 CAN brake demand detected without corresponding pneumatic signal.

-> Check pneumatic control line for kinks or blockages.
-> Check REV, if used,
Pressure increase/decrease in port 2 corresponding to control port 4?
If not, replace REV!
-> Check pressure switch for leakage, if used. (Pressure in service line!)

If no other failure can be detected and a pressure switch is installed:
-> Replace pressure switch.

TOWED CAN DEMAND LOSS

ISO11992 CAN brake demand intermittent.

-> Check ISO7638 wiring and connections, especially
Suzie-wiring for damage and cable break (PIN 6+7).
-> Run failure diagnostics of towing vehicle EBS.

If the failure frequently occurs leading to malfunction:
-> Run EB+ ECU software update, if possible, to ensure latest level.
-> Get in contact with HALDEX to discuss further actions.
Contact form: www.brake-eu.haldex.com

TOWED CAN CONTROL LOSS

ISO11992 CAN brake demand suspect.

-> Run failure diagnostics of towing vehicle EBS.

If the failure frequently occurs leading to malfunction:
-> Get in contact with HALDEX to discuss further actions.
Contact form: www.brake-eu.haldex.com

PWR IS07638 FAIL *= ISO7638 POWER FAILURE*

Vehicle run without ISO7638 power (5 or 7 pin).
Vehicle is operating on 24N stoplight backup.
-> Ensure that the ISO7638 power supply from towing vehicle is being used!

If this failure can be excluded:
-> Check the fuse in Pin 1 of the ISO7638 power supply of the towing vehicle.
-> Check ISO7638 wiring and connections, especially
Suzie-wiring for damage and cable breakages.

PWR LO VOLT *= LOW VOLTAGE*

Voltage at ECU < 19V.

-> Check power supply from towing vehicle.
-> Check wiring and connections for damage and corrosion (contact resistance).

PWR HI VOLT = *HIGH VOLTAGE*

Voltage at ECU > 32V

-> Check power supply from towing vehicle.

PWR UNSPEC = *UNSPECIFIED POWER FAULT*

Voltage measurement error.

-> Check power supply from towing vehicle.
-> Check wiring and connections of ISO7638.

If the failure frequently occurs leading to malfunction:
-> Replace ECU, if there are no other DTC´s at the same time!

ECU EE ERR = ECU EEPROM ERROR

ECU programming fault.

-> Read data from ECU and save it on disk.
-> Run EB+ ECU software update, if possible.
-> Read the previously saved ECU data into DIAG+,
check ALL parameters and confirm with OK button,
send this data to ECU and run the End-of-Line-Test!

If the failure frequently occurs leading to malfunction:
-> Get in contact with HALDEX to discuss further actions.
Contact form: www.brake-eu.haldex.com

CONFIG ERROR = *CONFIGURATION ERROR*

ECU configuration fault.

Programmed parameters do not match installation:
-> Match ECU parameters to fitted components (ECU Setup / AUX Setup),
-> Remove components that are not required!

ECU SHUTDOWN

Suspected ECU fault.

-> Get in contact with HALDEX and check for any ECU software updates.
Contact form: www.brake-eu.haldex.com

If the failure frequently occurs leading to malfunction:
-> Replace ECU, if there are no other DTC´s at the same time!

UNKNOWN

Fault not recognised by this version of DIAG+.

-> File and print the DTC's and contact
the responsible Haldex person.

They can give you a DIAG+ update and
support you in fault finding!

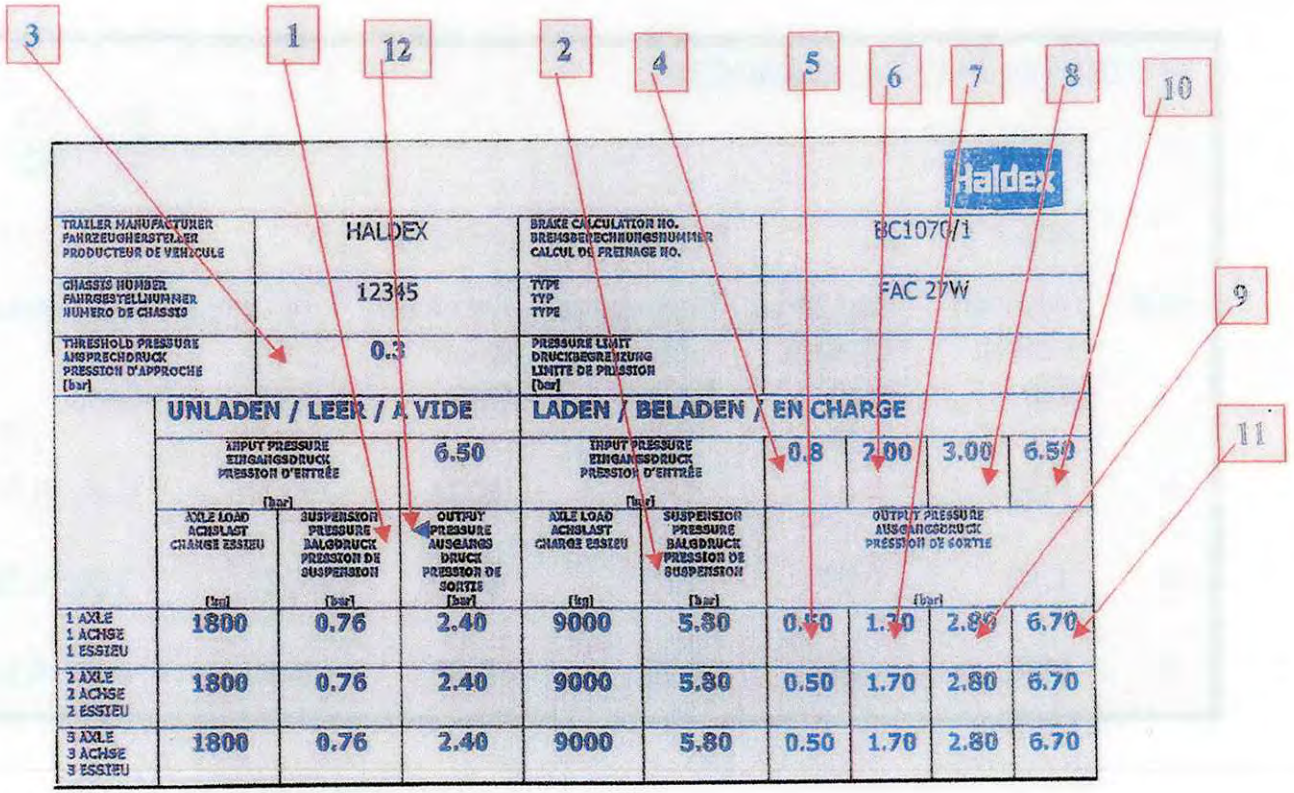
DIAG+ updates and contacts available at:
www.brake-eu.haldex.com

Load Plate Data from Brake Calculation Sheet

Input datas for the EBS-Modulator EB+:

						3 P0	4 PD	6	8	10
	control pr.	pm	6.50 bar	control pr.	pm	0.30	0.70	1.60	3.00	6.50 bar
Axle	Axle load unladen (Kg)	Bag press. unladen (bar) 1	Brake press. unladen (bar) 12	Axle load laden (Kg)	Bag press. laden (bar) 2	Brake press. laden (bar)	5	7	9	11
1	1150	0.60	1.75	8000	4.30	0.00	0.30	1.20	2.60	5.90 bar
2	1150	0.60	1.75	8000	4.30	0.00	0.30	1.20	2.60	5.90 bar
3	1150	0.60	1.75	8000	4.30	0.00	0.30	1.20	2.60	5.90 bar

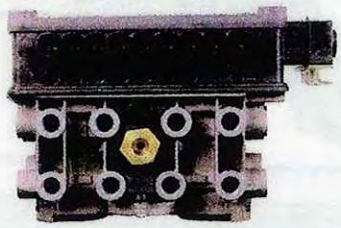
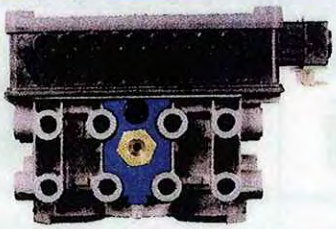
EB+ LOAD PLATE DATA POSITIONS



TRAILER MANUFACTURER FAHRZEUGHERSTELLER PRODUCTEUR DE VEHICULE	HALDEX		BRAKE CALCULATION NO. BREMSBERECHNUNGSNUMMER CALCUL DE FREINAGE NO.	BC1070/1				
CHASSIS NUMBER FAHRGESTELLNUMMER NUMERO DE CHASSIS	12345		TYPE TYP TYPE	FAC 27W				
THRESHOLD PRESSURE ANSPRECHDRUCK PRESSION D'APPROCHE [bar]	0.3		PRESSURE LIMIT DRUCKBEGRENZUNG LIMITE DE PRESSION [bar]					
	UNLADEN / LEER / A VIDE			LADEN / BELADEN / EN CHARGE				
	INPUT PRESSURE EINGANGSDRUCK PRESSION D'ENTRÉE [bar]	6.50		INPUT PRESSURE EINGANGSDRUCK PRESSION D'ENTRÉE [bar]		0.8	2.00	3.00	6.50
	AXLE LOAD ACHSLAST CHARGE ESSIEU [kg]	SUSPENSION PRESSURE BALGDRUCK PRESSION DE SUSPENSION [bar]	OUTPUT PRESSURE AUSGANGS DRUCK PRESSION DE SORTIE [bar]	AXLE LOAD ACHSLAST CHARGE ESSIEU [kg]	SUSPENSION PRESSURE BALGDRUCK PRESSION DE SUSPENSION [bar]	OUTPUT PRESSURE AUSGANGSDRUCK PRESSION DE SORTIE [bar]			
1 AXLE 1 ACHSE 1 ESSIEU	1800	0.76	2.40	9000	5.80	0.50	1.70	2.80	6.70
2 AXLE 2 ACHSE 2 ESSIEU	1800	0.76	2.40	9000	5.80	0.50	1.70	2.80	6.70
3 AXLE 3 ACHSE 3 ESSIEU	1800	0.76	2.40	9000	5.80	0.50	1.70	2.80	6.70

EB+2

Haldex

OEM Part No.	AM Replacement Part No.	Remove 3-port Reservoir plug
		
GEN2 2M 820 001 001 820 005 001 820 007 001 820 007 101 820 007 111 - 191 820 008 001 - 131 820 009 001 820 011 001 - 111 820 019 001 - 121 820 023 001 820 030 001 820 031 001 820 032 001	950 820 001	NO NO NO YES NO NO NO NO NO NO NO YES YES
GEN2 3M 820 026 001 (Master) 810 011 001 (Slave)	820 026 001 950 800 304 (Valve) 950 800 203 (ECU)	
Service Items GEN 2 Double Check Valve replacement GEN 2 Quick Release Valve (QRV) replacement	950 800 905 950 800 307	
Software DIAG+ Kit (PC dongle, cables & software) DIAG+ Software DIAG+ Operators Guide	815 028 001 Download latest software at www.haldex.com 000 700 255	

NOTE:
The AM replacement part must be configured using DIAG+ after the final installation.
Refer to DIAG+ Operators Guide 000 700 255 available at www.haldex.com

006300014_GB/03.2011/Redditch

EB+

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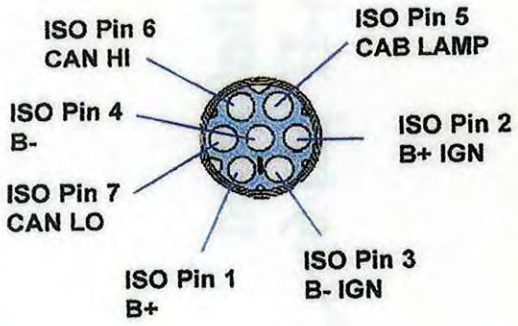
INTERNAL Pressure Switch (PSW re-located into the ECU)

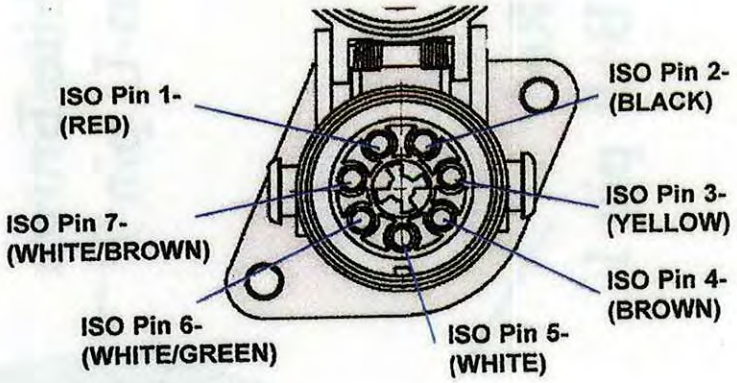
Variant	OEM Part No.			AM Replacement Part No.	
	Main Assembly = 	Valve + 	ECU 	AM Valve Kit 	AM ECU Kit 
1 Modulator					
1 Aux	810 003 101	813 003 302	812 001 101	950 800 303 or 950 800 306	950 800 201 or 950 800 204
3 Aux	810 004 101	813 003 302	812 001 202	950 800 303 or 950 800 306	950 800 201 or 950 800 204
5 Aux	810 001 102	813 003 302	812 001 301	950 800 303 or 950 800 306	950 800 201 or 950 800 204
2 Modulator					
3 Aux	810 005 302	813 002 302	812 001 202	950 800 302 or 950 800 305	950 800 201 or 950 800 204
3 Aux Stability	810 007 301	813 002 302	812 012 001	950 800 302 or 950 800 305	950 800 204
5 Aux	810 001 303	813 002 302	812 001 301	950 800 302 or 950 800 305	950 800 201 or 950 800 204
5 Aux Stability	810 006 301	813 002 302	812 013 001	950 800 302 or 950 800 305	950 800 204
Non Integrated 2M					
Master (1M)	810 016 001	813 003 302	812 010 001	950 800 303 or 950 800 306	950 800 202
Slave (1M)	810 011 001	813 010 001	812 011 001	950 800 304	950 800 203
3M Master					
5 Aux	810 010 002	813 002 302	812 010 001	950 800 302 or 950 800 305	950 800 202
3M Slave	810 011 001	813 010 001	812 011 001	950 800 304	950 800 203

INTEGRATED Double Check Valve with INTERNAL Pressure Switch (PSW re-located into the ECU)

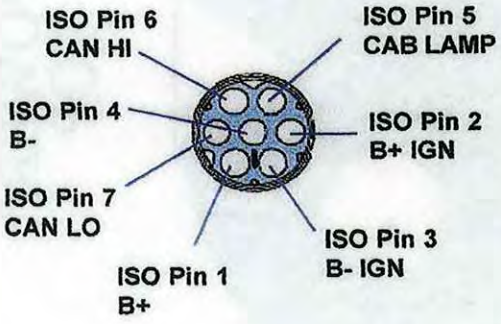
Variant	OEM Part No.			AM Replacement Part No.	
	Main Assembly	Valve Assembly	ECU Assembly	AM Valve	AM ECU
1 Modulator					
1 Aux	810 005 101	813 005 302	812 001 101	950 800 306	950 800 201 or 950 800 204
3 Aux	810 006 101	813 005 302	812 001 202	950 800 306	950 800 201 or 950 800 204
5 Aux	810 007 101	813 005 302	812 001 301	950 800 306	950 800 201 or 950 800 204
2 Modulator					
3 Aux	810 008 303	813 004 302	812 001 202	950 800 305	950 800 201 or 950 800 204
3 Aux Stability	810 008 301	813 004 302	812 012 001	950 800 305	950 800 204
5 Aux	810 009 302	813 004 302	812 001 301	950 800 305	950 800 201 or 950 800 204
5 Aux Stability	810 009 301	813 004 302	812 013 001	950 800 305	950 800 204
Non Integrated 2M					
Master (1M)	N/A	813 005 302	812 010 001	950 800 306	950 800 202
Slave (1M)	810 011 001	813 010 001	812 011 001	950 800 304	950 800 203
3M Master					
5 Aux	810 017 001	813 004 302	812 010 001	950 800 305	950 800 202
3M Slave	810 011 001	813 010 001	812 011 001	950 800 304	950 800 203

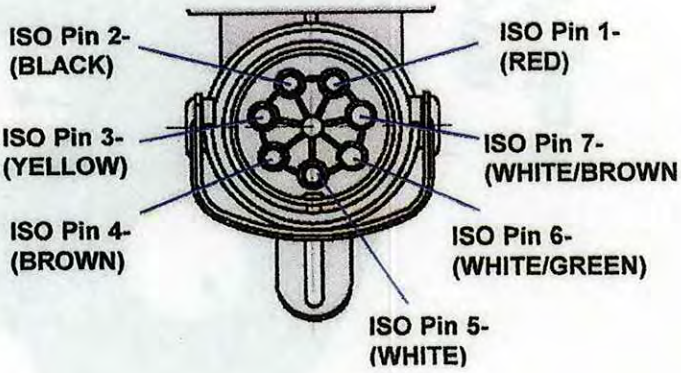
ISO7638 SOCKET AND CABLE ASSEMBLY



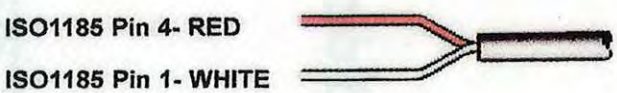


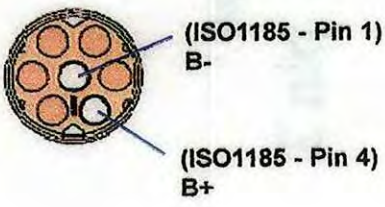
ISO7638 PLUG AND CABLE ASSEMBLY





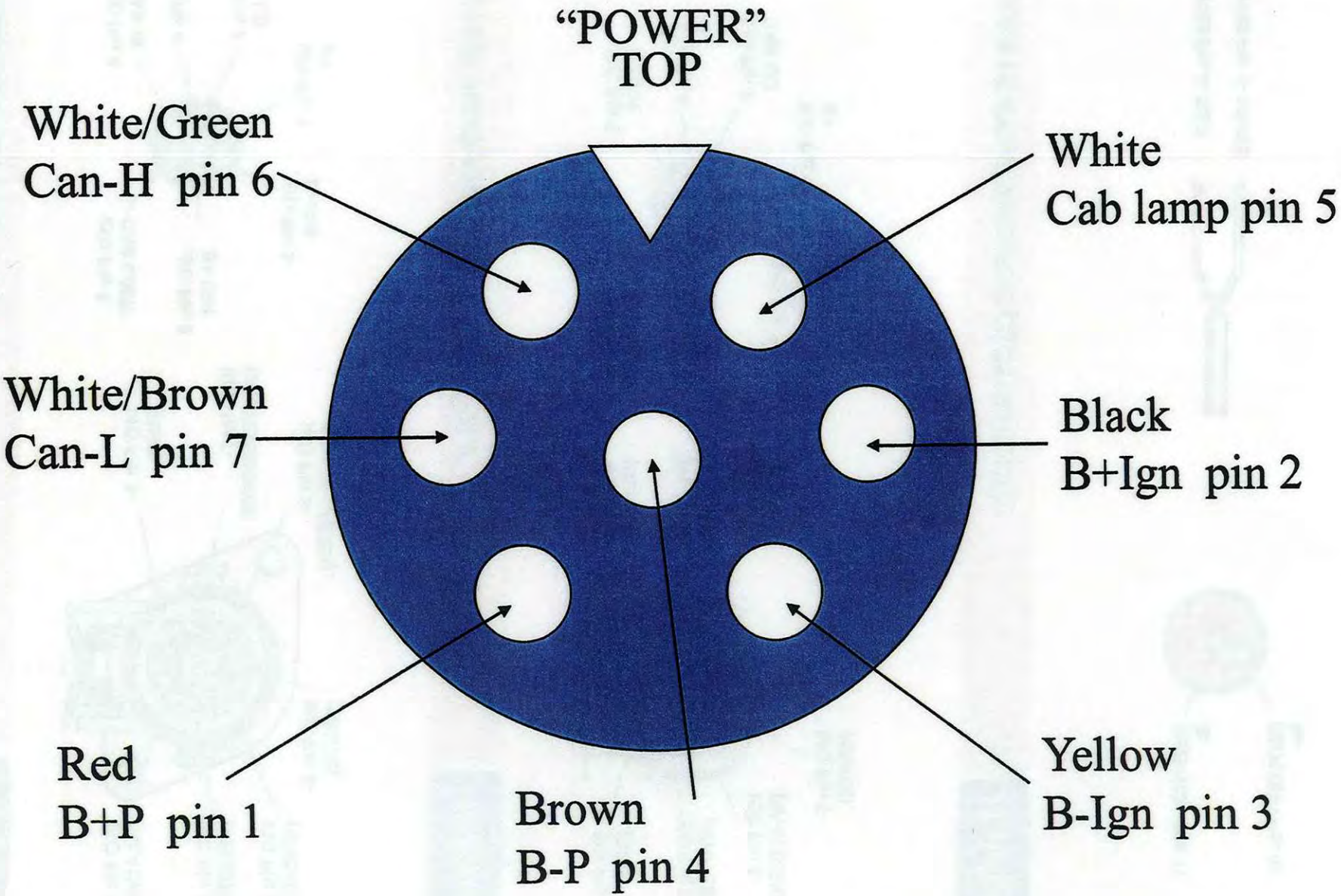
BACK UP POWER CABLE (ISO1185 (24N))



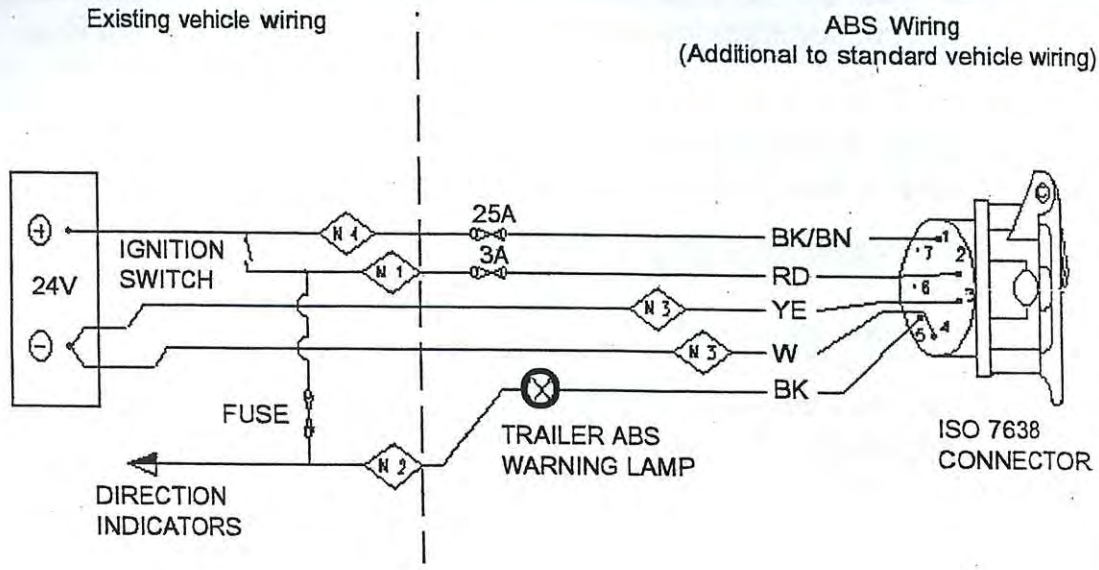


View from pin side of connector

EB+ ISO 7638



GENERAL TRUCK WIRING DIAGRAM FOR ISO 7638



N1 This wire is to be connected to the unfused ignition switched battery positive supply.

N2 This wire is to be connected to the fused ignition switched battery positive supply (same point as the direction indicators).

N3 This wire is to be connected using seperate ring tongue connectors to the main battery negative pick up point.

N4 This wire is to be connected to an unfused battery positive supply which has a continous current rating of at least 15A. The supply will be switched by a relay internal to the control

Fig 8

ISO 7638 Pin No.	Description	Colour	Cable size
1	25A Unfused BAT+	BK/BN	6.0mm²
2	3A Ignition switched B+	RD	1.5mm²
3	BAT -	YE	1.5mm²
4	BAT -	W	6.0mm²
5	Lamp (Direction indicators)	BK	1.5mm²

Key
BK = Black BN = Brown RD = Red YE = Yellow W = White

echnical
NFORMATION

Title /subject: **ISO 7638 TRUCK TESTER**

Component affected:

Docs No.: **000 700 298 / 11.03. / Redditch**

Page: **1/1**

MATERIALS REQUIRED

ISO 7638 Suzie or Plug and cable assembly
2 x 24v - 5w Lamp assembly
Wire connector block for 4 wires

ASSEMBLY

Make **TRUCK TESTER** as to Circuit in Fig 1

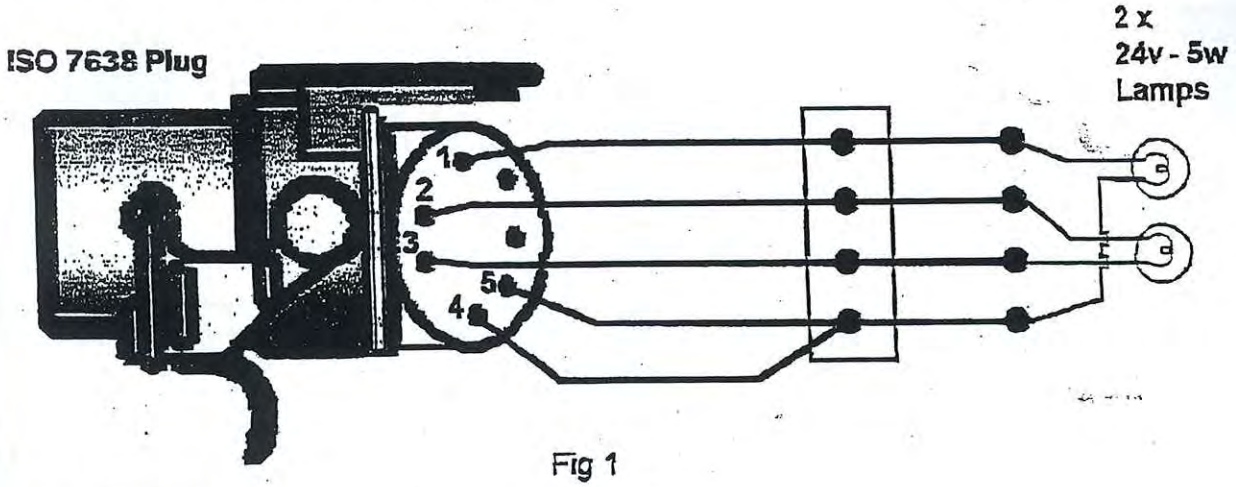


Fig 1

TEST PROCEDURE

Remove ISO 7638 suzie from truck.
Plug in TRUCK TESTER.
Switch ignition ON, observe lamps on TRUCK TESTER and warning lamp in Truck.

LAMP INDICATIONS

Truck warning lamp	TRUCK TESTER LAMPS		Comments
	Pin 1 & 4	Pin 2 & 3	
ON	ON	ON	ISO 7638 - No Faults
ON	OFF	ON	Check BAT+, Pin 1
OFF	OFF	ON	Check earth on Pin 4
ON	ON	OFF	Check Ignition switched B+, Pin 2 Check earth on Pin 3
OFF	ON	ON	Check cab lamp

Haldex

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