SERVICE MANUAL

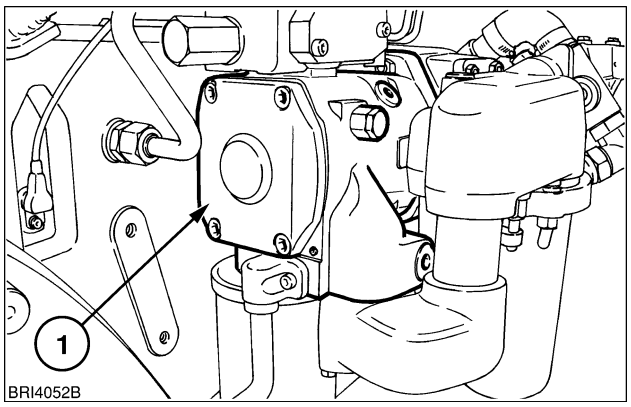
T7030 / T7040 / T7050 / T7060

Tractor

Part number 87628084BNA
English
December 2010
Replaces part number 87628084

NEW HOLLAND AGRICULTURE

CCLS axial piston variable displacement pump **(1)**.
Figure **1** **2**



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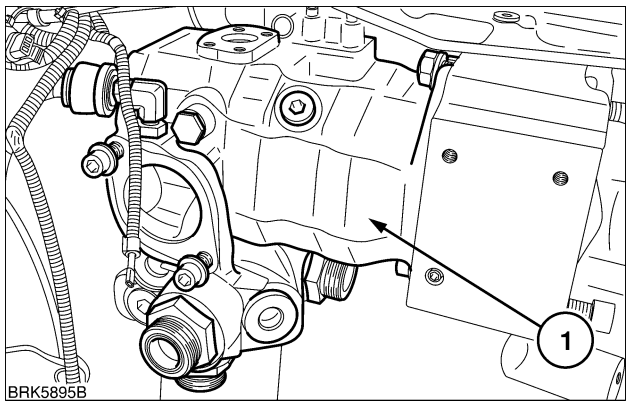


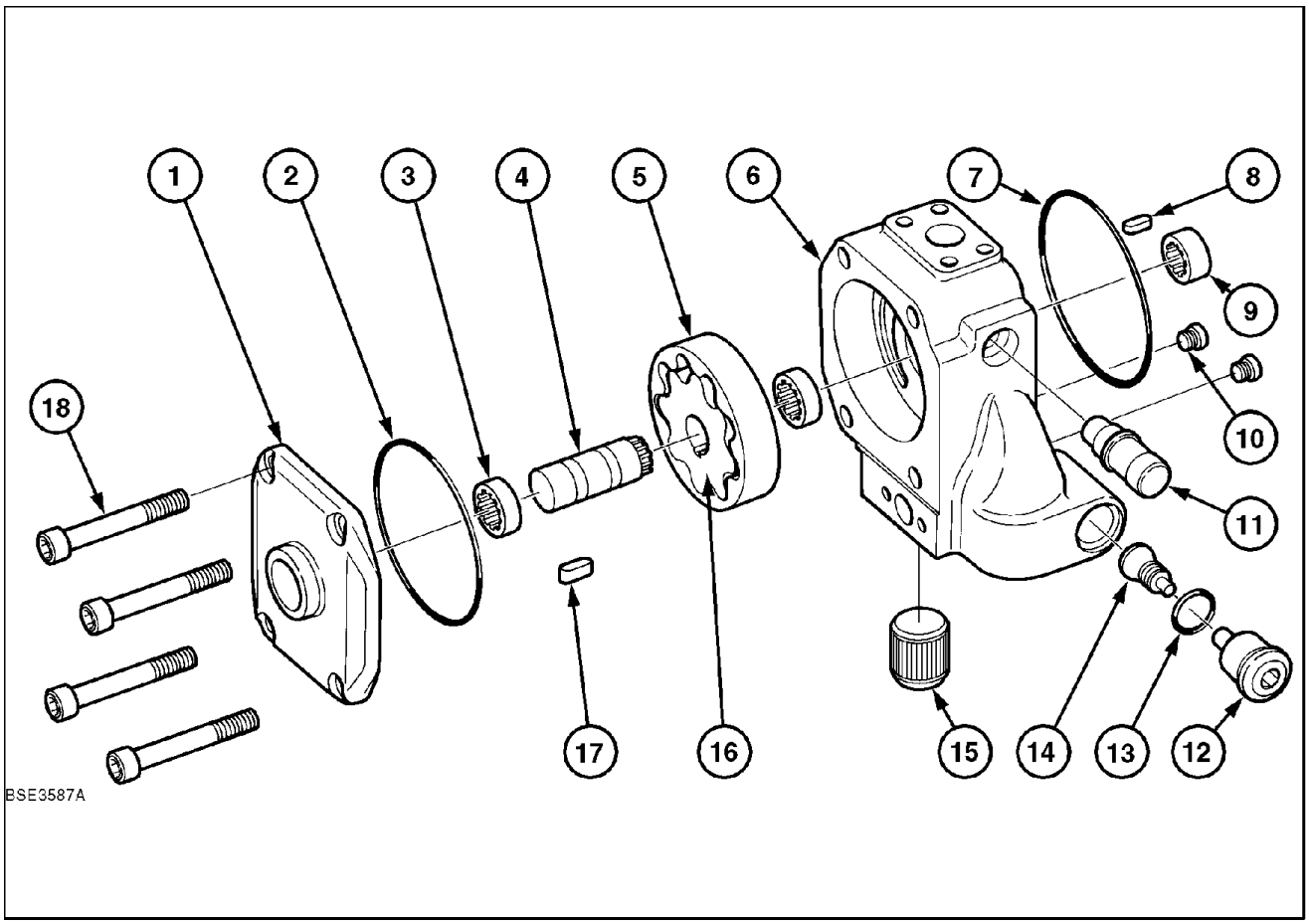
BAIL08CVT085ASA 2

The high-pressure hydraulic pumps in the Load Sensing version with closed circuit can be differentiated by the serial numbers on the plate above the pump:-
Figure **3** shows the rating plate of the **150 l/min** (**39.6 US gpm**) pump.

BAIL06CCM082ASA 3

Figure **4** shows the rating plate of the **120 l/min** (**31.7 US gpm**) pump.

Charge pump - Exploded view



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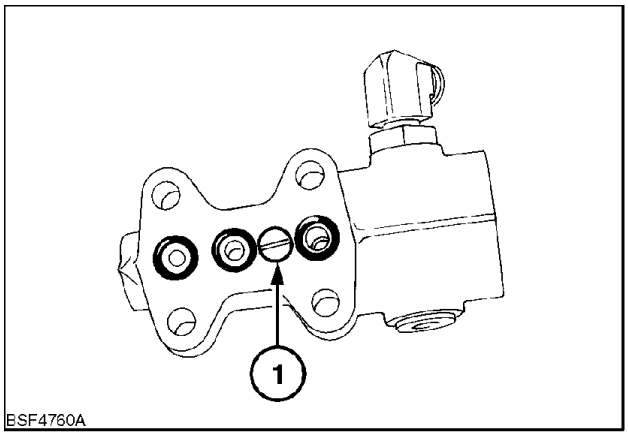
Charge Pump Components

1 End Plate
2 Seal
3 Coupling
4 Shaft
5 Rotor Housing
6 Charge Pump Housing
7 Seal
8 Pin
9 Hub
10 Screw Plug
11 System Relief Valve (**245 bar** (**3552.5 psi**))
12 Check Valve Plug
13 Seal
14 Check Valve Spool
15 Main Charge Filter
16 Pump Rotor
17 Key
18 Screws

NOTE: *If the damper screw* ***(1)*** *is removed for any reason it should be reinstalled in alignment with the three ports and should be fixed into position using a suitable threadlock and seal.product. Failure to adjust this screw correctly could reduce the efficiency of the system.*



BSF4760A 4

Single Remote Valve Operating

1 Parallel Gallery (Interconnecting Remote Valves Sections)
2 Load Sense Line (Interconnecting Remote Valves Sections)
3 Manually Adjusted Flow Control Restriction
4 Spool Metering Lands
5 Flow Control Spool
6 Load Sense Line Check Valve

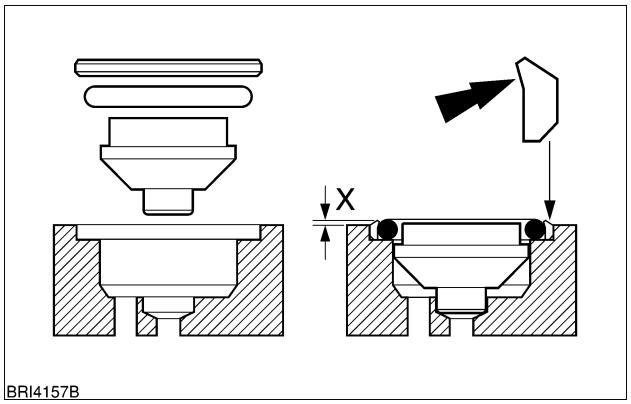
Pump Pressure
Return to Reservoir
Remote Valve Operating Pressure
Trapped Oil

A Remote Valve in Operation
B Remote Valves in Neutral

Load Sense Check Valve Installation

27. Install new ’O’ Ring seal and back up ring

NOTE: *Clearance ’X’ should be approximately* ***0.5 mm*** *(****0.020 in****) from the flange face of the valve segment to the top edge of the inserted check valve.*



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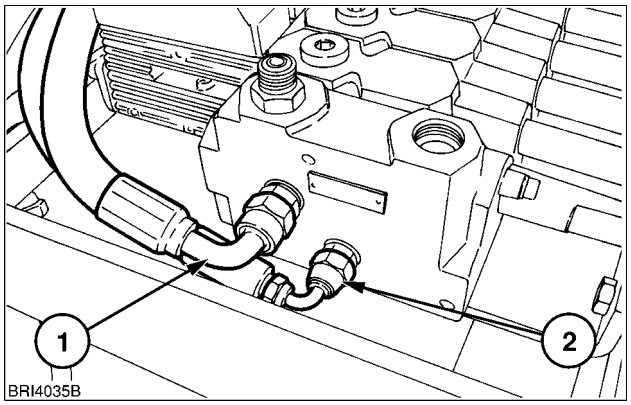
OIL FLOW IN FLOAT

The float position allows the free flow of oil from both the raise and lower ports of the remote valve permitting the cylinder to extend or retract freely. This feature is particularly useful to allow equipment such as scraper blades to 'float' or follow the ground contour. See Figure **4**
When the remote valve operator control switch is moved to the float position the control spool is moved fully to the right via pilot line oil from the solenoid control unit, supplied from gallery **(I)**.
Oil flow from the gallery **(B)** to the raise and lower ports is blocked by the land of the spool end.
The position of the spool causes the pin **(7)** on the lock valve to hold the valve in the open position.
The raise and lower ports of the remote valve are open to reservoir gallery **(G)** allowing a free flow of oil from one port of the cylinder to the other.
Should a void occur in the circuit oil will be drawn by suction from one side of the cylinder to the other.

The pressure oil of the control line for actuation of the electrohydraulic solenoid valves flows from the low pressure circuit via hose **(1)** in the connection plate. The Load Sensing hose **(2)** is also connected to the connection plate. The return flow is connected to a fitting on the priority valve block.



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Remote control valve - Troubleshooting

T7030 without Sidewinder, T7040 without Sidewinder, T7050 without Sidewinder, T7060 without Sidewinder

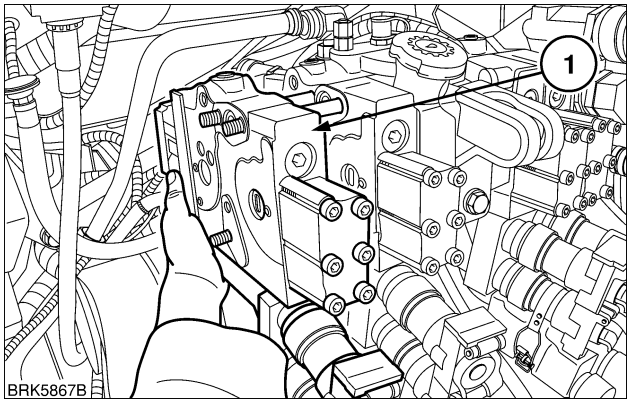
Problem	Possible Cause	Correction
No spool movement	Valve spool sticking	Remove the end cap and operate the valve and observe the spool. If the spool operates correctly refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Troubleshooting (A.10.C)** for diagnosis.
	Lift check valve spring faulty or broken	Remove and replace lift check valve assembly. Refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Assemble (A.10.C)**
	Load holding check valve plunger worn, broken, or incorrectly adjusted	Replace load holding check valve and plunger. Refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Assemble (A.10.C)**
	Remote Valve Slice faulty	Replace complete valve section. Refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Remove (A.10.C)**
No oil flow	Valve slices may be faulty	Check oil flow of valve slices. Refer to **PRIMARY HYDRAULIC POWER SYSTEM - Pressure test (A.10.A)**
	Control valve sticking	Check that the control valve moves into both end detent positions.
	Valve slice faulty	Replace complete valve slice. Refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Remove (A.10.C)**
Oil leakage	Lift check valve bore plug leaking	Remove lift check valve and install new valve assembly. Refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Assemble (A.10.C)**
	'O' ring failure between valve slices	Replace 'O' rings. Refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Remove (A.10.C)**
	Oil leakage between coupler manifold and remote valve slice.	Separate the coupler manifold from the valve slice and replace the 'O' rings.
	Couplers seals worn or damaged	Replace seals. Refer to **Coupler - Overhaul (A.10.C)**
	Remote valve slice faulty	Replace complete valve slice and torque retaining nuts in correct sequence. Torque **30 Nm** (**22.13 lbft**)
Implement creeps down with the remote valve in the 'neutral' position	Feed hose incorrectly connected to coupler.	Connect feed hose to 'raise' coupler.
	Load check valve faulty or incorrectly adjusted	Replace valve or ensure correct adjustment. Refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Assemble (A.10.C)**
Implement dips initially when the operating linkage is in the 'Raise' position	Lift check valve worn or damaged	Remove and replace lift check valve. Refer to **PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Assemble (A.10.C)**

PRIMARY HYDRAULIC POWER SYSTEM Electro-hydraulic remote valve - Install

T7030 with Sidewinder Z9BG40001-, T7040 with Sidewinder Z9BG40001-, T7050 with Sidewinder Z9BG40001-, T7060 with Sidewinder Z9BG40001-

Valves 3, 4, and 5 (Where fitted)

1. Mount the valve **(1)** on the tie rods ensuring the O-rings are correctly installed.



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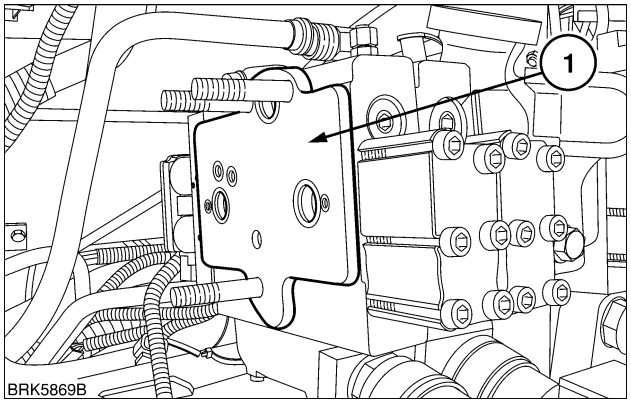
2. Install the spacer **(1)** (if required)



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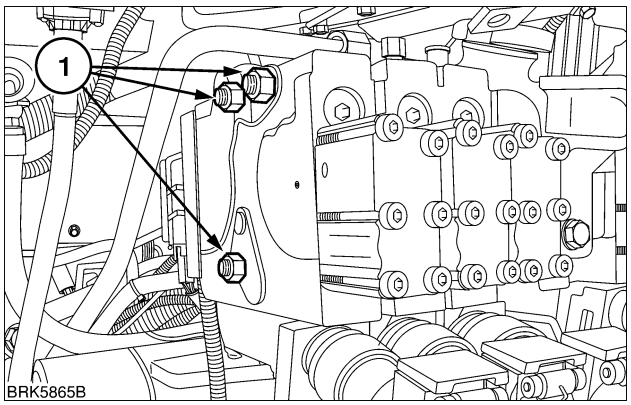
3. Install the end valve slice ensuring all O-rings are in place. Tighten the retaining nuts to **45 Nm** (**33.2 lb ft**).



BAIL08CVT060ASA 3

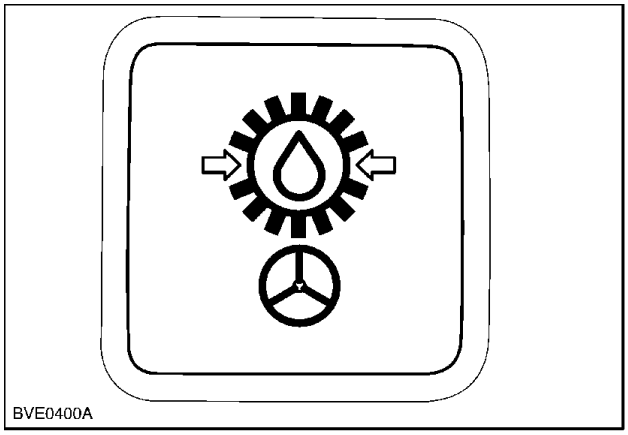
Hydraulic pump - Pressure test

IMPORTANT: *Before performing any pressure or flow testing operate the tractor until the oil in the rear axle is at normal operating temperature.* ***65 °C*** *(* ***145 °F****).*

Steering Pump Test

1. There is no relief valve in the steering pump. The following practical test will determine if steering pump output is sufficient to allow satisfactory operation of the steering system.
2. Set engine speed to **1100 rev/min**.
   Turn steering quickly from lock to lock.
   If steering is operating correctly the reaction should be immediate with no time delay between turning the steering wheel and movement of the wheels.
3. At full lock the relief valve in the steering motor should be heard to blow and the engine speed drop to approximately **1050 rev/min**.

NOTE: *The hydraulic pump can get very hot during this test which is another indication the steering pump is faulty, this may occur after approximately 30 - 60 seconds of being held on full lock.*



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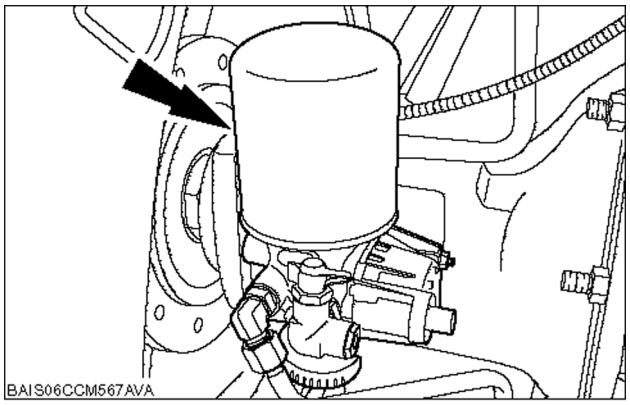
4. Remove the relief valve.



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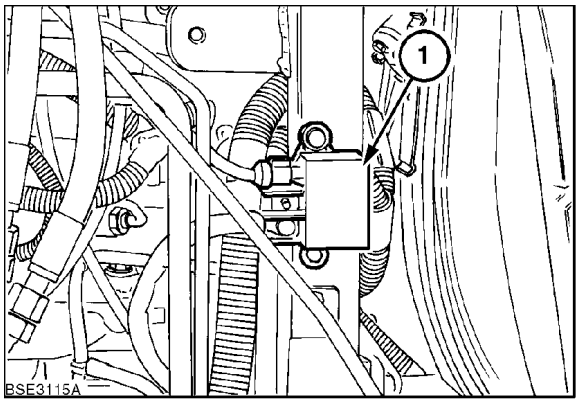
Grid Heater relay, **(1)**, located to the rear of the left hand side of the engine.



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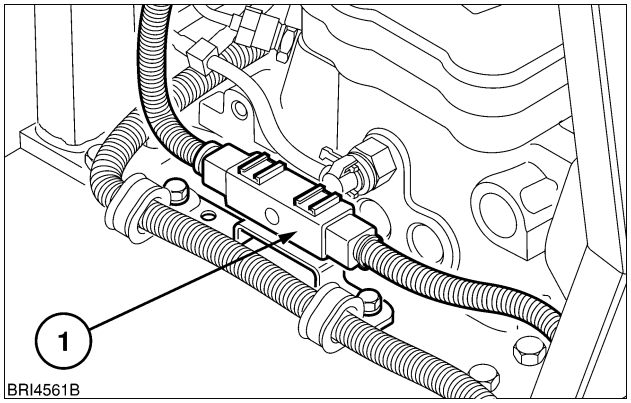
Grid Heater Fuse (**250 Amp**), **(1)**, located on the right hand side of the engine near the starter motor.



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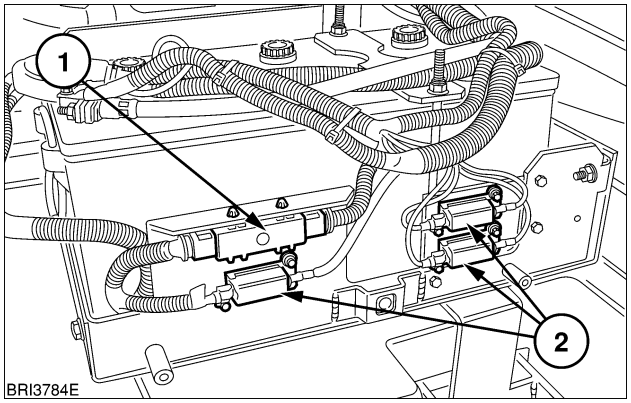
In addition to the fuses in the internal fuse box, there are also extra fuses located on the battery tray. A **250 Amp** 'MEGA' fuse **(1)** which protects the main electrical system and three **30 Amp** fuses **(2)** which protect the front lift electrical system, supply to the electronics system and implement ISO BUS circuit (where fitted).



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7301	Y	SOLENOID 1 18x9 RETURN
7320	W	SOLENOID 2 18x9 TRANSMISSION
7321	P	SOLENOID 2 18x9 RETURN
7330	W	SOLENOID 3 18x9 TRANSMISSION
7331	Y	SOLENOID 3 18x9 RETURN
7340	W	SOLENOID F1 18x9 TRANSMISSION
7341	Y	SOLENOID F1 18x9 RETURN
7350	W	SOLENOID F2 18x9 TRANSMISSION
7351	S	SOLENOID F2 18x9 RETURN
7355	S	SOLENOID R 18x9 TRANSMISSION
7356	U	SOLENOID R 18x9 RETURN
7360	W	SOLENOID A 18x9 TRANSMISSION
7361	P	SOLENOID A 18x9 RETURN
7370	Y	SOLENOID B 18x9 TRANSMISSION
7371	P	SOLENOID B 18x9 RETURN
7380	Y	SOLENOID C 18x9 TRANSMISSION
7381	P	SOLENOID C 18x9 RETURN
7390	Y	SOLENOID PMW (F1) 18x9 TRANSMISSION
7391	P	SOLENIOD PWM (F1) 18x9 RETURN
7392	O	SOLENOID PWM (F2) 18x9 TRANSMISSION
7393	O	SOLENOID PWM (F2) 18x9 RETURN
7395	P	SOLENOID CREEP 18x9 TRANSMISSION
7396	P	SOLENOID CREEP 18x9 RETURN
7400	Y	TRANS RPM SPEED SENSOR TO TCM INPUT
7401	P	TRANS RPM SPEED SENSOR
7402	Y	TRANS WHLSP FORWARD (CVT)
7403	Y	TRANS WHLSP REVERSE (CVT)
7404	Y	TRANS HYDROSTAT FORWARD (CVT)
7405	Y	TRANS HYDROSTAT REVERSE (CVT)
7406	LG	TRANS BI-DI SPEED SENSOR RET (CVT)
7410	Y	TRANS RPM SPEED SENSOR TO TCM OUTPUT
7411	Y	TRANS HYDROSTATINPUT SPEED SENSOR (CVT)
7420	Y	TCM TO CLUTCH POSITION SWITCH
7430	Y	CLUTCH POSITION SIGNAL
7431	TQ	CLUTCH 'A' SUPPY
7440	Y	TCM TO TRACTOR EIC-AXLE OUTPUT
7450	W	TRANS CREEPER INTERLOCK SUPPLY
7460	W	TRANS CREEPER CLUTCH ENGAGED
7470	S	TRANS CREEPER CLUTCH DISENGAGED
7475	R	TRANS AUTO OFF
7476	R	TRANS AUTO ON
7480	G	TRANS AUTO FUNCTION 1
7482	G	TRANS AUTO ON/INCREASE
7485	K	TRANS AUTO FUNCTION LAMP 1
7490	G	TRANS AUTO FUNCTION 2
7492	G	TRANS AUTO OFF/DECREASE
7495	K	TRANS AUTO FUNCTION LAMP 2
7500	G	TRANS OIL TEMP. SENSOR
7520	G	TRANS SENSOR SUPPLY 8v
7525	G	TRANS SENSOR SUPPLY 5v
7560	G	TRANS WARNING LAMP
7570	B/W	SIGNAL GROUND
7580	U	CREEPER SOLENOID MONITOR
7581	O	CREEPER POSITION SIGNAL
7582	U	CREEPER RAIL SWITCH NOT
7586	U	PARKLOCK SOLENOID
7590	O	TRANS CREEPER GEAR STATUS LAMP

Wiring harness - Electrical schematic frame 11 Electronic Draft Control / Hydraulic Systems (1)

T7030 without Sidewinder, T7040 without Sidewinder, T7050 without Sidewinder, T7060 without Sidewinder

Frame	line Range	Frame Title	Line Number	Compo-nent	Connec-tor	Description
11	3010-3300	EDC/HYDRAULICS 1	3020	S21	**C176**	HYDRAULIC TEMP SWITCH
11	3010-3300	EDC/HYDRAULICS 1	3020	S22	**C175**	HYDRAULIC BLOCKED FILTER SWITCH
11	3010-3300	EDC/HYDRAULICS 1	3040	S23	**C302**	HTS RECORD SWITCH
11	3010-3300	EDC/HYDRAULICS 1	3110	B18	**C113**	FRONT HITCH POT
11	3010-3300	EDC/HYDRAULICS 1	3160	F42 - 10A		FUSE - FRONT SUSPENSION
11	3010-3300	EDC/HYDRAULICS 1	3300	X4	**C510**	HI-FLOW PUMP CONNECTOR - CIRCUIT 5830

NOTE: *Additional Connectors* ***C020****,* ***C079****,* ***C100****,* ***C127****,* ***C269****,* ***C324****,* ***C325****,* ***C329****,* ***C378****.*

WIRE COLOUR CODES							
B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

Wiring harness - Electrical schematic frame 26 Main Lamps and Indicators (1)

T7030 without Sidewinder, T7040 without Sidewinder, T7050 without Sidewinder, T7060 without Sidewinder

Frame	line Range	Frame Title	Line Number	Compo-nent	Connec-tor	Description
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7525	H13	**C094**	RIGHT HAND NASO REAR FLASHER
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7570	H14	**C131**	LICENCE PLATE LAMP
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7590	F22 - 15A		FUSE - SIDELAMPS RH
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7590	H15	**C131**	LICENCE PLATE LAMP
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7600	F24 - 10A		FUSE - ILLUMINATION
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7610	H16	**C093**	LEFT HAND NASO REAR FLASHER
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7620	F23 - 15A		FUSE - SIDELAMPS LH
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7660	D4	**C377**	DIODE CONNECTOR
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7680	H17	**C095**	LEFT HAND REAR LICENCE WORKLAMP
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7700	H18	**C096**	RIGHT HAND REAR LICENCE WORKLAMP
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7710	S54	**C257**	LEFT HAND FENDER PTO SWITCH
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7750	S55	**C258**	RIGHT HAND FENDER PTO SWITCH
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7780	H19	**C129**	WORKLAMP RIGHT HAND FENDER
26	7510-7800	MAIN LAMPS/ INDICATORS 1	7800	H20	**C130**	WORKLAMP LEFT HAND FENDER

NOTE: *Additional Connectors* ***C020***, ***C127***, ***C293***, ***C294***, ***C295***, ***C296***.

WIRE COLOUR CODES							
B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

Wiring harness - Electrical schematic frame 41 Air Conditioning (3) - Manual Temperature Control

T7030 without Sidewinder, T7040 without Sidewinder, T7050 without Sidewinder, T7060 without Sidewinder

Frame	line Range	Frame Title	Line Number	Compo-nent	Connec-tor	Description
41	11710-12000	AIR CON 3 - MANUAL	11780	M9	**C119**	HEATER / AIRCON CONNECTOR
41	11710-12000	AIR CON 3 - MANUAL	11970	S70	**C627**	LOW PRESSURE SWITCH
41	11710-12000	AIR CON 3 - MANUAL	11970	S71	**C627**	LOW TEMPERATURE (FREEZE) SAFETY SWITCH
41	11710-12000	AIR CON 3 - MANUAL	11970	S68	**C362**	HEATER BLOWER SWITCH
41	11710-12000	AIR CON 3 - MANUAL	11970	S69	**C629**	AIR CON SWITCH

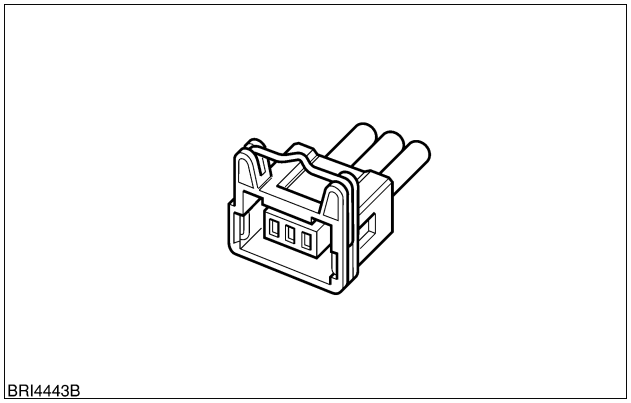
NOTE: *Additional Connectors* ***C557****,* ***C559****.*

WIRE COLOUR CODES							
B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

C037 GROUP TRANSMISSION SPEED SENSOR TRANSMISSION OUTPUT SPEED

PLUG CONNECTION C037 GROUP TRANSMISSION SPEED SENSOR TRANSMISSION OUTPUT SPEED			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	2050AR (G)	POWER SUPPLY PTO / SHIFTING CLAW	**Wiring harness - Electrical schematic frame 09 (A.30.A)**
2	7400 (Y)	TRANSMISSION SPEED SENSOR TO TRANSMISSION CONTROLLER INPUT	
3	60BE (B/W)	EARTH SENSOR	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



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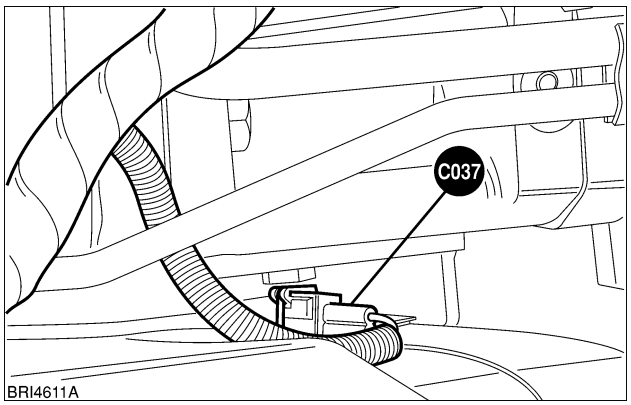


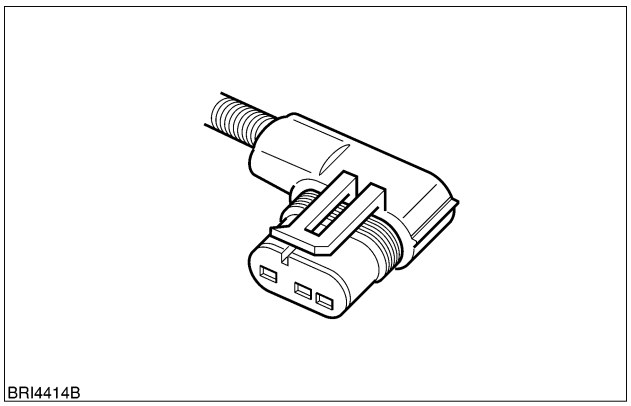
C037-BRI4611A 14

TRANSMISSION TOP

C077 CLUTCH POTENTIOMETER

PLUG CONNECTION C077 CLUTCH POTENTIOMETER			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	7525A (G)	POWER SUPPLY TRANSMISSION SENSOR 5 V	**Wiring harness - Electrical schematic frame 06 (A.30.A)**
2	7430 (Y)	SIGNAL COUPLING SETTING	
3	60B (B/W)	EARTH SENSOR	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



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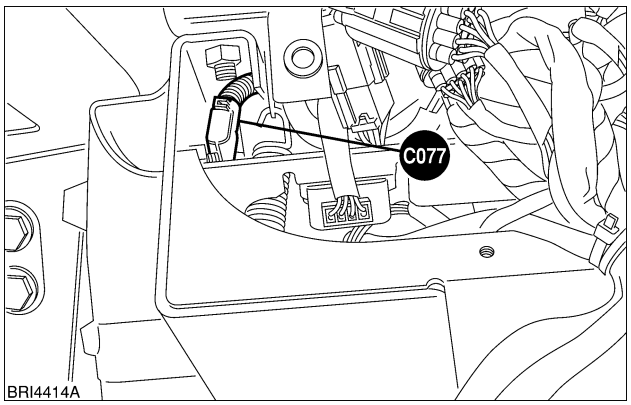


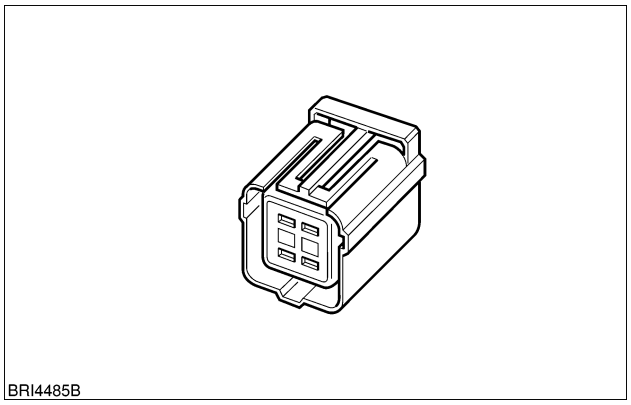
C077-BRI4414A 10

STEERING COLUMN CONSOLE

C109 REAR WINDSCREEN WIPER MOTOR

PLUG CONNECTION C109 REAR WINDSCREEN WIPER MOTOR			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	1120 (G)	REAR WINDSCREEN WIPER RETURN TO INITIAL POSITION / REAR WINDSCREEN WIPER RETURN TO INITIAL POSITION	**Wiring harness - Electrical schematic frame 32 (A.30.A)**
2	57D (B)	VEHICLE EARTH (ALL)	
3	1038 (TN)	POWER SUPPLY FRONT WINDSCREEN WIPER - REAR	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



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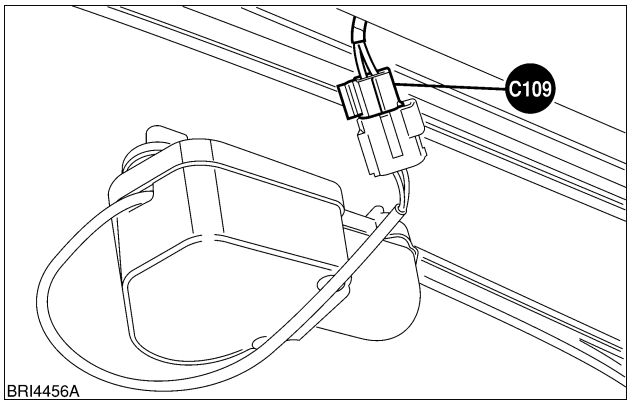


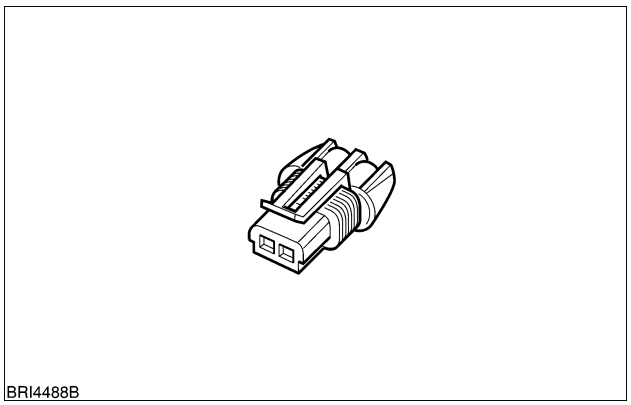
C109-BRI4456A 16

CAB ROOF

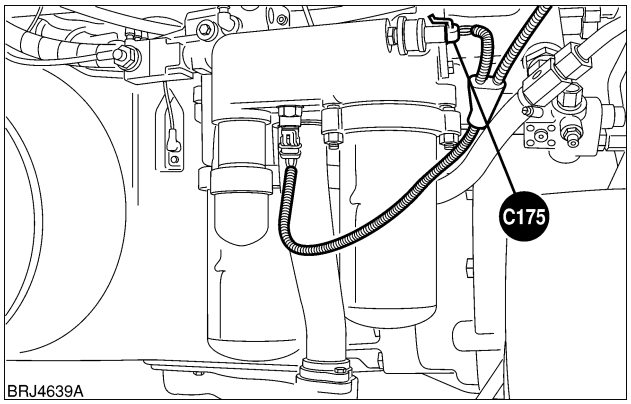
C175 MAINTENANCE SWITCH FOR THE HYDRAULIC OIL FILTER

PLUG CONNECTION C175 MAINTENANCE SWITCH FOR THE HYDRAULIC OIL FILTER			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	7130A (N)	WARNING LIGHT HYDRAULIC OIL FILTER	**Wiring harness - Electrical schematic frame 11 (A.30.A)**
2	57EV (B)	VEHICLE EARTH (ALL)	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



BRI4488B-01 4



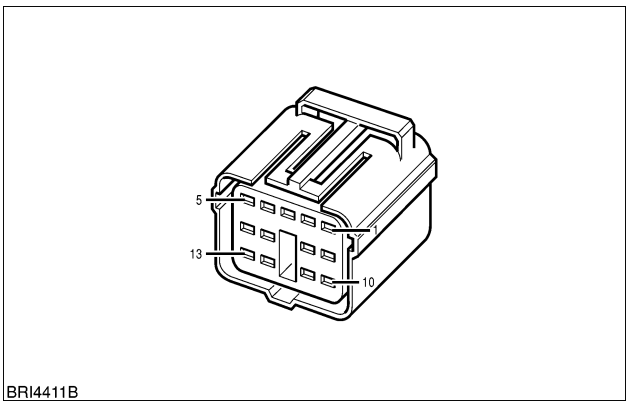
C175-BRJ4639A 5

TRANSMISSION - RIGHT-HAND SIDE

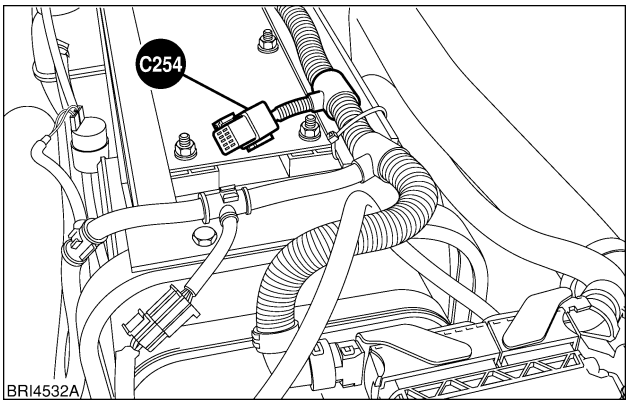
C254 PLUG CONNECTION FRONT POWER LIFT / FRONT PTO

PLUG CONNECTION C254 PLUG CONNECTION FRONT POWER LIFT / FRONT PTO			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	2044 (O)	FRONT SOLENOID VALVE RETURN SIGNAL (-)	**Wiring harness - Electrical schematic frame 20 (A.30.A)**
2	2043 (O)	FRONT PTO SOLENOID VALVE	
3	2260 (O)	FRONT PTO - SPEED SIGNAL	
4	60AE (B/W)	EARTH SENSOR	
5	2570 (R)	FRONT POWER LIFT RAISE SOLENOID VALVE	
7	2510 (N)	SIGNAL ACTUAL POSITION FRONT POWER LIFT	
8	57JT (B)	VEHICLE EARTH (ALL)	
9	2250 (K)	FRONT PTO - STROMVERSORGUNG	
10	2556 (N)	FRONT POWER LIFT COMMON RAIL	
11	2590 (TN)	REAR CONTROL SWITCH FRONT POWER LIFT RAISE	
12	2591 (TN)	REAR CONTROL SWITCH FRONT POWER LIFT LOWER	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



BRI4411B-02 6



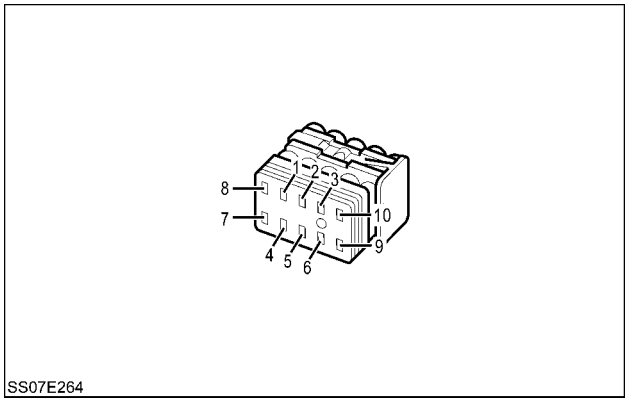
C254-BRI4532A 7

TOP ENGINE

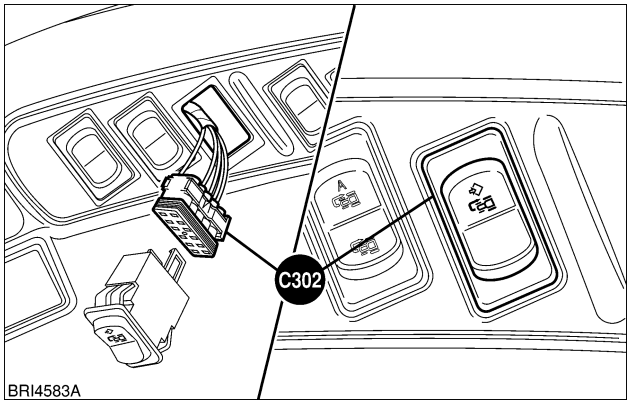
C302 SWITCH FOR HEADLAND MANAGEMENT

PLUG CONNECTION C302 SWITCH FOR HEADLAND MANAGEMENT			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	5610 (R)	PROGRAMMING SWITCH FOR HEADLAND MANAGEMENT	**Wiring harness - Electrical schematic frame 10 (A.30.A)**
2	7000H (U)	POWER SUPPLY TRANSMISSION CONTROLS	**Wiring harness - Electrical schematic frame 11 (A.30.A)**

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



SS07E264 3



C302-BRI4583A 4

KEY PAD RIGHT-HAND SIDE CONSOLE

Wiring harness - Component diagram 36 Plug connections 360-369

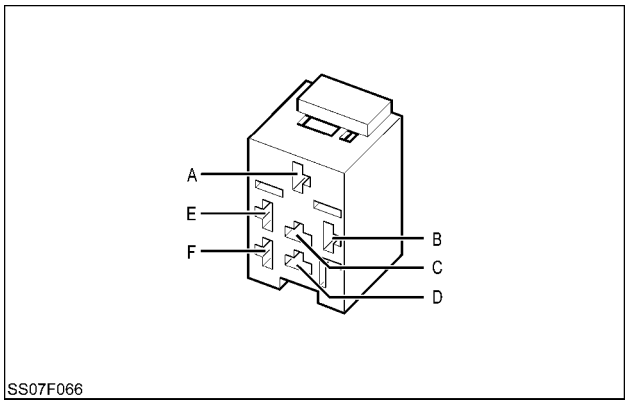
T7030 without Sidewinder, T7040 without Sidewinder, T7050 without Sidewinder, T7060 without Sidewinder

C362 HEATER BLOWER SWITCH

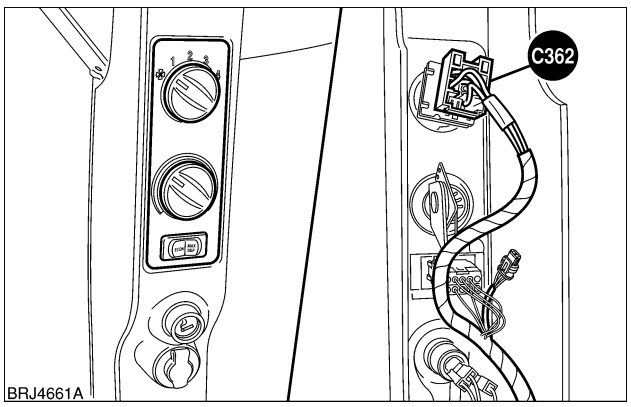
PLUG CONNECTION C362 (WITH MANUAL TEMPERATURE CONTROL) HEATER BLOWER SWITCH			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
A	(G/Y)	BLOWER LEVEL 1	**Wiring harness - Electrical schematic frame 41 (A.30.A)**
B	(K)	BLOWER LEVEL 2	
C	(K/O)	BLOWER LEVEL 3	
D	(G/S)	BLOWER LEVEL 4	
E	(R)	POWER SUPPLY POTENTIAL 15	
F	(G)	FROM AIR CON SWITCH	

PLUG CONNECTION C362 (WITH AUTOMATIC TEMPERATURE CONTROL) HEATER BLOWER SWITCH			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
A	(G/S)	SIGNAL BLOWER SPEED AUTO	**Wiring harness - Electrical schematic frame 40 (A.30.A)**
B	(G/Y)	SIGNAL BLOWER SPEED 1	
C	(K/G)	SIGNAL BLOWER SPEED 2	
D	(K/O)	SIGNAL BLOWER SPEED 3	
E	(B/W)	VEHICLE EARTH (ALL)	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



SS07F066 1



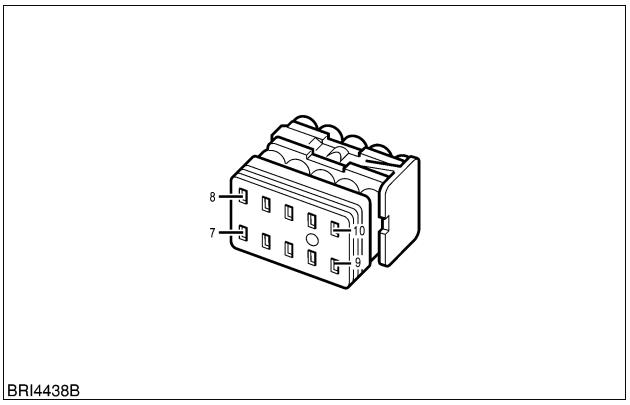
C362-BRJ4661A 2

CAB - C-PILLAR LEFT-HAND SIDE

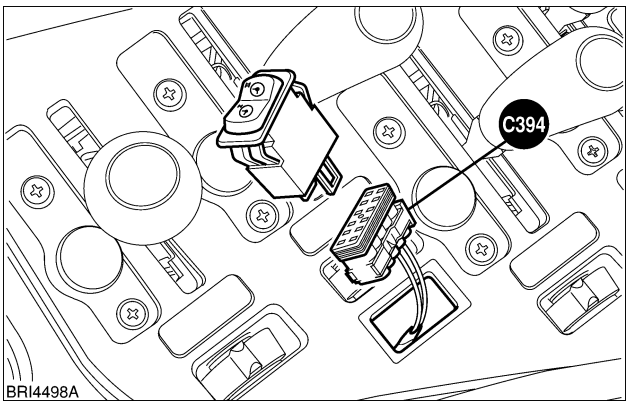
C394 ELECTROHYDR. REMOTE VALVE - SWITCH 1/2 TIME/OIL FLOW

PLUG CONNECTION C394 ELECTROHYDR. REMOTE VALVE - SWITCH 1/2 TIME/OIL FLOW			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	5561 (O)	SWITCH TIME-CONTROLLED OIL FLOW ELECTROHYDR. REMOTE VALVE 1	**Wiring harness - Electrical schematic frame 17 (A.30.A)**
5	5520C (G)	ELECTROHYDR. REMOTE VALVE 5V Ref.	
6	5562 (O)	SWITCH TIME-CONTROLLED OIL FLOW ELECTROHYDR. REMOTE VALVE 2	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



BRI4438A 7



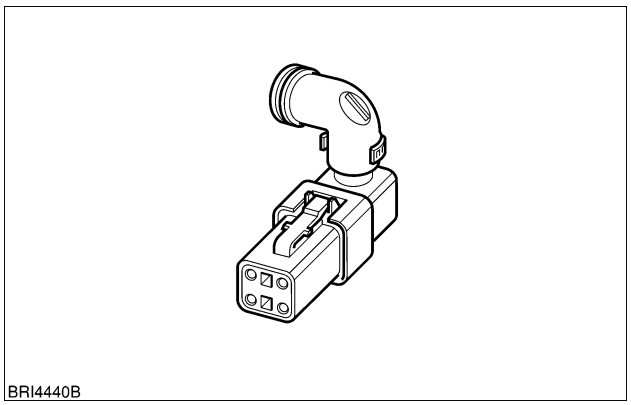
C394-BRI4498A 8

RIGHT-HAND SIDE CONSOLE - CONTROL PANEL ELECTROHYDR. REMOTE VALVE

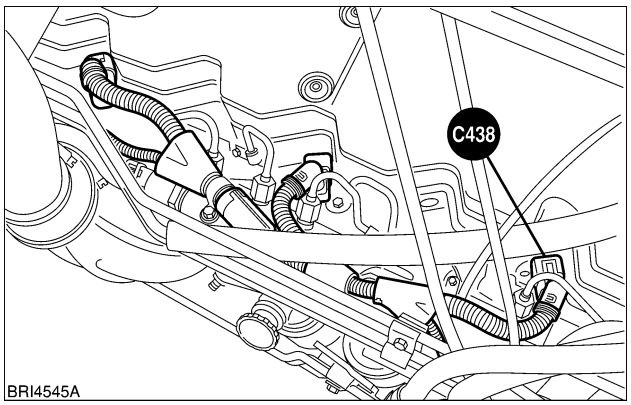
C438 INJECTOR CYLINDER 5 (EDC 16)

PLUG CONNECTION C438 INJECTOR CYLINDER 5 (EDC 16)			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
3	880 (O/U)		**Wiring harness - Electrical schematic frame 05 (A.30.A)**
4	880 (G/Y)		

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



BRI4440B 16



C438-BRI4545A 17

BONNET - LEFT-HAND SIDE

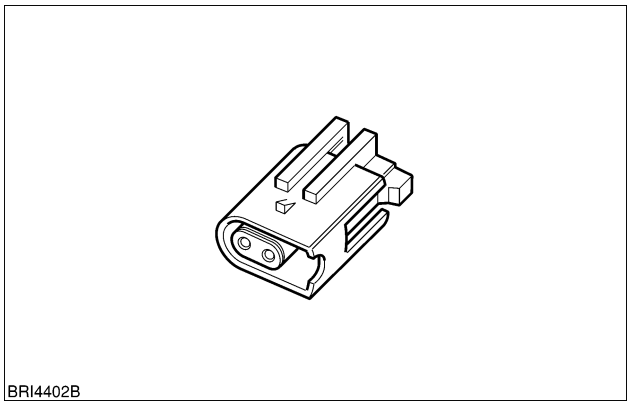
Wiring harness - Component diagram 55 Plug connections 550-559

T7030 without Sidewinder, T7040 without Sidewinder, T7050 without Sidewinder, T7060 without Sidewinder

C550 OIL FLOW DIVIDER SWITCH

PLUG CONNECTION C550 OIL FLOW DIVIDER SWITCH			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	5200K (N)	POWER SUPPLY EPC CONTROL VALVE	**Wiring harness - Electrical schematic frame 01 (A.30.A)**
2	9000 (TN)	OIL FLOW DIVIDER	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*

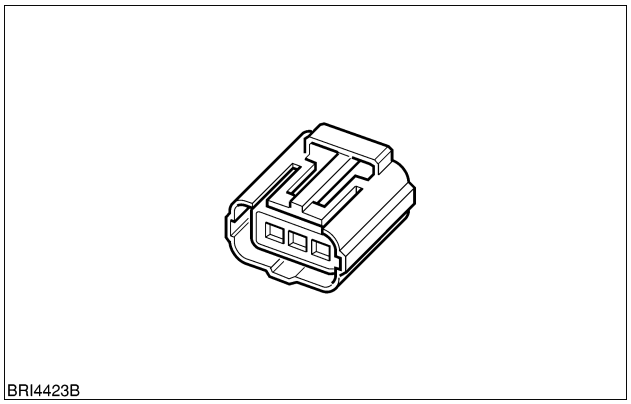


BRI4402B-01 1

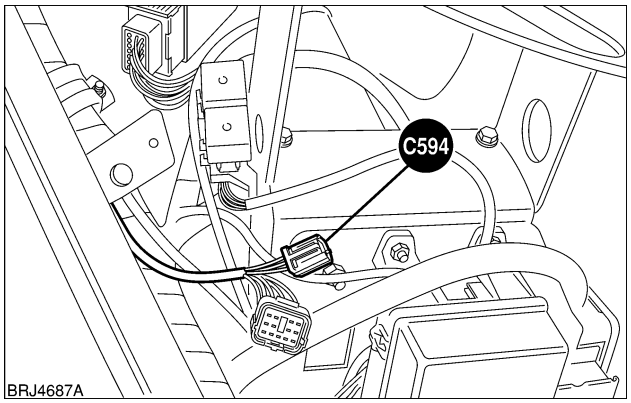
C594 REVERSE VIEW CAMERA

PLUG CONNECTION C594 REVERSE VIEW CAMERA			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	5520B (LTG)	ELECTROHYDR. REMOTE VALVE 5V Ref.	**Wiring harness - Electrical schematic frame 35 (A.30.A)**
2	57B (B)	VEHICLE EARTH (ALL)	
3	5960A (Y)	RS232 OUTPUT TRACTOR - CONTROLLER	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



BRI4423B 3



C594-BRJ4687A 4

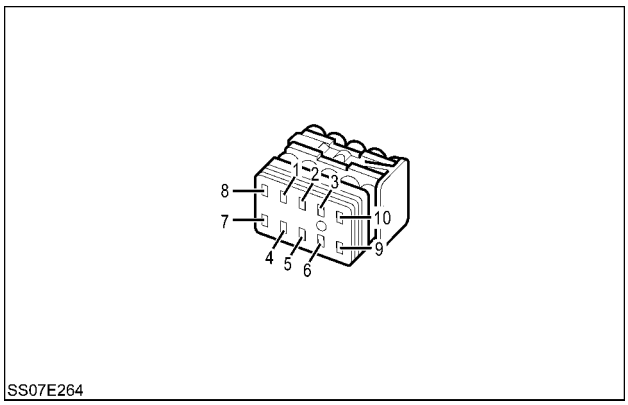
RIGHT-HAND SIDE CONSOLE

C629 AIR CONDITIONING SYSTEM SWITCH

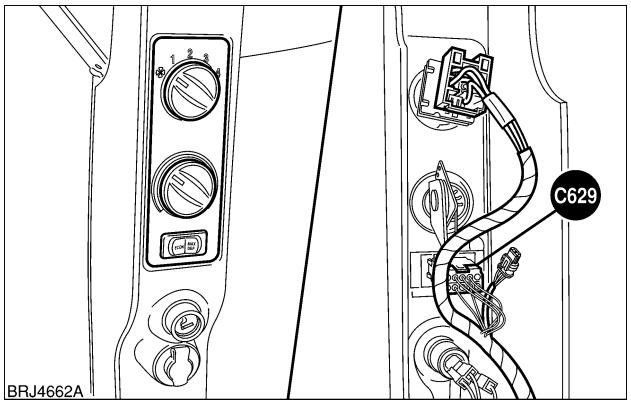
PLUG CONNECTION C629 (WITH MANUAL TEMPERATURE CONTROL) AIR CONDITIONING SYSTEM SWITCH			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
2	(G)	BLOWER SWITCH	**Wiring harness - Electrical schematic frame 41 (A.30.A)**
3	(U)	AIR CONDITIONING	
7	(B)	VEHICLE EARTH (ALL)	

PLUG CONNECTION C629 (WITH AUTOMATIC TEMPERATURE CONTROL) AIR CONDITIONING SYSTEM SWITCH			
LOCATION	CABLE NUMBER	CIRCUIT	WIRING DIAGRAM
1	(N/R)	MAXIMUM SPEED MODE	**Wiring harness - Electrical schematic frame 40 (A.30.A)**
2	(R)	POWER SUPPLY POTENTIAL 15	
3	(S/R)	HEATING MODE	
7	(B)	VEHICLE EARTH (ALL)	
9	(B)	VEHICLE EARTH (ALL)	

NOTE: *The colour coding of the cables is described in* ***Wiring harness - Overview (A.30.A)****.*



SS07E264 7

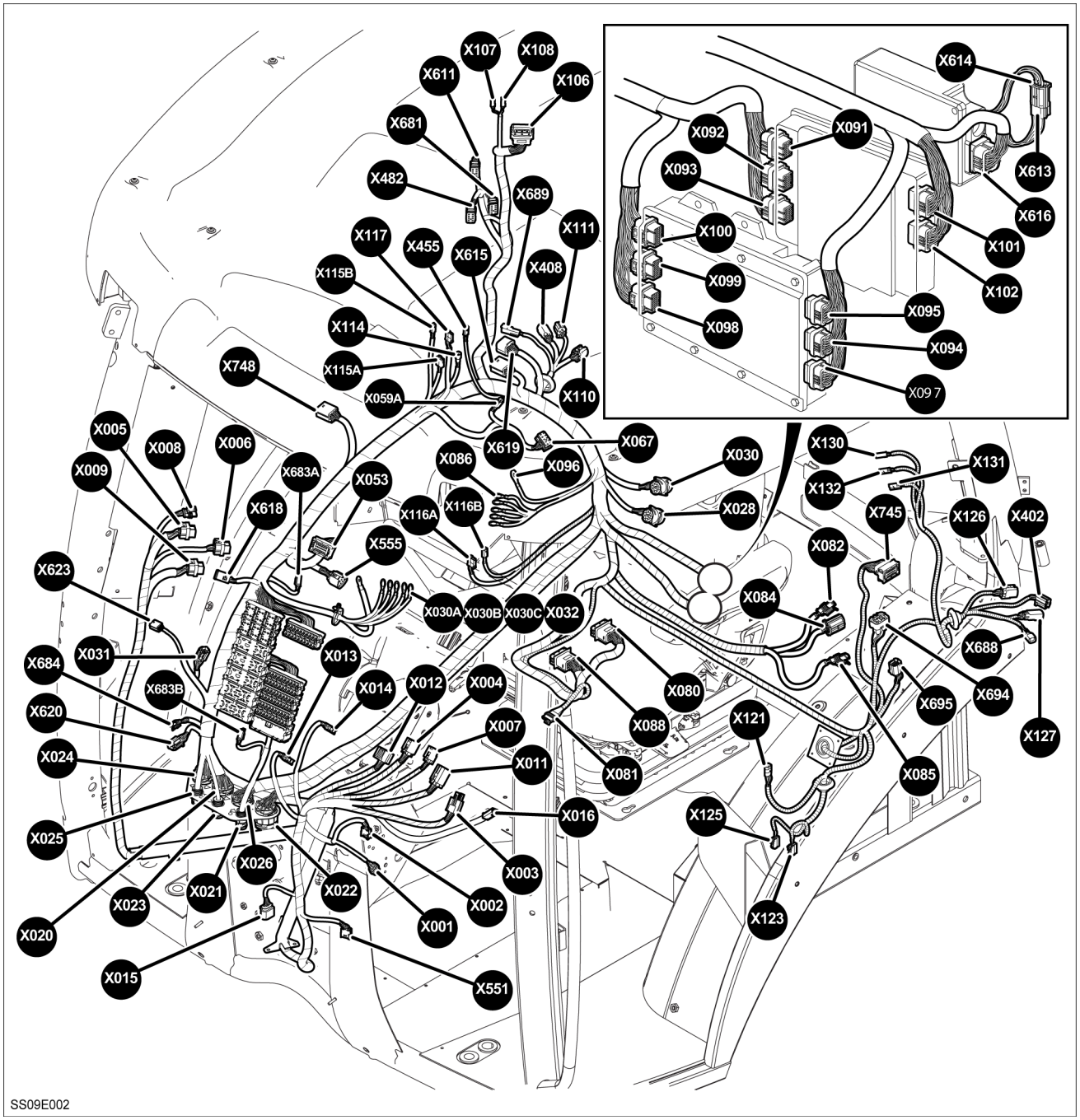


C629-BRJ4662A 8

CAB - C-PILLAR LEFT-HAND SIDE

Connector - Overview Wiring Harness Main Cab

T7030 with Sidewinder Z9BG40001-, T7040 with Sidewinder Z9BG40001-, T7050 with Sidewinder Z9BG40001-, T7060 with Sidewinder Z9BG40001-



SS09E002

SS09E002 1

Con.	Description	Con.	Description
X001	Clutch Switch	**X002**	Clutch Potentiometer
X003	Starter Switch	**X004**	Main Light Switch
X005	Instrument Cluster Unit CN1	**X006**	Instrument Cluster Unit CN2
X007	Hazard Switch Harness	**X008**	Key Pad
X009	Instrument Cluster Unit CN3	**X011**	Front and Rear Wiper Switch
X012	Shuttle Lever	**X013**	Stop Lamp Switch Left
X014	Stop Lamp Switch Right	**X015**	Foot Throttle
X016	Brake Pedals Latched Switch	**X020**	Extension Harness Connector 2 (Cab)
X021	Main Power (Fuse) 1 Power B+	**X022**	Extension Harness Connector 1 (Electronic)
X023	Main Power (Fuse) 2 Power E	**X024**	Cab to Engine Main Connector E2

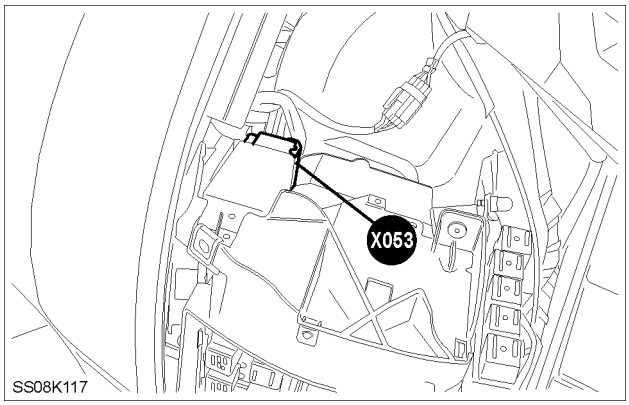
Connector - Component diagram 05

T7030 with Sidewinder Z9BG40001-, T7040 with Sidewinder Z9BG40001-, T7050 with Sidewinder Z9BG40001-, T7060 with Sidewinder Z9BG40001-

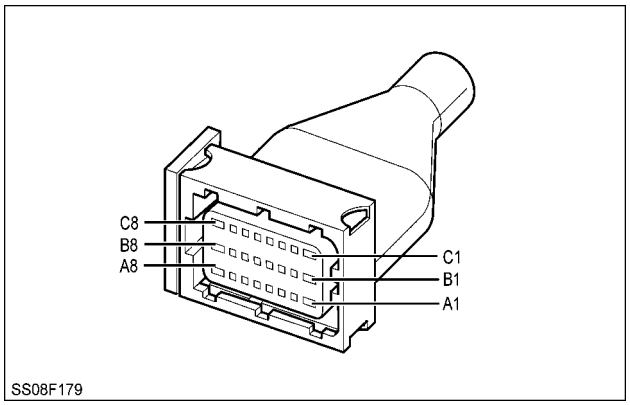
X053 FLASHER ECU

POS.	WIRE NUMBER	CIRCUIT REFERENCE
A1	3009A (G)	FLASHER UNIT SUPPLY B+
A2	249 (LG)	SMV LAMPS RH
A3	349 (TN)	TRAILER TURN LAMPS RH
A4	250 (LG)	SMV LAMPS LH
A5	350 (TN)	TRAILER TURN LAMPS LH
A6	1020 (G)	HAZARD SWITCH SUPPLY
A7	1034 (LG)	TURN SIGNAL WARNING LAMP (TERM C3
A8	3000B (G)	FLASHER UNIT SUPPLY (TERMINAL 49)
B1	3009B (G)	FLASHER UNIT SUPPLY B+
B2	3002 (G)	RIGHT HAND FLASHER CIRCUIT
B3	3001 (G)	LEFT HAND FLASHER CIRCUIT
B4	1020A (G)	HAZARD SWITCH SUPPLY
B5	1033 (LG)	TURN SIGNAL WARNING LAMP (TERM C2)
B6	50 (G)	LEFT HAND TURN SIGNAL
B7	49 (G)	RIGHT HAND TURN SIGNAL
B8	57BG (B)	EARTH (ALL)
C1	49A (G)	RIGHT HAND TURN SIGNAL
C2	50A (G)	LEFT HAND TURN SIGNAL
C3	1039 (LG)	NASO LIGHTS INPUT

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K117 1



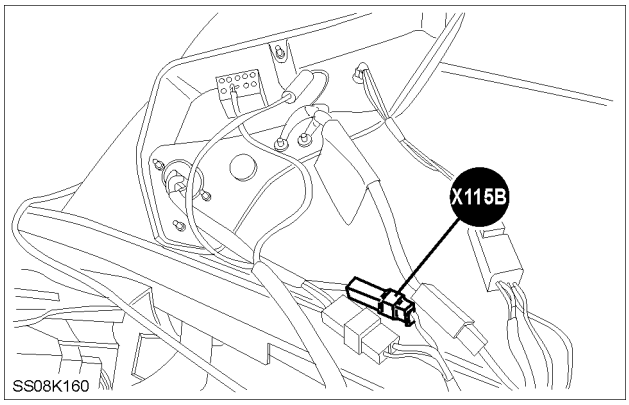
SS08F179 2

BEHIND RIGHT HAND TRIM TOP THE FUSEBOX

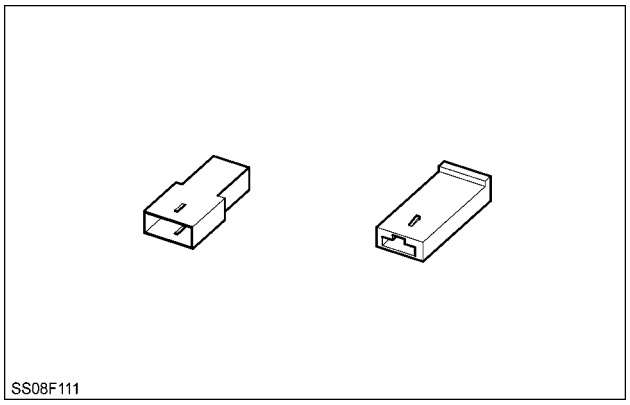
X115B 30 AMPERE POWER SOCKET NEGATIV

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	57CW (B) / 57CR (B)	EARTH (ALL)

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K160 9



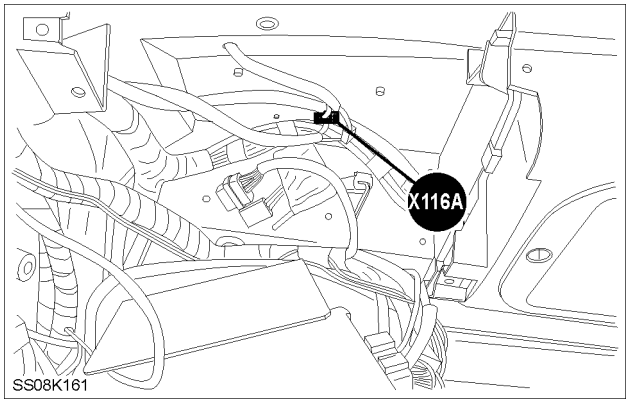
SS08F111 10

BEHIND RIGHT HAND SWITCH PANEL

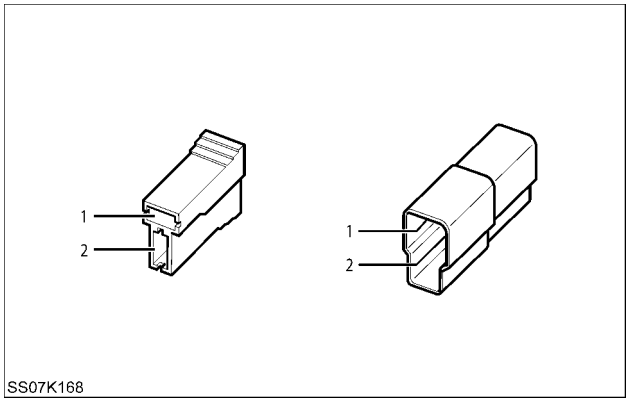
X116A REAR POWER SOCKET IMPLEMENT POSITIVE

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	150BF (N)	BATTERY FEED (ALL)
2	9032D (Y)	IGN.+ TO POWER SKT.

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K161 11



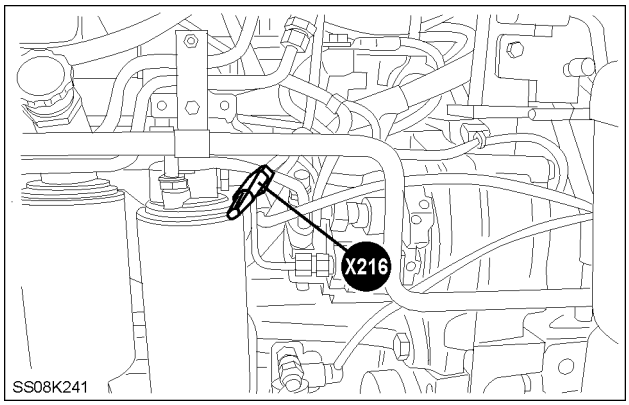
SS07K168 12

CAB RIGHT HAND BEHIND OPERATOR'S SEAT

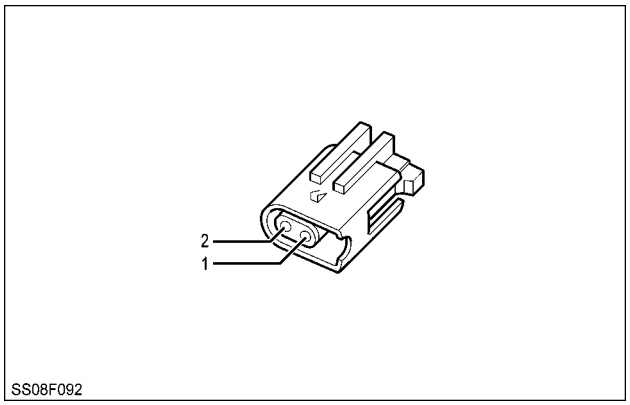
X216 FUEL HEATER RELAY

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	6570 (G)	ECU TO FUEL FILTER HEATER RETURN
2	6408J (G)	FUSED B+ TO ECU (1)

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K241 11



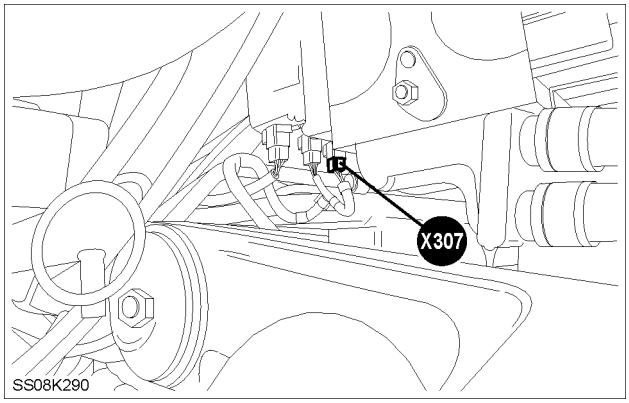
SS08F092 12

LEFT HAND ENGINE

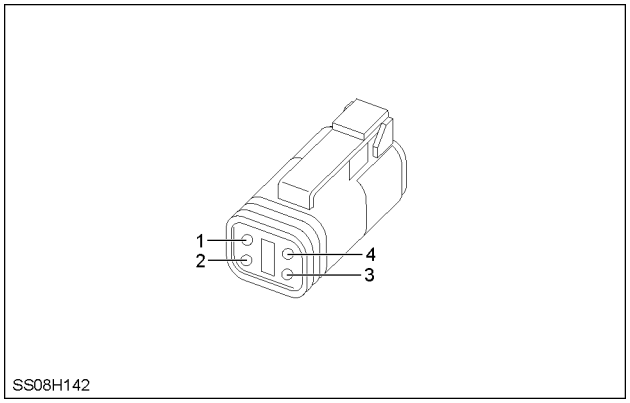
X307 EHR VALVE CONNECTOR 3

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	5515C (S)	EHR +12V IGN.
2	5510F (U)	EHR CAN LOW
3	5500F (R)	EHR CAN HIGH
4	57FF (B)	EARTH (ALL)

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K290 13



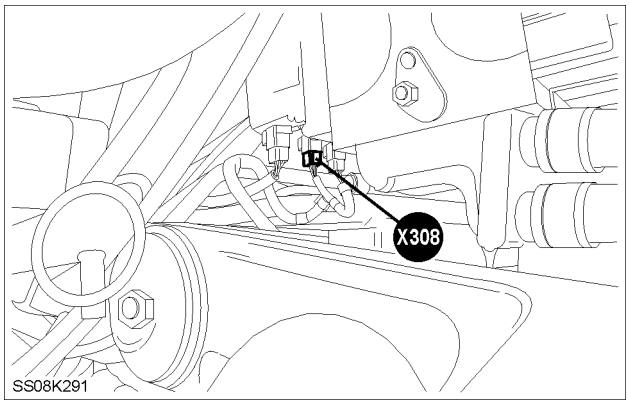
SS08H142 14

REAR LEFT HAND TRANSMISSION

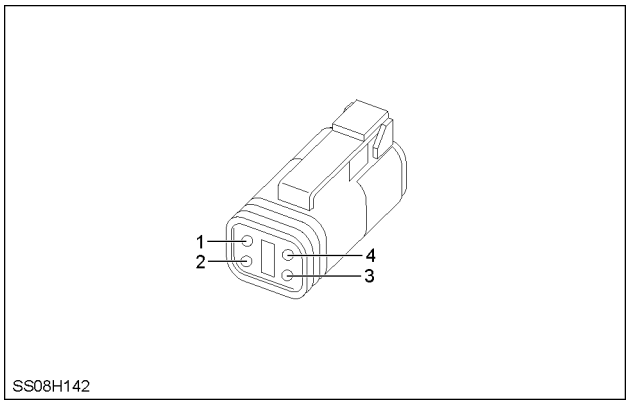
X308 EHR VALVE CONNECTOR 4

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	5515D (S)	EHR +12V IGN.
2	5510D (U)	EHR CAN LOW
3	5500D (R)	EHR CAN HIGH
4	57FG (B)	EARTH (ALL)

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K291 15



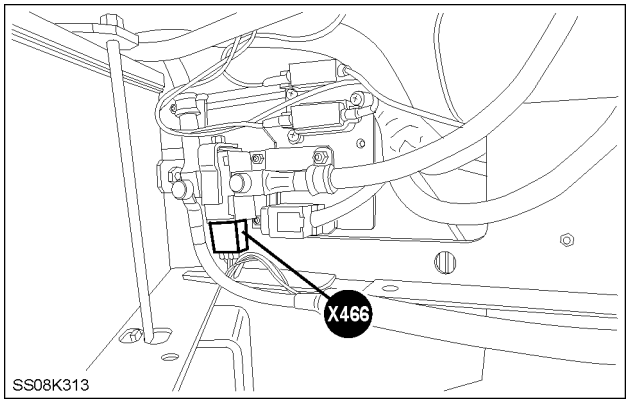
SS08H142 16

REAR LEFT HAND TRANSMISSION

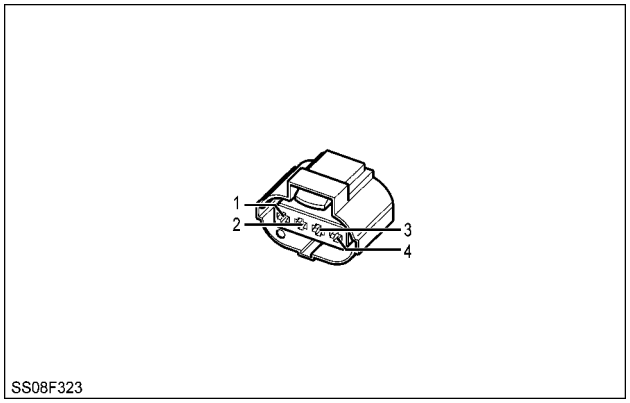
X466 BATTERY ISOLATOR

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	172A (W/TQ/Y)	BATTERY ISOLATOR RELAY COIL (OFF)
2	57NN (B)	EARTH (ALL)
3	57NP (B)	EARTH (ALL)
4	171B (W/TQ/B)	BATTERY ISOLATOR RELAY COIL

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K313 9



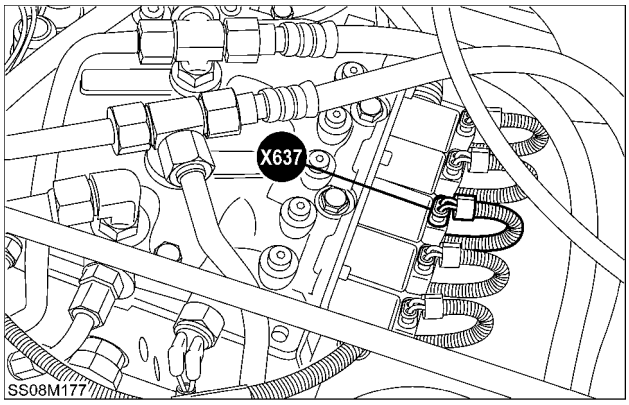
SS08F323 10

RIGHT HAND BEHIND STEPS

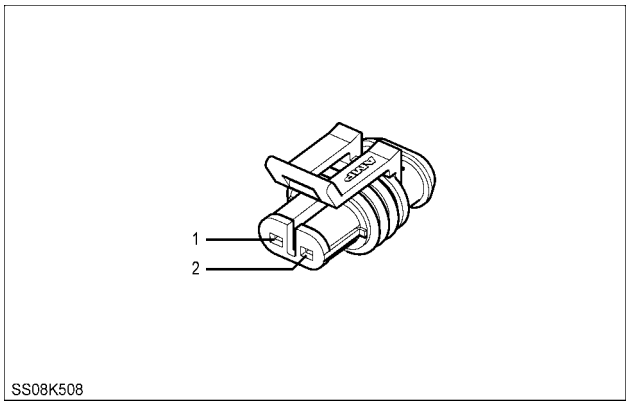
X637 CLUTCH SOLENOID C

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	7920 (TQ)	CLUTCH 'C' SIGNAL
2	7925 (P)	TCM CLUTCH C RETURN

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08M177 9



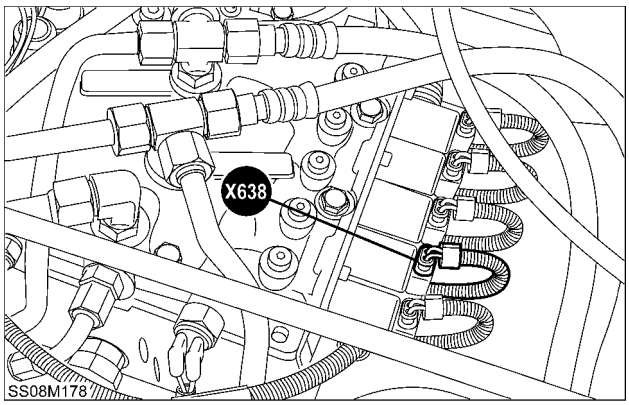
SS08K508 10

SLIDE VALVE HOUSING OF THE TRANSMISSION CONTROLS

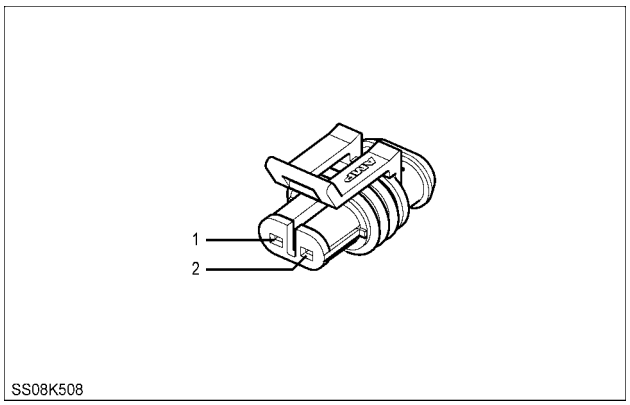
X638 CLUTCH SOLENOID D

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	7930 (TQ)	CLUTCH 'D' SIGNAL
2	7935 (P)	TCM CLUTCH D RETURN

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08M178 11



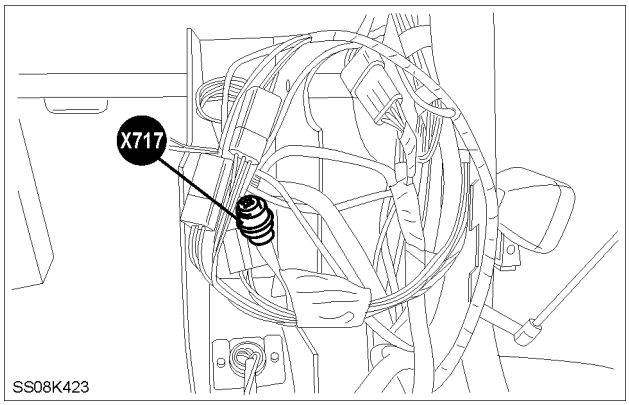
SS08K508 12

SLIDE VALVE HOUSING OF THE TRANSMISSION CONTROLS

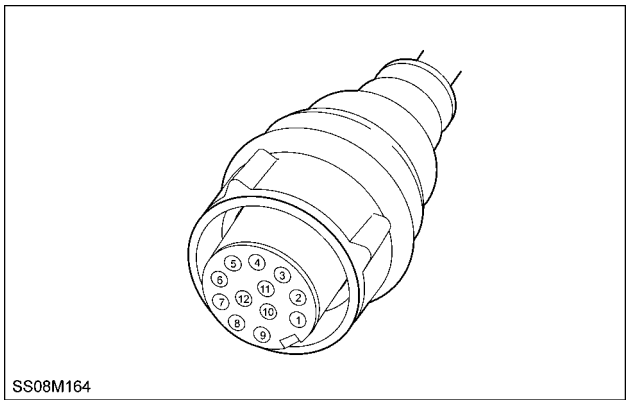
X717 DATA LOGGER

POS.	WIRE NUMBER	CIRCUIT REFERENCE
2	7640D (N)	DIAGNOSTIC PLUG RS232 IN
3	7650 (W)	DIAGNOSTIC PLUG RS232 OUT
5	7655D (Y)	RS232 GROUND
10	3181 (S)	AUTO GUIDANCE PPS SIGNAL INPUT TO GPS
11	57NE (B)	EARTH (ALL)

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K423 13



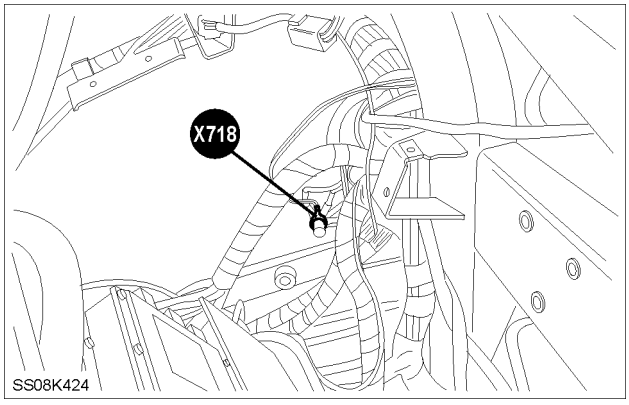
SS08M164 14

BEHIND RIGHT HAND C-PILLAR COVER

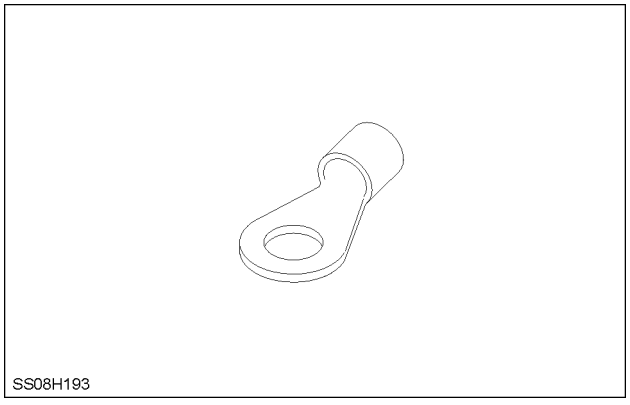
X718 EARTH

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	57NC; 57NL (B)	EARTH (ALL)

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K424 15



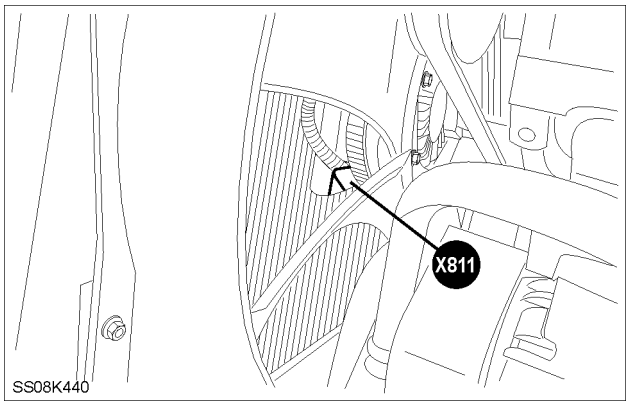
SS08H193 16

BEHIND REAR RIGHT HAND TRIM

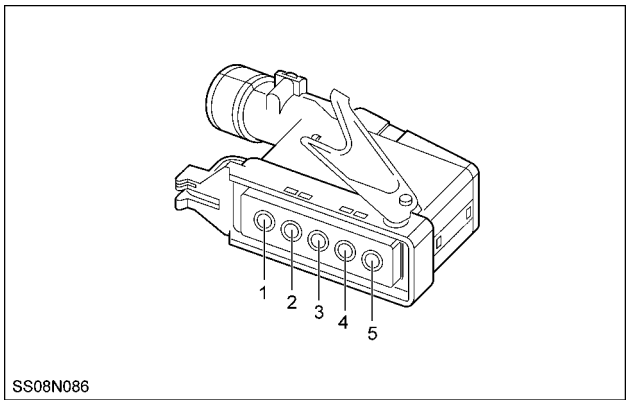
X811 VISTRONIC FAN

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	6300 (N)	FAN SPEED
2	57U (B)	EARTH (ALL)
3	57V (B)	EARTH (ALL)
4	6330 (N)	VISTRONIC FAN INPUT
5	6320 (N)	FAN 5V REF.

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



SS08K440 3



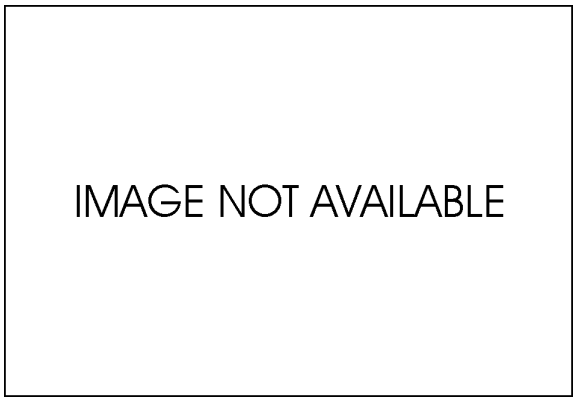
SS08N086 4

FRONT LEFT HAND ENGINE

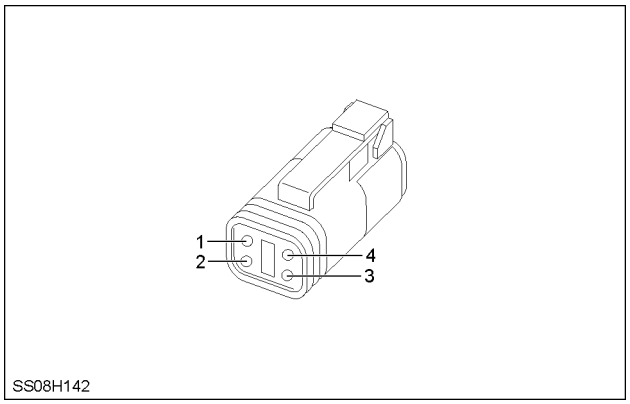
X812 ISO BUS BREAK AWAY FRONT

POS.	WIRE NUMBER	CIRCUIT REFERENCE
1	5920E (R)	ISO BUS CAN SUPPLY POSITIVE
2	5900E (Y)	ISO BUS CAN SIGNAL LOW
3	5915E (B)	ISO BUS CAN SUPPLY GROUND
4	5910E (G)	ISO BUS CAN SIGNAL HIGH

NOTE: *For the wiring color code refer to,* ***Wiring harness - Overview (A.30.A)****.*



INA 5



SS08H142 6

CIRC	COLOUR	DESCRIPTION
1032	LG	TURN SIGNAL WARNING LAMP (TERM C)
1033	LG	TURN SIGNAL WARNING LAMP (TERM C2)
1034	LG	TURN SIGNAL WARNING LAMP (TERM C3)
1035	W	ENGINE OIL PRESSURE WARNING LAMP
1036	N	IGNITION SWITCH (BATTERY)
1037	LG	FLASHER UNIT (TERM 49A)
1038	LN	WINDSHIELD WIPER FEED-REAR
1039	LTG	NASO LIGHTS INPUT
1040	LG	FLASHER SWITCH TO RELAY-RHS CUT OUT
1041	LG	FLASHER SWITCH TO RELAY-LHS CUT OUT
1042	U	RELAY FEED ELECTRONICS
1043	U	RELAY FEED TO FUSES
1044	W/U/S	GRID HEATER FEEDBACK
1050	G	ACCESSORY FEED
1051	Y	SIDE LIGHTS RELAY COIL FEED
1052	Y	GET YOU HOME LIGHTS RELAY
1070	R	FRONT WORKLAMP SWITCH FEED
1071	P	WORKLAMP FRONT FEED
1072	P	WORKLAMP FRONT RELAY SUPPLY
1073	P	WORKLAMP FRONT FEED
1080	R	FRONT SCREEN HEATER
1082	Y	REAR SCREEN HEATER
1085	N	FRONT SCREEN HEATER RELAY CONTROL
1086	N	REAR SCREEN HEATER RELAY CONTROL
1090	R	REAR WORKLAMP RELAY SIGNAL
1091	R	FRONT WORKLAMP LOWER RELAY SIGNAL
1092	R	FRONT WORKLAMP RELAY SIGNAL
1093	R	FENDER WORKLAMP RELAY SIGNAL
1096	R	WORKLAMP FENDER MOUNTED
1097	R	FEED FRONT WORKLAMP OUTER
1098	W	FRONT WORKLAMP RELAY GROUND
1099	R	FEED FRONT WORKLAMP INNER
1119	G	RR WINDSHIELD WIPER
1120	G	RR WINDSHIELD WIPER PARK RETURN
1121	G	RR WINDSHIELD WASH
1130	N	ENGINE HEATER CONTROL TO IGN SWITCH
1135	G	THERMOSTART WARNING LAMP
1140	K	THERMOSTART INITIATE SIGNAL TO RELAY
1141	N	GRID HEATER +
1142	N	GRID HEATER FUSE TO PWR. RELAY
1143	N	POWER RELAY TO GRID HEATER
1150	N	CAL/SEL SWITCH
1160	R	REVERSE ALARM
1900	LG/B/S	HEATED FRONT WINDSCREEN SW SIGNAL
1901	LN/LG/S	HEATED FRONT WINDSCREEN POWER
1902	O/LN/S	HEATED FRONT WINDSCREEN WARNING LAMP
1903	P/B/S	HEATED REAR SCREEN SW SIGNAL
1904	Y/B/S	HEATED REAR SCREEN POWER
1905	U/W/S	HEATED REAR SCREEN WARNING LAMP
1920	O	LH MIRROR CONTROL SIDE-SIDE
1921	Y	LH MIRROR CONTROL UP-DOWN
1922	G	MIRROR CONTROL COMMON
1923	O	RH MIRROR CONTROL SIDE-SIDE
1924	Y	RH MIRROR CONTROL UP-DOWN
1925	R	MIRROR CONTROL +12V
1927	R	MIRROR ILLUMINATION
1928	R	HEATED MIRROR RELAY COIL +12V FROM SW

Wiring harness - Electrical schematic frame 09 Start / Charging (without Isolator)

T7030 with Sidewinder Z9BG40001-, T7040 with Sidewinder Z9BG40001-, T7050 with Sidewinder Z9BG40001-, T7060 with Sidewinder Z9BG40001-

Component	Connector	Description
G002	**X236**, **X237**	Alternator
M003	**X231**, **X232**	Starter Motor
PF8	**X823**	Mega Fuse, Grid & Fuel Heater (**125 A**)
Additional Connectors: **X026**		

Wire Colour Codes

B	Black	S	Slate	G	Green	P	Purple
N	Brown	R	Red	LG	Light Green	K	Pink
LN	Light Brown	O	Orange	U	Blue	W	White
L	Lilac	Y	Yellow	TQ	Turquoise		

Wiring harness - Electrical schematic frame 40 Lighting (Stop / Tail Lamps & Worklamps)

T7030 with Sidewinder Z9BG40001-, T7040 with Sidewinder Z9BG40001-, T7050 with Sidewinder Z9BG40001-, T7060 with Sidewinder Z9BG40001-

Component	Connector	Description
E018	**X409**	Stop & Tail Lamp Right Hand
E019	**X409**	Stop & Tail Lamp Left Hand
E024	**X403**	Worklamp C Pillar Left Hand
E025	**X403**	Worklamp C Pillar Right Hand
E055	**X404**, **X405**	License Lamp Right Hand
E057	**X404**, **X405**	License Lamp Left Hand
K008	**X036**	Stop Lamps Relay
K016	**X074**	Rear Worklamps C Pillar Relay
S044	**X014**	Stop Lamp Switch Right Hand
S045	**X013**	Stop Lamp Switch Left Hand
V005	**X076**	Brake Light Diode
V006	**X076**	Brake Light Diode
Z006	**X076**	Diode Block
Additional Connectors: **X111**, **X126**		

Wire Colour Codes

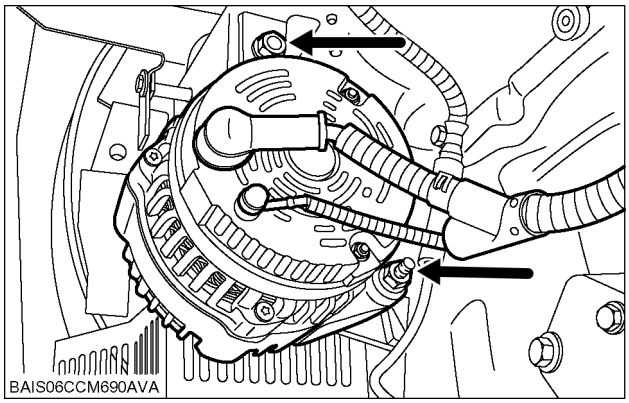
B	Black	S	Slate	G	Green	P	Purple
N	Brown	R	Red	LG	Light Green	K	Pink
LN	Light Brown	O	Orange	U	Blue	W	White
L	Lilac	Y	Yellow	TQ	Turquoise		

Alternator - Install

T7030 with Sidewinder Z9BG40001-, T7040 with Sidewinder Z9BG40001-, T7050 with Sidewinder Z9BG40001-, T7060 with Sidewinder Z9BG40001-

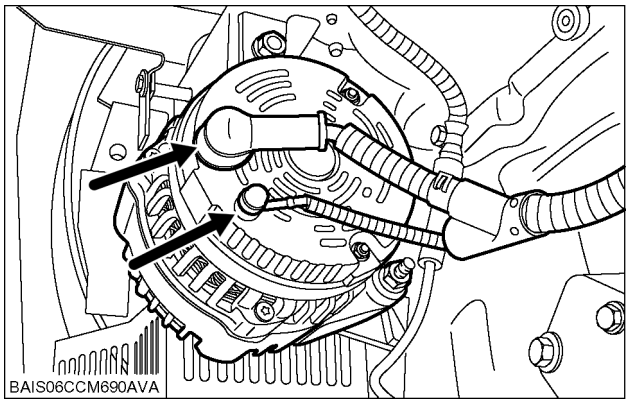
NOTE: *Ensure the battery ground (negative) cable is disconnected from the battery when installing the alternator.*

1. Install the alternator to the engine mounting bracket and tighten the bolts to the specified torque of, **25 Nm** (**18.4 lbft**).



BAIS06CCM690AVA 1

2. Rotate the tensioner arm and install the drive belt over the pulley, release the tensioner arm to allow the correct tension to be applied to the belt, refer to, **Alternator - Preliminary test (A.30.A)**.
3. Reconnect the two electrical cables to the alternator.



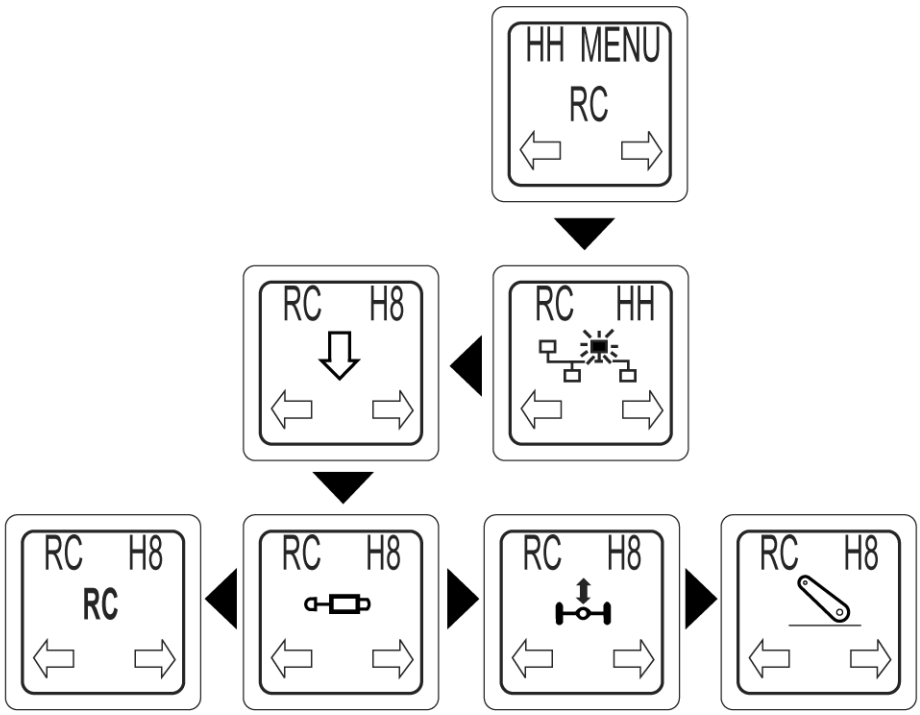
BAIS06CCM690AVA 2

Next operation:
Reconnect the battery, refer to, **Battery - Connect (A.30.A)**.

H8 - CLEARING THE EEPROM MEMORY

This menu is used to clear the calibration values and stored fault codes, with all EEPROM values being reset to the default.
All calibration values and fault codes are stored in the EEPROM memory. This memory is also not cleared by a break in the voltage supply to the electronic control unit, i. e. when the battery is disconnected.

H8 Menu page selection diagram

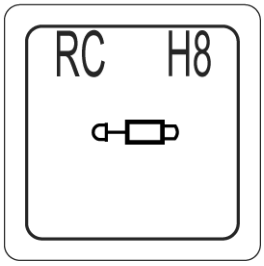


BAIL06CCM530FVA

BAIL06CCM530FVA 33

IMPORTANT: *After the menu page with the control unit code letters "RC" is selected, the EEPROM memories of all sub-systems are reset.*

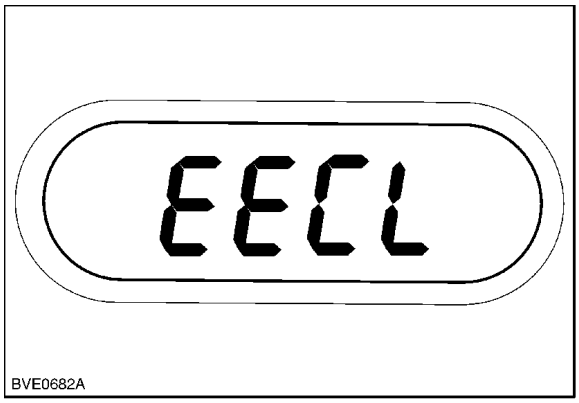
If only the EEPROM of a special sub-system must be reset, you select the affected sub-system by pressing the Dimmer button as in the illustrated example.



BAIL06CCM531AVA

BAIL06CCM531AVA 34

"EECL" is displayed in the upper section of the display.



BVE0682A_570 23

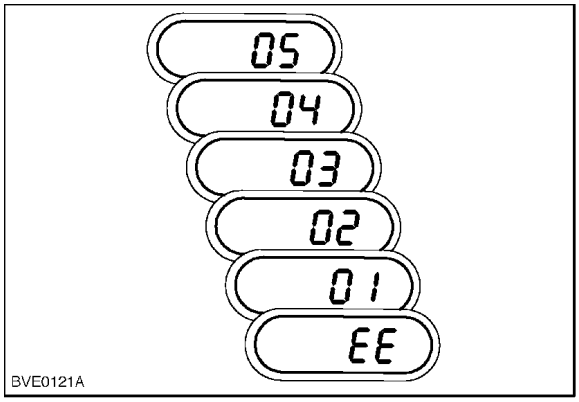
⚠ CAUTION ⚠

H8 will clear all calibrations values and stored error codes.

B006

NOTE: *If the "m" button is released before the end of the countdown, the process is aborted.*

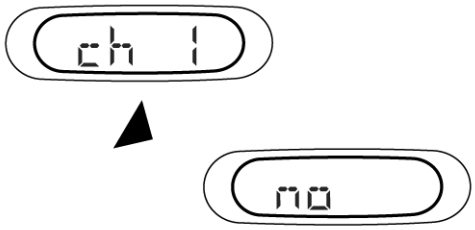
To confirm the resetting of the EEPROM, press and hold the "m" button.
The numbers 05 to 01 run backwards on the lower central display, then "EE" is displayed to inform you that the EEPROM has been cleared.



BVE0121A_571 24

Switch the starter switch to OFF to end H8.

NOTE: *There is another instrument cluster option in H8 with the name 'Clear network config.'. This is performed in the same way as the 'Clear settings' option, but it clears the configuration currently stored in the instrument cluster and redefines the configuration when the starter switch is next switched on. This option should be used if the instrument cluster has been retrofitted or if the HH Menus show modules that are not installed on the tractor.*



BAIL06CCM506AVA

BAIL06CCM506AVA 32

To store the desired option, press and hold the "h" or "m" button until the instrument cluster indicates by a beep that the selection has been stored.

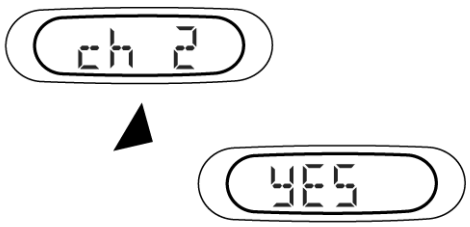
To use the "HH" menu further, press the Dimmer button.

Channel 2 - PTO Fender switches selection

This channel is used to deactivate or Activation of the rear control switch of the PTO.
Scroll through the available options using the "h" and "m" buttons.

The available options are:

- YES - Rear PTO fender switches activated
- NO - Rear PTO fender switches deactivated



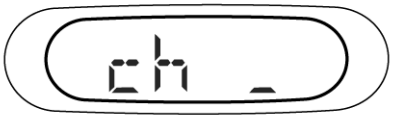
BAIL06CCM501AVA

BAIL06CCM501AVA 33

To store the desired option, press and hold the "h" or "m" button until the instrument cluster indicates by a beep that the selection has been stored.

To use the "HH" menu further, press the Dimmer button.

"ch _ _" is displayed on the lower central display.



BAIL06CCM446AVA

BAIL06CCM446AVA 79

The relevant channel can be called up using the "h" and "m" buttons.
After a delay, the value is displayed. Compare the displayed value with the standard value from the following table.

NOTE: *The value is the input voltage or the input signal of the electronic control unit. This value cannot be directly converted to a voltage value because of the internal processes in the control unit. A zero corresponds to* ***0 volts****.*

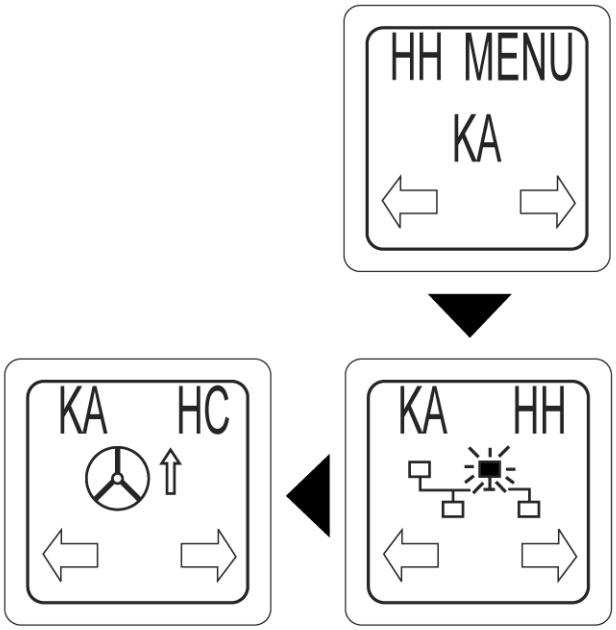
If the displayed value deviates from the desired value in the following table by more than **10 %**, there is a fault either in the component or in the cabling of the affected channel.

NOTE: *Before replacing any components, test the plug connections of the relevant circuit including the plug connection of the electronic control unit.*

Channel	Con-troller pin	Description	Typical reading	Comments
1	CN4- 20	Clutch pedal position	72 Not depressed 26 Depressed	
2	CN1B - 14	Transmission temperature sensor	**75 %** at **40 °C**.	
3	CN1B - 11	Fuse 38 sense	99	
5	CN1B - 16	**+5 Volt** voltage supply to the sensors	48	
6	CN1B - 25	**+8 Volt** voltage supply to the sensors	79	
7	CN1A - 1	**+12 Volt** VF input signal (see explanation)	45	
8	CN1A - 8	**+12 Volt** VD input signal (see explanation)	45	Shuttle lever in Forwards position
9	CN1A - 20	**+12 Volt** VH input signal (see explanation)	45	
10	CN3B - 24	**+12 Volt** VT input signal (see explanation)	45	
11	CN4 - 9	Seat switch	69 - operator in seat 36 - operator not in seat	
29	CN3A - 9	Creeper position potentiometer	-	
30	CN2 - 4	Raise solenoid for the EDC control valve	0 Off - 66 On	
31	CN2 - 5	Lower solenoid for the EDC control valve	0 Off - 66 On	
32	CN1B - 2	Lift arm position potentiometer	6 Lowered - 79 Raised	
33	CN1B - 3	Lift control potentiometer	10 Lowered - 88 Raised	
34	CN1B - 4	Drop rate control potentiometer	84 Clockwise - 14 Anti-clockwise	
35	CN1B - 5	Control knob for height limit control	84 Clockwise - 14 Anti-clockwise	
36	CN1B - 6	Sensitivity control potentiometer	84 Clockwise - 14 Anti-clockwise	

HC - CLEARING STORED FAULT CODES

HC Menu page selection diagram



BAIL06CCM681FVA

BAIL06CCM681FVA 23

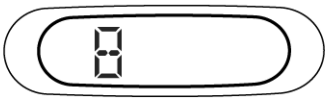
NOTE: *Always write the stored fault codes down before clearing.*

Press the Dimmer button to call up the HC Menu.

BAIL06CCM682AVA

BAIL06CCM682AVA 24

The lower central display will flash with “0", if no fault code is stored.

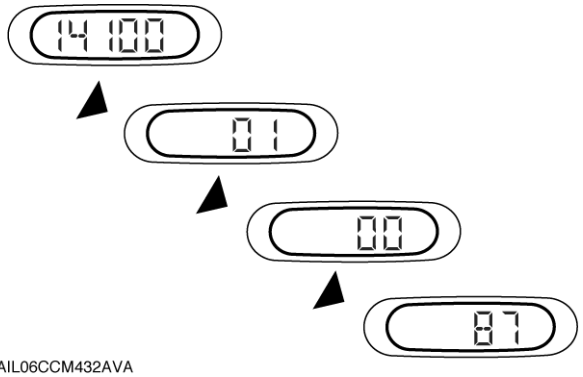


BAIL06CCM431AVA

BAIL06CCM431AVA 31

The lower central display will then automatically cycle through as the example:

14100 Fault code
01 Hour of first occurrence
00 Hour of last occurrence
87 Number of occurrences of the fault



BAIL06CCM432AVA

BAIL06CCM432AVA 32

Depress the “h" or “m" key to change to the next fault code in the list.
The lower central display will display “_ _ _" at the end of the list.
Depress the “dimming" key to continue navigating through the “HH" menus.

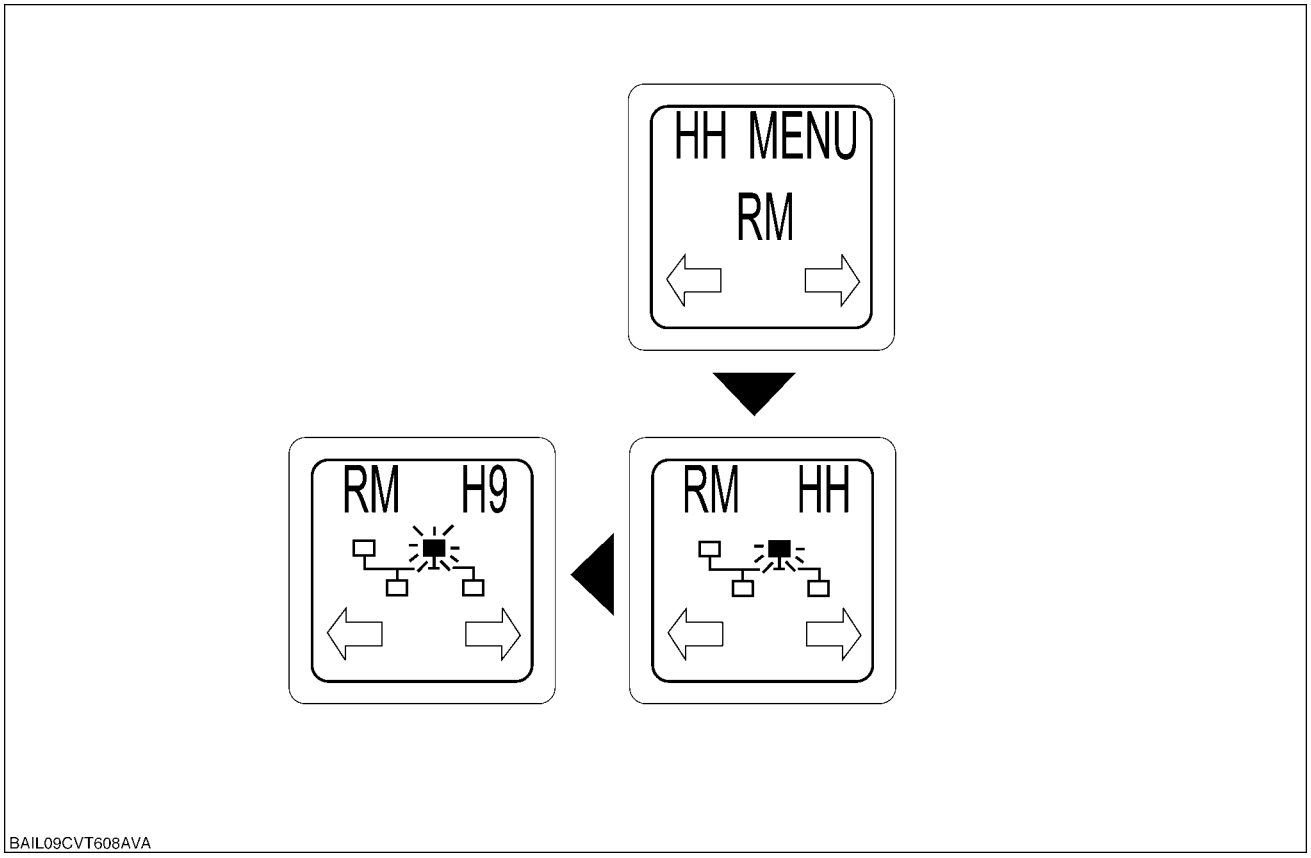
H9 - VOLTMETER

This menu is used to verify the operation of various potentiometers, voltage supplies, and solenoid current circuits. If an intermittent fault is detected within a circuit, a 'wiggle' test can be performed on the related wiring while watching the display for sudden changes in values, to help locate the area where the fault exists.

NOTE: *The vehicle may be driven while in this menu.*

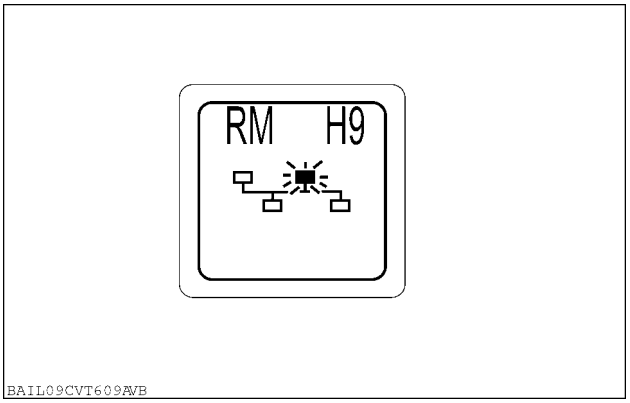
Common to all sub-systems.

H9 Menu Screen Select Diagram

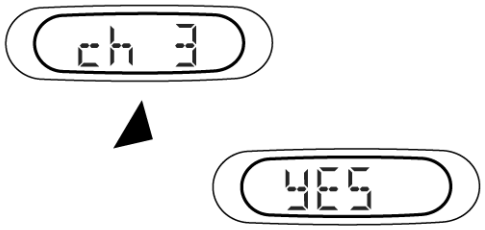


BAIL09CVT608AVA 36

Select the H9 menu by depressing the "dimming" key.



BAIL09CVT609AVB 37



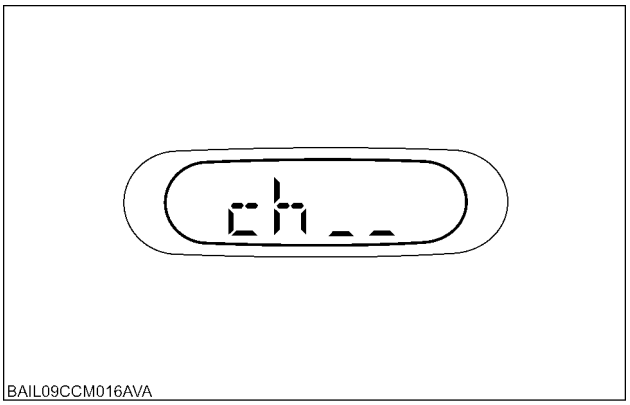
BAIL06CCM505AVA

BAIL06CCM505AVA 16

To save the desired option, depress and hold the "h" or "m" key until the instrument cluster bleeps, indicating that the selection has been saved.

Depress the “dimming" key to continue navigating through the “HH" menus.

The lower central display will display "ch _"
The required channel can be selected by using the “h" and “m" keys.
After a delay the current setting will be displayed. (see the table below for the description of each channel).



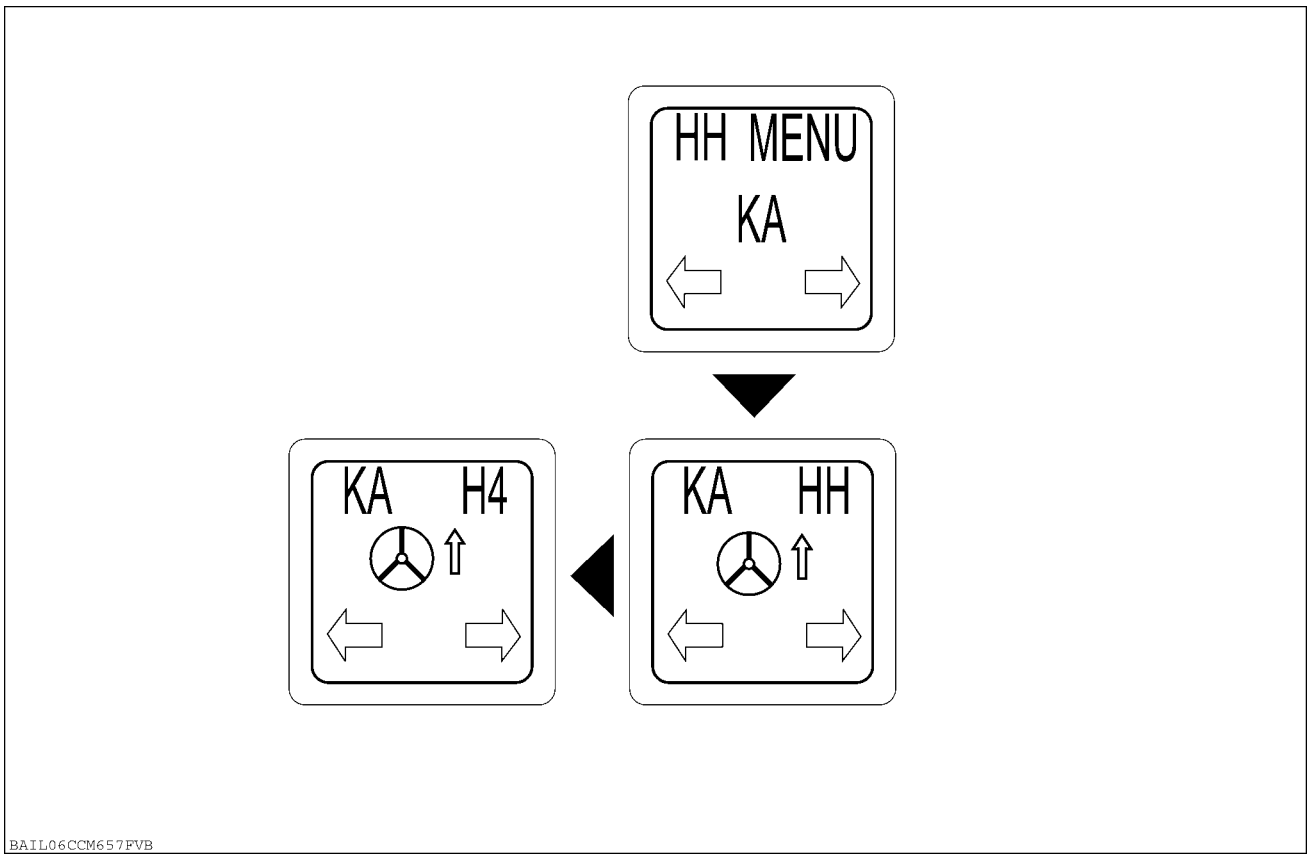
BAIL09CCM016AVA 61

Channel	Description
Ch 1	Clutch disconnect switch test
Ch 2	Manual clutch adjustment
Ch 3	Manual quick fill adjustment
Ch 4	Clutch pressure test
Ch 5	Clutch switch adjustment
Ch 6	Self bed in of clutches

H4 - VIEW SOFTWARE REVISION LEVEL

Common to all sub-systems.

H4 Menu Screen Select Diagram



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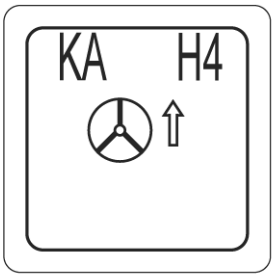
Select the H4 menu by depressing the "menu" button.



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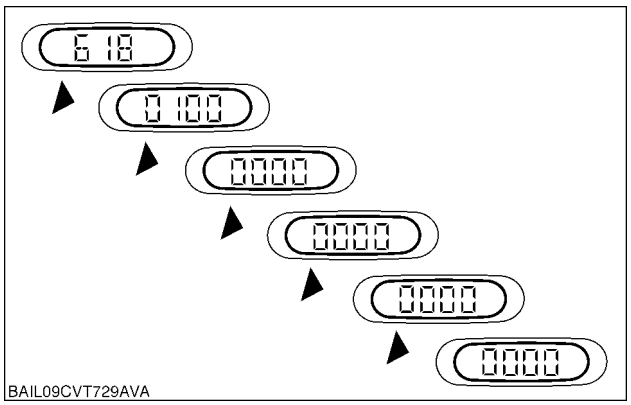
The display will automatically cycle through the software release, as the example shown and return to allow navigation of the "HH" menus.



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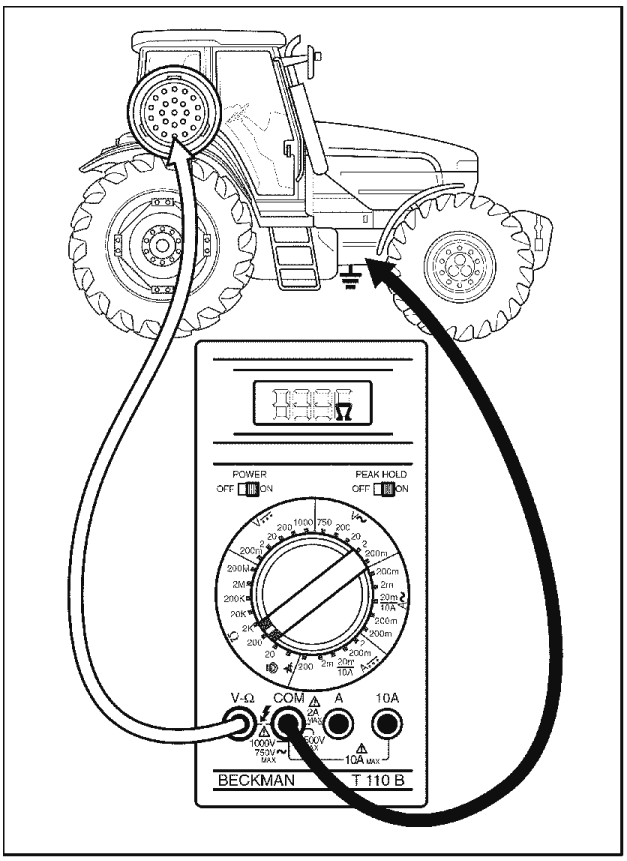
1. Continuity Test, Short to ground
2. Voltage measurement, short to **12 volts**.
3. Resistance test for components
4. Continuity test, Open circuits

ELECTRICAL TEST PROCEDURE 1: CONTINUITY TEST - SHORT TO GROUND

CONDITIONS FOR PERFORMING TESTS:

1. Power OFF, Keyswitch OFF, (sometimes battery disconnected or fuse pulled out if specified in procedure).
2. Connectors at each end or ends of circuit disconnected to prevent false readings.
3. Set meter to measure resistance or ohms, and measure circuit resistance. Use black lead to make contact with a plated metal part on the chassis such as a jump start post if fitted. Make sure the surface of the part is not corroded. Use the red meter lead to touch the connector pins, one pin at a time, and avoid contact with the case of metal connectors.
4. Determine if measured resistance falls within guidelines specified in the procedure. **3 - 4 ohms** indicates a direct short to chassis ground and must be located and repaired. Higher resistances usually indicate circuit paths through modules, and that an additional connector needs to be disconnected to perform the test. More than **100K ohms** indicates that the circuit is free of shorts to ground.
5. 

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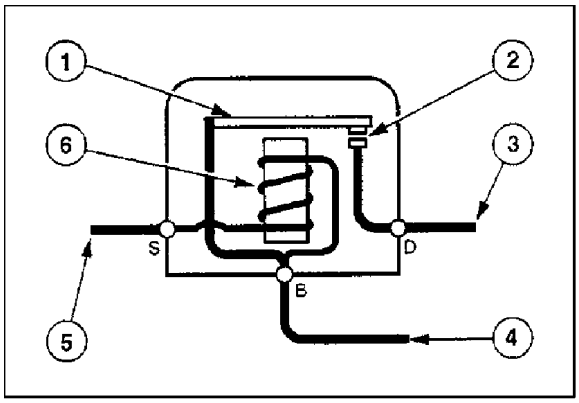
ELECTRICAL TEST PROCEDURE 2: VOLTAGE MEASUREMENT OR SHORT TO POSITIVE SUPPLY VOLTS

CONDITIONS FOR PERFORMING SHORT TO POSITIVE SUPPLY TESTS:

1. Keyswitch ON (sometimes OFF, if specified in procedure).
2. Connectors at sensor, switch or potentiometer end disconnected. All other connectors must be reconnected to perform test.
3. Set meter to measure DC VOLTS, and measure circuit voltage as illustrated. Use the red meter lead to touch the connector pins, one pin at a time, and avoid contact with the case of metal connectors. Use the black lead to

The part of the relay which is connected to the control circuit consists of the winding of an electro-magnet. When the control circuit is switched off, the contacts are kept apart by a return spring. When the control circuit is switched on, a current flows through the coil and a magnetic force is produced. This force, which is stronger than the spring pressure, pulls the contacts of the relay together, causing the work circuit to operate.



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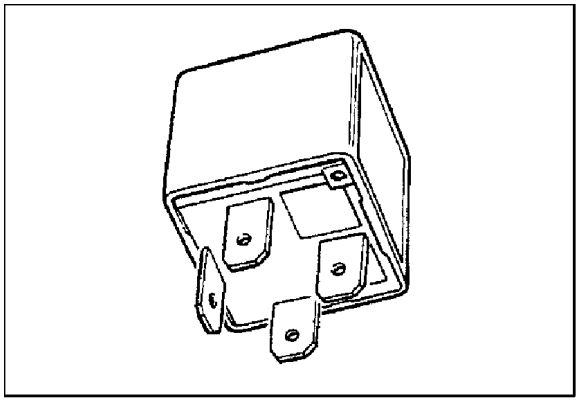
A switch-relay system has two main advantages over a simple switch:

- The current that flows through the switch is not the same as all the current requested by the equipment to be operated, but usually by a smaller current: this allows the usage of smaller and less expensive switches;
- The distance from the supply, to the equipment, can be made as short as possible to minimise voltage drop.

There are several types of relays. They can be normally open or normally closed. They may have internal electronic circuits to give special operating features. For example, they can turn the switch on/off at timed intervals (flasher relay), be sensitive to current, temperature, etc. The relay cover usually gives information about the features of the relay.
On the relay cover there are usually 4 or 5 terminal markings :

- 30: input terminal direct from battery positive, normally live.
- 85: winding output terminal, usually to ground.
- 86: winding input terminal.
- 87: output terminal for normally closed contact.
- 87a: output terminal for normally open contact.

Brown relays are normally open relays, blue ones are normally closed.



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SOLENOIDS

Solenoids (**29**) work in much the same way as relays, except that the iron core is not fixed in place.
As a result, the windings in the control cause the iron core to move.
In the starting system, for example, the movement of this core is used to send large amounts of current to the starter motor.
A solenoid is basically a winding around an iron core. In the centre of the core there is a plunger which is free to move through the core. When an electrical current passes through the winding an electro-magnetic force is produced

Code	Description	Cause	Controller pin	Information
1024	Perform the hydraulic lift calibration	The EDC is not calibrated (EDC calibration is cleared from H8 menu)	N/A	Hydraulic lift calibration procedure. Refer to **HITCH Electronic draft control - Calibrate (H.10.D)**
1027	Lift arm position sensor – voltage too low	Pin open circuit or voltage < 0.12V	CN1B/2	Lift arm position potentiometer connector **X267**, inline harness connector **X022**, controller connector **X093**
1028	Lift arm position sensor – voltage too high	Pin voltage > 4.83 V	CN1B/2	Lift arm position potentiometer connector **X267**, inline harness connector **X022**, controller connector **X093**
1029	Hydraulic control valve disconnected	One of 1063 or 1064 is raised as the hitch is raised/ lowered. The other (1063 or 1064) will then raise this alarm as the hitch is lowered/ raised.	CN1A/12, CN2/5, CN1A/5, CN2/4	Hydraulic control valve solenoid connectors **X268**, **X269**, controller connectors **X091** and **X092**
1030	Signal ground open circuit	All pins are indicating voltage > 4.6 V. (Sensitivity, drop rate and height limit pots)	CN1B/4, CN1B/5, CN1B/6	Controller connector **X095**, command arm connector **X080**
1031	Chassis harness disconnected	Raise instead of 1014 and 1016 when both are prevalent and 1027 is prevalent	CN1B/2/9/10 (at once)	Chassis connectors **X022** and **X020**
1049	Wheel speed sensor open circuit	2049 error is prevalent (while slip control is active) (Pin open circuit or > 4.24V)	CN1B/34	Wheel speed sensor connector **X257**, controller connector **X093**.
1053	5 Volt reference – short to +12v	2053 error is prevalent i.e. Voltage > 5.8V (and EDC is present)	CN1B/16	Controller connector **X093**
1054	5 Volt reference – short to ground	2054 error is prevalent i.e. Internally generated 5V reference voltage < 4.2V (and EDC is present)	CN1B/16	Controller connector **X093**
1059	8 Volt reference error (draft load pins)	7.0V < Voltage < 9.0V (The 8V ref voltage is generated within the XCM. It can be pulled up)	CN1B/25	R/H side load sensing pin connector **X256**, L/H side load sensing pin connector **X266**, inline harness connector **X022**, controller connector **X093**
1063	Hydraulic valve lower solenoid – open circuit	No current (< 285 mA) is sensed when the solenoid is on.	CN1A/12, CN2/5	EDC valve lower solenioid connector **X269**, Inline harness connector **X022** Controller connectors **X092** and **X091**

Code	Description	Cause	Controller Pin	Information
4519	Front remote no.2 – over voltage	MID EHR2_DIAGNOSTIC CAN message indicates over voltage (Fault code = 0x22)	N/A	External power supply connected. Charging system. EHR valve. **Control module - Configure (A.50.A)**
4520	Front remote no.2 – spool movement too low	MID EHR2_DIAGNOSTIC CAN message indicates spool movement is too low (Fault code = 0x23)	N/A	Hydraulic pressures. **Hydraulic pump - Pressure test (A.10.A)**, EHR valve. **Control module - Configure (A.50.A)**
4521	Front remote no.2 – spool movement too high	MID EHR2_DIAGNOSTIC CAN message indicates spool movement is too high (Fault code = 0x24)	N/A	Hydraulic pressures. **Hydraulic pump - Pressure test (A.10.A)**, EHR valve. **Control module - Configure (A.50.A)**
4522	Front remote no.2 – float position not reached	MID EHR2_DIAGNOSTIC CAN message indicates float is not reached (Fault code = 0x25)	N/A	Hydraulic pressures. **Hydraulic pump - Pressure test (A.10.A)**, EHR valve. **Control module - Configure (A.50.A)**
4523	Front remote no.2 – manually operated	MID EHR2_DIAGNOSTIC CAN message indicates valve is set for manual operation (Fault code = 0x26)	N/A	EHR valve. EHR lever. calibration. **Control module - Configure (A.50.A)**
4524	Front remote no.2 – driver faulty	MID EHR2_DIAGNOSTIC CAN message indicates driver is faulty (Fault code = 0x42)	N/A	Driveline oil temperature. Driveline oil contamination. Hydraulic pressures. EHR valve. **Control module - Configure (A.50.A)**
4525	Front remote no.2 – potentiometer faulty	MID EHR2_DIAGNOSTIC CAN message indicates pot is faulty (Fault code = 0x43)	N/A	Driveline oil temperature. EHR valve. **Control module - Configure (A.50.A)**
4526	Front remote no.2 – unable to reach neutral	MID EHR2_DIAGNOSTIC CAN message indicates unable to reach neutral (Fault code = 0x81)	N/A	Driveline oil temperature. Driveline oil contamination. . EHR valve. Hydraulic pressures. **Hydraulic pump - Pressure test (A.10.A)**, EHR valve. **Control module - Configure (A.50.A)**
4527	Front remote no.2 – spool not in neutral at key on	MID EHR2_DIAGNOSTIC CAN message indicates spool is not neutral at key on (Fault code = 0x82)	N/A	EHR valve. Hydraulic pressures. **Hydraulic pump - Pressure test (A.10.A)**, **Control module - Configure (A.50.A)**

Code	Description	Cause	Controller Pin	Information
18033	Front hitch position / pressure mix potentiometer – voltage too low	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H3 - Front EDC H13 - Integrated control panel (ICP)
18034	Front hitch position / pressure mix potentiometer – voltage too high	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H3 - Front EDC H13 - Integrated control panel (ICP)
18035	Front hitch position height limit potentiometer – voltage too low	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H3 - Front EDC H13 - Integrated control panel (ICP)
18036	Front hitch position height limit potentiometer – voltage too high	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H3 - Front EDC H13 - Integrated control panel (ICP)
18037	Front hitch height limit enable switch error	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H3 - Front EDC H13 - Integrated control panel (ICP)
18038	Front hitch position drop rate potentiometer – voltage too low	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H3 - Front EDC H13 - Integrated control panel (ICP)
18039	Front hitch position drop rate potentiometer – voltage too high	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H3 - Front EDC H13 - Integrated control panel (ICP)
18040	EHR 1 lever position – voltage too low	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H8 - EHR 1 & 2 - H13 - Integrated control panel (ICP)
18041	EHR 1 lever position – voltage too high	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H8 - EHR 1 & 2 - H13 - Integrated control panel (ICP)
18042	EHR 2 lever position – voltage too low	N/A	N/A	Configuration Armrest Controller Connectors H4 - EDC panel H8 - EHR 1 & 2 - H13 - Integrated control panel (ICP)

Control module - Electronic schema ISOBUS display

T7030 without Sidewinder, T7040 without Sidewinder, T7050 without Sidewinder, T7060 without Sidewinder

Component designation	
1. ISOBUS display	
2. Front ISOBUS instrument socket	
3. Sensor signal ground	
4. Chassis ground	
5. Supply ground	

Control module - Electronic schema Electro-Hydraulic Remotes

T7030 with Sidewinder Z9BG40001-, T7040 with Sidewinder Z9BG40001-, T7050 with Sidewinder Z9BG40001-, T7060 with Sidewinder Z9BG40001-

Component designation	
1. Supply relay EHRs	
2. CAN BUS terminating resistor	
3. EHR 1 rear	
4. EHR 2 rear	
5. EHR 3 rear	
6. EHR 4 rear	
7. EHR 5 rear	
8. EHR 1 FRONT (MID)	
9. EHR 2 FRONT (MID)	
10. EHR 3 FRONT (MID)	
11. EHR 4 FRONT (MID)	
12. Sensor signal ground	
13. Chassis ground	
14. Supply ground	

Reference	Description	Controller
4127	REMOTE NO.2 SPOOL NOT IN NEUTRAL AT KEY ON	
4127	Rear Remote No.2 Spool Not In Neutral At Key On.	
4128	REMOTE NO.3 NO CONTROL MESSAGE RECEIVED	
4128	Rear Remote No.3 No Control Message Received	
4129	REMOTE NO.3 CONTROL MESSAGE NOT PLAUSIBLE	
4129	Rear Remote No.3 Control Message Not Plausible	
4130	REMOTE NO.3 EEPROM ERROR	
4130	Rear Remote No.3 EEPROM Error	
4131	REMOTE NO.3 SWITCHED TO FAILSAFE	
4131	Rear Remote No.3 Switched To Failsafe	
4132	REMOTE NO.3 UNDER VOLTAGE	
4132	Rear Remote No.3 Under Voltage	
4133	REMOTE NO.3 OVER VOLTAGE	
4133	Rear Remote No.3 Over Voltage	
4134	REMOTE NO.3 SPOOL MOVEMENT TOO LOW	
4134	Rear Remote No.3 Spool Movement Too Low	
4135	REMOTE NO.3 SPOOL MOVEMENT TOO HIGH	
4135	Rear Remote No.3 Spool Movement Too High	
4136	REMOTE NO.3 FLOAT POSITION NOT REACHED	
4136	Rear Remote No.3 Float Position Not Reached	
4137	REMOTE NO.3 MANUALLY OPERATED	
4137	Rear Remote No.3 Manually Operated	
4138	REMOTE NO.3 DRIVER FAULTY	
4138	Rear Remote No.3 Driver Faulty	
4139	REMOTE NO.3 POTENTIOMETER FAULTY	
4139	Rear Remote No.3 Potentiometer Faulty	
4140	REMOTE NO.3 UNABLE TO REACH NEUTRAL	
4140	Rear Remote No.3 Unable To Reach Neutral	
4141	REMOTE NO.3 SPOOL NOT IN NEUTRAL AT KEY ON	
4141	Rear Remote No.3 Spool Not In Neutral At Key On	
4142	REMOTE NO.4 NO CONTROL MESSAGE RECEIVED	
4142	REMOTE NO.4 NO CONTROL MESSAGE RECEIVED	
4142	Rear Remote No.4 No Control Message Received	

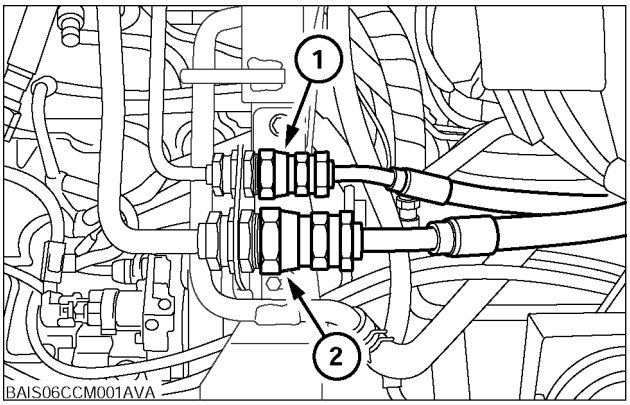
ENGINE - Torque

PART	TORQUE Nm (lb ft)
Bolts securing connecting rod caps:	Refer to **Connecting rod and piston - Torque (B.10.A)**.
Bolts securing pulley and damper:	Refer to **Crankshaft - Torque (B.10.A)**.
Nut securing fuel injection pump drive. gear:	Refer to **Fuel injection pump - Torque (B.20.A)**
Nut securing compressor gear:	125 ± 19 (92.1953 ± 14.0137)
Bolts securing timing gear:	Refer to **Timing gear - Torque (B.10.A)**.
Unions securing piston lubrication nozzles:	Refer to **Piston lubrication Spray nozzle - Torque (B.60.A)**
Bolts securing timing system casing	Refer to **Rear cover - Torque (B.10.A)**
Bolts securing front cover M10 1.5x30	 24 ± 4 (17.7015 ± 2.9502)
Bolts securing main bearing caps with angle closed M12 1.50 12.9	Refer to **Crankshaft Main bearing - Torque (B.10.A)**.
Screw fixing Ladder Frame: M10 1.5x25	 43 ± 5 (31.7152 ± 3.6878)
Bolts securing lifting brackets: M12 1.75x25 M10	 7 ± 12 (5.1629 ± 8.8507) 43 ± 5 (31.7152 ± 3.6878)
Bolts securing cooler	Refer to **Oil cooler - Torque (B.60.A)**
Bolts securing valve cover	Refer to **Valve cover - Torque (B.10.A)**.
Engine Vent Fastener (Ccv) M8 1.25x45 M8 1.25x35	 24 ± 4 (17.7015 ± 2.9502) 24 ± 4 (17.7015 ± 2.9502)
Bolts securing oil sump ♦	Refer to **Oil pan - Torque (B.60.A)**
Bolts / Plugs On Head **1/2 in** Nptf **3/4 in** Nptf **1/4 in** Nptf	 24 ± 4 (17.7015 ± 2.9502) 36 ± 5 (26.5522 ± 3.6878) 12 ± 2 (8.8507 ± 1.4751)
Bolts securing cylinder head ♦	Refer to **Cylinder head - Torque (B.10.A)**.
Bolts securing heater grille: M6	 10 ± 2 (7.3756 ± 1.4751)
Bolts securing intake manifold: M8 1.25x25 M8 1.25x60	 25 ± 5 (18.4391 ± 3.6878) 25 ± 5 (18.4391 ± 3.6878)
Bolts securing exhaust manifold on head	Refer to **Exhaust manifold - Torque (B.40.A)**.
Bolts securing flywheel	Refer to **Flywheel - Torque (B.10.A)**.
Bolts securing camshaft thrust plate:	Refer to **Valve drive Camshaft - Torque (B.10.A)**.
Bolts securing camshaft gear: M8 1.25x20 9.8 Flg	 36 ± 4 (26.5522 ± 2.9502)
Bolts securing rocker arms:	Refer to **Rocker assembly Rocker arm - Torque (B.10.A)**.
Bolts securing rocker arm adjusters: 3/8 24 Unf Hex Nut	 24 ± 4 (17.7015 ± 2.9502)
Bolts securing rocker arm casing:	24 ± 4 (17.7015 ± 2.9502)
Bolts securing phonic wheel: M12 1.25 10.9 Flg Hex 1st phase 2nd phase	 50 ± 5 (36.8781 ± 3.6878) + **90 °** +/- **5 °**
Fuel manifold retaining nuts	Refer to **Fuel injector Fuel Manifold - Torque (B.20.A)**.
Fuel connector fastener on Common Rail side	20 ± 2 (14.7512 ± 1.4751)

Tractors with Air Conditioning

12. Disconnect the air conditioning high pressure **(1)** and low pressure **(2)** hoses.

NOTE: *There is no need to discharge the air conditioning connectors as the unions are self sealing.*



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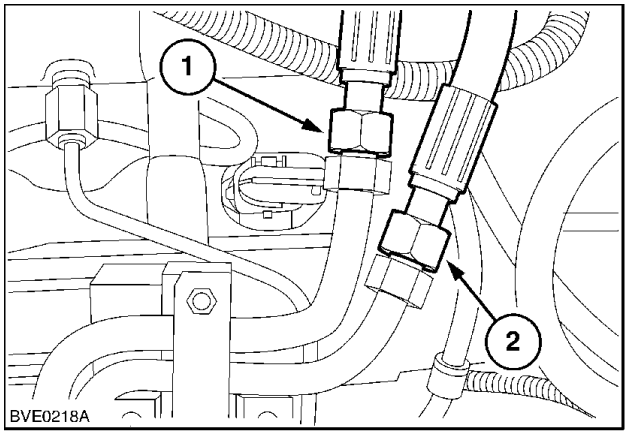
All Tractors

13. Disconnect the steering cylinder oil supply hoses **(1)** and **(2)**.

NOTE: *Make a note of the position of the hoses to aid installation.*



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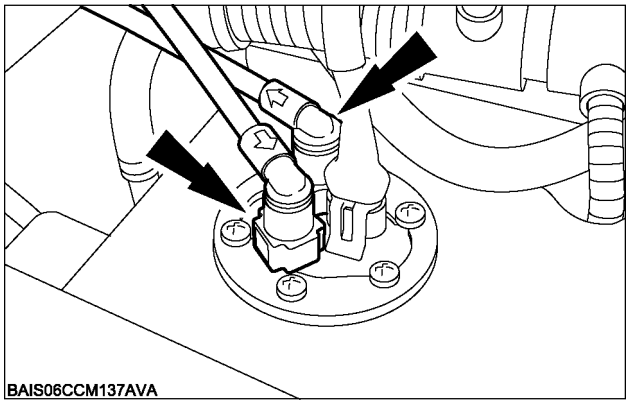
14. Disconnect the fuel supply and return lines .



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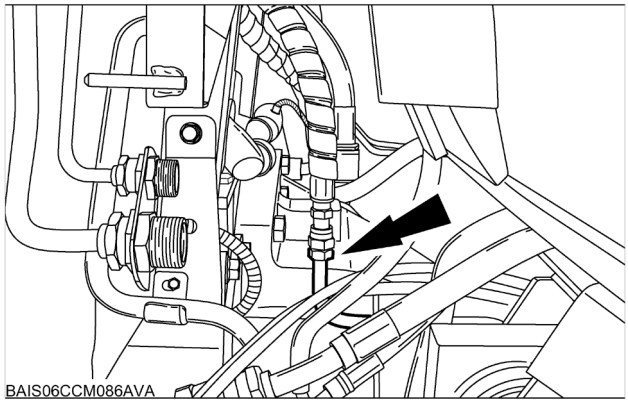
15. Disconnect the power brake valve supply hose.

⚠ CAUTION ⚠

The brake accumulator can have a maximum charge pressure of 850 psi. Check for pressure in the accumulator. Remove the pressure in the accumulator before accumulator line is disconnected. Apply the brakes with the pedal approximately 40 times when the engine is off. Loosen the special fitting for removing air from the brakes and push on the brake pedal. If oil flow does not flow from the special fitting, the accumulator is not charged.

M670



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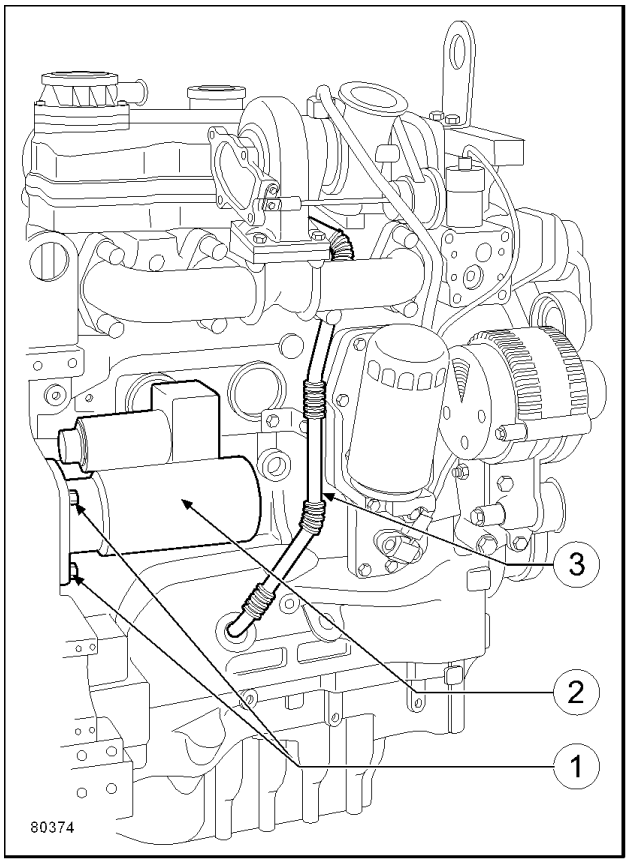
4. Remove the oil filler pipe **(3)**.
Unscrew the fixing screws **(1)** and remove the starter motor **(2)** from its seat.



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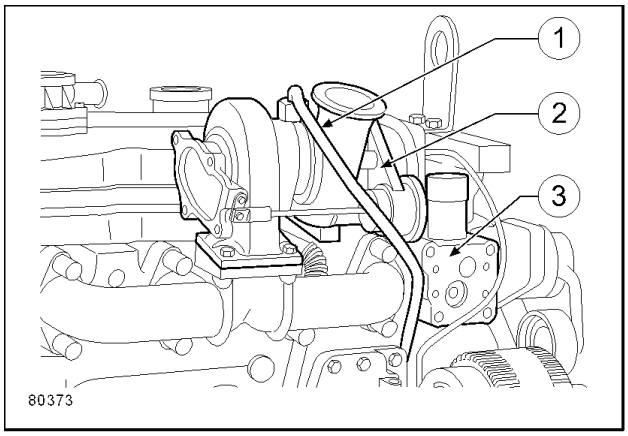
5. Working from the right-hand side of the engine, disconnect the lubricating pipe **(1)** from the top of the cooler to the turbo-blower **(2)**.
Remove the thermostat body **(3)** together with the seal.



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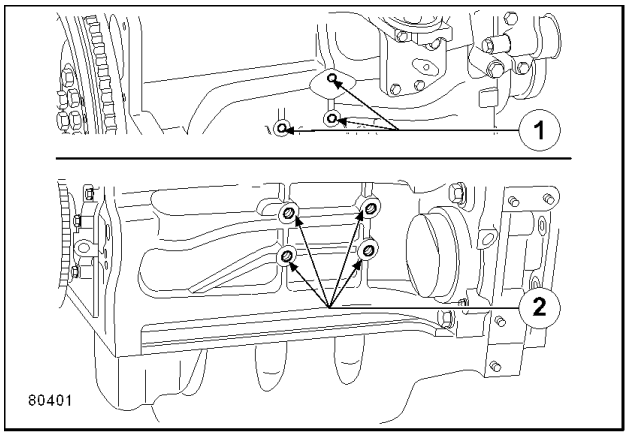
6. Fit brackets **380001298**into the holes **(1)** and **(2)** in the crankcase on both sides and, using these brackets, secure the engine to the rotating stand **380000301**. Drain off the engine oil by removing the plug from the sump.



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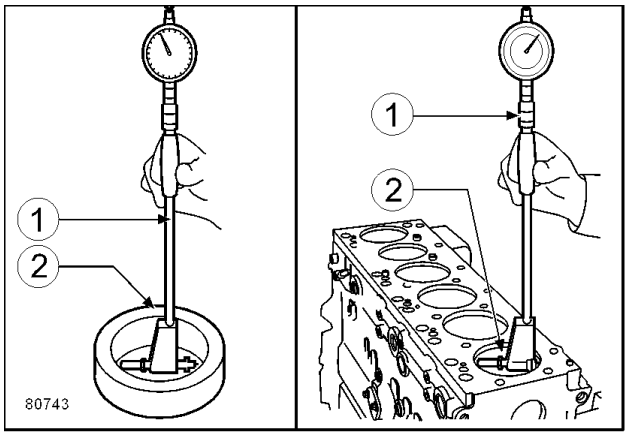
Cylinder block - Overhaul

Prior operation:

1. After disassembling the engine, thoroughly clean the cylinder-crankcase assembly. Use the appropriate rings for transporting the cylinder assembly.
   Carefully check the crankcase is not cracked.
   Check the condition of the plugs. If they are rusty or if there is the slightest doubt about their seal, change them.
   Examine the surfaces of the cylinder liners; they should show no sign of enlargement, scoring, ovality, taper or excessive wear.
   To check the internal diameter of the cylinder liners for ovality, taper and wear, use a bore gauge **(1)**, fitted with a dial gauge zero-set on the ring gauge **(2)** of the diameter of the cylinder liner. (Refer to **Cylinder block - Measure (B.10.A)**).



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NOTE: *If regrinding, all the liners must have the same oversize (0.5 mm (0.0197 in.)).*

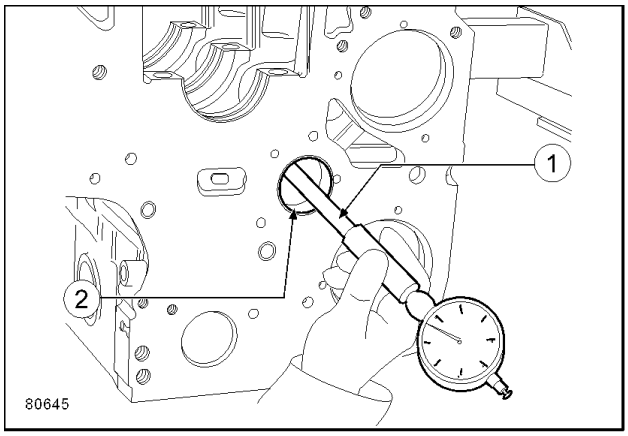
NOTE: *If the ring gauge is not available, use a micrometer.*

2. Check the main bearing seats, proceeding as follows:
   – fit the main bearing caps on the supports without bearings;
   – tighten the retaining bolts to the prescribed torque; (refer to **ENGINE - Torque (B.10.A)**)
   – using an appropriate dial gauge for interiors, check that the diameter of the seats is as prescribed. (refer to **ENGINE - General specification (B.10.A)**)
   If the measurement is any greater, change the crankcase.

   Cylinder head mating surface check
   After having located any deformed areas, level off the mating surface using a grinding machine.
   The flatness error must be no greater than **0.075 mm** (**0.0030 in**). Check the condition of the cylinder block plugs **(1)**; if they are rusty or if there is the slightest doubt about their seal, change them.

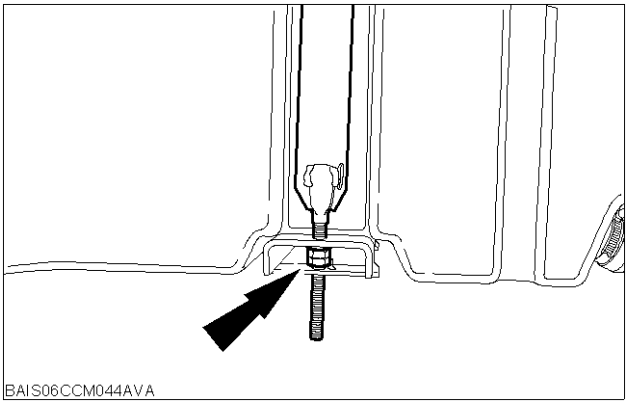
BUSHINGS

3. The camshaft bushings **(2)** must be forced into their respective seats.
   The internal surfaces must show no sign of seizure or wear.
   Using the bore meter **(1)**, measure the diameter of the front and rear bushings **(2)** and of the intermediate seats for the camshaft. (refer to **Cylinder block - Dimension (B.10.A) Valve drive Camshaft - Measure (B.10.A)** and **ENGINE - General specification (B.10.A)**)
   Measurements must be made at two perpendicular points.



80645 2

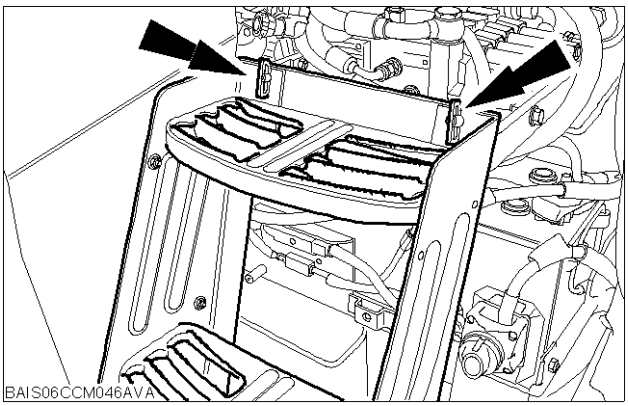
9. Remove the fuel tank retaining strap and with the aid of an assistant or trolley jack remove the left-hand side fuel tank.



BAIS06CCM044AVA 8

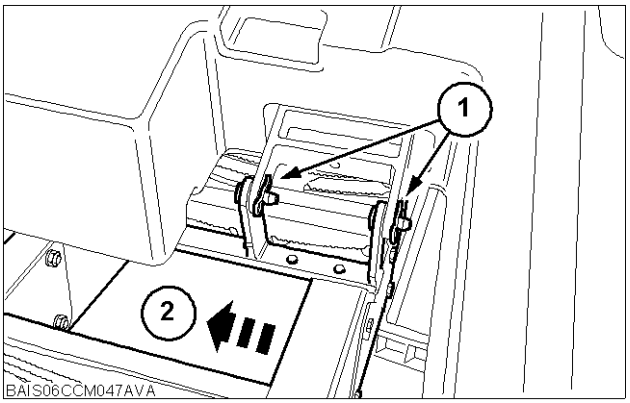
Right-hand Side Fuel Tank

10. Release the retaining clips and position the right-hand side steps to the lower position.



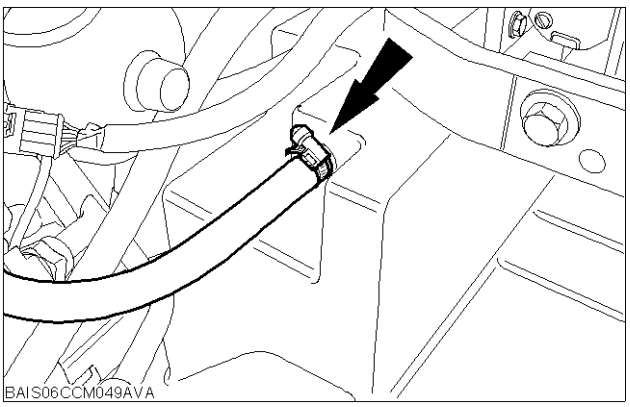
BAIS06CCM046AVA 9

11. Remove the R-clips **(1)** and remove the right-hand side steps **(2)**.



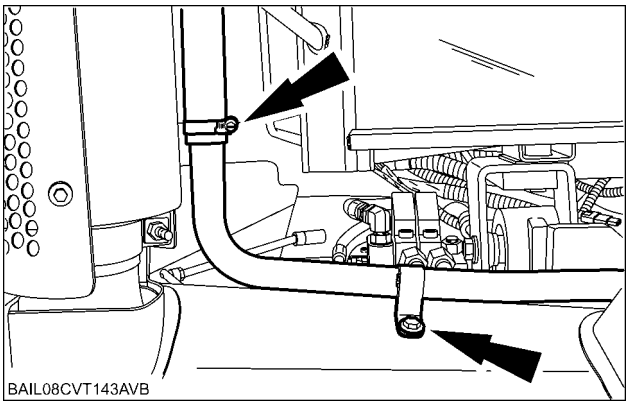
BAIS06CCM047AVA 10

12. Disconnect the fuel tank breather hose.



BAIS06CCM049AVA 11

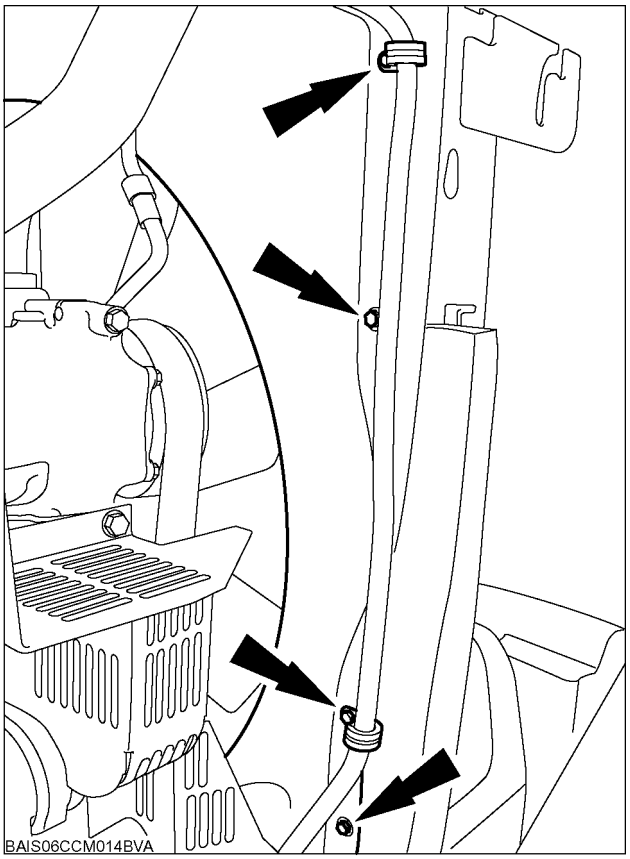
5. Reattach the air filter aspirator pipe.



BAIL08CVT143AVB 5

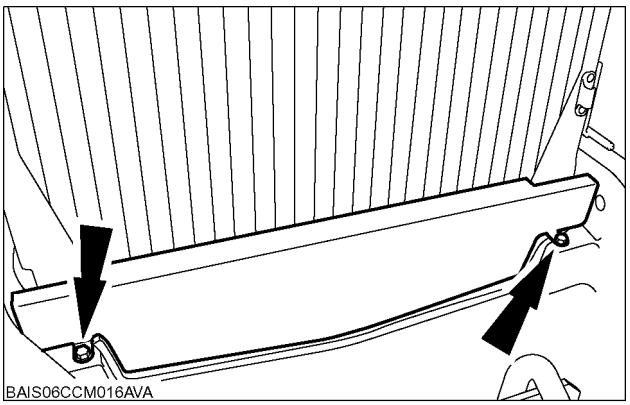
12. Remove the fan shroud retaining bolts.

NOTE: *Repeat this step for both sides of the tractor.*



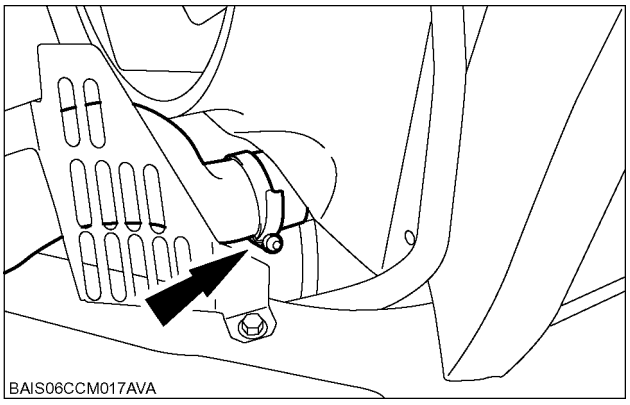
BAIS06CCM014BVA 12

13. Remove the radiator baffle plate.



BAIS06CCM016AVA 13

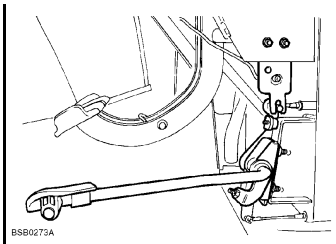
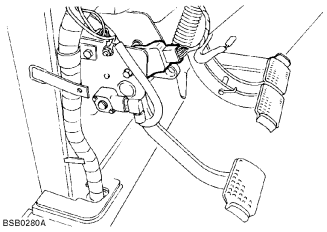
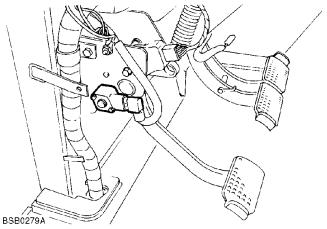
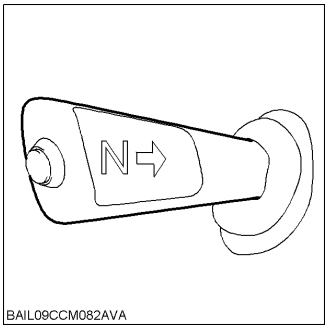
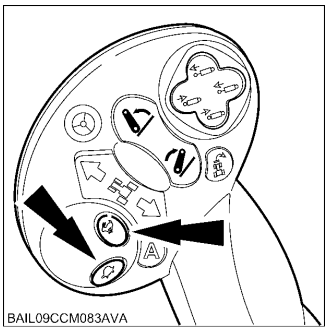
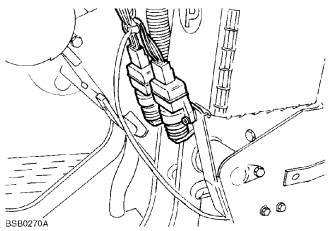
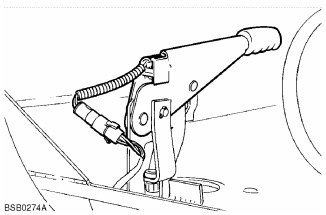
14. Disconnect the radiator lower hose.



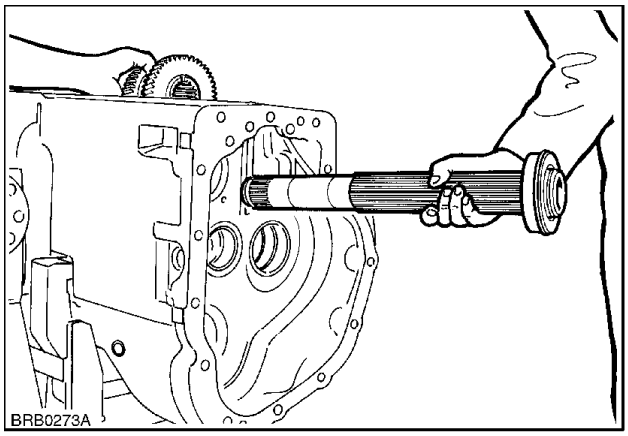
BAIS06CCM017AVA 14

Engine starter - Test

1. For easier and rapid diagnosis and for most conclusive test results, it is recommended that a battery-starter tester (high rate discharge tester) incorporating a **0 - 20 V** voltmeter and a **0 - 1000 A** ammeter be used to diagnose starting system problems.
   When using test equipment follow the manufacturers recommended test procedures. If test equipment is not available the following test procedure, using a standard **0 - 20 V** voltmeter and **0 - 1000 A** ammeter can be used to determine the correct operation of the starter without removing it from the engine.
   Before testing :
   Check that the battery is fully charged.
   Check the complete starting system wiring circuit for frayed or broken wires or loose terminal connections.
   Check the engine is not seized.

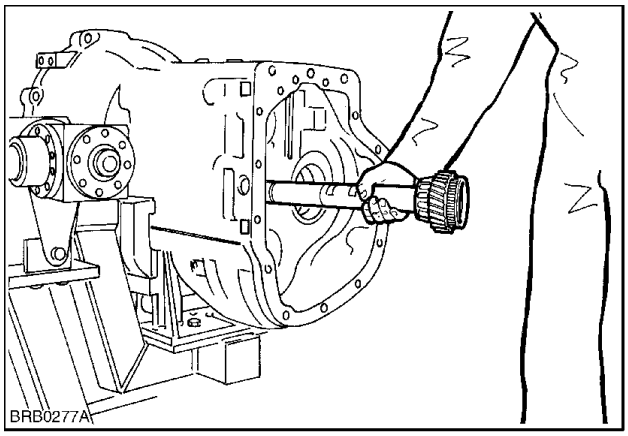
Foot throttle assembly potentiometer and idle speed switch	Submits inputs to the Engine Control Module on throttle position and fault codes.	 BSB0273A
Clutch pedal disconnect switch	Disengages power to range clutches (fast/slow/med/rev and 19 gear **50 Km/h**) PWM valves, thereby disengaging drive.	 BSB0280A
Clutch pedal potentiometer	Provides operator controlled engagement of the feathering (range) clutches.	 BSB0279A
Shuttle lever	Provides information to the processor,via switches, for forward, reverse and neutral transmission drive selection.	 BAIL09CCM082AVA
Gear shift switches	Allows the operator to shift ratios via push buttons switches sending a signal to the processor.	 BAIL09CCM083AVA
Footbrake switches	Informs the processor of when the brakes are being applied to assist in ratio shifts during auto function operation.	 BSB0270A
Handbrake switch	To be applied during calibration, error code if not applied. Tractor will drive if handbrake applied but audible alarm sounds.	 BSB0274A

41. Knock the upper speed shaft out from the front of the transmission and remove from the rear. Lift the cluster gear out from the top of the transmission.



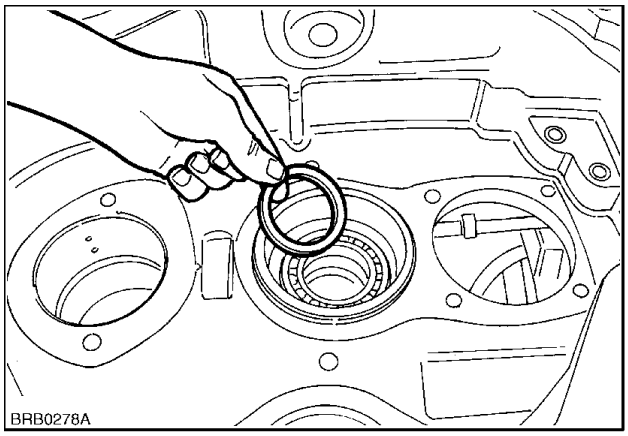
BRB0273A_780 41

42. Remover the large nut and withdraw the lower shaft from the rear of the transmission.



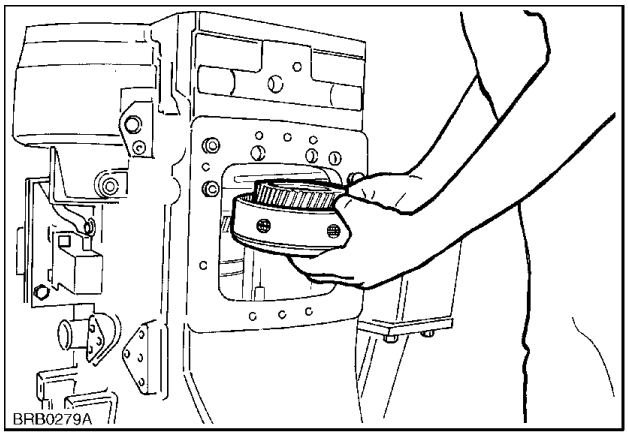
BRB0277A_781 42

43. Rotate the transmission to position the rear uppermost and remove the washer from the lower shaft support.

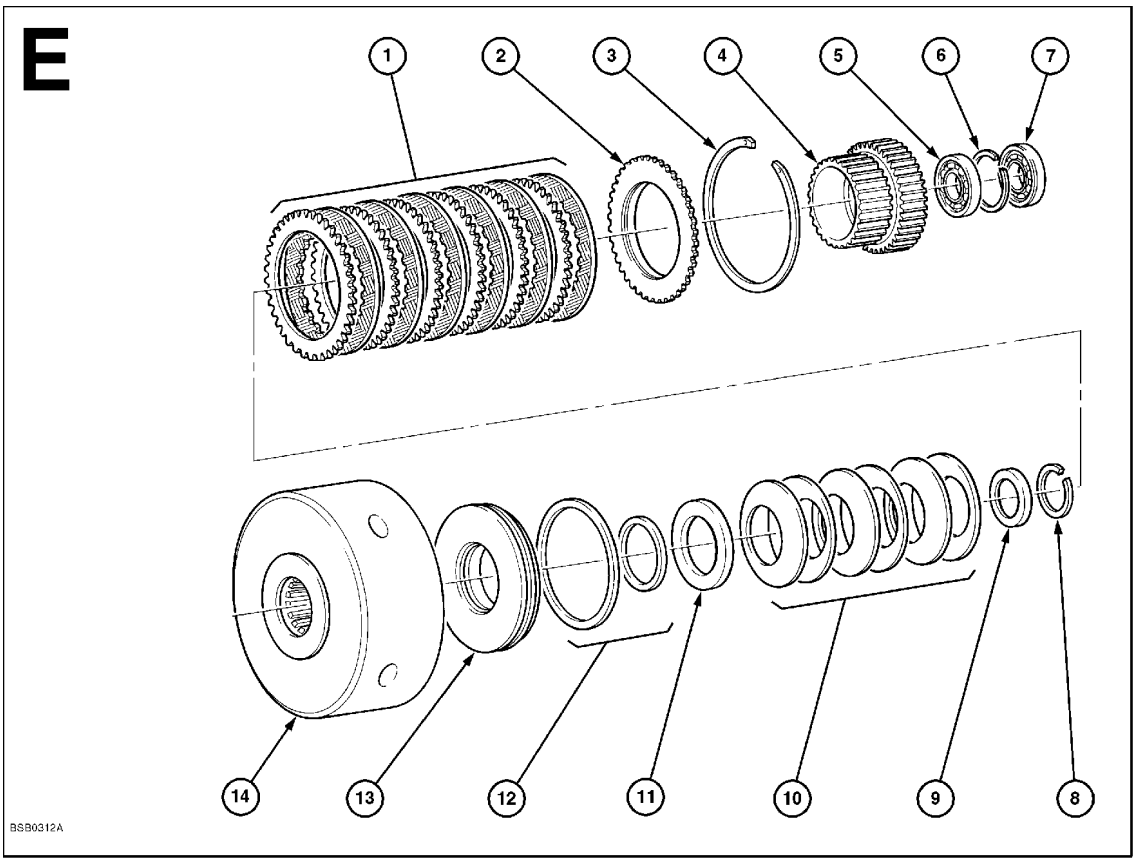


BRB0278A_782 43

44. Remove the “E" clutch pack



BRB0279A 44



BSB0312A_799 18

Clutch 'E' Assembly

1 Clutch Plates, 6 off each
2 End Plate
3 Circlip
4 Hub
5 Bearing
6 Circlip
7 Bearing
8 Circlip
9 Circlip Cup
10 Dished Washers, 6 off
11 Flat Washer
12 Piston, Inner and Outer Seals
13 Piston
14 Housing

23. The bearing, item **(7)**, can only be installed one way as there is a groove to locate the circlip, item **(6)**.

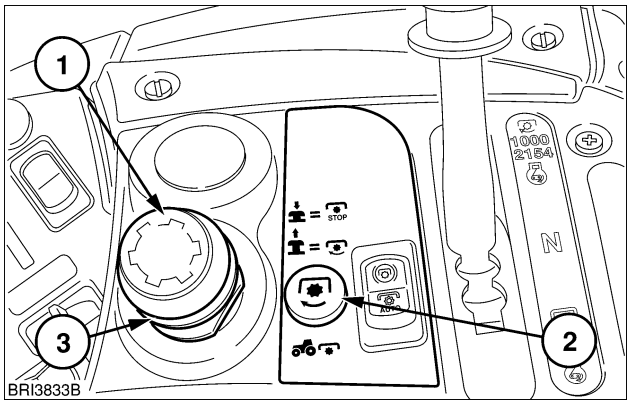
NOTE: *Piston seal replacement and the procedure for disassembling and reassembling the multi plate clutches*

Contents

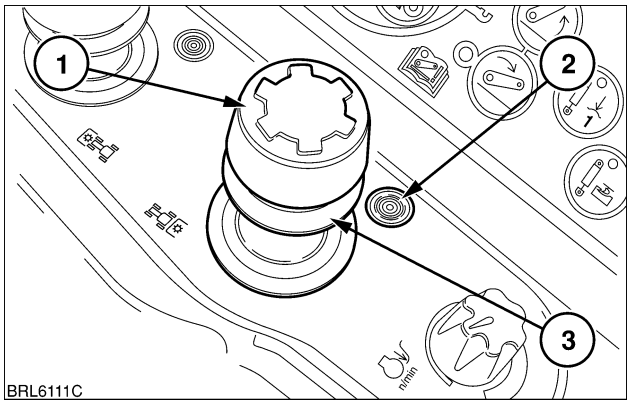
POWER TRAIN - C

ADDITIONAL REDUCERS Creeper - 30.C

The PTO is engaged and disengaged by means of a knob **(1)** on the right-hand console. The adjacent warning light **(2)** will illuminate when the PTO is engaged.
Two types of rear PTO system are available, dependent upon tractor model and country.
a)Two-speed PTO (North America only) with inter-changeable output shafts.
b)Two-speed, shiftable PTO (except North America) with inter-changeable output shafts and the option of fender-mounted switches for stationary PTO work.



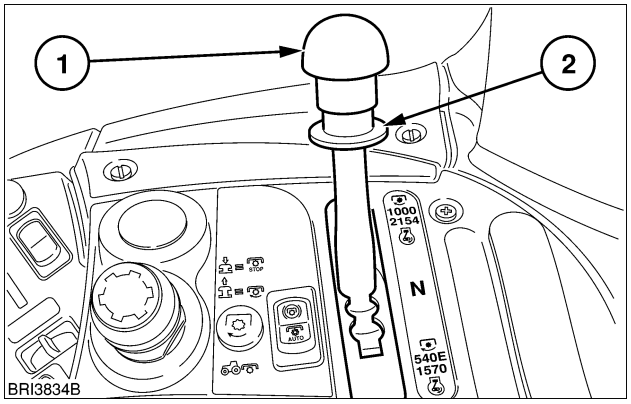
BAIL07CCM272ASA 2



BRL6111C 3

On models installed with shiftable P.T.O a range lever is provided. The lever **(1)** is used to select one of two PTO speed ranges and is located at the rear of the right-hand console.

NOTE: *In markets where the PTO speed selection is provided using an interchangeable PTO output shaft and there are no levers in the cab.*



BAIL07CCM273ASA 4

ELECTRONIC PTO RANGE SHIFT
(Where Fitted)

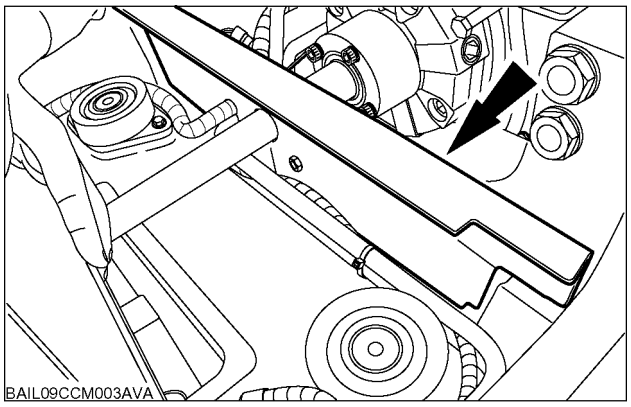
IMPORTANT: *An automatic PTO brake is installed to stop shaft rotation quickly when the PTO is disengaged. To avoid overstressing the PTO brake, slow down the implement by reducing engine speed before disengaging the PTO This is particularly important with implements having a high inertia. Such implements should, ideally, be fitted with an overrun clutch. To avoid damage to the brake when operating high inertia implements, hold down the switch* ***(1)****, to disengage the brake and allow the implement to come to rest naturally.*

10. Turn the keystart to the ’off’ position to store the calibration values.

NOTE: *If an error occurs during calibration a "U" code will be displayed and the procedure will need to be repeated. Refer to the "U" code listing in* ***Control module - Fault code index (A.50.A)****.*

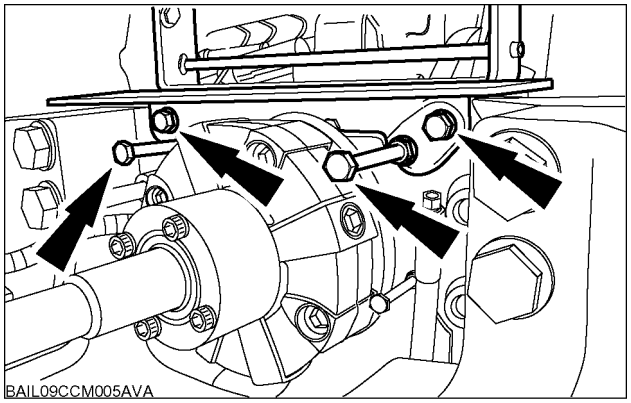
21. Remove the radiator baffle plate.

NOTE: *Radiator shown removed for clarity.*



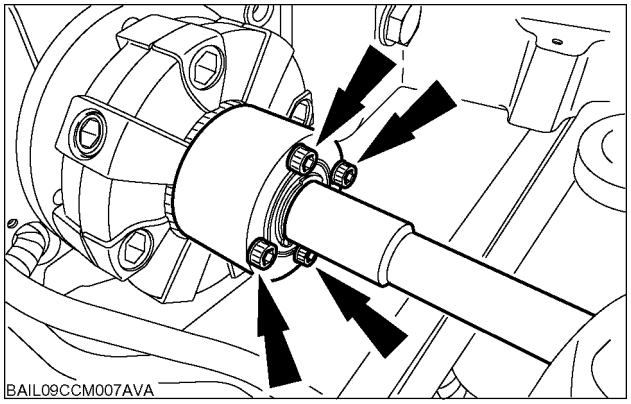
BAIL09CCM003AVA 19

22. Remove the front PTO oil cooler, hydraulic lines and bracket assembly.



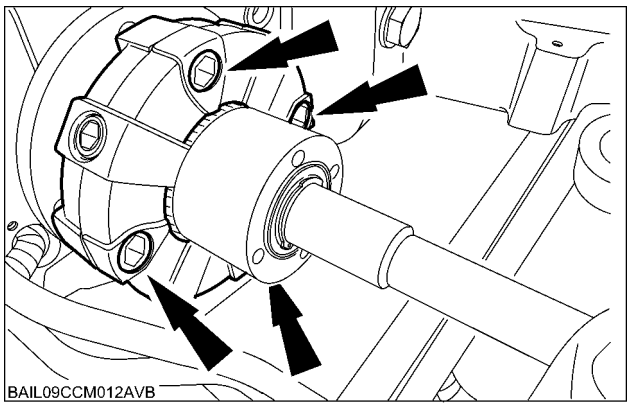
BAIL09CCM005AVA 20

23. Disconnect the front PTO drive shaft assembly.

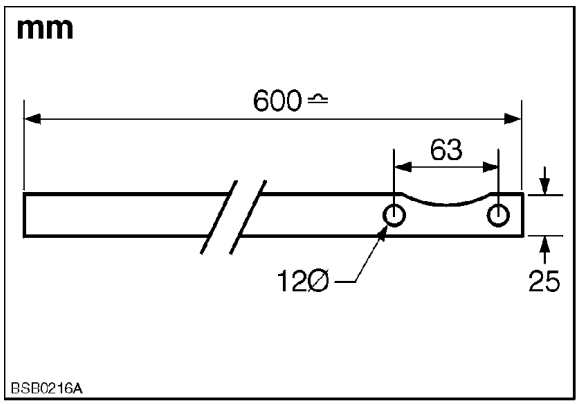


BAIL09CCM007AVA 21

24. Remove the Centaflex coupling.

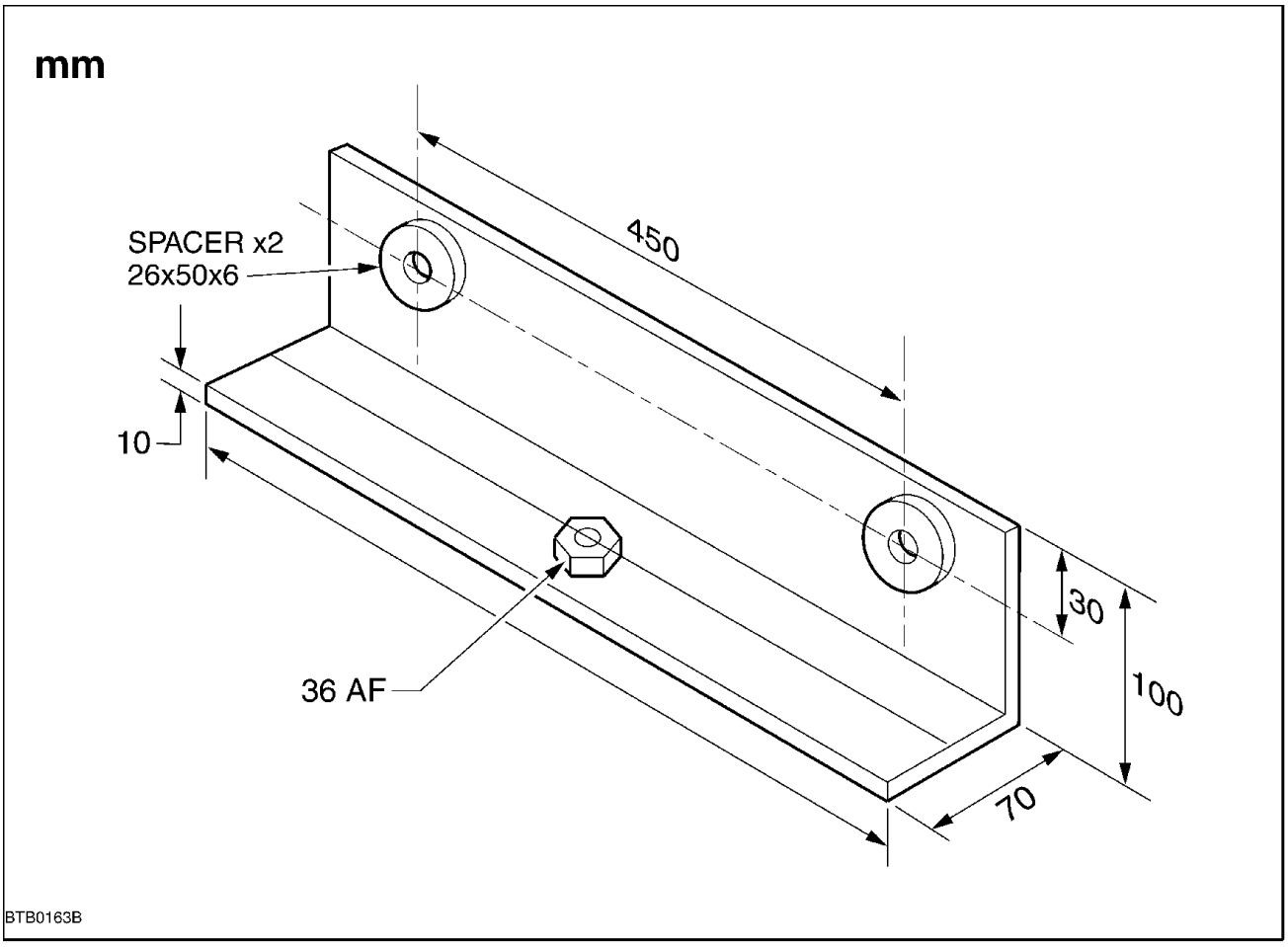


BAIL09CCM012AVB 22



BSB0216A 5

Pinion Shaft Holding Tool (Supersteer and Suspended Axles)



BTB0163B 6

Supersteer Pivot Bearing Turning Tool

FRONT AXLE - Install Suspended Axle

⚠ DANGER ⚠

Lift and handle all heavy components using lifting equipment of appropriate lifting capacity. Make sure that units or parts are supported by suitable slings or hooks. Make sure that no-one is in the vicinity of the load to be lifted. Failure to comply could result in serious injury or death.

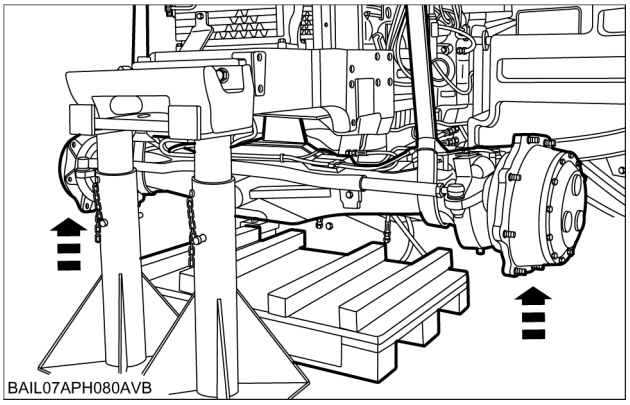
B012

⚠ WARNING ⚠

Always use suitable tools to align holes. DO NOT USE HAND OR FINGERS.

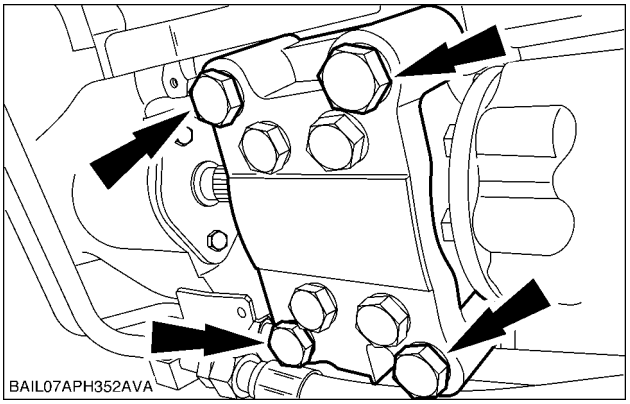
B020

1. Locate the front axle while supporting the drive shaft and suspension arm.



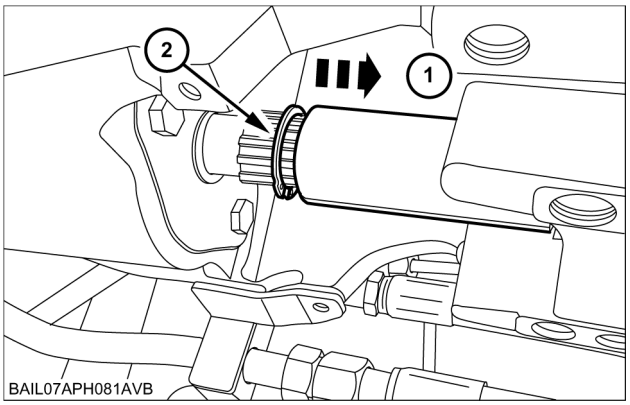
BAIL07APH080AVB 1

2. Install the drive shaft bearing carrier. Tighten to **550 Nm** (**405 lb ft**).



BAIL08CVT352AVA 2

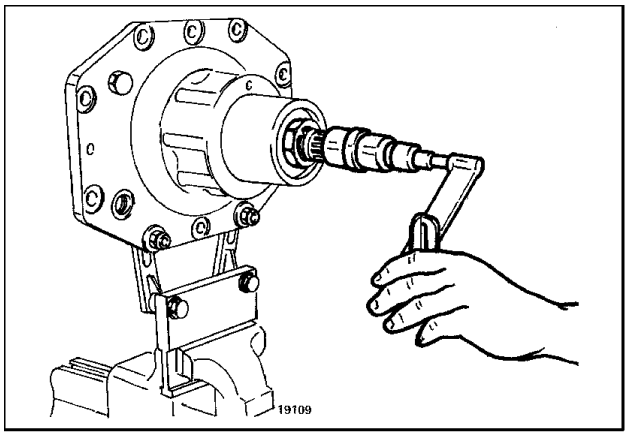
3. Drift the sleeve back onto the drive shaft **(1)** and install the circlip **(2)** .



BAIL07APH081AVB 3

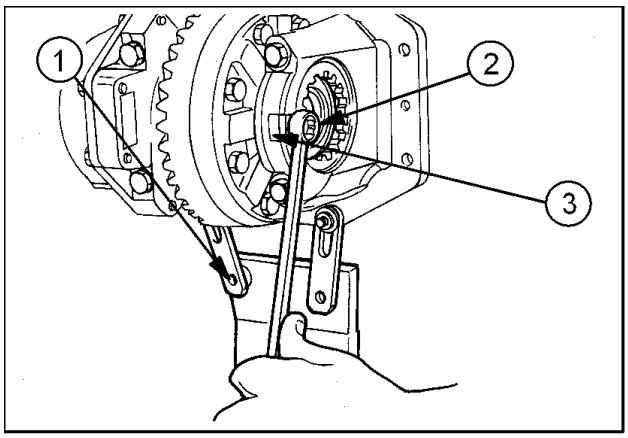
Bevel gear - Preload

1. The differential bearing preload is checked by measuring the combined rolling torque of the crown wheel and pinion assembly and comparing it to the pinion and seals rolling torque value.
   Attach a torque meter to the pinion shaft and measure the rolling torque to rotate the pinion and crown wheel A2.



19109 1

2. Subtract from the rolling torque reading A2 described in instruction **1**, the pinion only rolling torque A1, refer to **Bevel gear - Install (D.10.A)**.
   The difference between the two values should be **1 - 1.5 Nm**, (**9 - 13 lbf in**).
   If the rolling torque of the pinion and differential assembly is not to specification adjust the ring 'opposite' the crown wheel to increase or reduce differential bearing preload. Recheck the rolling torque as detailed above.
   Refit the lock tabs to secure the adjusting ring(s).

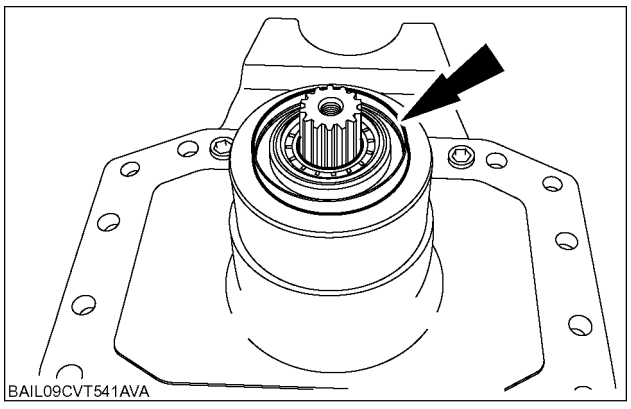


1b0o2004105965 2

3. EXAMPLE
   Rolling torque of Pinion and Differential
   A2 = **2.1 Nm** (**19 lbf in**)
   Rolling torque of Pinion
   A1 = **0.7 Nm** (**6 lbf in**)
   Calculated Rolling Torque of Differential
   = **2.1 - 0.7 Nm** (**19 - 6 lbf in**)
   = **1.4 Nm** (**13 lbf in**)

Pinion Seal Installation

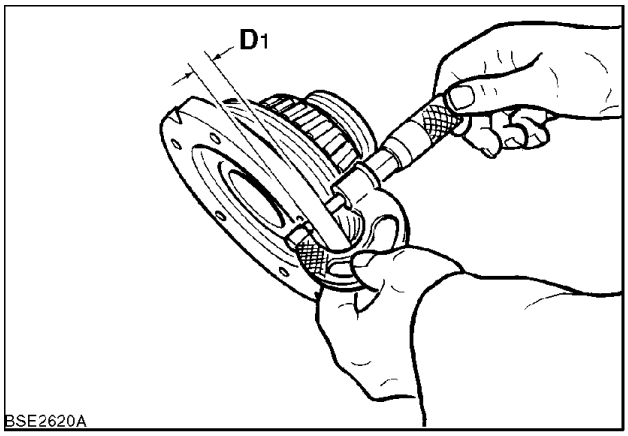
4. Position the pinion seal on the differential housing.



BAIL09CVT541AVA 3

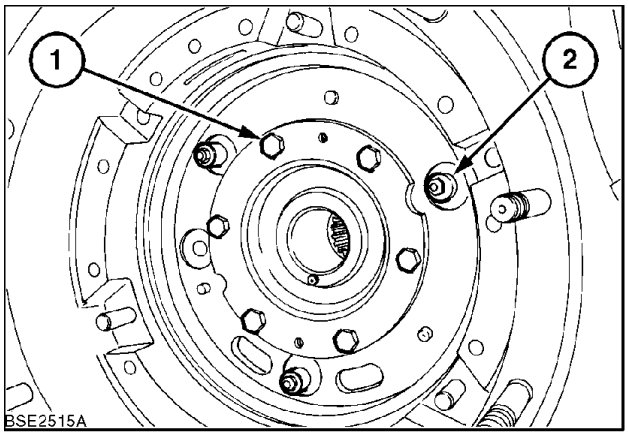
Pinion bearing adjustment	Refer to **REAR AXLE - Adjust (D.12.A)**
Pinion bearing shimming (Refer to **REAR AXLE - Sectional view (D.12.A)**)	**4.40 mm** (**0.173 in**) **4.50 mm** (**0.177 in**) **4.60 mm** (**0.181 in**) **4.70 mm** (**0.185 in**) **4.80 mm** (**0.189 in**) **4.85 mm** (**0.191 in**) **4.90 mm** (**0.193 in**) **4.95 mm** (**0.195 in**) **5.0 mm** (**0.197 in**) **5.05 mm** (**0.199 in**) **5.10 mm** (**0.201 in**) **5.15 mm** (**0.203 in**) **5.20 mm** (**0.205 in**) **5.25 mm** (**0.207 in**) **5.30 mm** (**0.209 in**) **5.35 mm** (**0.211 in**) **5.40 mm** (**0.213 in**) **5.45 mm** (**0.215 in**) **5.50 mm** (**0.217 in**) **5.55 mm** (**0.219 in**) **5.60 mm** (**0.220 in**) **5.65 mm** (**0.222 in**) **5.70 mm** (**0.224 in**) **5.75 mm** (**0.226 in**) **5.80 mm** (**0.228 in**) **5.85 mm** (**0.230 in**) **5.90 mm** (**0.232 in**) **5.95 mm** (**0.234 in**) **6.0 mm** (**0.236 in**) **6.05 mm** (**0.238 in**) **6.10 mm** (**0.240 in**) **6.15 mm** (**0.242 in**) **6.20 mm** (**0.244 in**) **6.30 mm** (**0.248 in**) **6.40 mm** (**0.252 in**) **6.50 mm** (**0.256 in**) **6.60 mm** (**0.260 in**)
Crown wheel bearing and backlash shims available (Refer to **REAR AXLE - Adjust (D.12.A)**)	Refer to **REAR AXLE - Adjust (D.12.A)** **0.15 mm** (**0.006 in**) **0.20 mm** (**0.008 in**) **0.50 mm** (**0.020 in**)
Differential gear and pinion backlash	**0.20 mm** (**0.008 in**)
Differential gear thrust washer thickness (Refer to **REAR AXLE - Adjust (D.12.A)** and **REAR AXLE - Sectional view (D.12.A)**)	**2.70 mm** (**0.106 in**) **2.75 mm** (**0.108 in**) **2.80 mm** (**0.110 in**) **2.85 mm** (**0.112 in**) **2.90 mm** (**0.114 in**) **2.95 mm** (**0.116 in**) **3.00 mm** (**0.118 in**) **3.05 mm** (**0.120 in**) **3.10 mm** (**0.122 in**) **3.15 mm** (**0.124 in**) **3.20 mm** (**0.126 in**) **3.25 mm** (**0.128 in**) **3.30 mm** (**0.130 in**)
Differential gear end play (each)	**0.226 mm** (**0.0089 in**)± **0.302 mm** (**0.0119 in**)
Differential gear end play adjustment	Refer to **Differential lock Multi plate clutch - Overhaul (D.12.A)**

13. Measure left hand cap thickness (D1).



BSE2620A 11

14. Assemble the left hand cap without adjuster rings using three lubricated screws **(1)** arranged at **120 °**. Tighten alternatively and gradually the three screws **(1)** until **6 - 9 Nm** (**4.425 - 6.638 lbft**) while turning the crown wheel to settle the bearings



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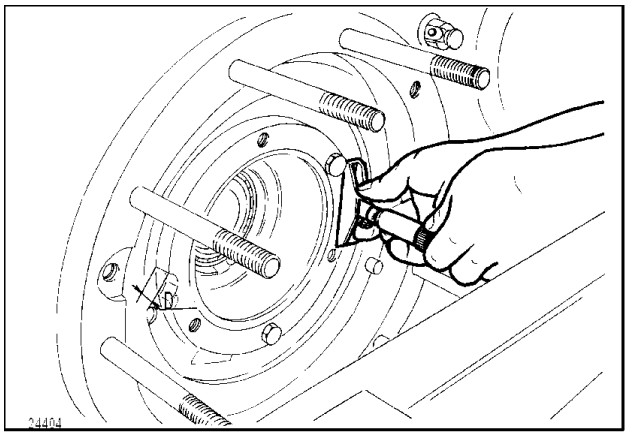
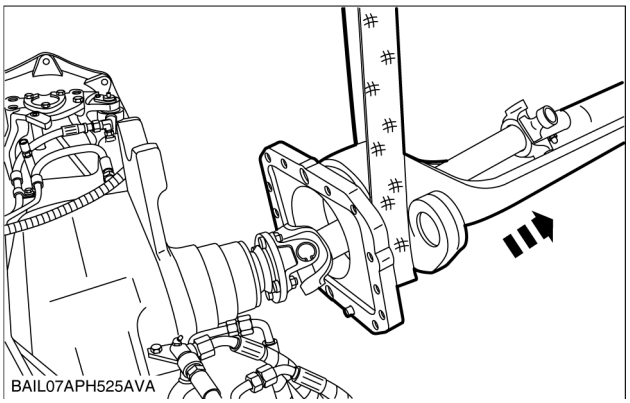
15. Using a depth gauge, measure dimension (D) at the two recesses in the left hand cap. Calculate the average of the two readings.
The total shim pack **(S)** to be inserted beneath the right hand and left hand caps is given by:
S = D2-D1+A+0.3
where:
A = Test shim = **1.5 mm**
D1 = left hand cap thickness, in mm.
D2 = Dimension measured at **18**, in mm.
0.3 mm = Increase necessary to diminish the bearing preload deriving from the screws (1).
If necessary, round off the value (S) to the next **0.05 mm**.



24404 13

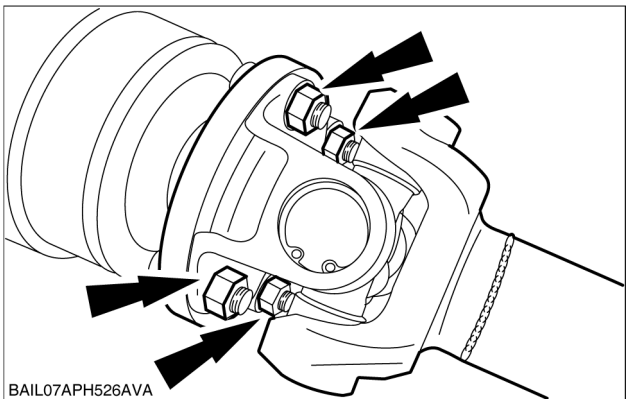
16. Using a dial gauge, measure the backlash (G) between the crown wheel and pinion teeth (take three measures at **120 °** and take the average of the readings).
Normal crown wheel to pinion backlash is **0.20 - 0.28 mm**, with an average of **0.24 mm**
To compensate for possible backlash values higher or lower than specified, consider the 1:1.34 ratio ex-

4. Remove the suspension arm.



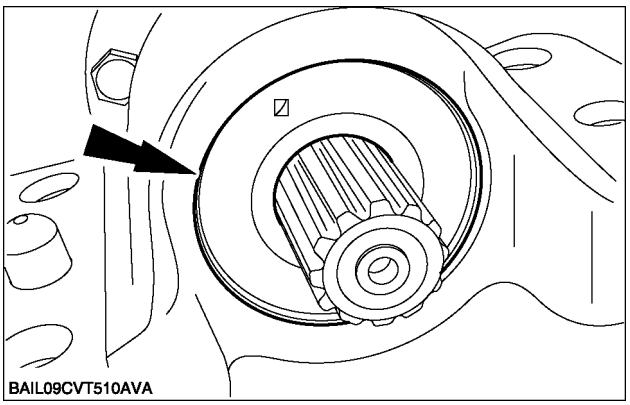
BAIL07APH525AVA 4

5. Remove the drive shaft retaining bolts and remove the drive shaft.



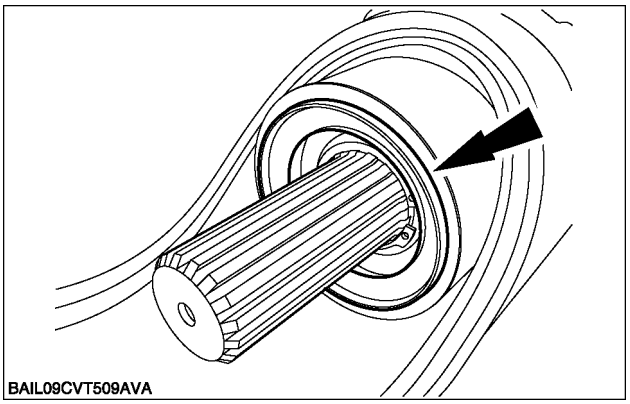
BAIL07APH526AVA 5

6. Remove the outer dust shield.



BAIL09CVT510AVA 6

7. Remove the inner dust shield.



BAIL09CVT509AVA 7

Contents

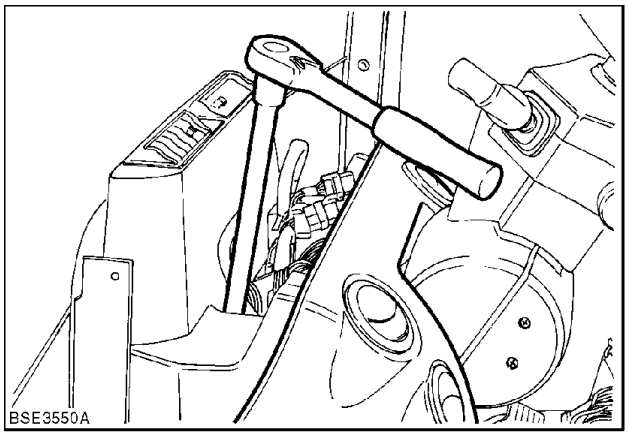
TRAVELLING - D

STEERING Hydraulic - 20.C

Steering column - Remove

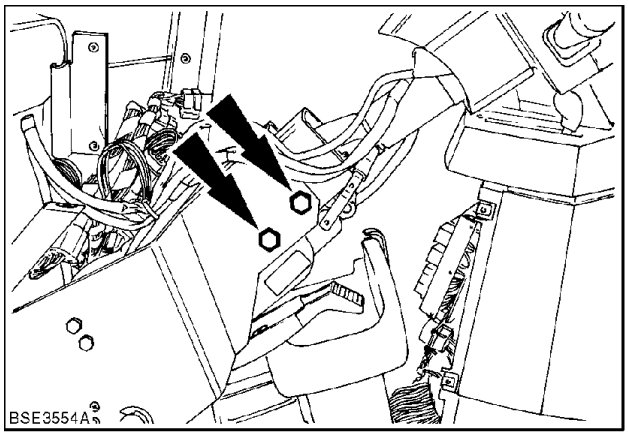
1. Removal
   Remove the steering wheel, if required.
   Remove the instrument panel. Undo the two mounting screws and remove the lower steering column cover.

NOTE: *The component parts of the steering column as listed are serviced separately.*



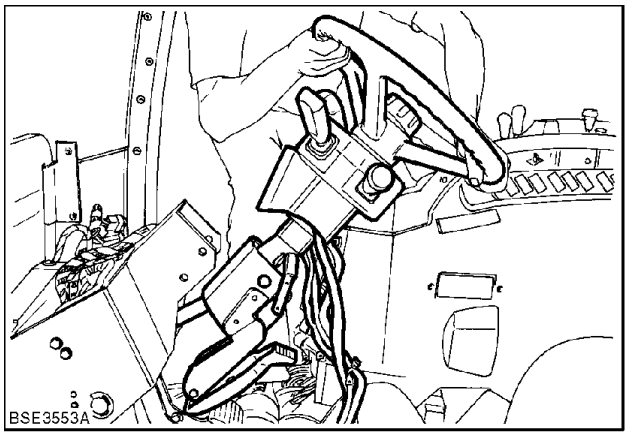
BSE3550A 1

2. Disconnect the multi-function switch wiring and shuttle lever switch wiring connectors.
   Remove the four securing bolts securing the column to the frame, Figure **2**.



BSE3554A 2

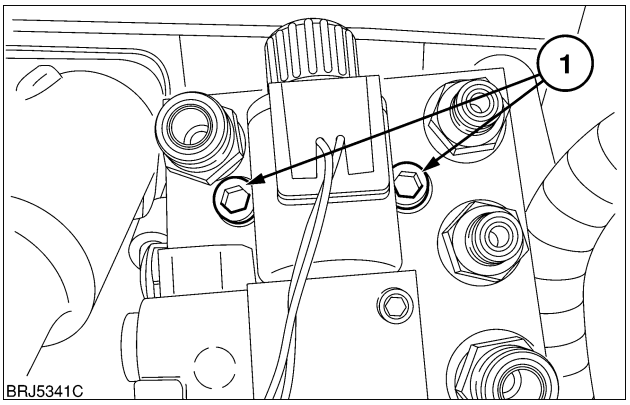
3. Lift the column clear of the steering shaft and clear of the instrument console, Figure **3**.



BSE3553A 3

Control valve - Install

1. Install valve to steering motor. Insert the hexagon headed retaining screws and tighten to **48 Nm** (**35.4 lb ft**)



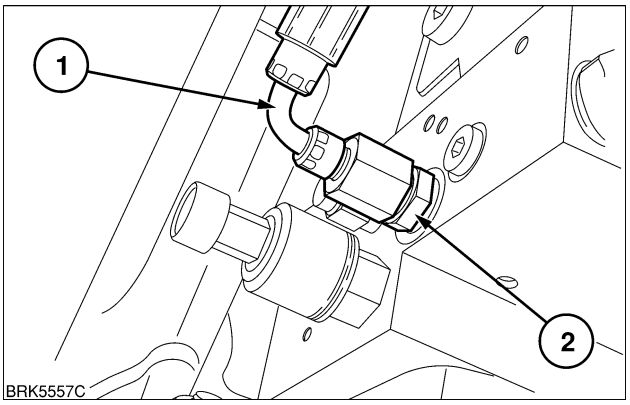
BAIL08CVT051ASA 1

⚠ WARNING ⚠

The component is heavy. ALWAYS use a hoist or get assistance to lift the component. Failure to comply could result in serious injury or death.

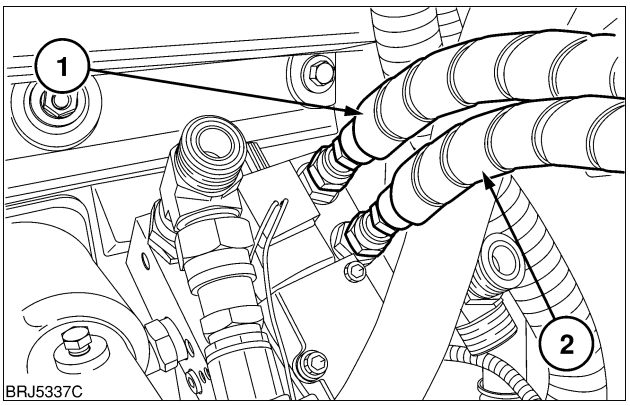
M944

2. Connect the load sensing hose **(1)** and tighten nut **(2)** .



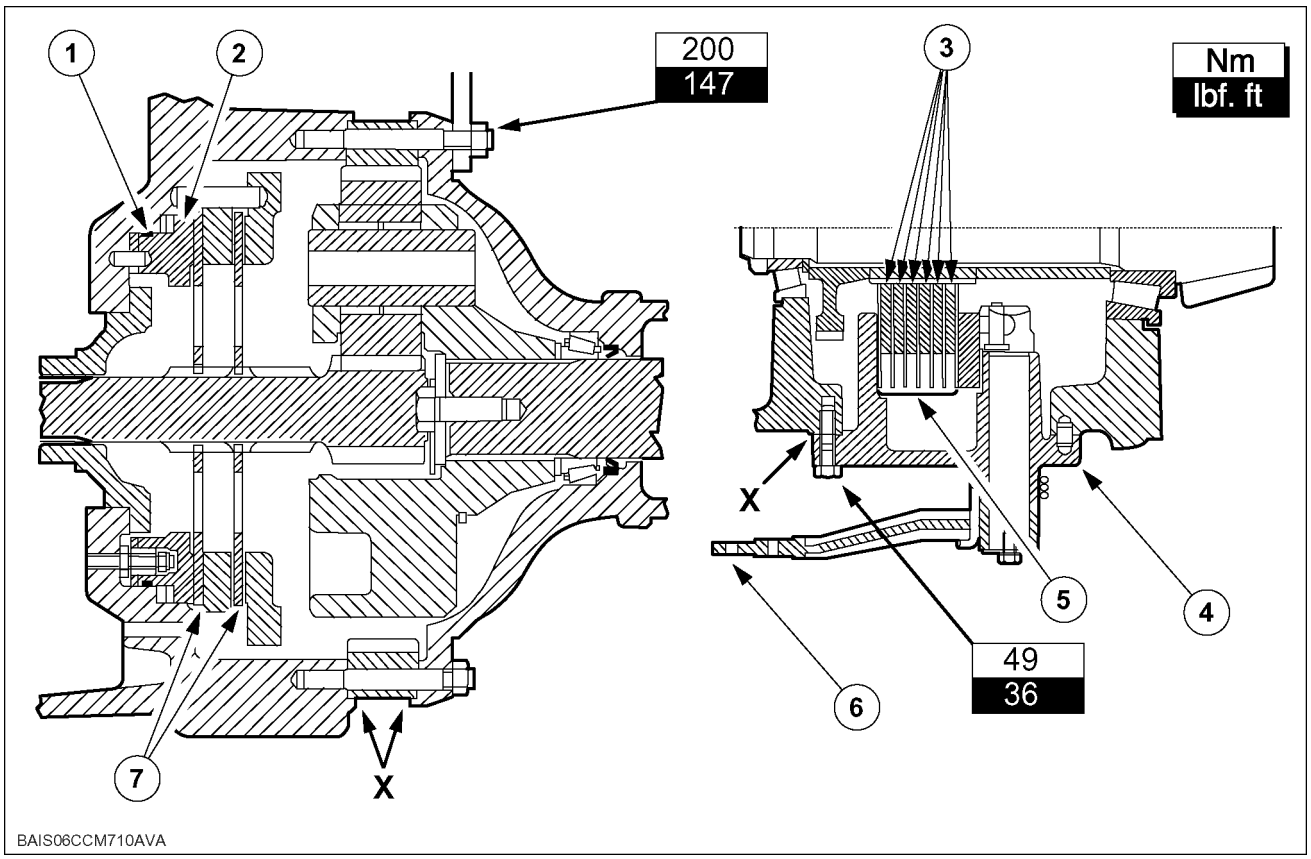
BAIL08CVT052ASA 2

3. Connect the left **(1)**and right **(2)** steering supply hoses



BAIL08CVT049ASA 3

Brake - Sectional view



BAIS06CCM710AVA 1

PARKING AND SERVICE BRAKE SECTIONAL VIEW

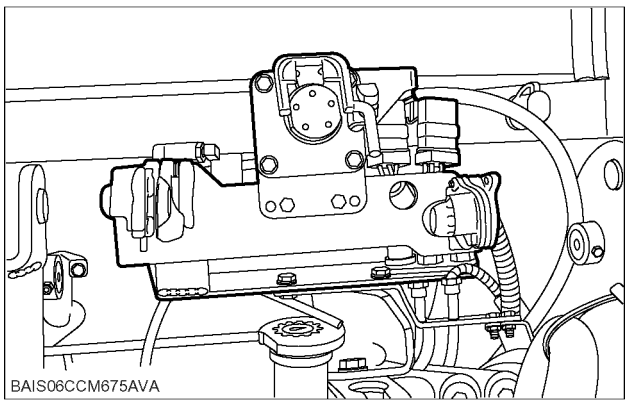
1. Seal
2. Brake Control Piston
3. Parking Brake Discs
4. Friction Pad Assembly
5. Pads
6. Parking Brake Control Lever
7. Service Brake Discs

NOTE: *During installation apply liquid gasket (part number 82995771) on surfaces marked with an X.*

SERVICE BRAKE Pneumatic - Static description

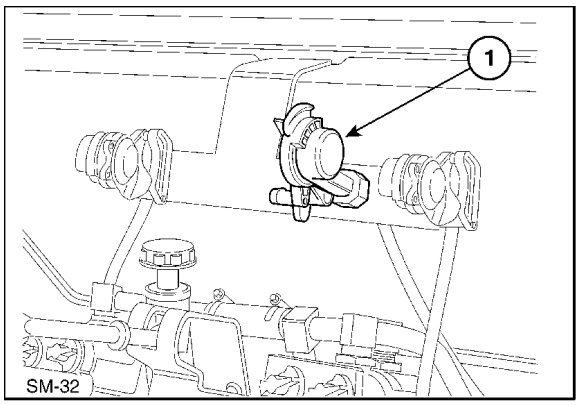
There are three versions of the air trailer brake available.
These can be easily identified by the coupler configuration at the rear of the cab.
Universal
A generally accepted air brake providing a dual line system. The universal system is available with side mounting type couplers.

Universal with Side mounting couplers.



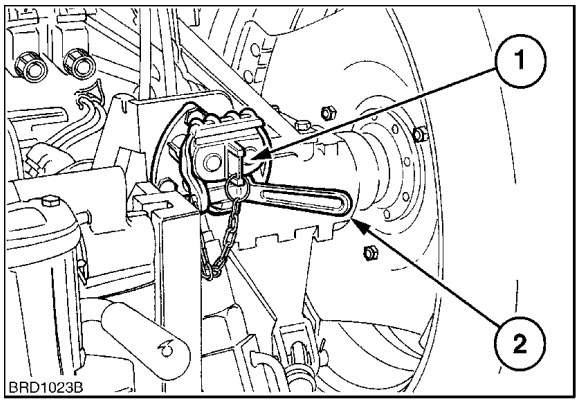
BAIS06CCM675AVA 1

“German"
An air brake system designed in accordance with German TUV specifications providing both single and dual line operation.



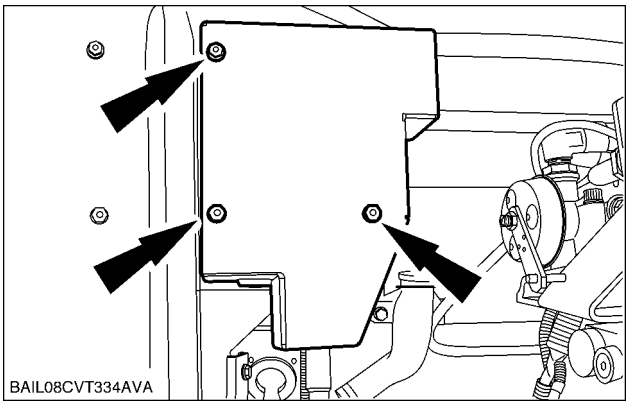
SM-32 2

“Italian"
An air brake system designed to meet Italian legislation and providing dual line operation.



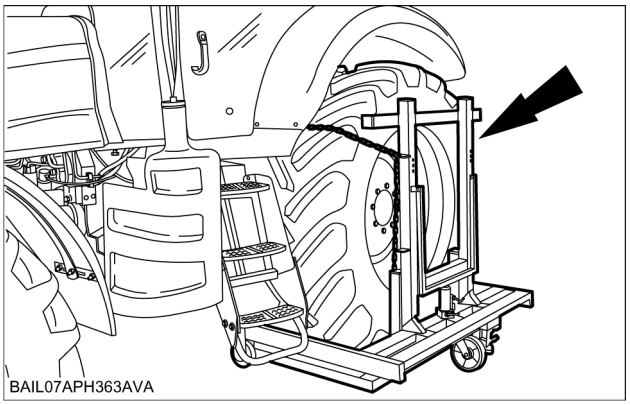
BRD1023B 3

4. Install the EPL cover.



BAIL08CVT334AVA 4

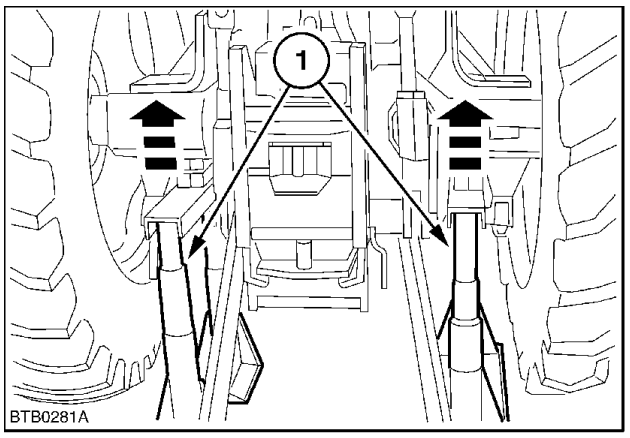
5. Install the rear left-hand wheel.
Tighten to specified torque, for further information refer to **Rear wheel - Torque (D.50.C)**.



BAIL07APH363AVA 5

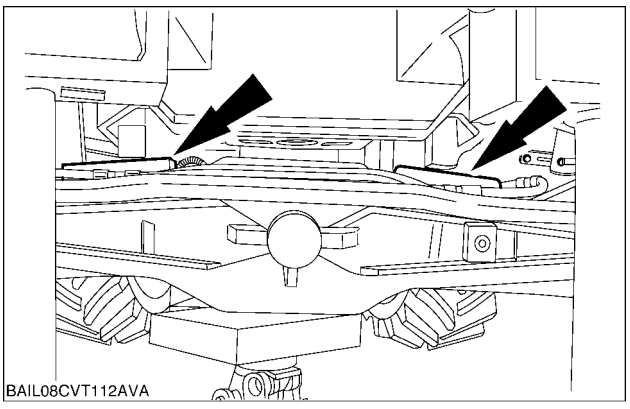
6. Raise the rear of the vehicle and remove the axle stands **(1)**.

NOTE: *If detached during removal, reattach the lift rods to the lower links.*



BTB0281A 6

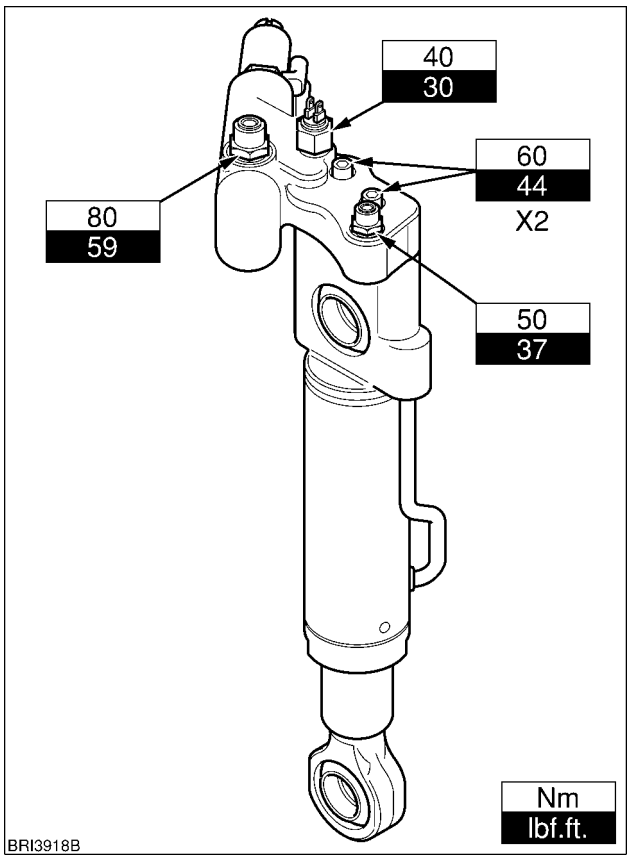
7. Remove the wooden wedges from between the front axle and front support.



BAIL08CVT112AVA 7

Next operation:
Adjust the EPL, for further information refer to **PARKING BRAKE Electronic - Adjust (D.32.D)**

Cylinder - Torque



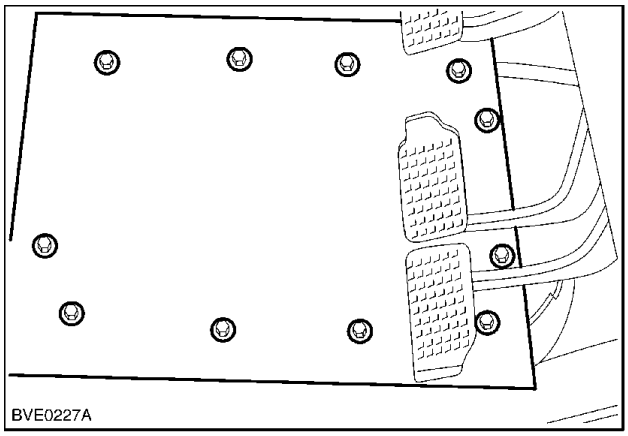
BAIL06CCM047BSA 1

Contents

TRAVELLING - D

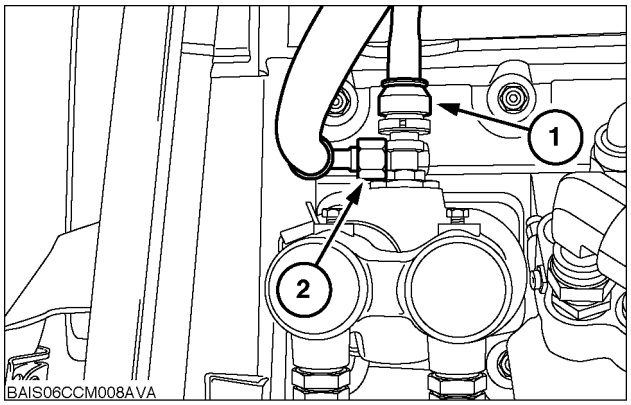
WHEELS AND TRACKS Wheels - 50.C

10. Install the cab floor panel to the cab.
Install the cab floor rubber mat.



BVE0227A 10

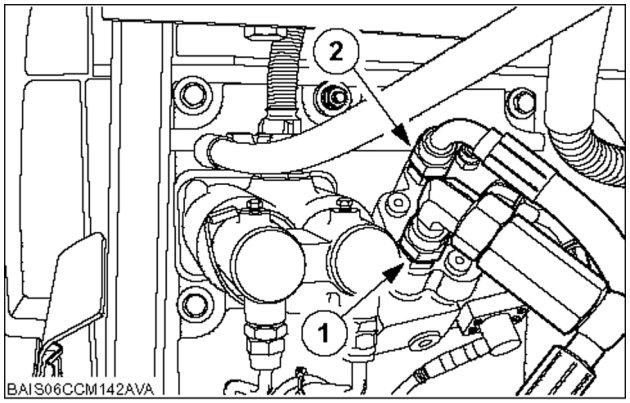
11. Connect the master cylinder vent hose **(1)** and the master cylinder supply hose **(2)**.



BAIS06CCM008AVA 11

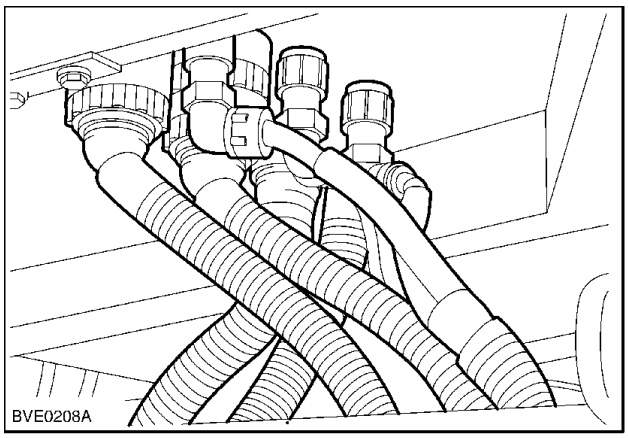
12. Connect the steering supply **(2)** and return **(1)** hoses.

NOTE: *Tractor with FastSteer™ shown.*



BAIS06CCM142AVA 12

13. Connect the cab electrical connectors.



BVE0208A 13

ENVIRONMENT CONTROL Heating, ventilation and air-conditioning - Dynamic description

T7030 Auto Temperature Control (ATC), T7040 Auto Temperature Control (ATC), T7050 Auto Temperature Control (ATC), T7060 Auto Temperature Control (ATC)

The ATC control unit is a control unit with a control cycle that obtains data from various sources and issues commands to other devices. The control parameter of the system is the inner temperature of the cab. The driver selects the desired cab temperature with the help of the temperature control potentiometer. The control unit controls the compressor, the heating valve and the blower speed in order to reach or maintain the desired value.

The control unit receives information from the following switches and sensors:

- The modes of operation switch in the positions "ECON", "OFF" and "MAX DEF" supplies information about the desired system operating mode: Economy mode, air conditioner switched off or dehumidify/defrost.
- The cab temperature sensor, which is located in the return line of the air circulation filter, sends the current cab temperature.
- The temperature desired by the driver and that which is set by the temperature control potentiometer is the desired value.
- The outlet temperature sensor in the heating air conditioning unit sends the current cooling or heating temperature.
- The low pressure switch sends information if abnormal system pressures occur on the low pressure side in the evaporator.
- The high pressure/low pressure switch sends information if abnormal system pressures occur on the high pressure side.
- The blower speed switch sends information relevant to the setting selected by the driver. The settings are "OFF" and "A" (automatic) or speed levels I-III. If the driver has left the "A" position, the blower speed determined by the controller is overridden by the driver’s selection.
- The temperature control potentiometer sends the desired temperature (°F/°C) to the control unit.

In order to realize the heating/cooling functions the control unit controls the following output devices:

- The compressor clutch via the clutch relay: The control unit determines whether the compressor is switched on or off in order to attain the desired cooling value in the cab.
- In the case of the heating valve the valve opening is varied in order to attain the desired temperature value in the cab.
- The blower speed is set via the blower speed switch: The conditioned air is delivered from the heating and air conditioning unit at a speed which is proportional to the difference between the existing cab temperature and the desired value.
- The display on the instrument cluster shows information for any error codes that may have occurred.

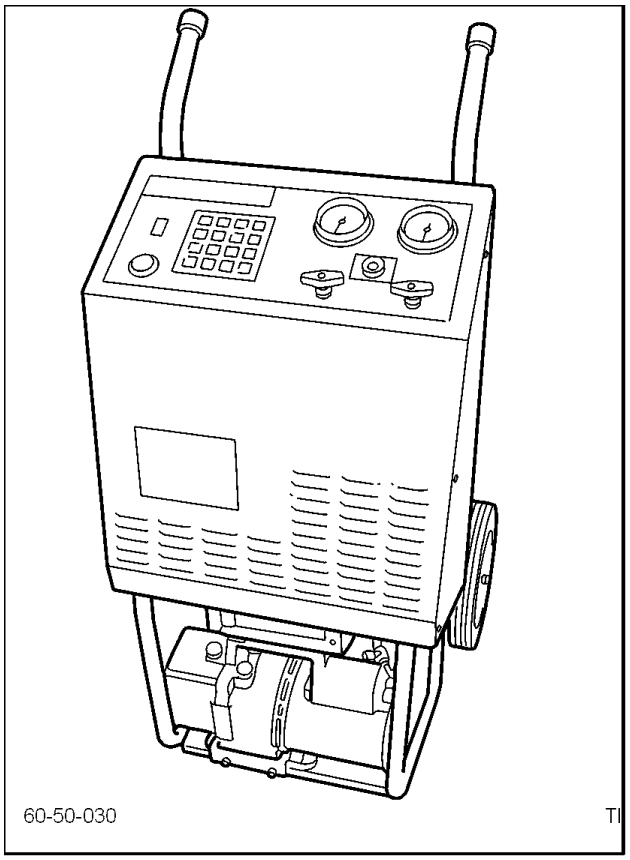
ENVIRONMENT CONTROL Heating, ventilation and air-conditioning - Discharging

⚠ WARNING ⚠

Never discharge refrigerant gas into the atmosphere. Always where safety goggles and gloves when working with refrigerant. Only use authorised refrigerant tanks.

B030

If the air conditioning system is to be overhauled or other interventions are to be made which require the air conditioning system to be disassembled, the refrigerant must first be extracted.
Before the air conditioning system is dismantled, the refrigerant must be fully extracted using a using a type-tested extraction device in accordance with the manufacturer's instructions and recycled.
The illustration **1** shows a combined extraction, evacuation, recycling and filling device. This device extracts R 134a refrigerant from the air conditioning system, recycles it and refills it in one cycle. The device is designed for operations with the pressure gauge battery inserted in its control panel.



60-50-030 1

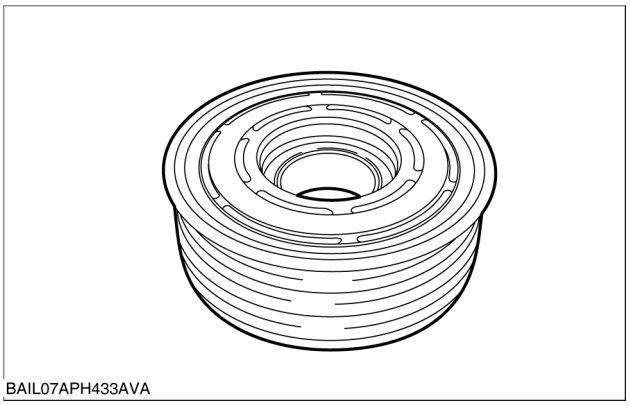
With other extraction devices the pressure gauges are not part of the device. If such devices are used a separate pressure gauge battery must be connected.

IMPORTANT: *Thoroughly read the manufacturer's instructions prior to using extraction devices.*

An overview of the worksteps when emptying the system using a suction/recycling device is provided below.

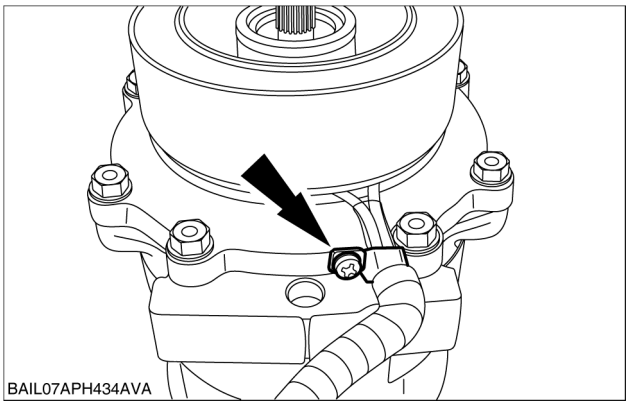
1. Allow the vehicle's air conditioner to run for several minutes.

9. Check the belt pulley bearing for wear and replace if needed.



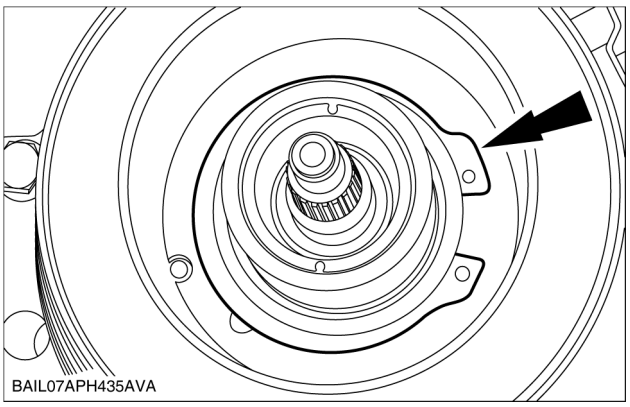
BAIL07APH433AVA 8

10. Remove cable clamp.



BAIL07APH434AVA 9

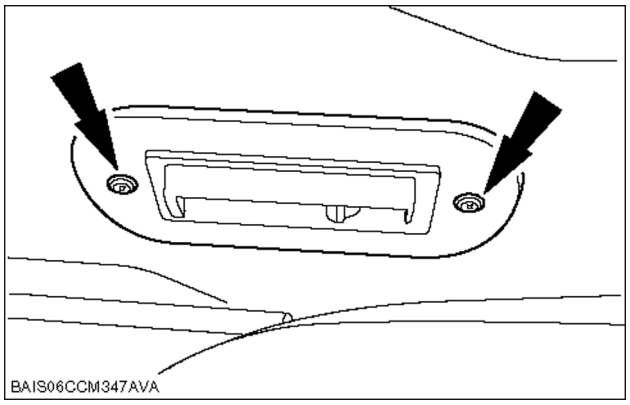
11. Remove circlip and remove exciter winding.



BAIL07APH435AVA 10

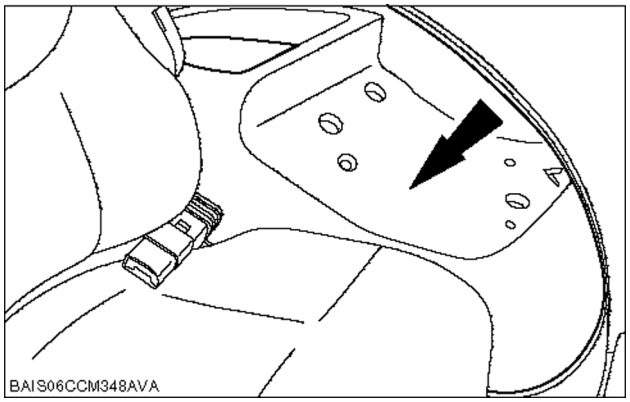
Next operation:
Compressor Magnetic clutch - Assemble (E.40.D)

4. Disassemble the air outlet on the left side.



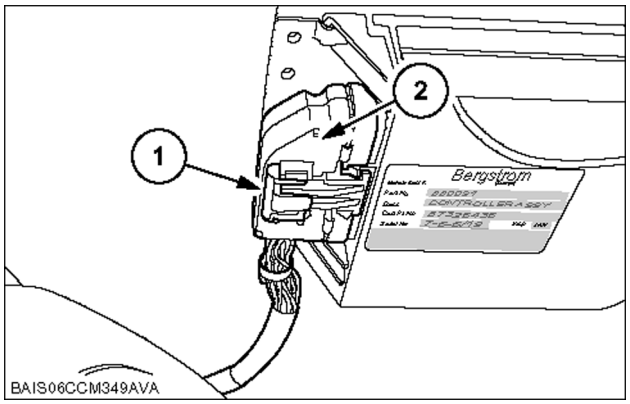
BAIS06CCM347AVA 4

5. Remove the side covering on the left.



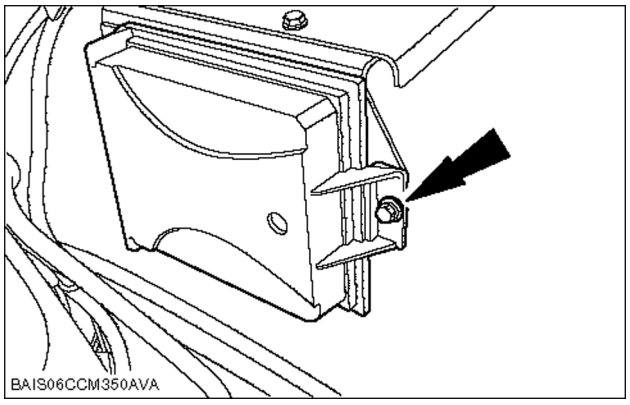
BAIS06CCM348AVA 5

6. Remove the connector tab **(1)** and pull out the connector **(2)**.

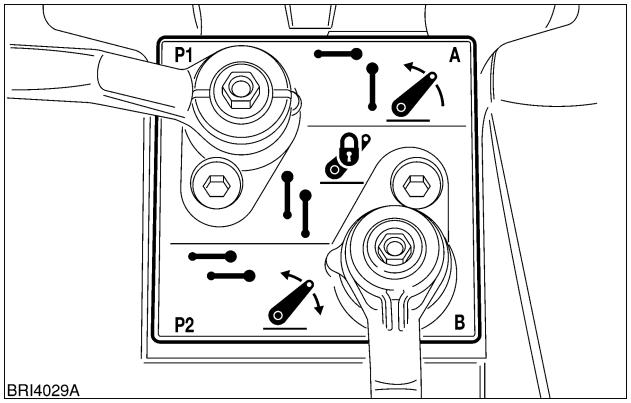


BAIS06CCM349AVA 6

7. Remove the climate controller.

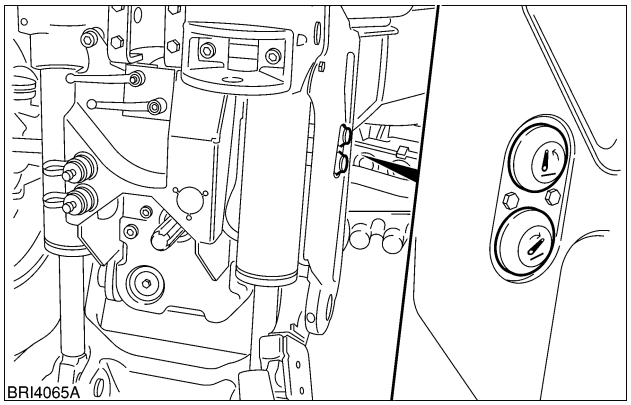


BAIS06CCM350AVA 7



BAIL07CCM296ASA 6

External controls are also available for the three-point front powerlift as an optional extra. These are located on the left-hand side of the front powerlift.



BAIL07CCM297ASA 7

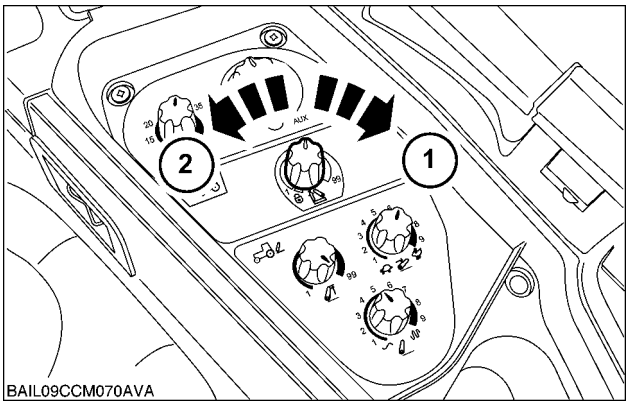
⚠ WARNING ⚠

Extreme care must be exercised when adjusting and checking hitch and control linkage when the engine is running and when linkage is under hydraulic or mechanical load. Study the linkage and hitch travel-keep the hands, arms, legs and feet out of the travel arc of the hitch and linkage.

M148B

Depending on the how the tractor is equipped, there are three options to connect the front powerlift to the hydraulics.
Mechanically actuated rear control units:
The hoses connected to the mechanically actuated rear control units are laid through the bracket of the mid-mounted valve block on the right-hand cab step. From there two steel pipes lead down on the right-hand side to the front axle bearing block. The pipes run under the radiator to the threaded connections of the front powerlift.
Electrohydraulic control units:
In this version, the oil connection from control unit 1 is removed and the hoses are connected directly to the oil connections of the control units. The hoses are laid to the bracket of the mid-mounted valve block, from there two steel pipes run to the front powerlift as in the first option. In this variant, the control unit controls on the left links next to the linkage can be used to raise and lower the lifting arms. See fig. **7**.
Mid-mounted control units:
A control unit is connected to the front powerlift via a set of additional front oil connections on the right next to the linkage. The powerlift is actuated with the crossgate lever (Figure **8**) on the right-hand armrest and with the control unit controls on the left next to the linkage. In this variant, the mid-mounted valve block is equipped with a 3rd and 4th valve plate, which can be used to drive other external consumers.

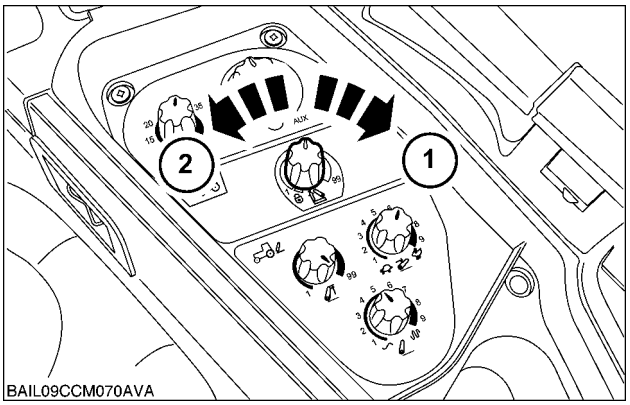
5. Lower the front hitch to it's lowest position.
When the end stop is reached, turn the height set control to the ON position and then back to the OFF position.



BAIL09CCM070AVA 3

6. The bottom value position is recorded and displayed in the lower central display for 2 seconds.

7. Raise the front hitch to it's highest position.
When the end stop is reached, turn the height set control to the ON position and then back to the OFF position.



BAIL09CCM070AVA 4

8. The top value position is recorded and displayed in the lower central display for 2 seconds.

9. The display will then show "End" to indicate that the calibration process has been completed successfully.

BAIL06CCM613AVA

BAIL06CCM613AVA 5

10. Key OFF to store the calibration values.

NOTE: *If an error occurs during calibration a "U" code will be displayed and the procedure will need to be repeated. Refer to the "U" code listing in* ***Control module - Fault code index (A.50.A)****.*