BMW Fxx NBT Retrofit Adapter

Brief Overview and Schematic Diagrams

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Designation

BMW Fxx NBT Retrofit Adapter designed for matching NBT Head Unit (hereinafter HU) and prefacelifted (pre LCI) BMW Fxx cars (BMW F01, F07, F10, F25) when retrofitting. It eliminates all electrical incompatibilities, performs all necessary protocol conversions for modules: PDC, TRSVC, RDC, RDA, ZBE, HUD, SZL, KAFAS, NiVi, Kombi, systems: I-Drive, M-Drive, CKM, ADAS, Vehicle Dynamic.

Functionality

- All car options supported (sport engine power indicators, night vision system, camera driver assistance systems (KAFAS), high beam assistant, speed limit information, surround camera system)
- Additional features (rear view camera emulation, ICAM rear view camera support (F15 ICAM camera on prefacelifted Fxx cars), front camera support, touch iDrive controller support)
- Video in motion function (VIM), allowing passengers to watch video while driving
- Navigation activation function, allows activate pre-loaded FSC navigation codes when retrofitting NBT
- Activation of built-in SVS voice control
- Activation of Internet access or BMW Online in motion.
- Protocol matching of drivetrain and steering wheel angle sensor for correct functioning of the navigation system.
- Matching TRSVC and ICAM camera with NBT head unit with retaining all functions
- Map based road Speed Limit Info on NBT CID screen

Connection

HU NBT must be installed instead factory HU CIC, connected to K-CAN bus via BMW Fxx NBT Retrofit Adapter and to MOST optical bus of the car.

BMW Fxx NBT Retrofit Adapter connected into the K-CAN bus between HU and car, to the MOST optical bus to ZGW. ZGW should be connected directly to BMW Fxx NBT Retrofit Adapter, original connection between ZGW and car must be restored with optical loop.

If car has MULF, TCU, ComBox or CD-Changer installed, they should be removed from MOST optical bus, and MOST bus optical chain should be restored with optical loop.

If ZBE3 or newer is installing, ZBE2 should be removed and service buttons PDC(Park Distance Control), SVC (Side View Camera), HDC (Hill Descent Control) should be re-connected to BMW Fxx NBT Retrofit Adapter.

Design and pinout

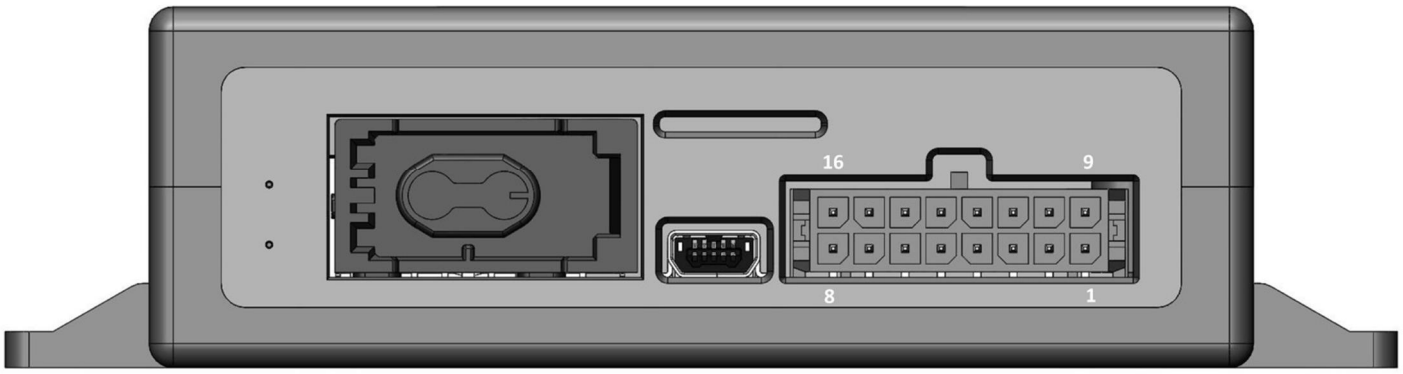

Fig 1a Front view

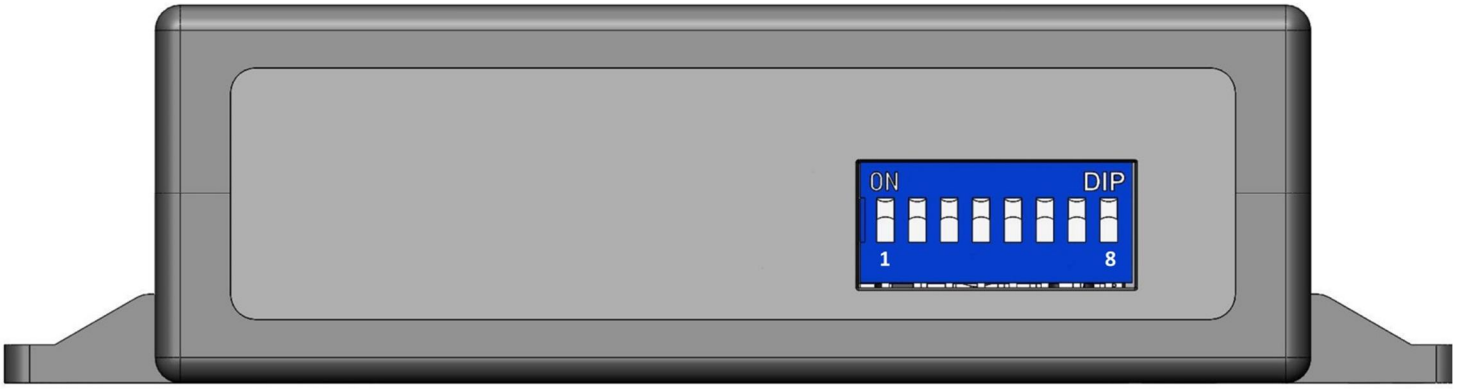

Fig 1b Rear view

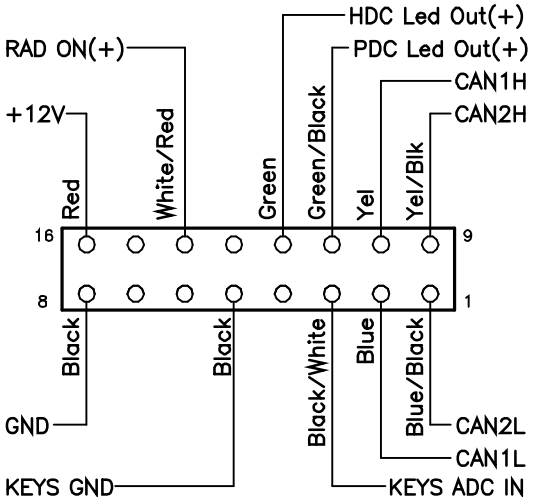

Fig 1c Microfit connector (XP5) pinout

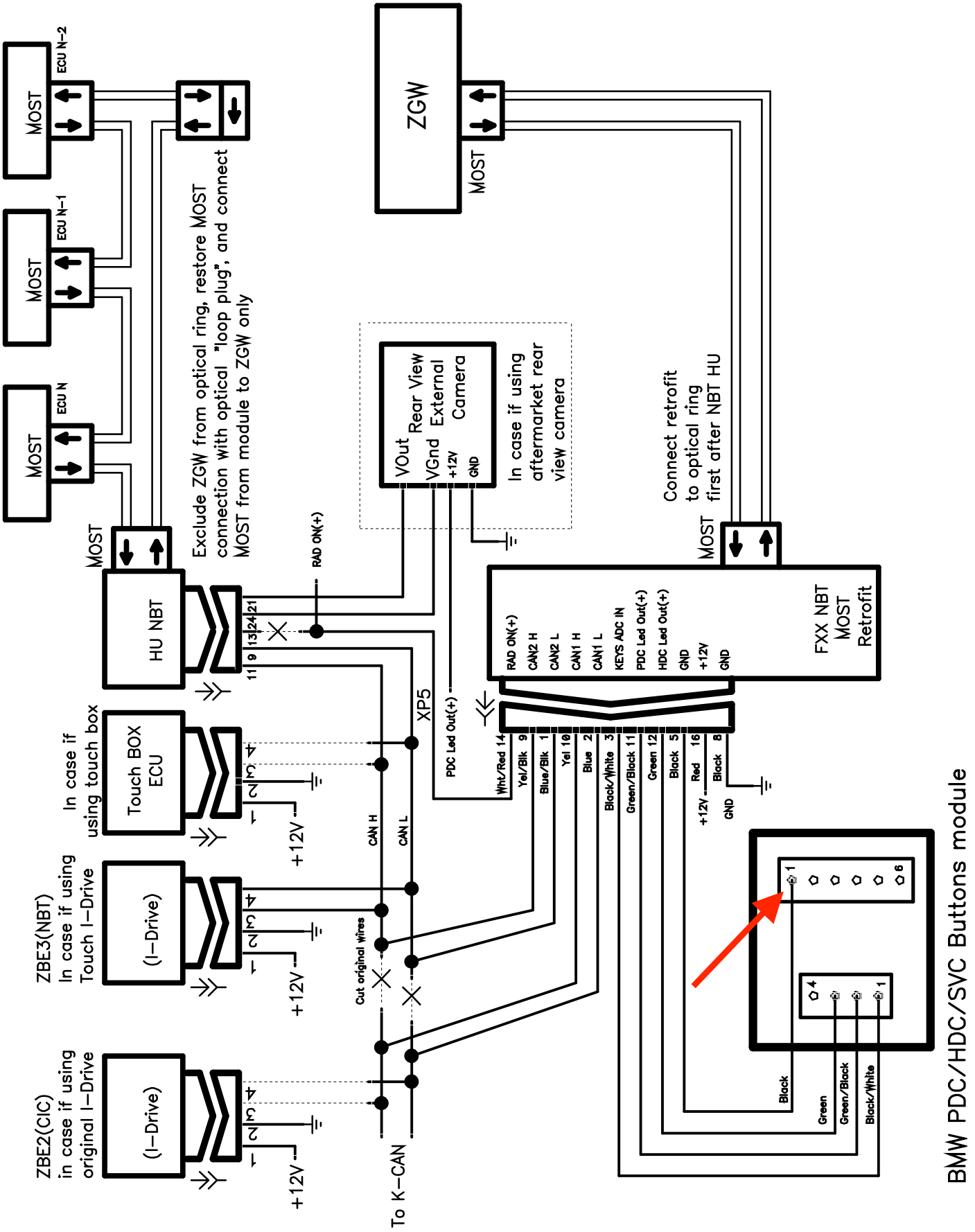

Fig 2 BMW Fxx NBT Retrofit basic connection schematic

Appendix A

NBT pinout

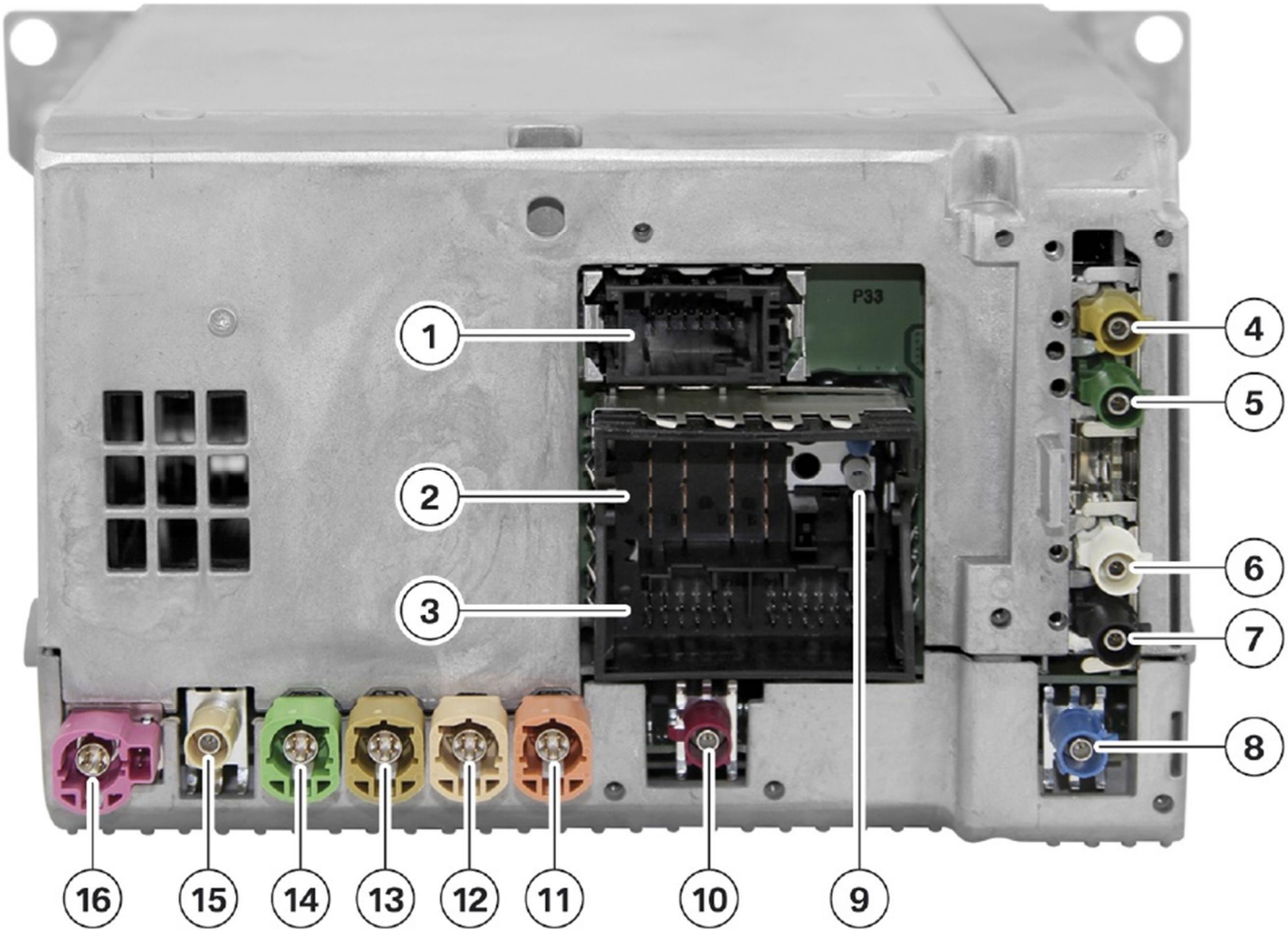

Fig 3 NBT rear view with connections

Table 1 NBT connections description

Index	Explanation
1	FBAS 3 and 4 for additional video sources in the vehicle
2	NF for the speakers, telephone mute, K-CAN, voltage supply
3	Micro 1 and 2; Aux-In, FBAS 1 and 2
4	DAB band 3 aerial, color code curry
5	DAB L band aerial, color code green
6	FM2, color code white
7	AM/FM1; color code black
8	GPS aerial, color code blue
9	Media Oriented System Transport bus
10	Preparation of WLAN aerial; color code burgundy
11	Ethernet connection for RSE, color code orange
12	USB1 connection; customer access at AUX-In USB socket in the center console (also for data imports/exports); color code beige
13	USB2 connection; connection for customer Smartphone via telephone base plate; color code curry
14	USB3 connection; Telematic Communication Box TCB color code light green
15	Bluetooth aerial connection; color code beige
16	APIX connection and voltage supply of the central information display; color code violet

Appendix B

NBT EVO pinout

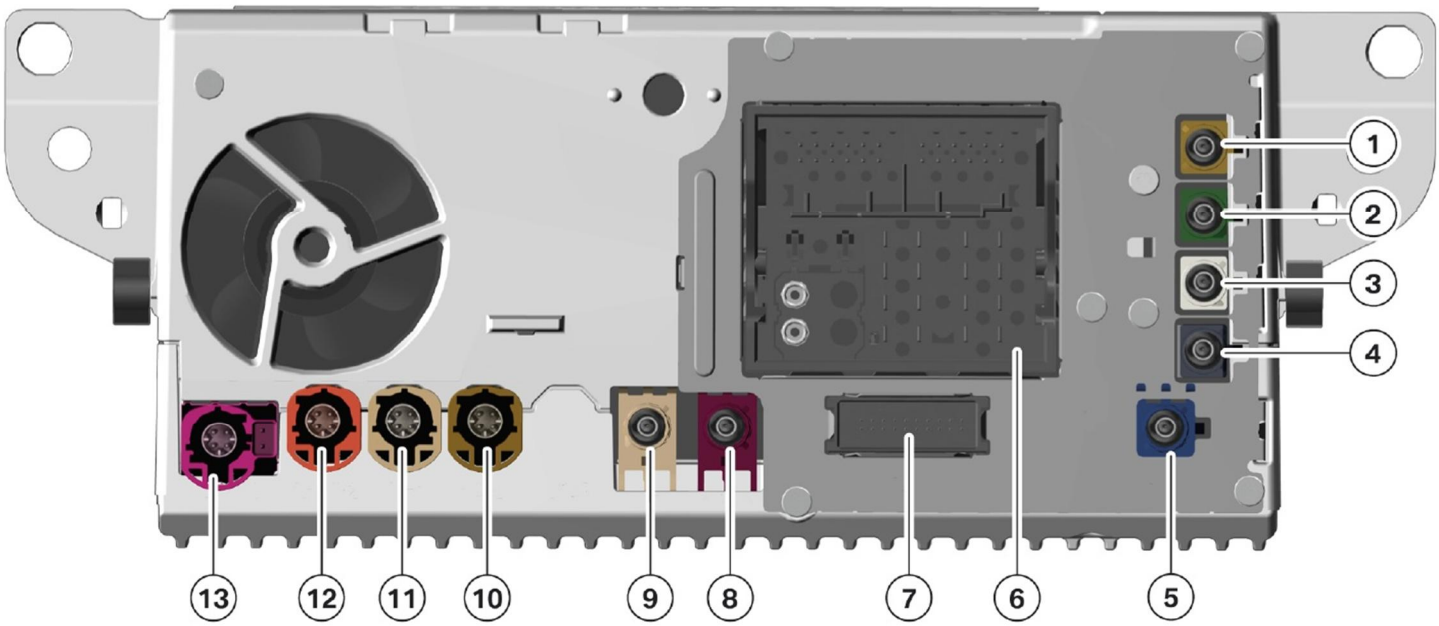

Fig 4 NBT EVO rear view with connections

Table 2 NBT EVO connections description

Index	Explanation
1	DAB band 3 aerial, color code curry
2	DAB L band aerial, color code green
3	FM2, color code white
4	AM/FM1; color code black
5	GPS aerial, color code blue
6	Main connector
7	OABR connector; Telematic Communication Box 2 (TCB2) connection
8	WLAN aerial connector for Wi-Fi®Direct connections; color code burgundy
9	Bluetooth aerial connection; color code beige
10	USB2 connection; connection for customer Smartphone via telephone base plate; color code curry
11	USB1 connection; customer access at AUX-In USB socket in the center console (also for data imports/exports); color code beige
12	APIX connection of the Instrument Cluster (KOMBI)
13	APIX connection and voltage supply of the central information display; color code violet

Appendix C

NBT coding

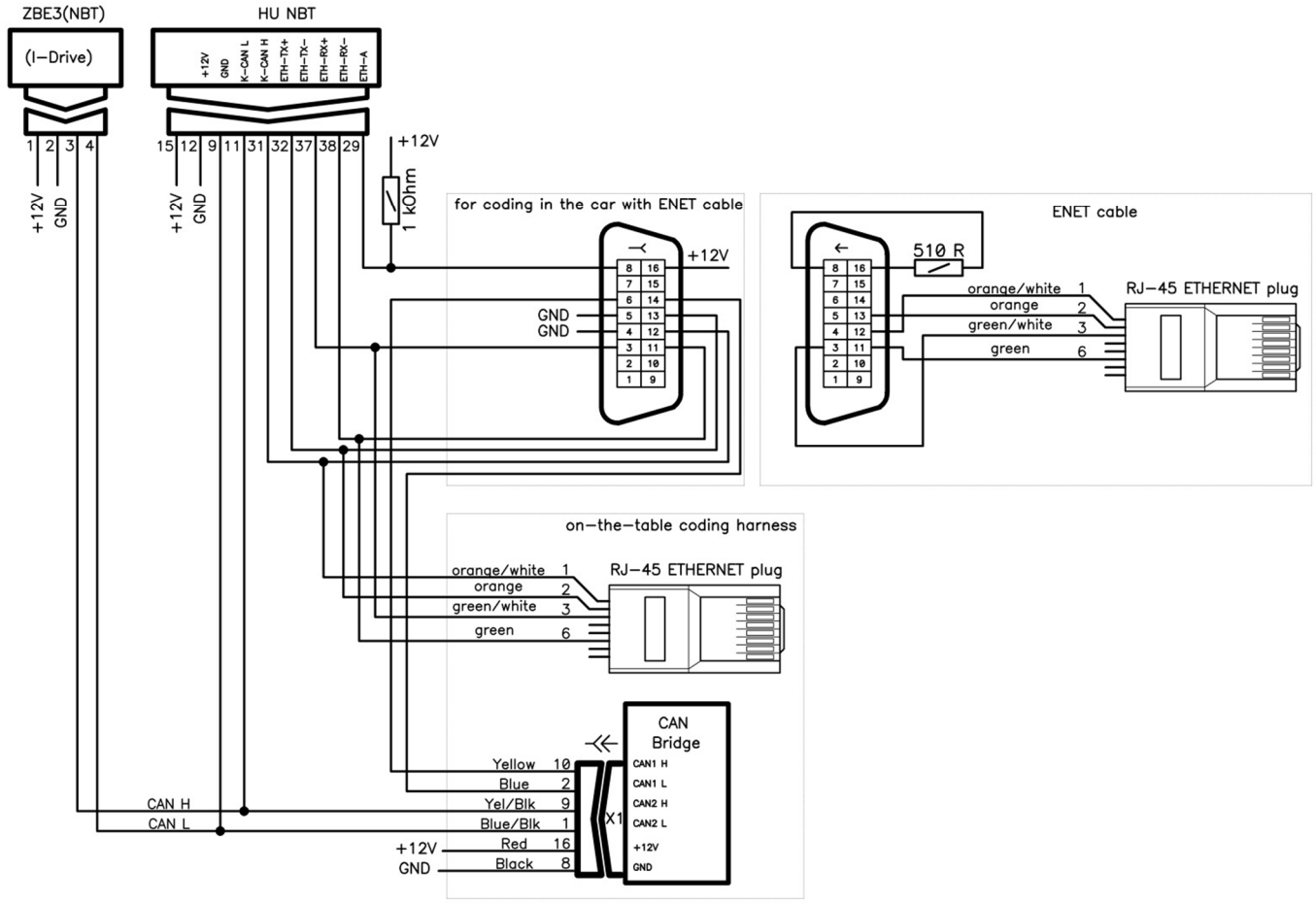

Fig 5 NBT coding connection schematic

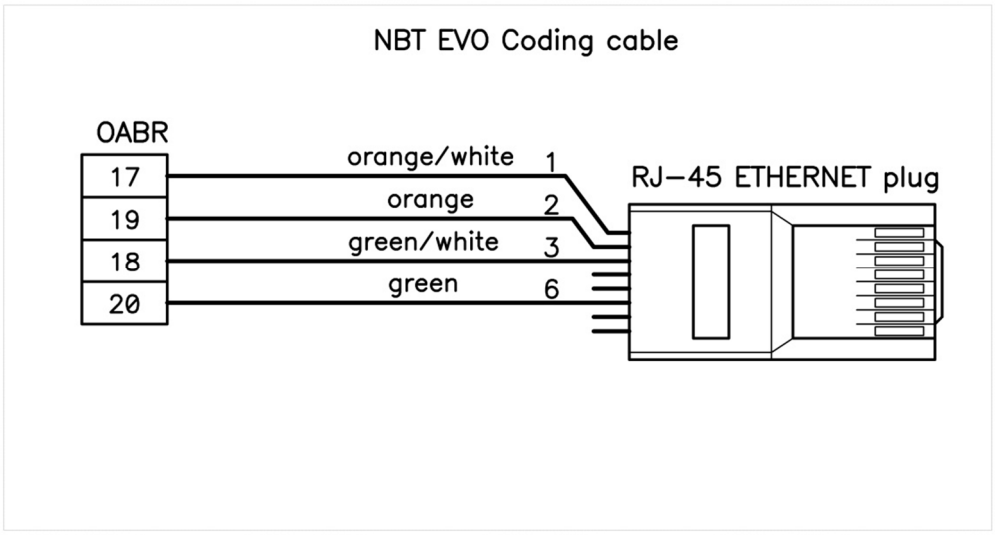

Fig 6 NBT EVO coding connection schematic

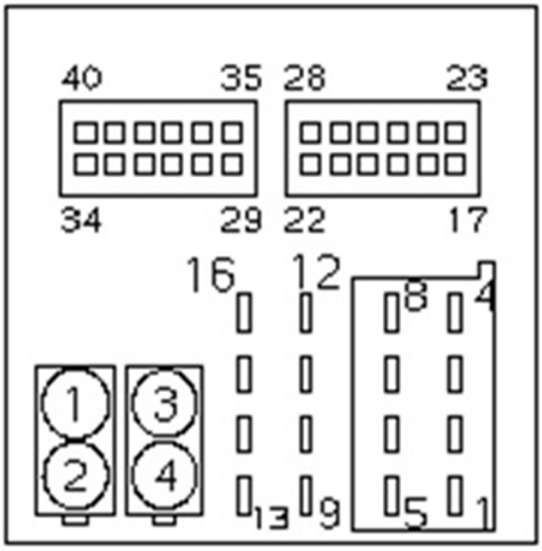

Fig 7a NBT HU pinout

Table 3a NBT HU pinout description

Pin No.	Description	Pin No.	Description
1	LF - Rear Right (+)	21	FBAS (+) (TRSVC)
2	LF - Front Right (+)	22	MIC 1 (-)
3	LF - Front Left (+)	23	FBAS Shield (TRSVC)
4	LF - Rear Left (+)	24	FBAS (-) (TRSVC)
5	LF - Rear Right (-)	25	MIC 2 Shield
6	LF - Front Right (-)	26	FBAS Shield (BASEPLATE)
7	LF - Front Left (-)	27	FBAS (-) (BASEPLATE)
8	LF - Rear Left (-)	28	FBAS (+) (BASEPLATE)
9	CAN LOW	29	ETH_A (OBD 8)
10	NOT USED	30	AUX IN Left
11	CAN HIGH	31	ETH_TX+ (OBD 12)
12	GND	32	ETH_TX- (OBD 13)
13	RADIO ON (CIC)	33	MIC 1 Shield
14	NOT USED	34	NOT USED
15	POWER 12v - Terminal 30 - 20Amp	35	AUX IN Right
16	NOT USED	36	AUX IN GND
17	MIC 1 (+)	37	ETH_RX+ (OBD 3)
18	MIC 2 (+)	38	ETH_RX- (OBD 11)
19	MIC 2 (-)	39	AUX Shield
20	NOT USED	40	NOT USED

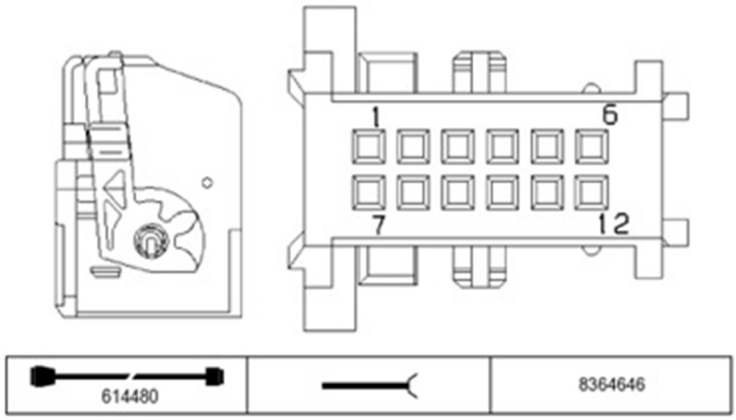

Fig 7b NBT HU pinout

Table 3b NBT HU pinout description

Pin No.	Description
1	FBAS Shield (DVD)
2	FBAS - (DVD)
3	FBAS - (TV)
4	
5	
6	
7	FBAS + (DVD)
8	FBAS + (TV)
9	FBAS Shield (TV)
10	
11	
12	

Appendix D

[Switches designation]

Table 4 Switches designation

	1	2	3	4	5	6	7	8
ON	TRSVC/PDC Emulation ON	SLI ON	RFU*	RSE control by “8” button on front panel ON	RFU*	RFU*	RFU*	RFU*
OFF	TRSVC/PDC Emulation OFF	SLI OFF		RSE control by “8” button on front panel OFF				

* - reserved for future use. Keep in OFF position

1 – TRSVC/PDC Emulation for retrofitting with third party RVC

2 – SLI (Speed Limit Information) – display SLI information on instrument cluster

4 – RSE On/Off control by “8” button on front panel