E6x Sports Automatic Transmission Retrofit Rev 1.0 April 2015

Summary of posts mostly from here:

http://5series.net/forums/e60-parts-accessories-mods-22/sportautomatic-sat-retrofit-55056/

hopefully given credit to the correct "posters" ...

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Step 1: Read rsyed's original DIY:

SAT DIY from rsyed from Austria.pdf

Step 2: After the hardware is installed....

- Option 1 Drive the car and enjoy most of the goodies. Your done.
- Option 2 Code the car via NCS Expert
 - Change the VO to remove the automatic transmission \$205 and add the SAT \$2TB
 - Use the Expert profile and code KOMBI. Your done.

Other notes:

The trick here was to allow the SAT to work properly without the paddles. You changed the VO for SAT but didn't code everything. If your dealer codes your car for something else later, it will see the VO and code your car for the paddles and this will make your shifter think something is wrong and will disable the manual and DS shifting modes. What the dealer code will change is the EGS module and the only thing in there it will change is the value for paddles - turning them from PADDLES= wert_00 to PADDLES=wert_01. It will depend on the experience of your dealer tech on if they will know how to disable the paddles manually or not.

One might think the SZL also requires coding. I did code the SZL and compared the before and after and there were no changes.

KOMBI actually has quite a few changes.

A VO option for no paddles would be great to know. If anyone figures out if it exists or not please contribute and help improve this updated version of the DIY.

This was a great improvement to the car. Only after I drove it did I understand why others have so many great comments about the Sport Automatic.

Cheers!

Terraphantm 5 Series.Net

7601460 is the non-sport programming. That's what my car had before I flashed it. 7601458 is the sports auto programming. Also, the ZB#s don't exactly correspond to the file names; they're usually off by one.

Here's an excerpt of the GKE215.ATS file

```
Code:
```

```
;Fahrzeugzuordnung (Auftrags-Steuerdatei) vom 13.11.2009 11:51
;TAIS-Abfragedatum (ab) 26.11.2009
FZG;LA;SA;ZB_NR;SE_VS
NV93;;205;7601460;VS
NW13;;2TB;7601458;VS
NW13;;205;7601460;VS
```

Notice how 7601460 corresponds to option code 205 on NV93 (535xi) and NW13 (535i). 7601458 corresponds to option code 2TB on the 535i (the only reason it's not listed for the 535xi is because it was never offered from the factory; thankfully the RWD and AWD models share the same transmissions).

This is an excerpt of my GKE215.DAT file Code:

Notice how ZB-NR 7601460 corresponds to SW-NR 7601461DA - that means it corresponds to the 7601461.0da file. Similarly, ZB-NR 7601458 corresponds to 7601459.0da

If you already have WinKFP setup, click on Comfort Mode, then click Enter ZUSB and enter 7601458 - you should see something like this.

	ZB-Number: Integration position:
EK9285 EK9287 EK9287 EKP60 EKP60 EKPM3 FLA65 GDSMG3 GK35 GK35 GK191 GKE191 GKE195 GKE211 GK214 GK2215 GW/CC0	7592100 Image: Constraint of the second

Then just hit okay, click enter VIN and type it in, then go back to the main menu (hit done) and then click program.

WinKFP Tool 32Bit - Version 5.2.1			
<u> 2</u> isplay <u>I</u> mport/Export <u>C</u> ommunication C	Configuration <u>H</u> elp	End	
ECU address/integration position: 18	3 Unverbaut		
Vehicle identification number : W	/BAAA00000AA00000		
Assembly identification number : 76	601458		
Hardware number : 75	591971		
HW interface: STD:0BD _	I	Diagnosis protocol: BMW-FAST	
Bootsectorupdate ACTIVATED			
PABD: 111	GKE215.IPO		
P-SGBD: 10F	FLASH.PRG		
F1 Comfort mode F2 E	Expert mode	F3 Program	F4 Special
F5 Diagnosis F6		F7	F8
ady			NUM SCRL

Leew88 5 Series.Net

I can't help you regarding which ZB firmware to use, there is'nt much mention regarding the 550i. Try asking this question on the BMW coding forum.

Using the SAT firmware for the 535i would work there are people who have used the petrol \$2TB firmware on a diesel engined motor, but due to the different torque characteristics, rev-limits etc it will behave a bit differently. For example if the 535i rev-limit is 6500rpm and yours is 7000rpm, your EGS will shift up too early and therefore won't maximise the full potential of your engine revs because it think yours is a 535i. By all means give it a go, you can always flash your original ZB firmware if it's not to your liking.

The procedure to force flash the EGS is like this..

Select comfort mode, then your ECU family (could be GKE195 or GKE215), then select the ZB number for the \$2TB firmware, click the VIN button and enter your 17 digit VIN and finally click program, takes between 5-10mins to complete.

Very important to make sure you have a good power supply connected with a voltage 13-14v, or instead do what I did by connecting jump leads from another car with the engine running. Also you must only program the EGS when the transmission is cold, the EGS electronics is within the transmission, if it's too hot after a hot run it may corrupt the data when you flash program it killing the module.

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FYI, when I added the SAT to my car, the default "Sport" button made my steering way too stiff, especially at stopped/low speeds.

Someone previously mentioned the following 2 values coded in the KGM control the stiff steering: GESCHWIN_WERTE_SPORT_KGM STROMWERTE_SPORT_KGM Mine were set to 'wert 01'. I changed both to 'wert 03'.

Much, much better! Now at stopped/low speeds, you still get power steering assist. At higher speeds, the steering becomes much tighter. I think 'wert_01' practically disables all assist, even at a standstill. The KOMFORT (stock) value is 'wert_09'. I also tried 'wert_04', and could not tell a perceptible difference between non-Sport mode (wert_09).

Hope that helps some people who like me, hate the Sport button with a wert_01 setting.

Addy33 5 Series.Net

Fixed: I was coding with the .MAN file setting selected in NCSExpert. Once i switched to the profile with .MAN file un checked and then programmed via ncsexpert, the factory default coding was used. Since I had my CAS and LMA enabled with the right options, it automatically set the COMBI for SAT. Now i see SPORT when i press the button AND get Throttle Blips!

krbimmer bmwcoding.com

Let me share my experience with you. I retrofited SAT on hardware change and coding change. Great thanks to BERT69 and other members info. My SAT retrofit history:

1) Just install M steering wheel and SAT gearbox -> most working, but paddle not working, no display 'sport'

2) Modify 2-wired connection based on BERT69 list. -> paddle not working, sport msg no.

3) Edit FA(S2TBA) list and retrofit coding CAS & LMA with expert profile. -> not working

4) Additionally, edit several modules and code again. -> paddle & sport msg working refer to below parameter changes on modules.

*1) One small error is the gear number does not change from M1~M6 to S1~S6 while pressing sport button, gear lever shift to left(DS), operating paddles.

*2) Several threads say maximum gear position is only upto 5th with sport-buttoned manual mode. My case is upto 6th like normal manual mode but functionwise I can feel the sport-buttoned manual mode.

Q) Is this because of not 'coding whole car' based on added FA list? I did just CAS & LMA retroft coding with expert profile.

Thanks for reading. Michael

I took this comparison ~200KB FSW_PSW.TRC file between before and after SAT coding.

function parameter ECU before SAT after SAT

R_GANG_VON_LM ??? nicht_aktiv aktiv ANZ_SCHALTAUFFORDERUNG ??? nicht_aktiv aktiv GETRIEBE_2 ??? wert_01 wert_02 GETRIEBETYP ??? egs dkg KLR_AUS_TIMEOUT CAS wert_02 wert_03 KL30G_NACHLAUF_NACH_SZ1 CAS wert_00 wert_08 ZEIT_KL50_ANSTRG CAS wert_04 wert_03 ELV_AUT_FCT CAS nicht_aktiv aktiv ELV_RESET_FCT CAS nicht_aktiv aktiv PADDLES EGS wert_00 wert_01 GESCHWIN_WERTE_SPORT_KGM KGM wert_01 wert_02 STROMWERTE_SPORT_KGM KGM wert_01 wert_02 FDC_VERBAUT KOMBI nicht_aktiv aktiv DZM_DAEMPFUNG KOMBI aktiv nicht_aktiv DZM_DISP_RPM KOMBI wert_01 wert_02 DISP_ENGDAT_ALIVE_ZAEHLER KOMBI nicht_aktiv aktiv DISP_ENGDAT_ID_MONITOR KOMBI nicht_aktiv aktiv TORQUE_3_ID_MONITOR KOMBI aktiv nicht_aktiv DISP_ENGDAT_SIG_MONITOR KOMBI nicht_aktiv aktiv

Final update!

When E60 LCI announced, a few models support SAT. 2TB supported model/engine type after research of GKE215.ATS and Realoem 525i N52 (NU51): No 530i N52 (NU91): Yes 530i N53 (ND71): Yes 535i N54 (NW13): Yes 530xi N52 (NV51): No 540i N62 (NW31): No 550i N62 (NW53): Yes 520d N47 (NX31): No 525d M57 (NX51): No 530d M57 (NX71): Yes 535d M57 (NX91): Yes 1 chose ZB-Nr. of similar model/year to mine, NU91, then flashed and coded it..

1) install M steering wheel with paddle shift, gearbox and modify 2-wired connection

2) update ZB Nr. of EGS from 7601456 to 7603582 using winKFP in my model year case

3) add 2TB into VO, code CAS & LMA, process car using NCS

4) code back 2 parameters of KGM to normal for wheel stiffness using NCS

GESCHWIN_WERTE_SPORT_KGM wert_01

STROMWERTE_SPORT_KGM wert_01

*) Result: all SAT function working incl. sport message

 – 6-speed sports automatic gearbox with steering wheel paddles and faster shift times* (option for 530i/550i/530d/535d)

* Available from June 2007 production (further details will be published via the InfoNet)
source: BMW (UK) Ltd Product Marketing January 2007 Page 35
Hope to help anyone.

"GKE215.ATS"

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Here are the options available in the EGS module:

Paddles is the only value that gets changed as far as I know.

NIC nicht_aktiv not active * aktiv active EL_INTERLOCK aktiv active * nicht_aktiv not active PADDLES * wert_00 value 00 wert_01 value 01 wert 02 value 02 SEAT * wert_00 value 00 wert_01 value 01 OBD PFC * wert_00 value 00 wert 01 value 01 ISO_OBD wert_01 value 01 wert_02 value 02 * wert 03 value 03 wert_04 value 04 MIL_SCAN_TOOL * wert_01 value 01 wert_02 value 02 wert 03 value 03 wert_04 value 04

hermann 5 Series.Net

For yor information....

Stock option 205

Following ECU's will be flashed on teminal 15:

0x00 KGM60 9221109 Karosserie Gatewaymodul 0x12 DDE626 8509307 Dieselelektronik DDE 6 6 0x6D SMPLX1 9196933 Sitzmodul Fahrer 0x6E SMPLX1 9196933 Sitzmodul Beifahrer 0x70 LM460 9203082 Lichtmodul mit Adaptiver 0x78 IHKH60 9248708 Klimabedienteil 0x17 EKM260 7276382 Elektrische Kraftstoffpumpe 0x55 ULF2HI 9229740 Plattform MULF2-High 0x02 SZL360 9204508 Schaltzentrum Lenks?ule 0x5E **GWS60 9212217** Gangwahlschalter

Following ECU will be flashed on teminal 0:

0x40 CAS3 9237046 Car Access System 2 / 3

Delete 205 and add 2TB we have...

Following ECU's will be flashed on teminal 15:

0x00 KGM60 9221109 Karosserie Gatewaymodul 0x12 DDE626 8509307 Dieselelektronik DDE 6 6 Zylinder M57 T?2 TOP 0x6D SMPLX1 9196933 Sitzmodul Fahrer 0x6E SMPLX1 9196933 Sitzmodul Beifahrer 0x70 LM460 9203082 Lichtmodul mit Adaptiver Lichtsteuerung 0x78 IHKH60 9248708 Klimabedienteil 0x55 ULF2HI 9229740 Plattform MULF2-High 0x17 EKM260 7276382 Elektrische Kraftstoffpumpe 2. Generation 0x18 **GKE195 7592130** Getriebesteuerger?t GS19 D 0x02 SZL360 9204508 Schaltzentrum Lenks?ule

Following ECU will be flashed on teminal 0:

0x40 CAS3 9237046 Car Access System 2 / 3

Following ECU's must be replaced:

0x5E GWSS60 9212220 Gangwahlschalter

leew88 5 Series.Net

1Change your VO using NCS expert by removing \$205 (steptronic) from CAS/LMA and add \$2TB (SAT), then code this new VO to your KOMBI and EGS.

2. Using WINKFP flash your EGS to the \$2TB ZUB firmware, dangerous procedure you need to know what your doing in regards to stable voltage supply or you will end up with a dead module, Which ZUB is required depends on your model/EGS version etc.I might be able to guide you if can tell me more details of your car.

By just doing step 1 above will get you the "SPORT" display on cluster and heavier steering, Step 2 will give your 100% SAT mode ie faster shift, more aggressive throttle blip on downshift etc. It took me alot of guts to do this step but was well worth it in the end.

Biz77 5 Series.Net

Flashing the EGS with WinKFP was the easiest part of all this IMO. I do realize the inherent risk in doing that flash, but the process was quite simple.

So to add \$2TB to KOMBI, the process would be: **Open NCS Expert** Load Expertenmodus (OFFEN) profile - expertmode profile gives me an error as do many of the other profiles listed. I've been successful using expertenmodus (OFFEN) for everything else. F1 F3 Select E60 Chassis Select CAS module F2 Enter FA Select E60 Don't change anything in the FA, just click OK F6 Back F4 process ECU - Choose KOMBI F2 Change Job Select SG_Codieren F3 Execute Job