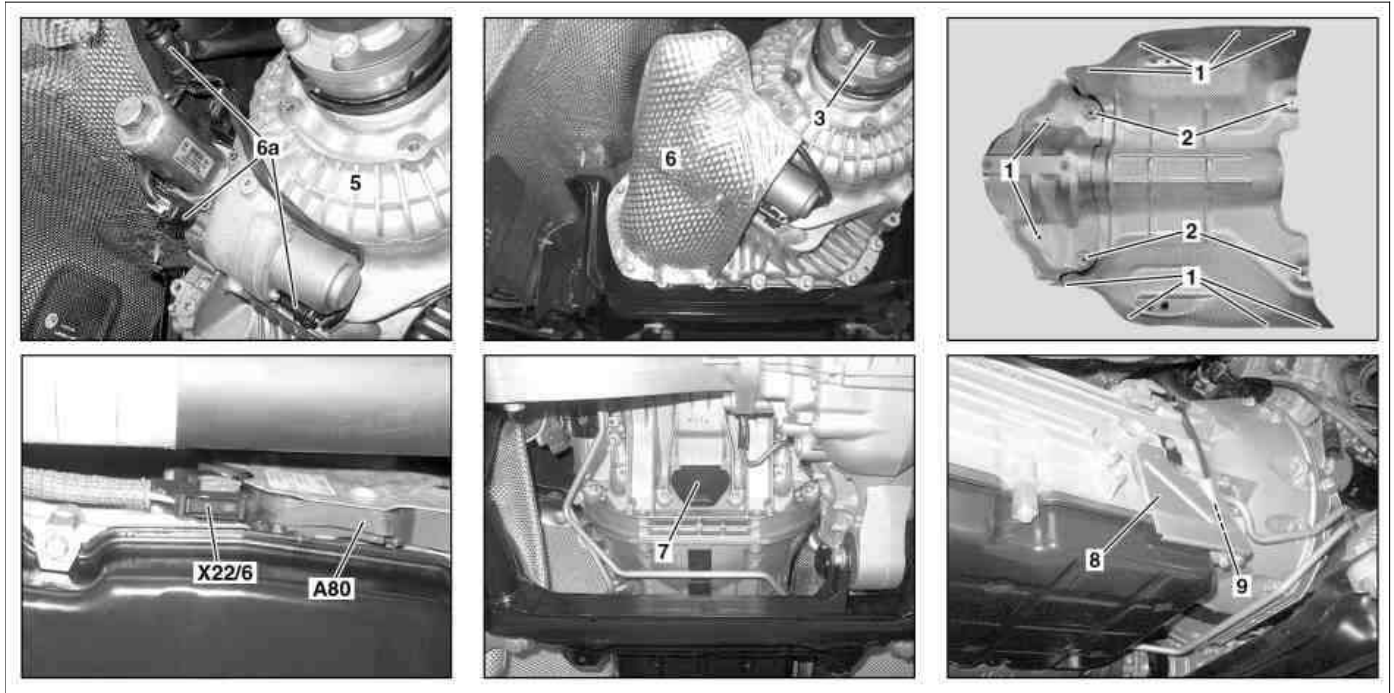


Transmission 722.9 in model 164 with engine 113
 Transmission 722.9 in model 164 with engine 629
 Transmission 722.9 in model 164 with engine 642

Modification notes

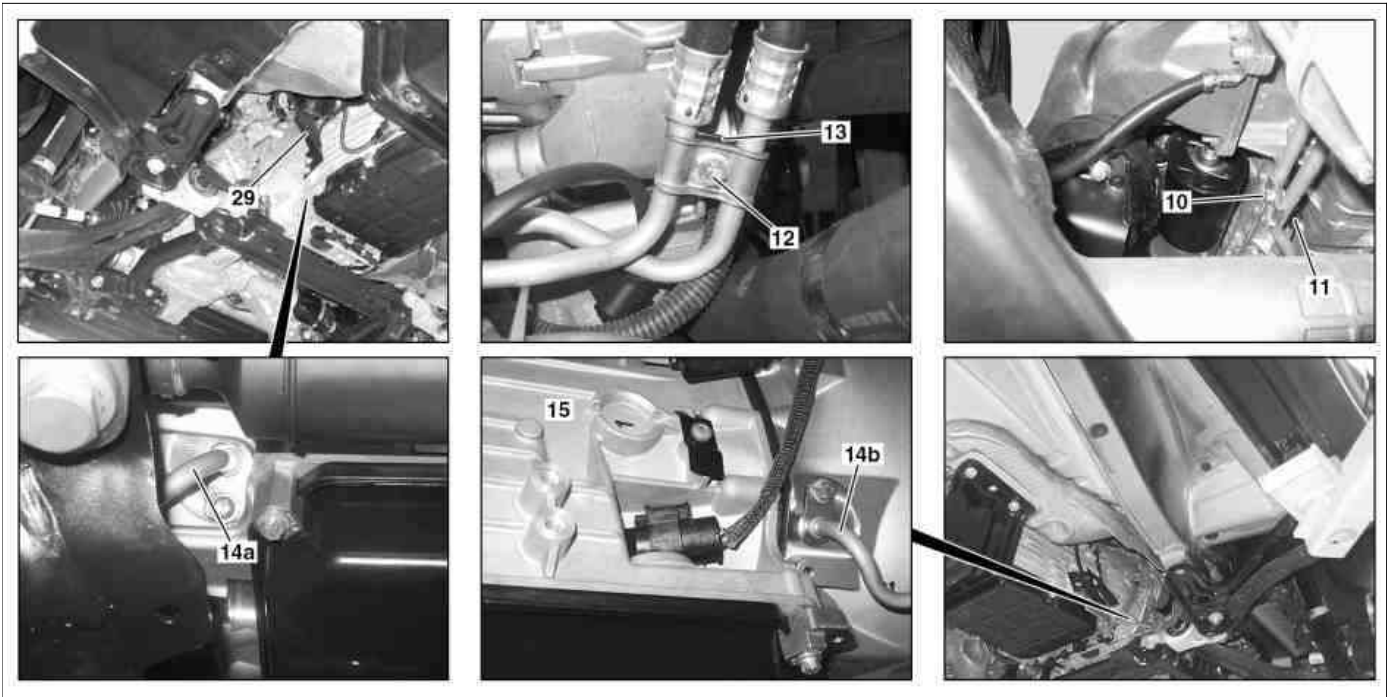
06.03.2014	"Remove corrosion from crankshaft" added.	Operation step 26	
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P27.10-2194-09

Shown on MODEL 164.175 with CODE 430 (Off-road package)

1	Bolts	6	Heat shield	9	Transmission electrical connector
2	Nuts	6a	Electrical connectors	A80	Intelligent servo module for DIRECT SELECT
3	Propeller shaft	7	Cover	X22/6	Automatic transmission/intelligent servo module electrical connector
5	Transfer case	8	Heat shield		



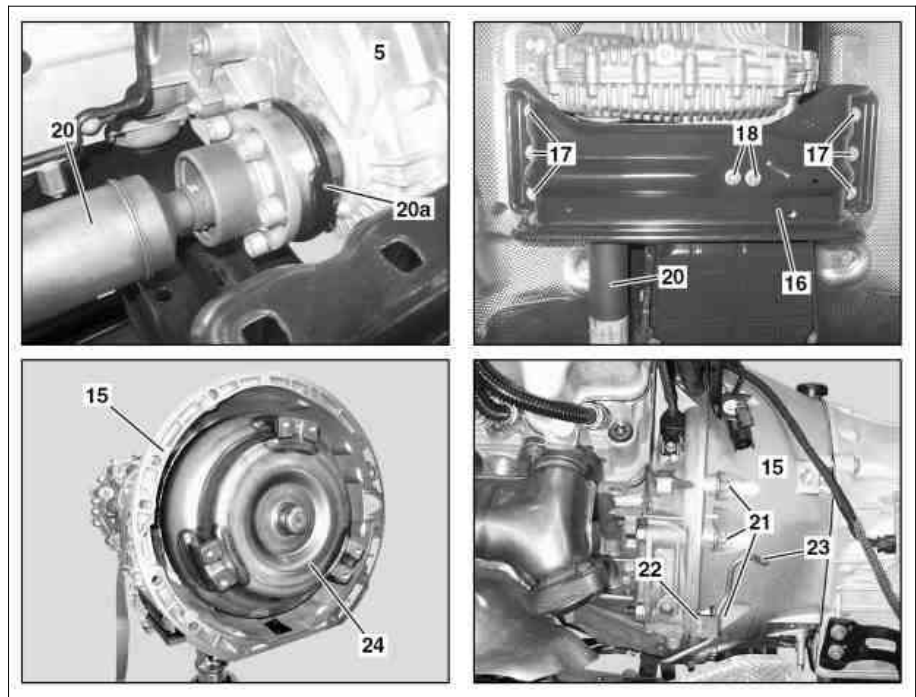
P27.10-2195-09

Shown on MODEL 164.175 with CODE 430 (Off-road package)

- | | | | | | |
|----|-------------------------|-----|--------------------|----|-----------------|
| 10 | Oil line bolt | 13 | Alternator bracket | 15 | Transmission |
| 11 | Oil pan bracket | 14a | Oil line | 29 | Exhaust bracket |
| 12 | Bolt, double hose clamp | 14b | Oil line | | |



Shown on MODEL 164.175 with CODE 430 (Off-road package)

- | | |
|-----|------------------------|
| 5 | Transfer case |
| 15 | Transmission |
| 16 | Engine cross member |
| 17 | Bolts |
| 18 | Bolts |
| 20 | Front propeller shaft |
| 20a | Propeller shaft flange |
| 21 | Bolts |
| 22 | Vent line bracket |
| 23 | Vent line |
| 24 | Torque converter |






P27.10-2196-06

Topical note	Information on preventing damage to electronic components due to electrostatic discharge		AH54.00-P-0001-01A
Topical note	Notes on bolted connections with self tapping screws		AH00.00-P-0007-01SF
Topical note	Notes on self-locking nuts and bolts		AH00.00-N-0001-01A
	Remove/install		
1	Move DIRECT SELECT gear selector switch to position "N"		

2	Release parking brake		
3	Disconnect battery ground cable		AR54.10-P-0003GZ
Topical note	Notes on battery		AH54.10-P-0001-01A
4	Secure vehicle on the lifting platform and raise		AR00.60-P-0100GZ
5.1	Remove the exhaust system	Model 164 with engine 113 with transmission 722.9	AR49.10-P-7000GZ
5.2	Remove exhaust system downstream of primary catalytic converter	Model 164 with engine 629, 642 with transmission 722.9	AR49.10-P-7100GZB
6	Remove bolts (1) and nuts (2), remove heat shield from rear drive shaft (3)	i All three heat shields are removed completely.	
7	Detach rear ^{front} propeller shaft (3) from transfer case (5)	i Mark the rear ^{front} propeller shaft (3) relative to the propeller shaft flange. i Installation: Observe the tightening procedure for the rear propeller shaft (3) to the transfer case (5). Nm Self-locking screw/bolt of propeller shaft at transfer case/adaptor housing (to rear axle) S Retainer wrench	AR41.10-P-0050-17GZ *BA41.10-P-1001-01F *164589020700
8	Remove heat shield (6)	Model 164 with engine 113, 629, 642 with code 430 (Offroad package)	
9	Disconnect electrical connectors (6a) from transfer case (5)	Model 164 with engine 113, 629, 642 with code 430 (Offroad package) i Three electrical connections.	
10	Detach electrical connection for automatic transmission/intelligent servo module (X22/6) from intelligent servo module for DIRECT SELECT (A80)		
11	Remove exhaust bracket (29)	Engine 113 in model 164 with transmission 722.9	
12	Remove heat shield (8) from transmission (15)	Nm Bolt, heat shield to transmission housing	AR27.40-P-0700-01GZ *BA27.40-P-1014-01A
13	Disconnect transmission electrical connection (9) at electric controller unit	i Installation: Fix the wiring harness to the transmission housing using a cable strap. Wiring harness must not come into contact with exhaust system.	
14	Remove cover (7) and detach torque converter (24) from driver spider	Model 164 with engine 113 with transmission 722.9 Model 164 with engine 629, 642 with transmission 722.9  Do not use an impact wrench or compressed air tools to remove and screw in the bolts. Otherwise, the threaded unions in the torque converter (24) or the driver spider may be damaged. Nm Bolt, torque converter to driver spider S Socket wrench bit S Long wedge	AR27.20-P-0100-01GZ AR27.20-P-0100-01A *BA27.20-P-1002-01C *001589650900 *115589035900
15	Remove bolt for oil line (10) from oil pan bracket (11)	Nm Bolt, oil cooler oil line to engine oil pan	*BA27.55-P-1003-01D
16	Unscrew double clamp bolt (12) from alternator bracket (13)	Nm Bolt, clamp to oil line	*BA27.55-P-1004-01D
17	Detach oil line (14a) and oil line (14b) from transmission (15) and oil pan, and place to one side	 Before starting work, the area surrounding the oil lines (14a, 14b) must be thoroughly cleaned in the area of the separating points of the transmission (15). Even the smallest dirt particles in the hydraulic components can lead to malfunctions and a total failure of the transmission (15). i Do not kink or bend oil lines (14a, 14b). i Seal the connections on the transmission (15) and oil line (14a, 14b) immediately with stop plugs. i Installation: Replace O-rings Nm Bolt, oil line to transmission housing S Record plug	*BA27.55-P-1002-01D *129589009100
18	Prop up transmission (15) using telescopic lifter and transmission plate		

WS WS	000 588 10 62 00 Support plate 000 588 11 62 00 Major assembly mount		WS26.00-P-3309B WS01.00-P-0092B
		Lower transmission (15) slightly and fasten to transmission platform using tensioning strap.	
19	Remove bolts (17, 18) and take off engine cross member (16).	ENGINE 629, 642 ENGINE 113 Installation: Check rear engine mount for wear and damage and replace if required. The rear engine mount remains on the transmission (15). Bolts (18) must be replaced.	AR22.10-P-1180GZD AR22.10-P-1170GZA
20.1	Remove front propeller shaft (20) on transfer case (5)	Model 164 with engine 629, 642 with transmission 722.9 Mark front propeller shaft (20) relative to propeller shaft flange (20a). Hook front propeller shaft (20) to one side using cable ties. Installation: Observe tightening procedure for front propeller shaft (20). Self-locking bolt, drive shaft to transfer case (to front axle) Retainer wrench	AR41.10-P-0070-03GZ *BA41.10-P-1003-01F *164589020700
20.2	Remove front propeller shaft (20)	Model 164 with engine 113 with transmission 722.9	AR41.10-P-0070GZ
21	Detach starter from transmission (15)	Place starter to the side with lines connected and secure to prevent it falling down. Model 164 with engine 113 with transmission 722.9 Bolt, starter to cylinder crankcase Model 164 with engine 642 with transmission 722.9 Screw/bolt, starter to cylinder crankcase Model 164 with engine 629 with transmission 722.9 Bolt for starter	*BA15.30-P-1003-01A *BA15.30-P-1003-01N *BA15.30-P-1003-01C
22	Detach transmission (15) from crankcase and oil pan, to do so, remove bolts (21)	First remove the bolt at the vent line bracket (22) and remove the vent line (23). Bolt, automatic transmission to engine	*BA27.40-P-1008-01A
23	Support engine at front at oil pan	Model 164 with engine 629, 642 with transmission 722.9	
24	Remove transmission (15) from below	Secure torque converter (24) to prevent it from falling out. Installation: Align the bores of the torque converter (24) with the bores in the driver spider.	
25	Remove torque converter (24)	If necessary Installed height of torque converter Handles Parallel rest	AR27.20-P-0500-01W *BE27.20-P-1001-01E *168589006200 *126589043100
26	Remove corrosion from crankshaft	Assembly cleaner Multi-purpose paste	AR03.20-P-1000-01A *BR00.45-Z-1028-04A *BR00.45-Z-1009-06A
	Check		
27	Check threaded unions in torque converter (24) or driver spider	If threaded unions are damaged or loose: ↓ Replace torque converter (24) or driver spider. Model 164.175 with engine 113.964 with transmission 722.901 Model 164 with engine 629 with transmission 722.9 Model 164 with engine 642 with transmission 722.9	AR03.30-P-8001GZ AR03.30-P-8001GZD AR03.30-P-8001GZB
28	Install in the reverse order		
29	Check transmission oil level and correct if necessary		AR27.00-P-0270W

		 Follow the prescribed work procedure exactly and observe the Specifications for Operating Fluids. The transmission (15) will otherwise be damaged.	
30	Read out fault memory using the diagnostic system and clear if necessary		AD00.00-P-2000-04A
 AD			
31	Perform transmission adaptation using diagnostic system	After replacing or repairing transmission (15)	
32	Reset data on service life of torque converter lockup clutch using diagnostic system	After replacing torque converter (24)	
 Warning	Risk of accident from vehicle starting off by itself when engine running. Risk of injury (bruises and burns) resulting from working on the engine while it is being started or when it is running.	Secure vehicle to prevent it from starting off by itself. Wear buttoned-up and snug-fitting work clothes. Do not touch hot or rotating parts.	AS00.00-Z-0005-01A
33	Test run engine and check transmission (15) for leaktightness and proper operation		

Test values for torque converter

Number	Designation	Transmission 722.9
BE27.20-P-1001-01E	Installed height of torque converter Distance, bolt flange to transmission housing flange	Helical screwed connection mm 9,5
		See picture AR27.20-P-0500-01 W
		Axial screwed connection mm 19,5

Starter

Number	Designation	Engine 113.964 in model 164
BA15.30-P-1003-01A	Bolt, starter to cylinder crankcase	Nm 40=29.5 ft. lbs.

Starter

Number	Designation	ENGINE 601, 602, 604, 605, 606, 628, 629
BA15.30-P-1003-01C	Bolt for starter	Nm 42

Starter

Number	Designation	Engine 642
BA15.30-P-1003-01N	Screw/bolt, starter to cylinder crankcase	Nm 40

Torque converter

Number	Designation	Transmission 722.9
BA27.20-P-1002-01C	Bolt, torque converter to driver spider	Straight threaded connection M8 Nm 42=31 Ft. lbs.
		Angled threaded connection Stage 1 Nm 4=3 ft. lbs.
		Stage 2 Nm 30=22.1 ft. lbs.
		Stage 3 \sphericalangle ° 90
	Torque Angle Gauge needed	

Housing

Number	Designation	Transmission 722.9
BA27.40-P-1008-01A	Bolt, automatic transmission to engine	M10×40 Nm 38=28 ft. lbs.

	M10×45	Nm	38
	M10×90	Nm	38
	M12	Nm	–

Nm Housing

Number	Designation		Transmission 722.9
BA27.40-P-1014-01A	Bolt, heat shield to transmission housing	Nm	9=6.6 ft. lbs.

Nm Oil cooling

Number	Designation		Transmission 722.9		
BA27.55-P-1002-01D	Bolt, oil line to transmission housing Torque Angle Gauge needed.	Banjo bolt	Stage 1	Nm	5=3.7 ft. lbs.
			Stage 2	∠°	90
		Hexalobular bolt		Nm	12=8.9 ft. lbs.

Nm Oil cooling

Number	Designation		Transmission 722.9
BA27.55-P-1003-01D	Bolt, oil cooler oil line to engine oil pan	Nm	12

Nm Oil cooling

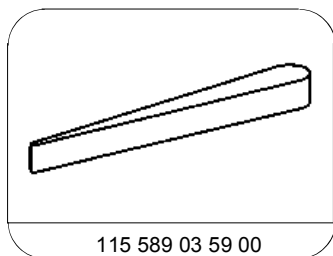
Number	Designation		Transmission 722.9
BA27.55-P-1004-01D	Bolt, clamp to oil line	Nm	8=5.9 ft. lbs.

Nm Propeller shaft

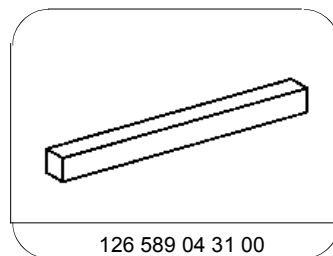
Number	Designation		Model 164.1/8	
BA41.10-P-1001-01F	Self-locking screw/bolt of propeller shaft at transfer case/adapter housing (to rear axle) Torque Angle Gauge needed.	Stage 1	Nm	40=29.5 ft. lbs.
		Stage 2	∠°	90

Nm Propeller shaft

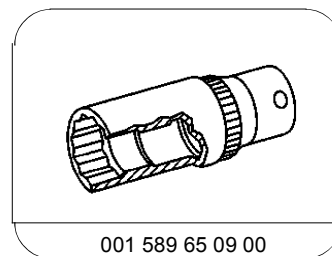
Number	Designation		Model 164.1/8	
BA41.10-P-1003-01F	Self-locking bolt, drive shaft to transfer case (to front axle)	Stage 1	Nm	40
		Stage 2	∠°	90



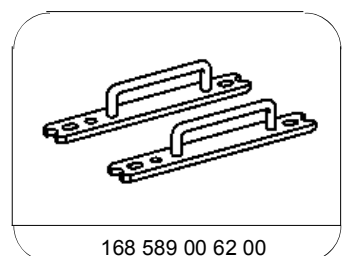
Long wedge



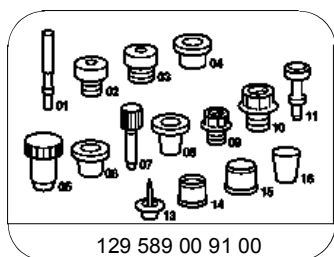
Parallel rest



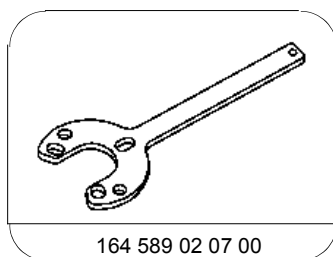
Socket wrench bit



Handles



Record plug



Retainer wrench

Repair materials

Number	Designation	Order number
BR00.45-Z-1009-06A	Multi-purpose paste	A 000 989 80 51 10
BR00.45-Z-1028-04A	Assembly cleaner	Adolf Würth GmbH & Co. KG Reinhold-Würth-Str. 12-17 74653 Künzelsau-Gaisbach Germany Tel. +49 7940 15-0 Fax +49 7940 15-1000 http://www.wuerth.de