#### ENGINE Crank Assembly - 209 Chassis

				943/944/945/946/ 948/960/961/962/ 963/964/965/966/ 967/968/971/980/ 981/982/984/986/ 987/988/990/991/ 992/993
BA03.10-P-1001-	Connecting rod bolt	Stage 1	Nm	5
01E		Stage 2	Nm	25
		Stage 3	Angle°	90



### Fig. 11: Identifying External Torx Set (001 589 76 09 00) Courtesy of MERCEDES-BENZ USA

1. Clean the bearing points of connecting rod, connecting rod bearing caps and connecting rod bearing journals with a chamois leather.

i Blow through oil ducts in direction of flow oil with compressed air. Do not use any hard objects for cleaning.

2. The assignment of connecting rods to the connecting rod bearing journals is indicated on the back of the connecting rod bearing shells by a colored dot.

i Only assigned color combinations of the connecting rod bearing shells may be combined, yellow with yellow and red with blue.

The sequence of the individual color combinations on the connecting rod bearing journals can be selected at random.

3. Insert connecting rod bearing shells (7) into the connecting rod (4) and connecting rod bearing cap

The connecting rod bearing shell (7) with the oil drilling (arrow) must be installed in the connecting rod (4) otherwise the connecting rod bearings will not be lubricated.

i The anti-twist locks (8) of the connecting rod bearing shells (7) must be located in the slots (9) of the connecting rods (4) and the connecting rod bearing caps.

ENGINE Crank Assembly - 209 Chassis



P03.10-2032-01

# **Fig. 12: Locating Bearing Points Of Connecting Rod Courtesy of MERCEDES-BENZ USA**

- 4. Install connecting rod bearing cap with connecting rod bearing shells (7).
- 5. Lubricate thread and bolt head contact surface of connecting rod bolts with engine oil.
- 6. Screw in connecting rod bolts and tighten to step  $1 \boxed{\text{Nm}}$ .

### Shown on engine 112



P03.10-2023-01

### Fig. 13: Locating Connecting Rod Bearing Cap With Connecting Rod Bearing Shells Courtesy of MERCEDES-BENZ USA

- 7. Tighten connecting rod bolts to step  $2 \mathbb{N}$ .
- 8. Tighten connecting rod bolts using an angle wrench to step 3 Imm.

i If no torquing angle wrench is available, the connecting rod screws can be torqued further by the specified angle in a single operation using a wrench and tommy bar.

Do not use a flexi-rod torque wrench for tightening in order to avoid any angle errors.

Install, measure conrod bearings - AR03.10-P-6111-06VA

## **TEST VALUES FOR CRANKSHAFT BEARING CLEARANCE**

Number	Designation	Engine 156	Engine 272

ENGINE Crank Assembly - 209 Chassis

BE03.20-P-	Connecting rod	Radial when	mm	0.0220.062	0.0220.066	
1002-04E	bearing play	new				

Assignment of conrod bearings to conrod bearing journals on engine 272					
Upper half Conrod	Lower half Connecting rod bearing cap	Connecting rod bearing play (mm)			
yellow	yellow	0.026 - 0.066			
blue	red	0.026 - 0.066			
red	blue	0.026 - 0.066			

1. Clean the bearing points of connecting rod, connecting rod bearing caps and connecting rod bearing journals with a chamois leather.

i Blow out oil ducts in direction of oil flow with compressed air. Never use hard objects for cleaning.

2. The assignment of conrods to the conrod bearing journals is indicated on the back of the conrod bearing shells by a colored dot.

Li Only the assigned color combinations of the conrod bearing shells (see table) may be installed together. The sequence of the individual color combinations on the connecting rod bearing journals can be selected at random.

3. Insert connecting rod bearing shells (1) into connecting rod and connecting rod bearing cap (2).

i The anti-twist locks (3) of the conrod bearing shells (1) must be located in the slots (4) of the conrods (2) and the conrod bearing caps.



P03.10-2063-01

Fig. 14: Identifying Connecting Rod Bearing Shells, Connecting Rod Bearing Cap, Anti-Twist Locks And Slots Courtesy of MERCEDES-BENZ USA

Mount connecting rod bearing - AR03.10-P-6111-08SX

<b>INSPECTION DAT</b>	A FOR CRANKSHAFT BEARING CLEARANCE	
Number	Designation	]

Engine 273

ENGINE Crank Assembly - 209 Chassis

BE03.20-P-1002- 04E	Connecting rod bearing play	radial when new	mm	0.0220.066
0 IE	eearing play			

### **CONNECTING ROD**

Number	Designation			Engine 273
BA03.10-P-1001-	Connecting rod bolt	Stage 1	Nm	5
01E		Stage 2	Nm	25
		Stage 3	Angle °	90

Assignment of connecting rod bearing to connecting rod journal for engine 273					
Lower half of connecting rod Connecting rod b					
Upper half of connecting rod	bearing cap	(mm)			
yellow	yellow	0.0220.066			
blue	red	0.0220.066			
red	blue	0.0220.066			

1. Clean bearing points on connecting rod, connecting rod bearing caps and connecting rod journals with a chamois leather.

i Blow through oil ducts in direction of flow oil with compressed air. Do not use any hard objects for cleaning.

2. The assignment of connecting rods to the connecting rod bearing journals is indicated on the back of the connecting rod bearing shells by a colored dot.

i Only assigned color combinations of the connecting rod bearing shells (see table) may be installed together. The sequence of the individual color combinations on the connecting rod bearing journals can be selected at random.

3. Insert connecting rod bearing shells (1) into connecting rod (2) and connecting rod bearing cap.

(b) The anti-twist locks (3) of the connecting rod bearing shells (1) must be located in the cutouts (4) of the connecting rod (2) and the connecting rod bearing cap.

ENGINE Crank Assembly - 209 Chassis



P0310-2098-11

# Fig. 15: Identifying Bearing Shells, Connecting Rod, Anti-Twist Locks And Cutouts Courtesy of MERCEDES-BENZ USA

- 4. Install connecting rod bearing cap with connecting rod bearing shells (1).
- 5. Spread engine oil onto the thread and bolt head contact surface of the connecting rod bolts.
- 6. Screw in connecting rod bolts and tighten to step 1.
- 7. Tighten connecting rod bolts to step 2.
- 8. Tighten connecting rod bolts using an angle wrench to Stage 3.

i If no torquing angle wrench is available, the connecting rod screws can be torqued further by the specified angle in a single operation using a wrench and tommy bar.

Do not use a flexi-rod torque wrench for tightening in order to avoid any angle errors.



PD3.10-2099-11

ENGINE Crank Assembly - 209 Chassis

### Fig. 16: Tighten Connecting Rod Bolts **Courtesy of MERCEDES-BENZ USA**

### **PISTON REMOVAL AND INSTALLATION - AR03.10-P-7021**

#### Remove/install a piston - AR03.10-P-7021AMG

### **ENGINE 156**



- Connecting rod bearing cap 1 2 connecting rod
- Piston pin Connecting rod bolts
- 3 Pistons 4 Circlip
- 7 8 Anti-twist locks

5

roov	cs		

- 9 G 10 Connecting rod bearing shells
- 11 Markings

Fig. 17: Identifying Piston Components Courtesy of MERCEDES-BENZ USA

Retaining strap 6



P0310-2060-01

### Fig. 18: Identifying Retaining Strap **Courtesy of MERCEDES-BENZ USA**

X	Removing		
Danger!	<b>Risk of death</b> caused by vehicle slipping or	Align vehicle between columns of vehicle lift	AS00.00-Z-0010-01A