

REPAIR INSTRUCTIONS

ZF-ASTRONIC

Maintenance, Diagnosis, Component Replacement
Repair Level 1 – 2

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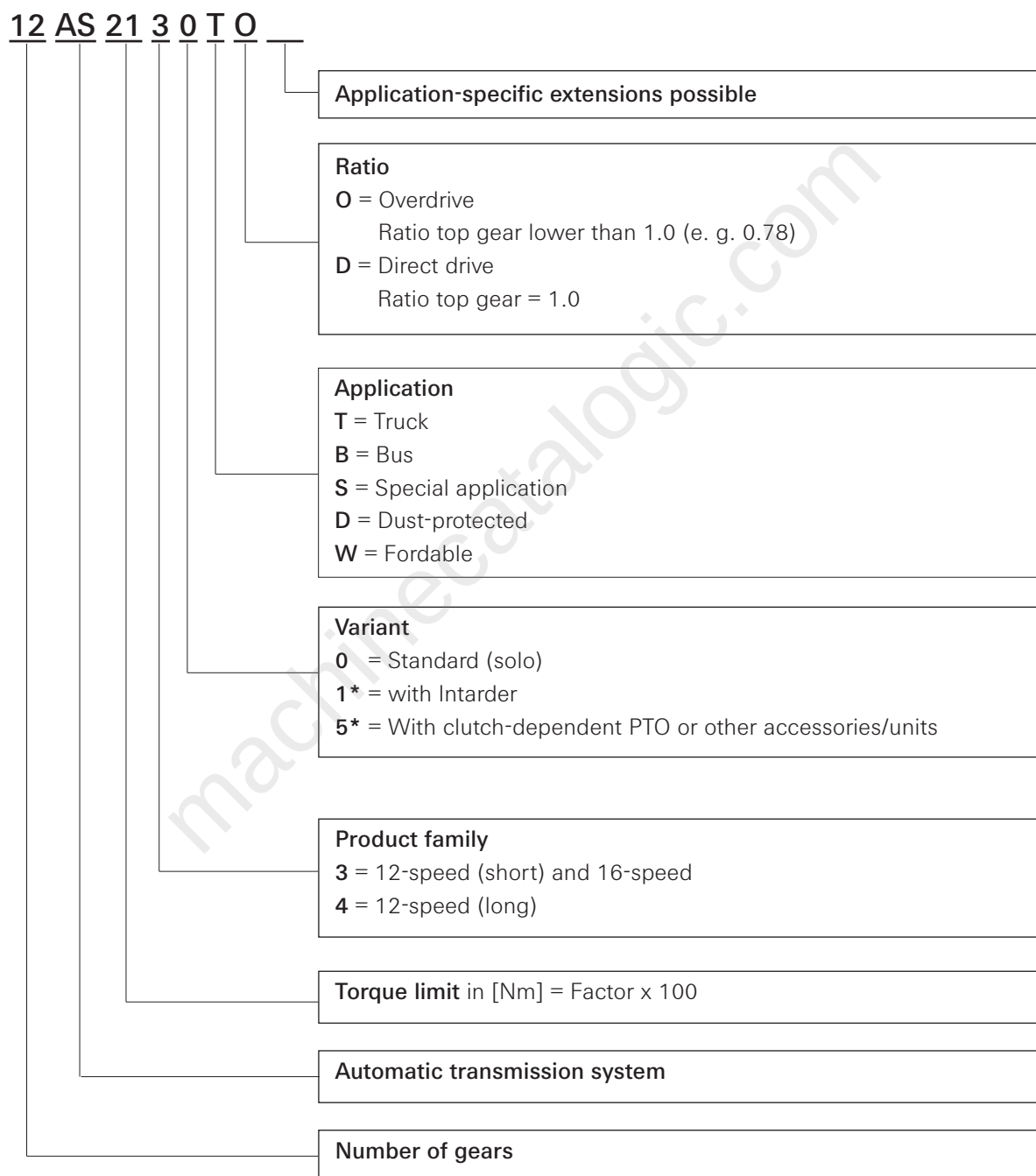
TRUCK



Product Designation

The ZF-AS Tronic product designation is based on the following type key.

Type designation e. g. **12 AS 2130 TO**

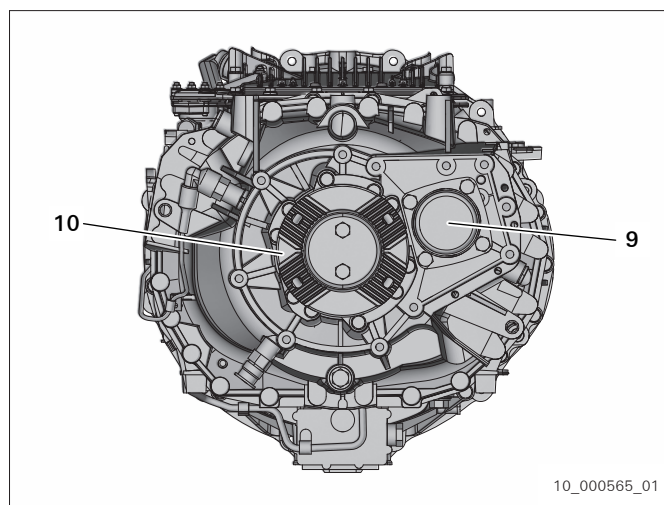
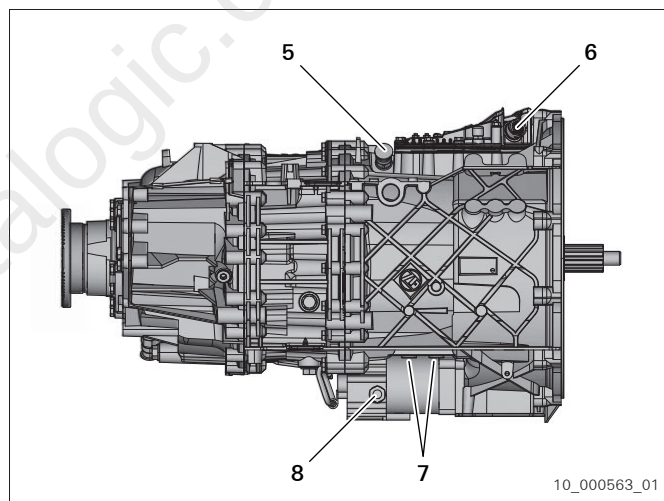
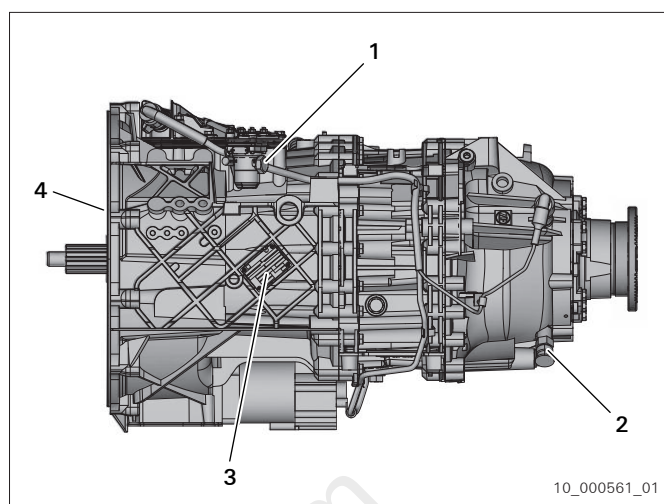


* In the event of a combination, the lowest digit is used

Interfaces with the Vehicle

Legend:

- 1 Transmission actuator's compressed-air connection
- 2 Tachograph connection (optional)
- 3 Type plate
- 4 Engine connection
- 5 Neutral switch connection
- 6 Connection for vehicle-end wiring harness
- 7 Heat exchanger connection
- 8 Clutch actuator's compressed-air connection
- 9 PTO connection
- 10 Propshaft connection



Transmission Bleeding

The transmission is fitted with a vent on the transmission actuator as standard. The vent should be protected from the ingress of large amounts of water. The vent must be clean; ensure that the plastic cover is not fitted.

In the case of vehicles which are frequently cleaned with a water jet, moisture or moist air may be drawn into the vent as a result of sudden transmission cooling, causing condensation to form inside the transmission. Also applications where the transmission is located in the water-expelling area of the rear wheels may be affected by this.

Since the proportion of water in the transmission oil must not exceed 1 000 ppm, ZF recommends that rather than the standard vent, a hose-type vent be installed in the vehicle's dry compartment. The transmission's interface to the hose may be supplied having been fitted in the factory. A retrofit kit for hose venting is available under ZF number 1315 298 021 from ZF Service.

This provides the best-possible protection for the transmission against water ingress. When using this form of hose venting, the oil change interval for ECOFLUID M transmission oil increases. More information on this can be found in the List of Lubricants TE-ML 02.

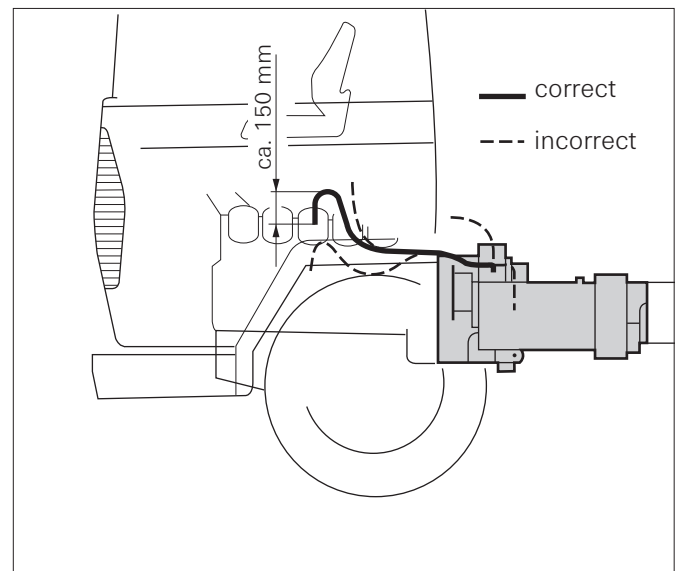
Notes on the "dry compartment" and routing of the hose:

"Dry compartment" is defined as follows:

- Splash-protected
 - Low air humidity
- Example: trunk, battery compartment

The following should be noted when fitting the hose (also refer to sketch):

- Ensure that the hose exits the transmission vent horizontally (use angle screw connection if necessary).
- Route hose so that it rises continuously. A siphon effect should be avoided (see sketch).
- No kinks, chafing points. Route hose in the largest radius possible.
- Max. permissible hose temperature (e.g. near exhaust pipes, exhaust turbocharger) must not be exceeded.
- End of hose lowered by approx. 150 mm.
- Inside width of hose should be at least $\varnothing 4$ mm.
- The vehicle manufacturer is responsible for the correct fitting and routing of the hose.



023915

Fig: Guideline for routing a hose-type vent to the dry compartment

Mounting Transmission Actuator

- 1 If the ball pin is being replaced, coat the thread of ball pin **06.080** with Loctite **no. 262**. Tighten ball pin to **23 Nm**.
- 2 Move piston rod **(4)** on transmission actuator into central position (Neutral). The correct position is reached when slight resistance can be felt when pulling out the piston rod **(4)**.
- 3 Transfer dimensions "**a**" and "**b**" from the removed transmission actuator to the piston rods **(3 and 5)**.
- 4 Selector gate **(6)** and piston rod **(4)** must be one above the other (flush). Ensure that the rubber seals **/170** have been inserted on the transmission actuator.

Legend

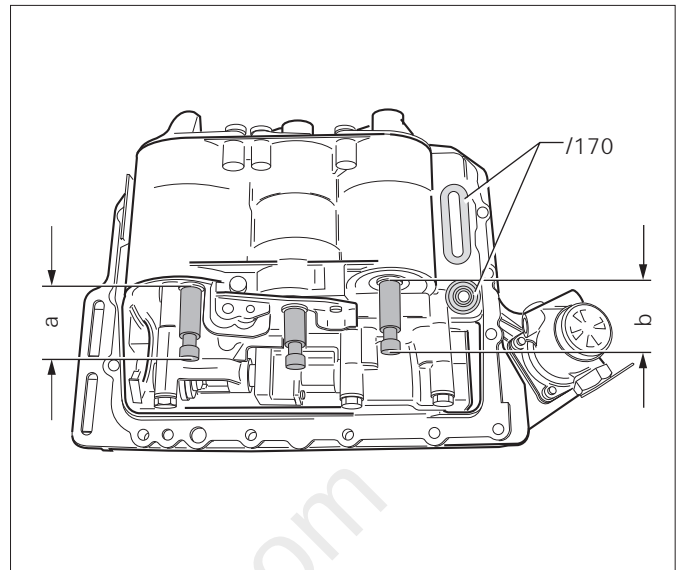
- Piston rod **(3)** = shifts the splitter group (GV)
 Piston rod **(4)** = shifts the basic transmission
 Piston rod **(5)** = shifts the range change group (GP)
 Selector gate **(6)** = selects the shift gate

NOTE

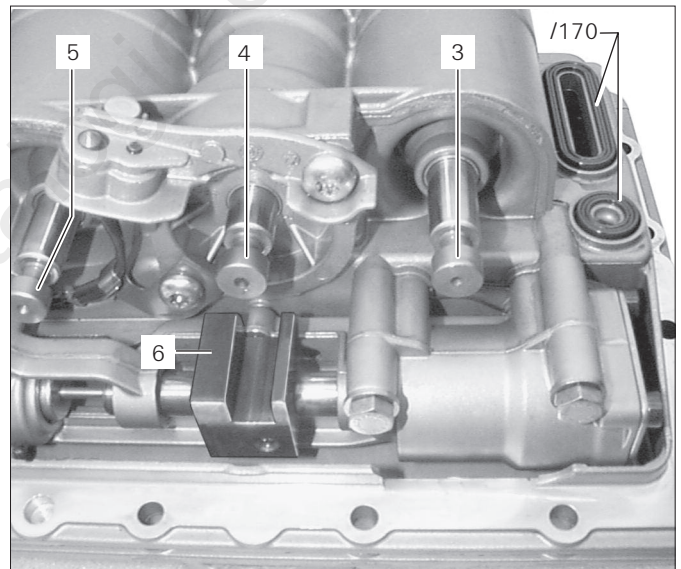
With the 12-speed version, do not slide the shift rail **06.010** in the middle too far into the transmission, otherwise the shift finger could fall into the transmission.

Legend

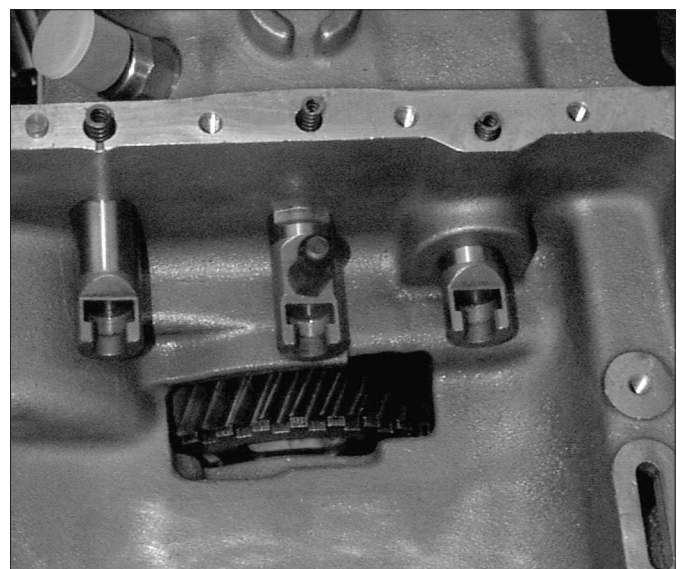
- 12.010** Splitter group (GV) shift rail
06.010 Shift rail for basic transmission
34.010 Range change group (GP) shift rail
06.080 Ball pin



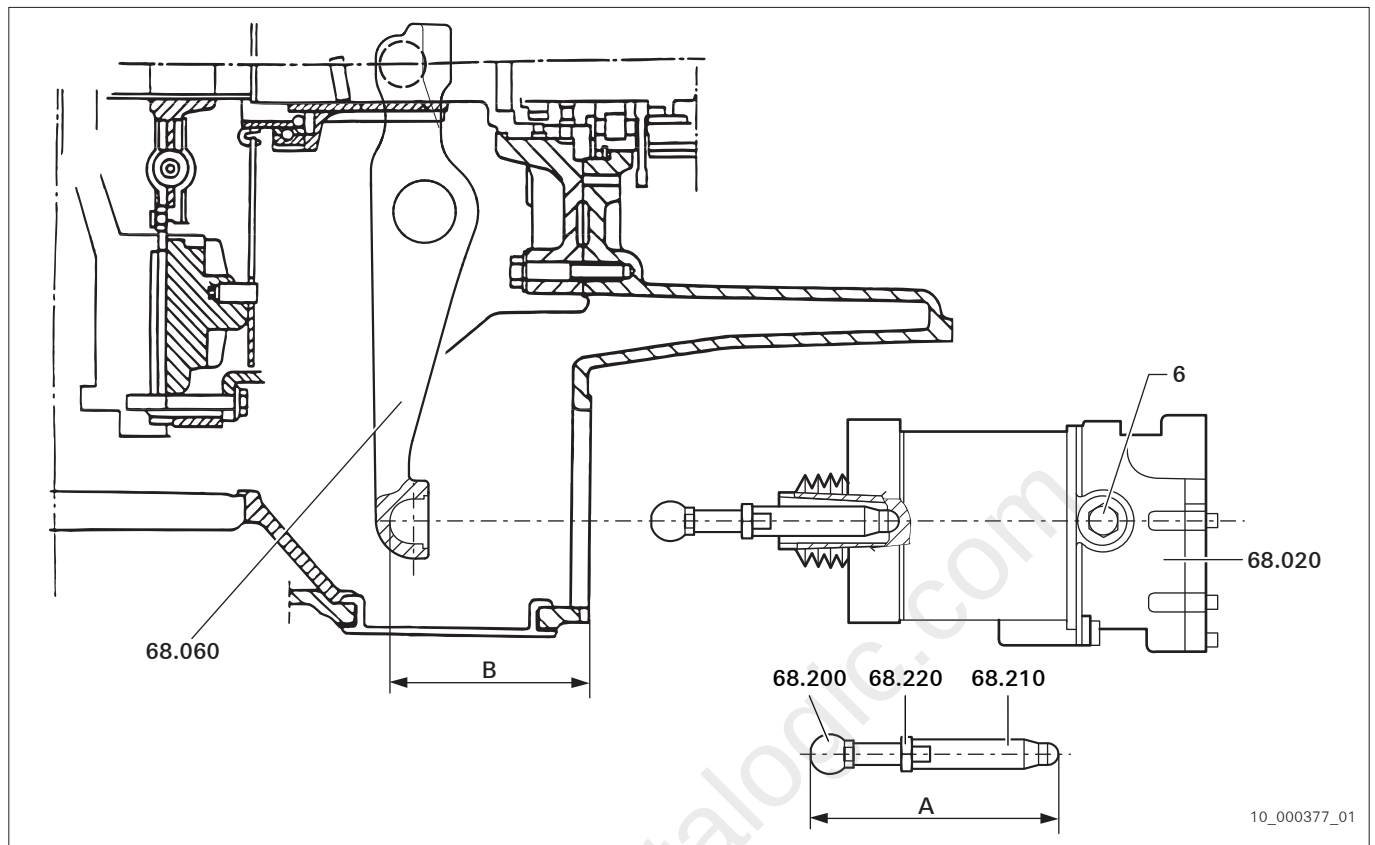
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015019



Set Pushrod (e.g. IVECO version)

The old pushrod dimension is adopted when the clutch actuator only is replaced.

If the driver disk or pressure plate is replaced, the pushrod **68.210** must be reset.

CAUTION

In vehicles with an AS Tronic transmission, the release travel is set and not the wear dimension (as is usually the case). If not set correctly, the pressure plate is damaged.

1 Determine dimension "B":

Press release fork **68.060** forward and measure dimension "B" (e. g. 57 mm).

2 Calculate dimension "A":

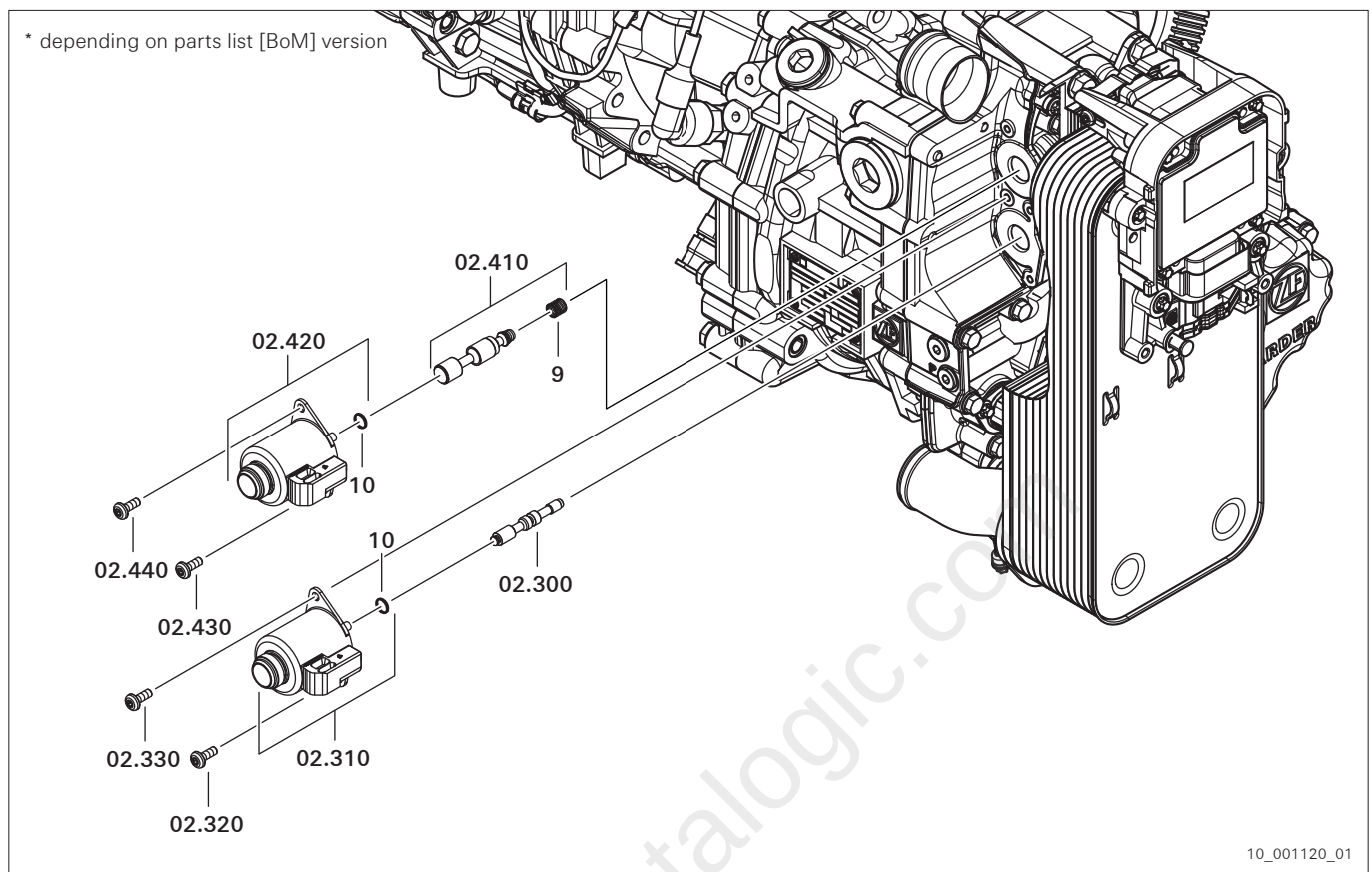
Dimension "B" + 19 mm = Dimension "A"

Example:

$57 \text{ mm} + 19 \text{ mm} = 76 \text{ mm}$ (dimension "A")

Set pushrod to dimension "A"

- 1 Loosen hexagon nut **68.220**.
- 2 Screw in ball pin **68.200** until desired dimension is attained.
- 3 Tighten hexagon nut **68.220** to **52 Nm**.
- 4 For control purposes, check set dimension "A".



Removing Solenoid Valves

- 1 Remove two screws **02.430, 02.440**.
- 2 Remove solenoid **02.420** and disconnect the plug-in connection to the Intarder wiring harness.
- 3 Remove piston **02.410** and compression spring **(9)**.
- 4 Remove two screws **02.320, 02.330**.
- 5 Remove solenoid **02.310** and disconnect the plug-in connection to the Intarder wiring harness.
- 6 Remove piston **02.300**.
- 2 Connect solenoid **02.310** to the Intarder wiring harness; the connector must tangibly and audibly snap in.
- 3 Insert solenoid **02.310** in housing without damaging the O-ring **(10)** on the solenoid.
- 4 Sestre solenoid **02.310** with two screws **02.320, 02.330**.
Tightening torque: **9.5 Nm**
- 3 Fit compression spring **(9)** to piston **02.410** and slide into housing bore.
- 4 Connect solenoid **02.420** to the Intarder wiring harness; the connector must tangibly and audibly snap in.
- 5 Insert solenoid **02.420** in housing without damaging the O-ring **(10)** on the solenoid.
- 6 Sestre solenoid **02.420** with two screws **02.430, 02.440**.
Tightening torque: **9.5 Nm**

Mounting Solenoid Valves

- 1 Slide piston **02.300** into housing bore.



Material

Gehäuse PA6.6GF30 schwarz
 Blende PA6.6GFK30 schwarz
 Stecker ST1(18)(2.8x0.8) Cu Sn 6 bleifrei verzinkt
 Stecker ST1(15)(2.8x0.8) Cu Sn 6 bleifrei verzinkt
 Halter St 12 blau verzinkt

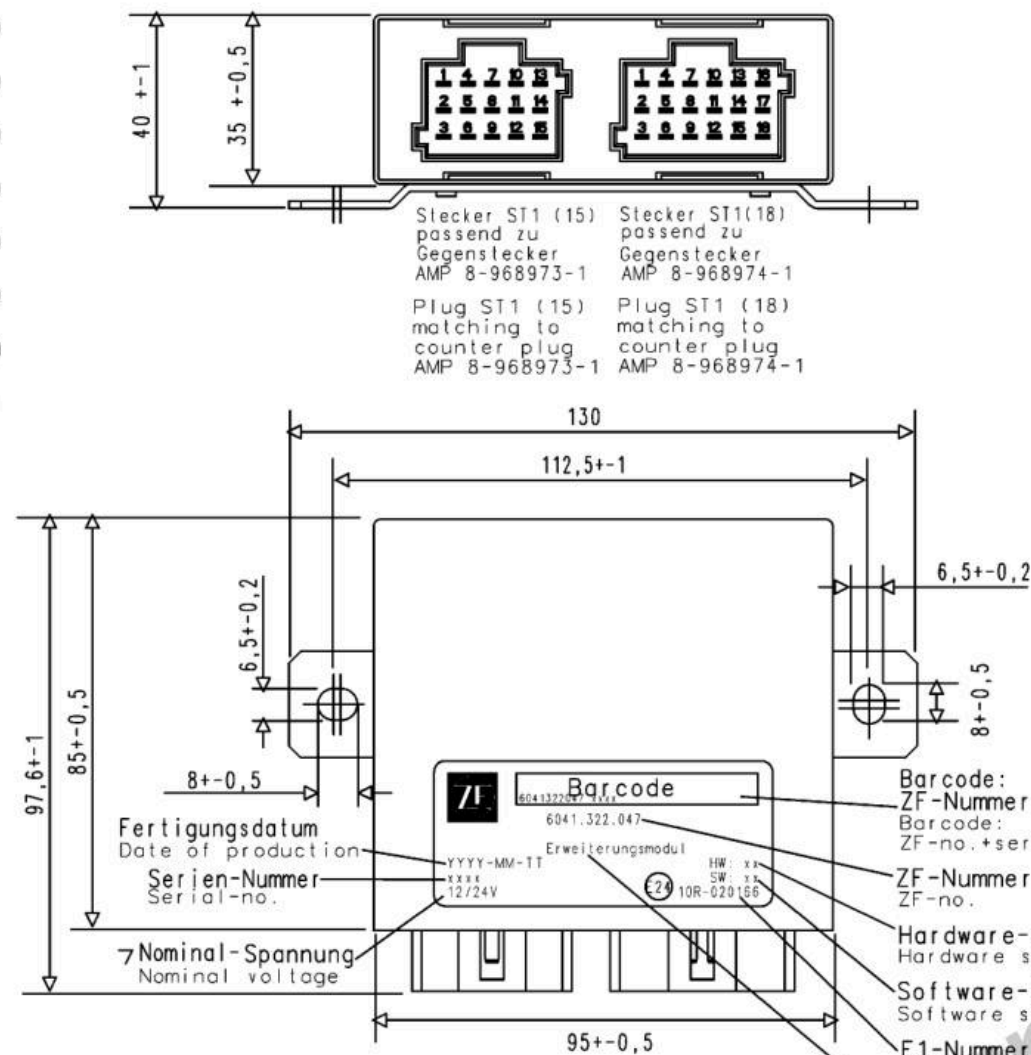
Housing PA6.6GF30 black
 Cover PA6.6GFK30 black
 Plug ST1(18)(2.8x0.8) CuSn6 unleaded tin coated
 Plug ST1(15)(2.8x0.8) CuSn6 unleaded tin coated
 Bracket St12 blue zinc coated

Technische Daten

Nennspannung 12/24V
 Betriebsspannung 9V...32V
 Betriebstemperatur -40...+85°C
 Ruhestrom <1mA
 Schutzklasse IP20
 ZF Spezifikation Nr. 6041 722 041

Technical data

Nominal voltage 12/24V
 Operating voltage 9V...32V
 Operating temperature -40...+85°C
 Stall current <1mA
 Protection class IP20
 ZF Specification No. 6041 722 041



ZF SACH-NR. / ZF PART-NO. Benennung / Description

6041 322 044
 6041 322 047

Fahrschaltermodul / Shift Lever Module
 Erweiterungsmodul / Expansion Module

Dat.	05-11-10	05-11-17	-	-	-	-	-	-	-	-	Masse Mass	
Name	YILDIRIM	WALSER	---	---	---	---	06-07-12	KENN.	-	b	kg	
Bearb. Drawn	Konstr. Design	Funkt. Funct.	Norm. Stand.	Fertig. Prod.	Verz. Tech.	Aend.Datum mod.date	Name Name	Aend.Nr. Mod.No.	Dok.vers. Doc.vers.	Aehn.Dokum.Nr. Similar docu. no.	CAD-System CAD system	
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Technische Information Technical information --- --- ---											Rohteilnummer Casting/forging No.	Blatt Sheet
Benennung Description ELEKTRON. BAUST. ELEKTRON. MODULE											Materialnummer Item number	von of
											6041 622 026	01
											Dokumentnummer Document number	Mass-Tab Scale
											6041_622_026_CC001	1:1
											DIN	A2

Full Version Available

ZF AS-Tronic 12 AS 2302 + AS-Tronic 12 AS 2530 + 2 more Transmission Service Manual

ZF AS-Tronic 12 AS 2302, AS-Tronic 12 AS 2530 transmission service manual with repair, diagnosis and replacement procedures. Instant PDF download.

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