

SUSPENSION

Front Axle - Repair - Z4

3100 GENERAL

00 DANGER OF POISONING IF OIL IS INGESTED/ABSORBED THROUGH THE SKIN

Danger of poisoning!

Ingesting oil or absorbing through the skin may cause poisoning!

Possible symptoms are:

- Headaches
- Dizziness
- Stomach aches
- Vomiting
- Diarrhoea
- Cramps/fits
- Unconsciousness

Protective measures/rules of conduct

- Pour oil only into appropriately marked containers
- Do **not** pour oil into drinking vessels (drinks bottles, glasses, cups or mugs)
- Observe country-specific safety regulations

First aid measures

- Do not induce vomiting.

If the person affected is still conscious, he/she must rinse out their mouth with water, drink plenty of water and consult a doctor immediately.

If the person affected is unconscious, do not administer anything by mouth, place the person in the recovery position and seek immediate medical attention.

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31 00... FRONT AXLE + STEERING: WHEEL/CHASSIS ALIGNMENT CHECK MUST BE CARRIED OUT AFTER THE FOLLOWING WORK

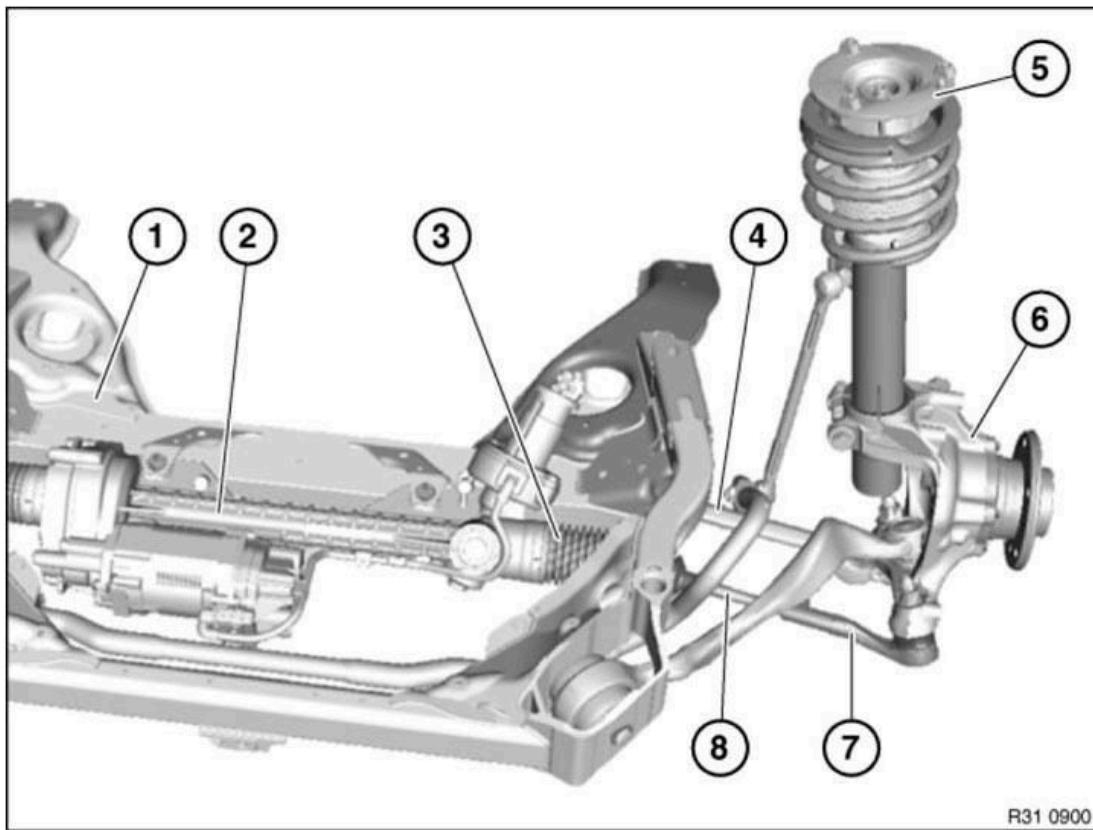
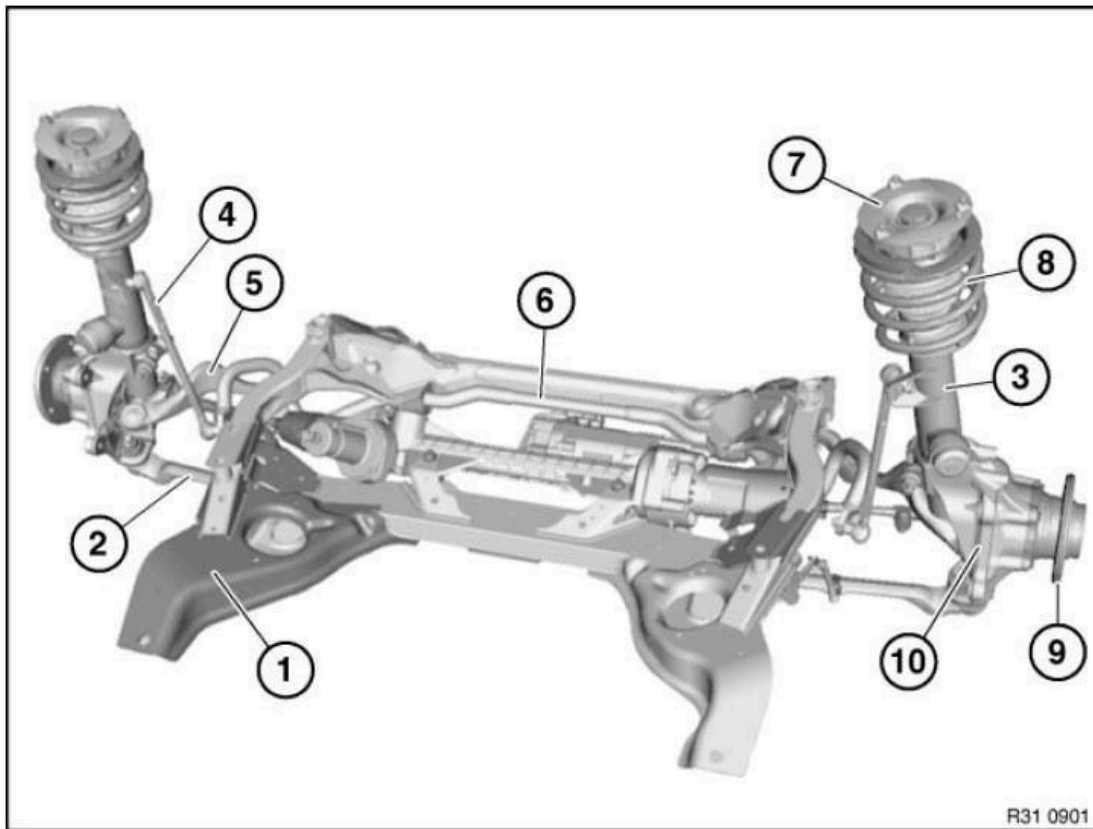


Fig. 1: Identifying Front Axle + Steering Components
 Courtesy of BMW OF NORTH AMERICA, INC.

A WHEEL/CHASSIS ALIGNMENT CHECK must be carried out after the following work:

- **Release of following screw/bolt connections:**
 - Steering gear to front axle carrier
 - Control arm to front axle carrier
 - Support bearing to body (if centering pin is missing)
 - Tie rod end to tie rod
- **Replacement of following parts:**
 1. Front axle carrier
 2. Steering gear
 3. Gaiter (if the tie rod end has to be screwed off)
 4. Control arm
 5. Support bearing (only if centering pin is missing)
 6. Swivel bearing
 7. Tie rod end
 8. Tie rod

31.... FRONT AXLE OVERVIEW



1	Front axle support	7
2	Control arm, ride-height sensor	8
3	Spring strut shock absorber	9
4	Stabiliser link	10
5	Tension strut	
6	Stabilizer/stabilizer suspension	

Thrust bearing
Coil spring
Wheel bearing
Swivel bearing

Fig. 2: Overview Of Front Axle
 Courtesy of BMW OF NORTH AMERICA, INC.

Safety precautions and general information

1. Front axle support
2. Control arm, ride-height sensor
3. Spring strut shock absorber

4. Thrust bearing
5. Stabilizer link
6. Tension strut
7. Stabilizer/stabilizer suspension
8. Coil spring
9. Wheel bearing
10. Swivel bearing
11. Testing/adjustment work

31 00... INFORMATION ON REPLACING SHOCK ABSORBERS

Situation

When a shock absorber is faulty on one side (leaking, noises, etc.), often both shock absorbers on the axle in question are replaced.

Effect

This is not necessary for technical reasons and causes the manufacturer not to recognize the unnecessarily removed shock absorbers as defective parts. Unnecessarily high costs for the customer can be avoided by replacing the shock absorber on one side only.

Procedure

If one shock absorber is damaged, it is only necessary to replace both shock absorbers when the car has driven in excess of 80 000 km.

Exception: On all M-models, when a limit value is exceeded on one side, it is still necessary always to replace both shock absorbers on the relevant axle.

64 00 000 INFORMATION ON USING CLEANING AGENT/PAINTS (PERSONAL PROTECTION EQUIPMENT)

**WARNING: Use of cleaning agents/paints not compliant with instructions can cause serious injuries or burns!
Handling cleaning agents/paints can trigger allergic skin and respiratory reactions!**

IMPORTANT: Observe following instructions:

- **Store cleaning agents/paints only in a secure cabinet.**
- **Keep cleaning agents/paints away from naked flames and other sources of ignition.**
- **Protect cleaning agents/paints from high temperatures and direct**

sunlight.

- **Always keep an eye bath on hand, change the water regularly (once a month).**

IMPORTANT: Observe following instructions before use:

- **Manufacturer's instructions (on container/packaging)**
- **Hazard warnings (on container/packaging)**
- **Manufacturer's instructions on package insert**
- **Material safety data sheet of manufacturer**
- **Product information in EPC**
- **National market regulations**

IMPORTANT: Observe following instructions during use:

- **Do not eat, drink or smoke while working with these products.**
- **Avoid direct contact with skin and eyes.**
- **Wear personal protective clothing/equipment.**
- **Ensure that all enclosed areas are well ventilated or extract fumes directly.**
- **Immediately change working clothes soiled with cleaning agent/paint.**
- **After finishing work, wash your hands and apply protective skin cream.**

IMPORTANT: Follow hazard warnings and wear personal protection equipment!

First Aid:

- If product comes in contact with eyes, immediately flush with running water for about 10 - 15 minutes. Seek the advice of eye specialist.
- In the event of skin contact and where applicable an allergic skin reaction, clean the affected areas immediately with soap and water and then apply silicone-free skin cream. Seek advice of physician.
- If an adhesive product is swallowed, rinse mouth/parts of mouth thoroughly with running water. Drink 1-2 glasses of water. Do not induce vomiting. Consult a doctor.
- After inhaling vapors ensure ample supply of fresh air. Keep calm, keep respiratory tracks clear and call doctor.

Recycling

Dispose of cleaning agents/paints in a professional manner!

Observe national/country-specific disposal regulations.

31 00 MOBILE TABLE LIFT

WARNING: Danger of injury!

Before beginning work, position table lift with the lower frame securely on the floor.

Danger area around mechanism below platform.

- **Do not reach into or step into the danger area.**
- **Note permissible bearing capacity of table lift.**
- **Mount load centrally (danger of tipping) and secure against shifting.**

Follow the operating instructions from the equipment manufacturer.

The mobile table lift is used for collision repairs and when removing large engines.

Adaptations for mounting front axle with engine and transmission.

ADAPTATIONS FOR MOUNTING FRONT AXLE WITH ENGINE AND TRANSMISSION

No. 10	For mounting swivel bearing with brake disc
No. 20	Retaining element for adjustable fixture
No. 30	Adjustable fixture
No. 40	Distance pin 40 x 160 mm
No. 50	Distance pin 40 x 110 mm
No. 60	Distance pin 40 x 60 mm
No. 70	Fixture with U-profile
No. 80	Plate fixture Ø = 100 mm

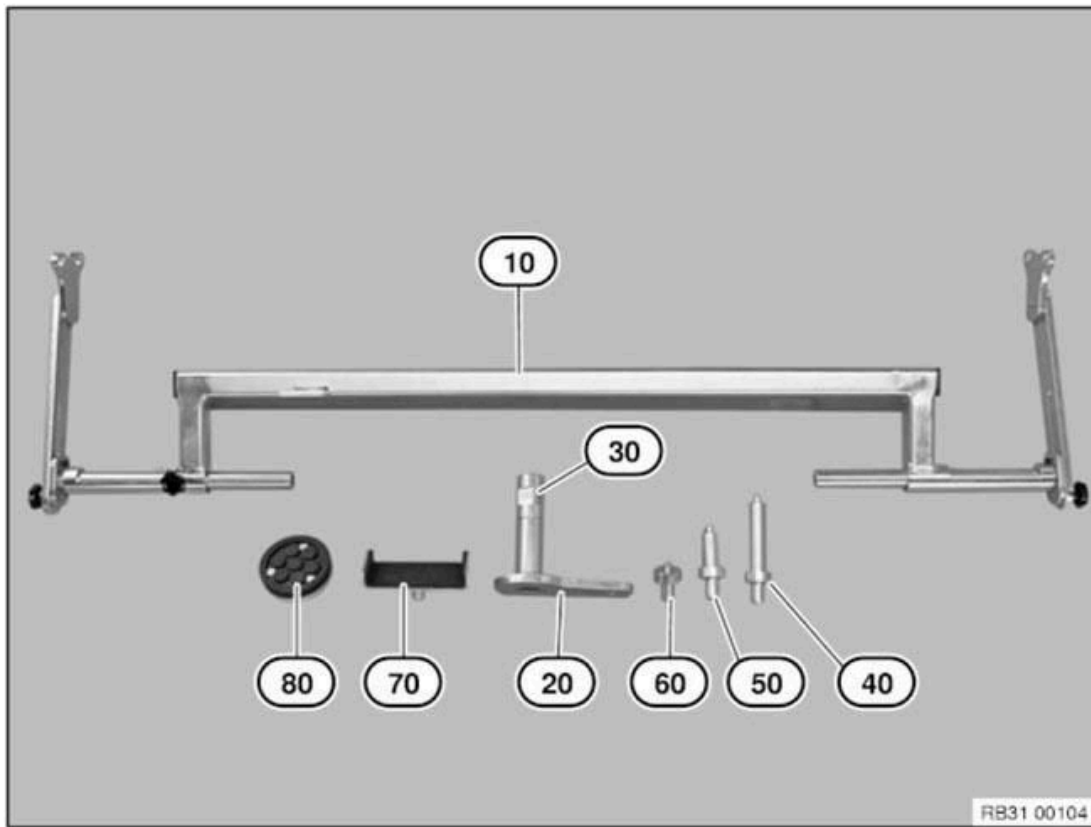


Fig. 3: Adaptations For Mounting Front Axle With Engine And Transmission
 Courtesy of BMW OF NORTH AMERICA, INC.

Release star knob screw on working plate (B) of table lift; the working surface (B) can be extended by approx. 310 mm.

Release all push-pull clamps and the working plates can be shifted by approx. 20 mm.

Working plate (A and B) can be raised and lowered by 3° on the long side and by 5° on the transverse side.

Working plate (A and B) is subdivided by a coordinate system and a possible installation position is recommended in the respective repair manual.

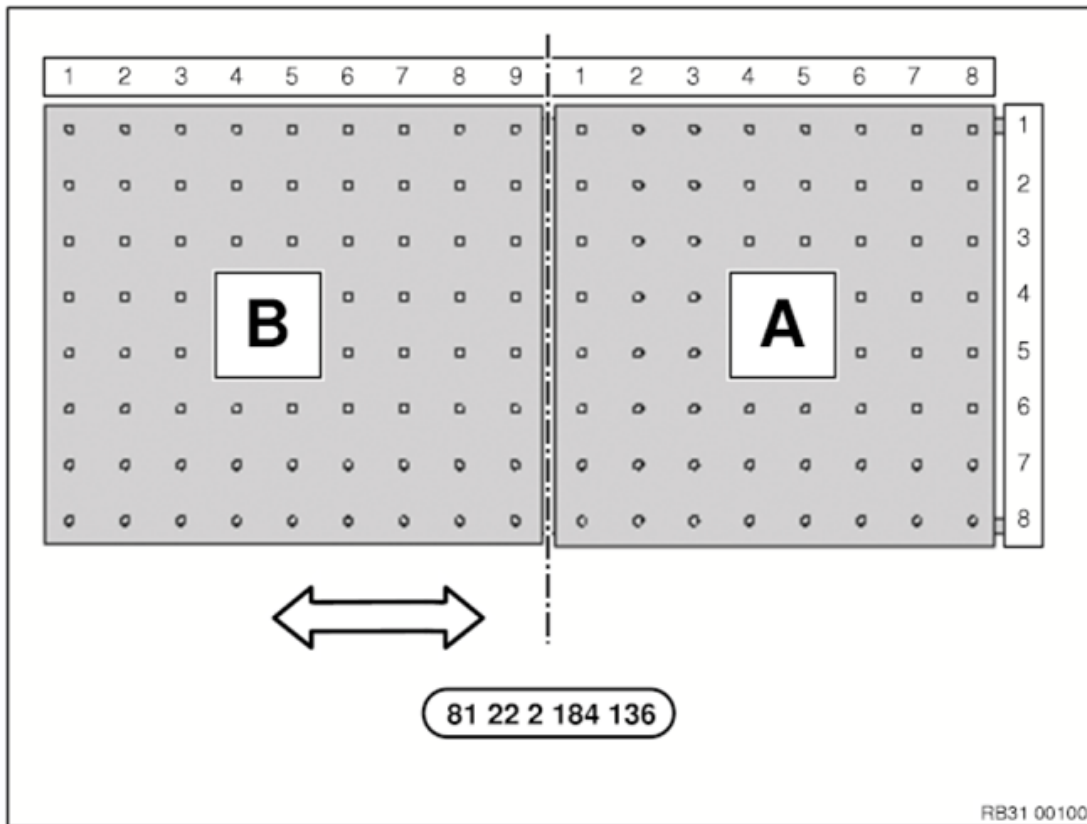


Fig. 4: Identifying Working Plates

Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Follow the operating instructions from the equipment manufacturer.

31 00... NOTES (ALUMINUM CHASSIS COMPONENTS)

Due to the chemical and corrosion characteristics of aluminum, always comply with the following points when handling aluminum components:

- Do not bring into contact with battery acid!
- Do not clean with wire brushes made of brass or iron! Always use wire brushes with stainless steel bristles!
- Do not expose to flying sparks when grinding/separating! Cover components!
- Do not strike with steel welding splashes! Cover components!
- Do not expose to temperatures $> 80\text{ }^{\circ}\text{C}$, even for brief periods! Temperatures in paint facilities do not have the same impact

31 00... NOTES ON REPAIRING THREADS

IMPORTANT: Install Helicoil thread inserts so that they are flush with the original thread.

NOTE: Damaged threads in engine support may be repaired with Helicoil thread inserts. Comply with the procedure described in the example.



Fig. 5: Identifying Damaged Helicoil Thread
Courtesy of BMW OF NORTH AMERICA, INC.

Procedure

1. Create a clean core hole; if necessary, drill out screw remnants

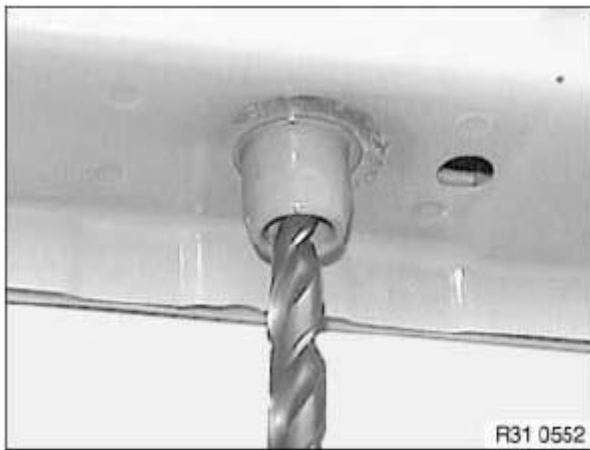


Fig. 6: Creating Clean Core Hole
Courtesy of BMW OF NORTH AMERICA, INC.

2. Create locating thread for Helicoil thread insert