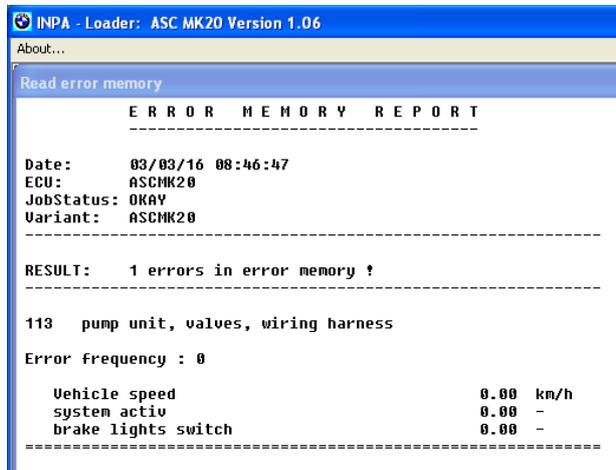


BMW Z3 ABS Module Repair

The information in this file has been collected from various Internet posts on BMW Z3's. Use these notes at your own risk. No liability is implied or will be accepted.

Error Code 113 or 71

The usual error code is 113 (Decimal) or 71 (Hex), Pump unit, valves, wiring harness.



```
INPA - Loader: ASC MK20 Version 1.06
About...
Read error memory
      E R R O R   M E M O R Y   R E P O R T
-----
Date:      03/03/16 08:46:47
ECU:       ASCMK20
JobStatus: OKAY
Variant:   ASCMK20
-----
RESULT:    1 errors in error memory !
-----
113  pump unit, valves, wiring harness
Error frequency : 0
-----
Vehicle speed           0.00 km/h
system activ            0.00 -
brake lights switch     0.00 -
-----
```

Repair Option 1- ABS Unit Activation

Exercising the ABS has at times cleared the fault condition. The mild shaking on the ABS unit as it works seems to wriggle the wires and internal connection to clear the problem. More of a short term fix that treats the symptoms. It does not identify or fix any underlying faults.

Use INPA to activate the ABS module. The car needs to think that the brakes have been applied.

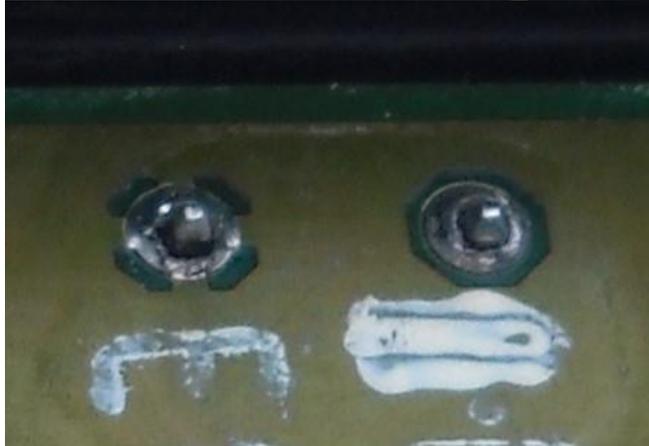
Either:

1. Have someone push and hold the brake pedal
2. Chock the brake pedal down with a stick of wood
3. Remove the driver's side under dash panels and unplug the brake switch.

Repair Option 2- Disassembly and Repair of the ABS Unit

Broken solder joints on the circuit board

A common fault is broken solder joints for the pump electrical connections. The connection between the circuit board and pump is provided by a stalk that comes out of the back of the electrical unit. The solder joint on the circuit board break



Repair steps:

1. Remove ABS unit from the car. Depending on the Z3 model, you may be able to remove the black electrical box and leave the hydraulic unit attached in the car
2. Separate the electrical box from the hydraulic unit, 4 screws
3. A Stanley /craft knife is used to carefully cut through the lid joint. The objective is to do this while keeping all fingers intact and connected to your hands. Be careful.
4. Solder the joints.
5. Check for other damaged solder joints, repair as needed
6. Reattach the lid with a suitable waterproof adhesive
7. Install the ABS unit into the car.
8. Bleed the brakes and ABS unit

Bleeding the ABS unit

If the ABS unit has been removed, then brake pipes will have been opened and air introduced into the system. Appropriate software or scanning tools will be needed to bleed the ABS unit. INPA can be used.

Tools needed:

1. Pressure bleeder or second person to push the brake peddle
2. Normal brake bleeding tools, spanner, plastic pipe, empty bottle etc

Important Note: The ABS unit is only rated for short time duration activation. Monitor the temperature of the ABS unit pump during the bleeding.

Pressure Bleeder Procedure:

1. Remove the driver's side under dash panels, unplug the brake. This allows the ABS unit to think the brake pedal is applied and allow the pressure bleeder to push brake fluid through the master cylinder and brake system.
2. Set up the pressure bleeder system. Making sure that there is sufficient brake fluid in the master cylinder for the task or check and top up the master cylinder as you bleed the system.
3. Using INPA, connect to the ABS unit. Go to the "Activate" screen and run the ABS activation. It will run for about 12 seconds. This confirms that your setup is working.
4. Set up to bleed the first brake calliper:
 - a. Open the bleed valve,
 - b. Quickly go to the computer and activate the ABS unit.
 - c. Close the bleed valve when the ABS activation finishes.
 - d. Check master cylinder brake fluid level and the pressure in the pressure bleeder.
5. Repeat step 4 for each wheel and as necessary to remove the air out of the ABS unit and brake system.
6. Check, record and clear any error codes in the ABS unit.

7. Start the car and check that there are no ABS, ASC or brake warning lights.
8. Reassemble the car and test the brake system.

Installing a Second Hand ABS Unit

There are several different ABS units in use in the Z3 cars. Cross compatibility between ABS part numbers has not been investigated. It is best to purchase a second hand ABS unit with the same part numbers as the one in your car. You only need to change the electronics box. The pump rarely fails and you avoid the need to bleed the brake system.

You may need to code the ABS unit to your car. Problems experienced with incorrectly coded ABS units have included:

- ABS unit does not work e.g. no pulsing on the brake pedal with a skidding wheel on gravel
- ABS always works when the brakes are applied.

The following are comments from forum threads relating to the procedure of coding the ABS unit.

Using NCS Expert

NSC Expert and NSC dummy information

<https://www.bimmerforums.com/forum/showthread.php?1553779-NCS-Dummy-Taking-the-expert-out-of-NCS-Expert>

Note that there are various versions of NCS Expert and NCS Dummy. Check the wording of each step carefully as you go.

Comment 1

1. load profile expertmode
2. F1 VIN/ZCS/FA
3. F3 ZCS/FA
4. Select E36
5. Select ECU then any of the available modules should provide NCS with your cars details. e.g EWS, this will load the cars individual coding into NCS, then press back button.
6. F4 process ECU and choose the ASCMK20 module
7. F3 execute job, it will now write the coding for this module which was gathered during step 5.
8. Done. NCS should complete successfully (hopefully)

Comment 2

Inspired by your write up I finally got around to buying the Bcables kit and set about recoding my ABS/ASC module. Your write up was a real help and I identified a couple of small tweaks (possibly down to different versions of the software) which I thought I would share.

1. "load profile expertmode" gave an error message "Profilversion 2.0 ungultig!" (i.e. invalid). After a bit of research I loaded "Expertenmodus (Werkseinstellung)" from the list of profiles

and this worked perfectly.

step by step Coding replacement ABS with NCS

1. Go to the main INPA start up menu and you will see on the right side the program called NCS (don't open INPA)
2. Open NCS
3. In the file menu at the top select 'load profile'
4. Select 'Expertenmodus (Werkseinstellung)' and press OK
5. Now press F1 (described as FG/ZCS/FA)
6. Press F3 (described as ZCS/FAf.ECU) (In other words you want to interrogate the ECU's)
What you will now do is select the chassis type and a module where you want to copy the code from, so
7. In the box that opens choose E36,
8. Choose EWS. This is where your cars code will be copied from (you can choose another but I used the immobiliser system)

After choosing this you should now have VIN number details filled in from your car, meaning this code is now selected and copied. Check they are correct. (If not start the program again until the details are correct)
9. Press F6 (back) you will see the words "Get Coded" appear and "all Modules" however you do not want to copy this to all modules, just the replacement ABS ECU , so:
10. Select F4 Process ECU
11. choose MK2 for ABS
12. press F3 execute job

That's it..... Completed..... the coding is copied!

Here are the two sets of instructions laid out side by side

1. load profile expertmode	1. In the file menu at the top select 'load profile' Select 'Expertenmodus (Werkseinstellung)' and press OK
2. F1 VIN/ZCS/FA	2. Now press F1 (described as FG/ZCS/FA)
3. F3 ZCS/FA	3. Press F3 (described as ZCS/FAf.ECU) (In other words you want to interrogate the ECU's) What you will now do is select the chassis type and a module where you want to copy the code from,
4. Select E36	4. In the box that opens choose E36,
5. Select ECU then any of the available modules should provide NCS with your cars details. e.g EWS, this will load the cars individual coding into NCS,	5. Choose EWS. This is where your cars code will be copied from (you can choose another but I used the immobiliser system) After choosing this you should now have VIN number details filled in from your car, meaning this code is now selected and copied. Check they are correct. (If not start the program again until the details are correct)
6. then press back button.	6. Press F6 (back) you will see the words "Get Coded" appear and "all Modules" however you do not want to copy this to all modules, just the replacement ABS ECU, so:
7. F4 process ECU	7. Select F4 Process ECU
8. choose the ASCMK20 module	8. choose MK2 for ABS
9. F3 execute job, it will now write the coding for this module which was gathered during step 5.	9. press F3 execute job