Installation Instructions

SPS Triggerwheel 36-2 MX-5 NA/NB/NBFL 1.6/1.8L

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Editer:	Nico Hafner	Vehicle:		Mazda MX-5 NA/NB/NBFL

Scope of delivery:

- SPS Trigger wheel with 36-2 Coding

Warning:

Please read this instruction before installation and get in touch with the work on the car! Ideally, have the installation done by a professional workshop. Tighten all screws with the torque recommend by the manufacturer. The assembling company is liable for installation mistakes. In case of manufacturing defects, the corresponding components will be replaced without any costs within the warranty period.

Nico Hafner	gez. Nico Hafner
Name of editer	**Signature**

SPS Motorsport GmbH
Im Petersfeld 4
65624 Altendiez

Telefon: 06432/6409960
Fax: 06432/6409966
Web: http://sps-motorsport.com
E-Mail: info@sps-motorsport.com

Necessary vehicle setup:

1.6L NA, 1990-1991 (4 slots on the face of the crank pulley):
The trigger wheel won´t work with small nose crankshafts. You have to upgrade to a big nose crankshaft setup including crankshaft, oil pump and crank wheel. After this follow the instructions for 1.6 NA

1.6L NA, 1991-1993 (8 slots on the face of the crank pulley):
Following parts are required:
- Crankshaft pulley of a 1996-2005 MX-5
- Generator of a 1994-1997 MX-5
- Water pump pulley of a 1994-1997 MX-5
- Crankshaft sensor of a 1999-2005 MX-5

MX-5 NA, 1994-1995:
Following parts are required:
- Crankshaft pulley of a 1996-2005 MX-5
- Crankshaft sensor of a 1999-2005 MX-5

MX-5 NA, 1996-1997:
Following parts are required:
- Crankshaft sensor of a 1999-2005 MX-5

MX-5 NB/NBFL 1999-2005:
No further parts are required

Preparation:
- Park the vehicle, switch off the engine and let the engine cool down
- Open the hood
- Remove the undertray
- Remove the intake system
- Remove the anti roll bar connection to the chassis to generate a bit more space to work with
- Remove both accessory belts

Nico Hafner	gez. Nico Hafner
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For use with OEM crank pulley:

Removing the OEM crank pulley:

- Untighten and remove the crankshaft sensor so you don´t damage it by removing the crankshaft pulley
- Turn the engine to TDC
- Remove the four smaller screws of the crankshaft pulley and remove the crankshaft pulley from the engine
    - ➔ *Do not remove the center bolt connecting the timing belt pulley to the crankshaft*

Exchanging the trigger wheel on the OEM crank pulley:

- Remove the OEM trigger wheel
- Position the SPS 36-2 trigger wheel on the crankshaft
    - ➔ *Make sure that the two missing teeth are positioned at around 9 o´clock and the small slot in the trigger wheel is filled by the pin in the crankshaft. Otherwise, the crankshaft sensor is going to deliver wrong data to the ECU and the car will not start*
- Make sure the trigger wheel sits properly around the whole surface of the crankshaft

Installation of the OEM crankshaft pulley:

- Set the crankshaft pulley on the crankshaft in place (above the trigger wheel)
- Install the 4 smaller screws that hold the crankshaft pulley to the crankshaft itself using Loctite, tightening torque according to manufacturer´s advice 15 Nm
- Set the crankshaft sensor back in place with a distance of trigger wheel to sensor of 0.50mm

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For use with Fluidampr:

Removing the Fluidampr pulley:

- Fully remove the timing belt
- Loosen and remove the center bolt of the crankshaft pulley
- Carefully remove the Fluidampr from the crankshaft
  - ➔ *Make sure that you don´t lose the woodruff key. Right after removing the Fluidampr make sure your woodruff key and the slot for the key are not damaged and replace them as necessary*

Exchanging the trigger wheel on the Fluidampr:

- Remove the inner belt guide from the Fluidampr
- Remove the OEM trigger wheel from the damper
- Place the SPS 36-2 trigger wheel on the Fluidampr
  - ➔ *Make sure the trigger wheel is positioned that way, that by looking on the face of the Fluidampr, the missing teeth are positioned around 9 o´clock while the woodruff slot is on the top*
- Innere Zahnriemenführung wieder aufsetzen
- Set the inner belt guide back into it´s position on the damper
- Reinstall and tighten the 4 screws that attach the belt guide to the damper using Loctite
  - ➔ Tightening torque according to manufacturer´s advice 10 Nm

Nico Hafner	gez. Nico Hafner
Name of editer	**Signature**

Modification of the lower timing belt cover:

To successfully install the Fluidampr to the car, you need to modificate
the lower timing belt cover. Just follow our pictured instructions for this.

Front view

TDC marker

Side view, left

Side view, right

Nico Hafner	gez. Nico Hafner
Name of editer	**Signature**

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Front view, cutted

TDC marker, cutted

Side view, left, cutted

Side view, right, cutted

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Installation of the Fluidampr:

- Install the Fluidampr on the crankshaft
  - ➔ *Make sure, that the woodruff key is not too deep in the slot initially. We recommend to stick the key half way into the slot and to stick it all the way in when the Fluidampr is on the crankshaft*
- Reinstall and tighten the center crankshaft pulley bolt using Loctite. Tightening torque according to manufacturer´s advice 170 Nm
- Reinstall the timing belt and it´s covers
  - ➔ *Make sure the damper and the trigger wheel do not make any contact with the timing belt covers*
- Reinstall the crankshaft sensor with a trigger wheel to sensor distance of 0.50mm

Electrical installation of the crankshaft sensor (MX-5 NA):

- Use the wires of the CAS sensor (backside of the cylinder head)
- White-red wire of the CAS -> Red wire of the crankshaft sensor
- White wire of the CAS -> Blue wire of the crankshaft sensor
- Black-bright green wire of the CAS -> Black wire of the crankshaft sensor
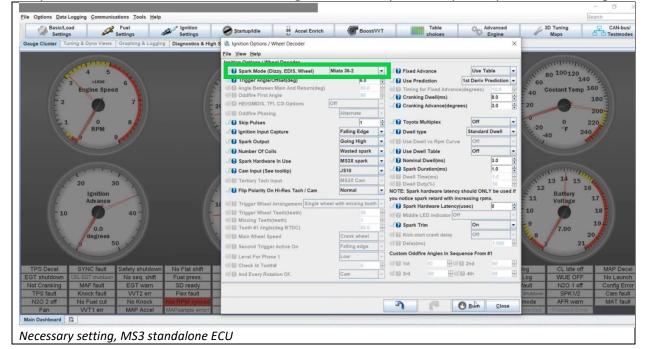
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Software changes (MS3):

To make sure your ECU recognizes the new trigger wheel you´ll have to change the setting for wheel decoder in the MS3 software. Therefore you´ll have to click on "Ignition settings / Wheel Decoder" and pick the option "Miata 36-2" on the Spark Mode. After this you have to click "Burn" on the lower right section so your ECU picks up the new setting

Necessary setting, MS3 standalone ECU

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Final work on the vehicle:

- Reinstall and tighten the accessory belts
- Reattach the anti roll bar to the chassis and tighten the screws
- Reinstall the intake system
- Reinstall the undertray

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