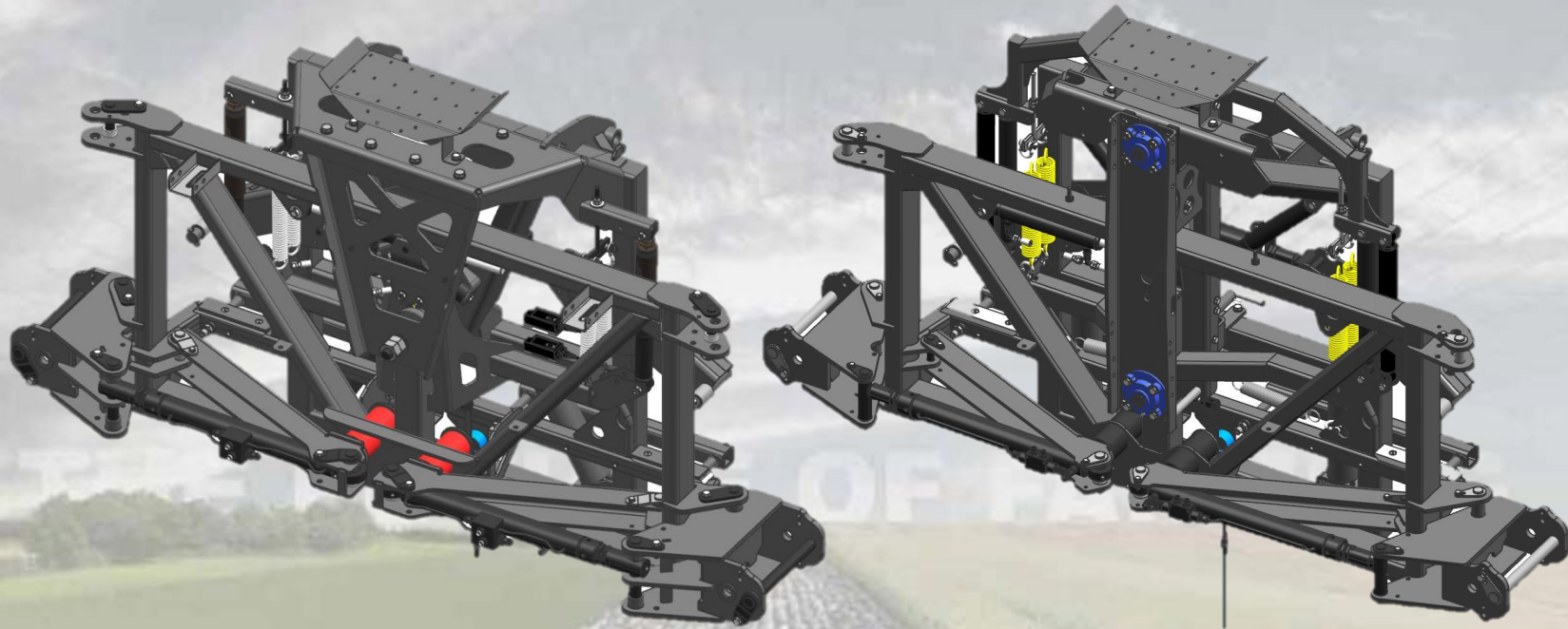


TSM Middle frame settings



Date	Season 2022-2023
Subject	Middle frame settings sprayers
Place	Kverneland Group Nieuw Vennepe Hoofdweg 1278 2153 LR Nieuw Vennepe The Netherlands
Details	Technical Service Manual

Table of contents

1. Different types of absorbers and springs	3
2. HOSA Aluminium 12-15m boom	4
3. HC Small Steel 18m (3pf) & 20/21m (4 pf) boom	6
4. HC Big Steel 24m (4pf) Boom	8
5. HC Big Steel 27-30m (5-pf) boom	10
6. HSS Small 18-24 (2-pf) boom	12
7. HSS Big 27-30m (3-pf) boom	14
8. HSS Big 32-40m (3-pf) boom	16
9. HSS 27-30m (2-pf) (steel) + HSA 21-33 m (2-pf) (aluminium)	18
10. HSS 32-40m (3-pf) Flatland balancing	20
11. HSS 32-40m (3-pf) Boomguide frame	22

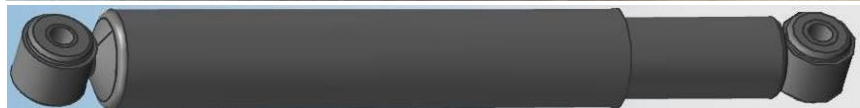
1. Different types of absorbers and springs



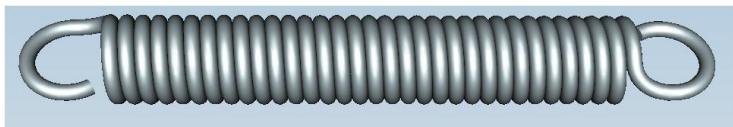
Absorber: Adjustable **AST**



Absorber: Adjustable **KONI**



Absorber: not adjustable **Black**



Diameter: 39 mm Type **Heavy duty**
Original length : 291 mm

Part number A1384699



Diameter: 50 mm Type **Yellow**
Original length : 300 mm

Part number RG00053352



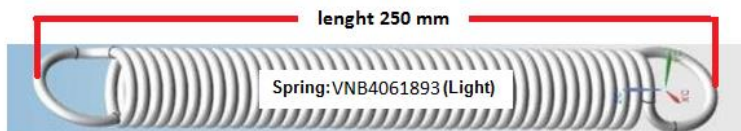
Diameter: 28 mm Type: **Heavy**
Original length : 260 mm

Part number VNB3682493



Diameter: 26 mm Type **Medium**
Original length : 230 mm

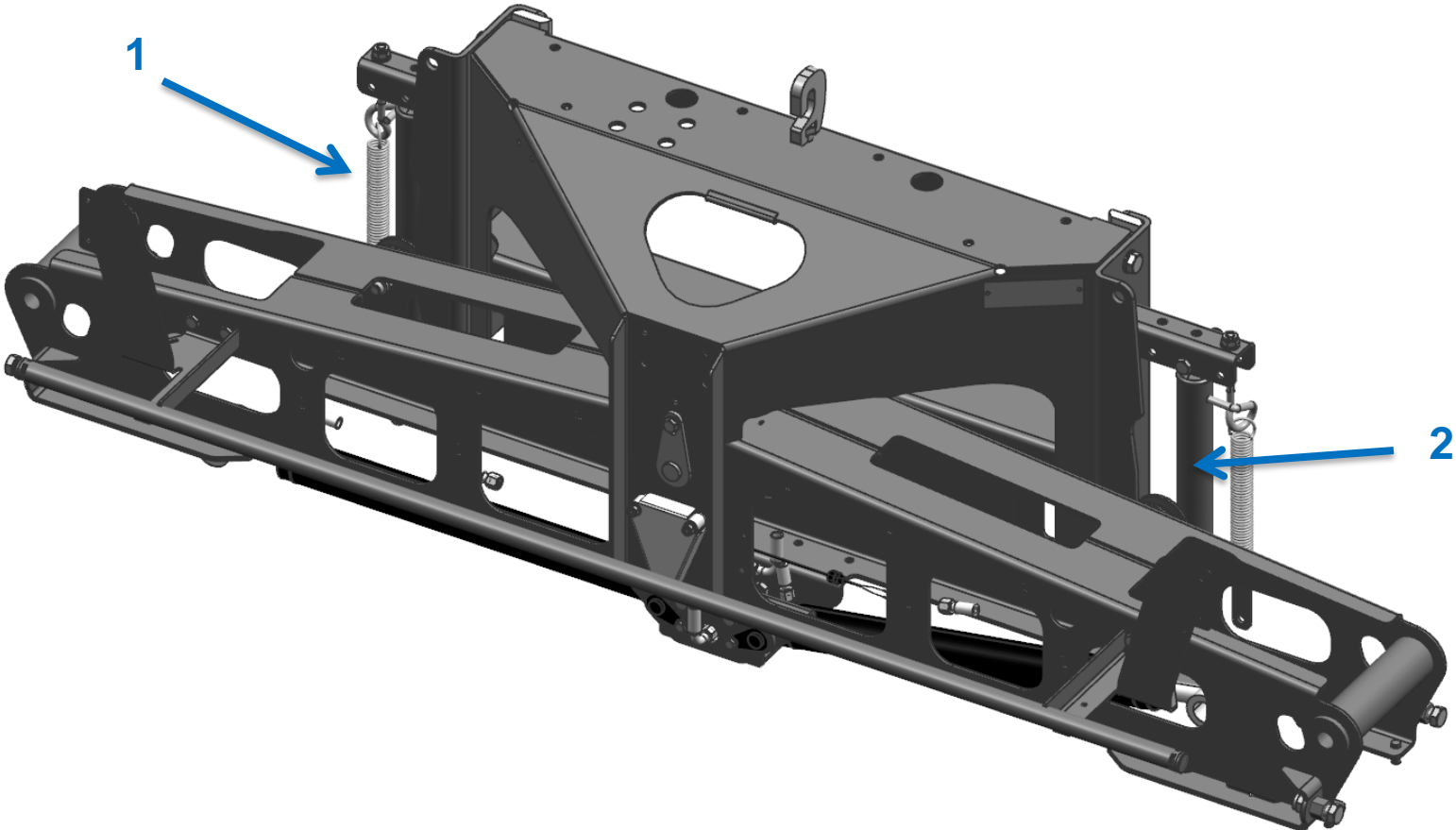
Part number VNB3682593



Diameter: 37 mm Type **Light**
Original length 250 mm

Part number VNB4061893

2. HOSA Aluminium 12-15m boom



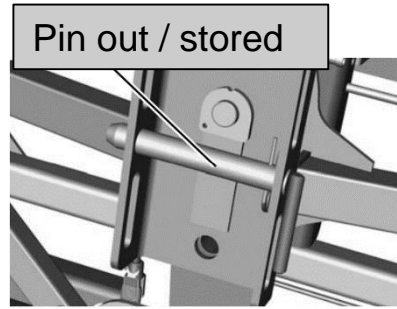
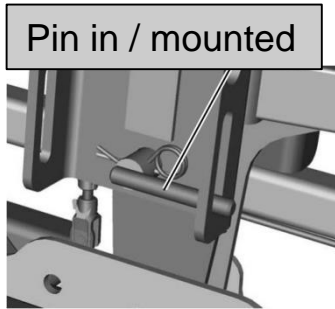
For adjustments see next page

2. HOSA Aluminium 12-15m boom

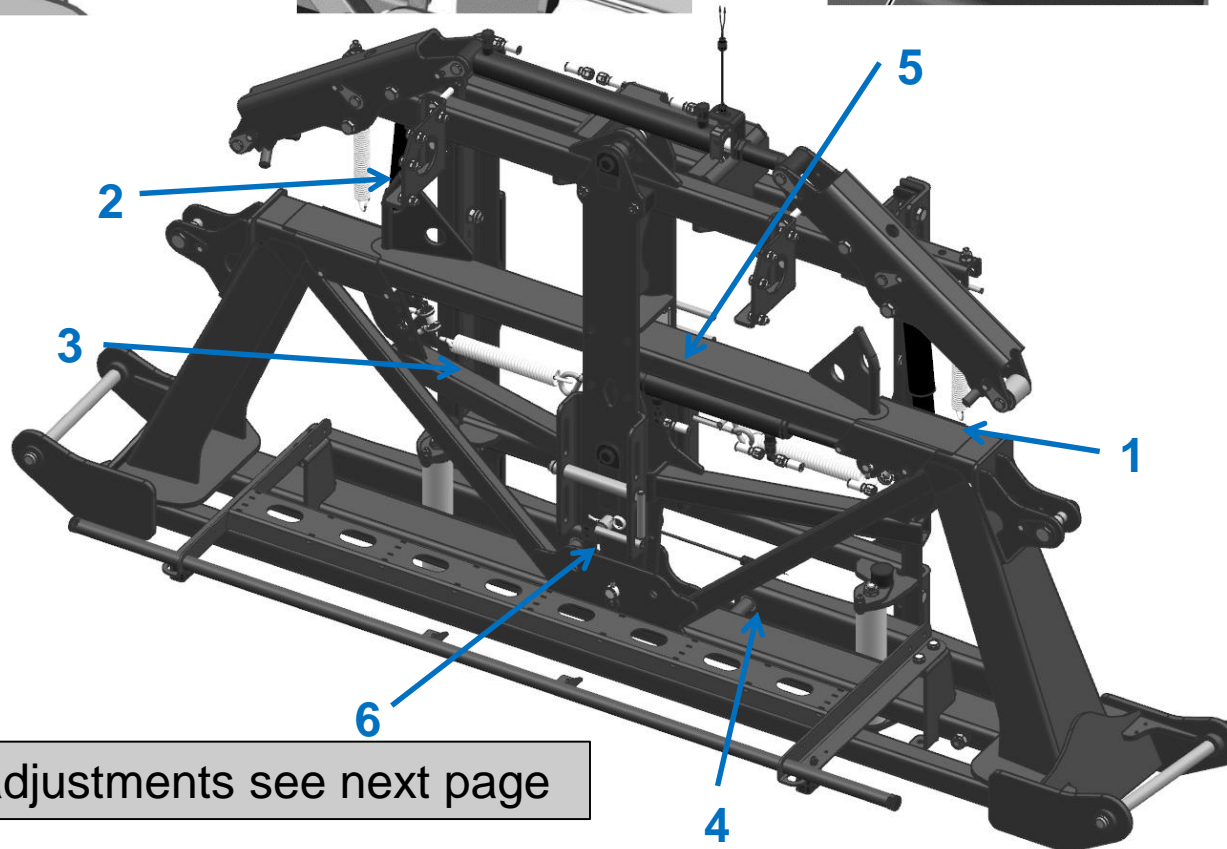
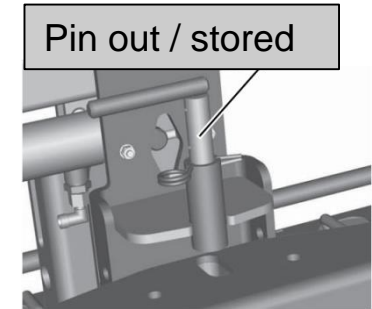
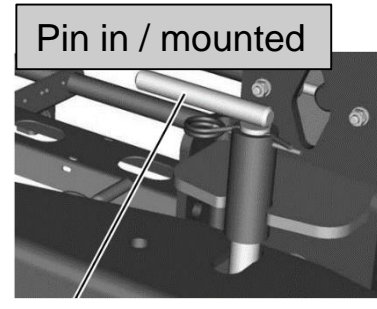
		Type	Setting
1	Side springs	VNB3682593 (medium)	Spring lenght 280 mm
2	Side absorbers	Black	Not adjustable

3. HC Small Steel 18m (3pf) & 20/21m (4 pf) boom

6. Flatland pin



5. Hill position pin



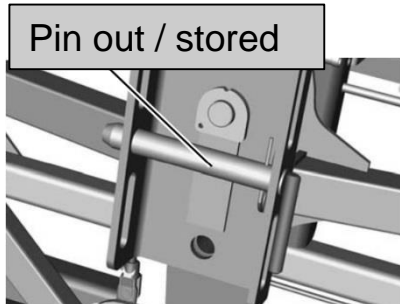
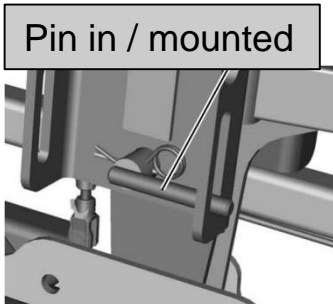
For adjustments see next page

3. HC Small Steel 18m (3pf) & 20/21m (4 pf) boom

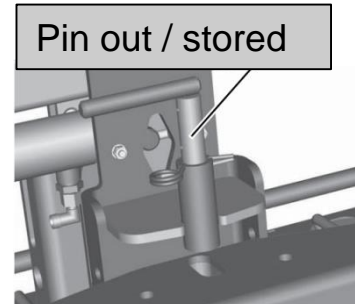
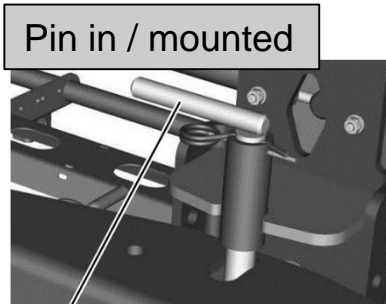
<i>Hill</i>		
	Type	Setting
1	Side springs	VNB3682493 (Heavy)
2	Side absorbers	Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Buffers	black:diameter Ø40
5	Hill position pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2x VNB3682593 (medium)
<i>Flatland</i>		
	Type	Setting
1	Side springs	VNB3682593 (medium)
2	Side absorbers	Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Buffers	black:diameter Ø40
5	Hill position pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	VNB3682493 (Heavy)
<i>Universal</i>		
	Type	Setting
1	Side springs	VNB3682593 (medium)
2	Side absorbers	Adjustable Koni
3	Pendulum springs	2x VNB3682493 (heavy)
4	Buffers	black:diameter Ø40
5	Hill position pin	20 mm long
*	Not mounted	2x VNB3682493 (Heavy)
<i>Boomguide</i>		
	Type	Setting
1	Side springs	VNB3682493 (Heavy)
2	Side absorbers	Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Buffers	black:diameter Ø40
5	Hill position pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2x VNB3682593 (medium)

4. HC Big Steel 24m (4pf) Boom

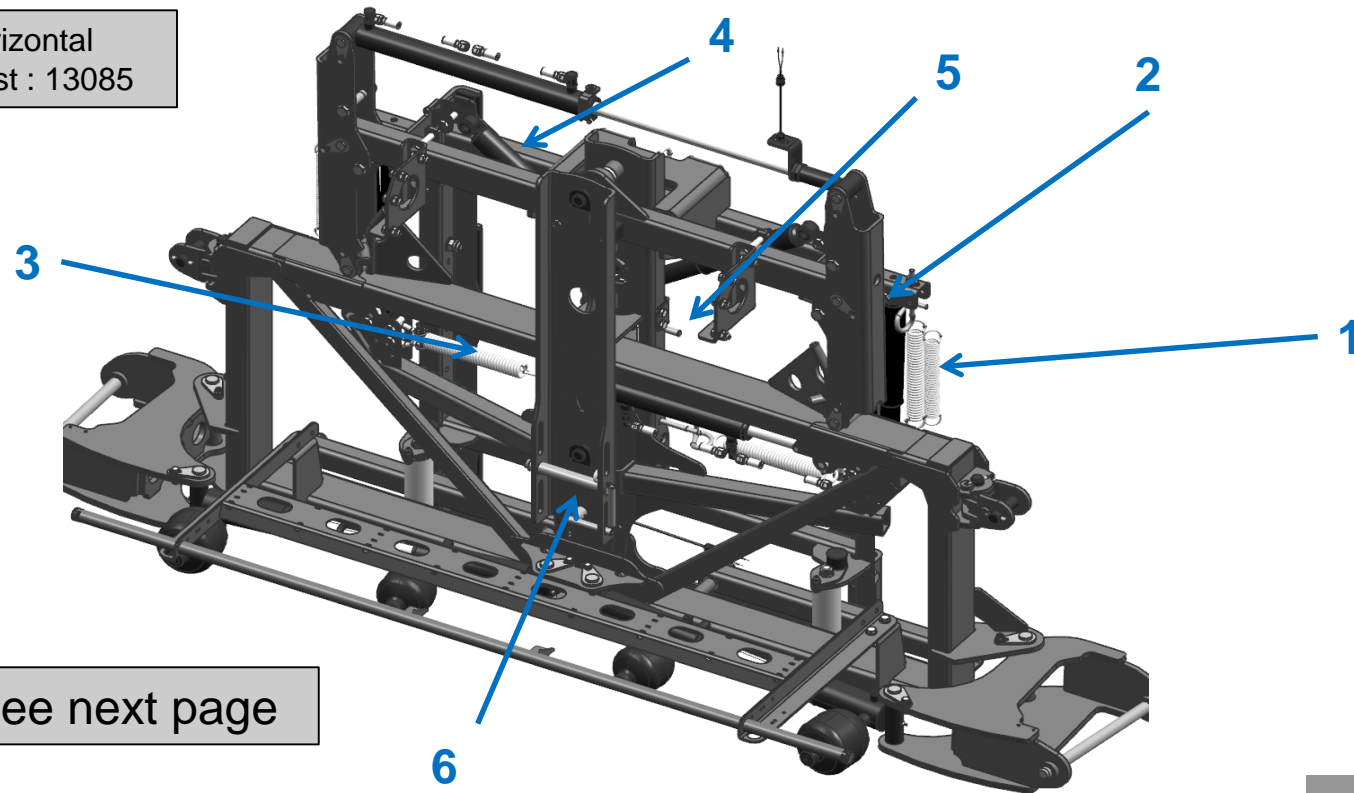
6. Flatland pin



5. Hill position pin



For adjustment/settings horizontal damping cylinders see quest : 13085



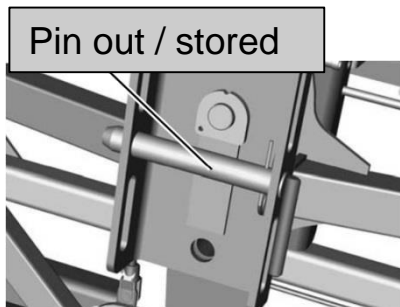
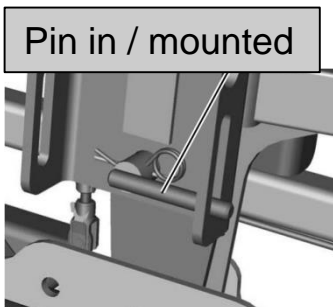
For adjustments see next page

4. HC Big Steel 24m (4pf) Boom

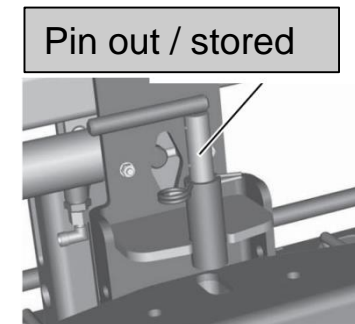
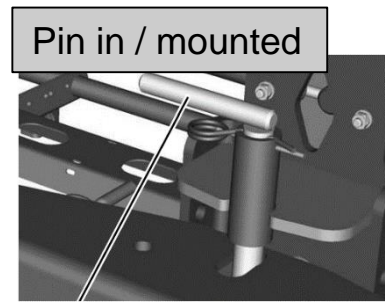
Hill		
	Type	Setting
1	Side springs	VNB3682493 (heavy)
2	Side absorber	Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Pendulum absorbers	Black
5	Hill position pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2x VNB3682593 (medium)
Flatland		
	Type	Setting
1	Side springs	VNB3682593 (medium)
2	Side absorber (inside)	Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Pendulum absorbers	Black
5	Hill position pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2 X VNB3682493 (heavy)
Universal		
	Type	Setting
1	Side springs	VNB3682593 (medium)
2	Side absorber (inside)	Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Pendulum absorbers	Black
5	Hill position pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2 X VNB3682493 (heavy)
Boomguide		
	Type	Setting
1	Side springs	VNB3682493 (heavy)
2	Side absorber (inside)	Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Pendulum absorbers	Black
5	Hill position pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2x VNB3682593 (medium)

5. HC Big Steel 27-30m (5-pf) boom

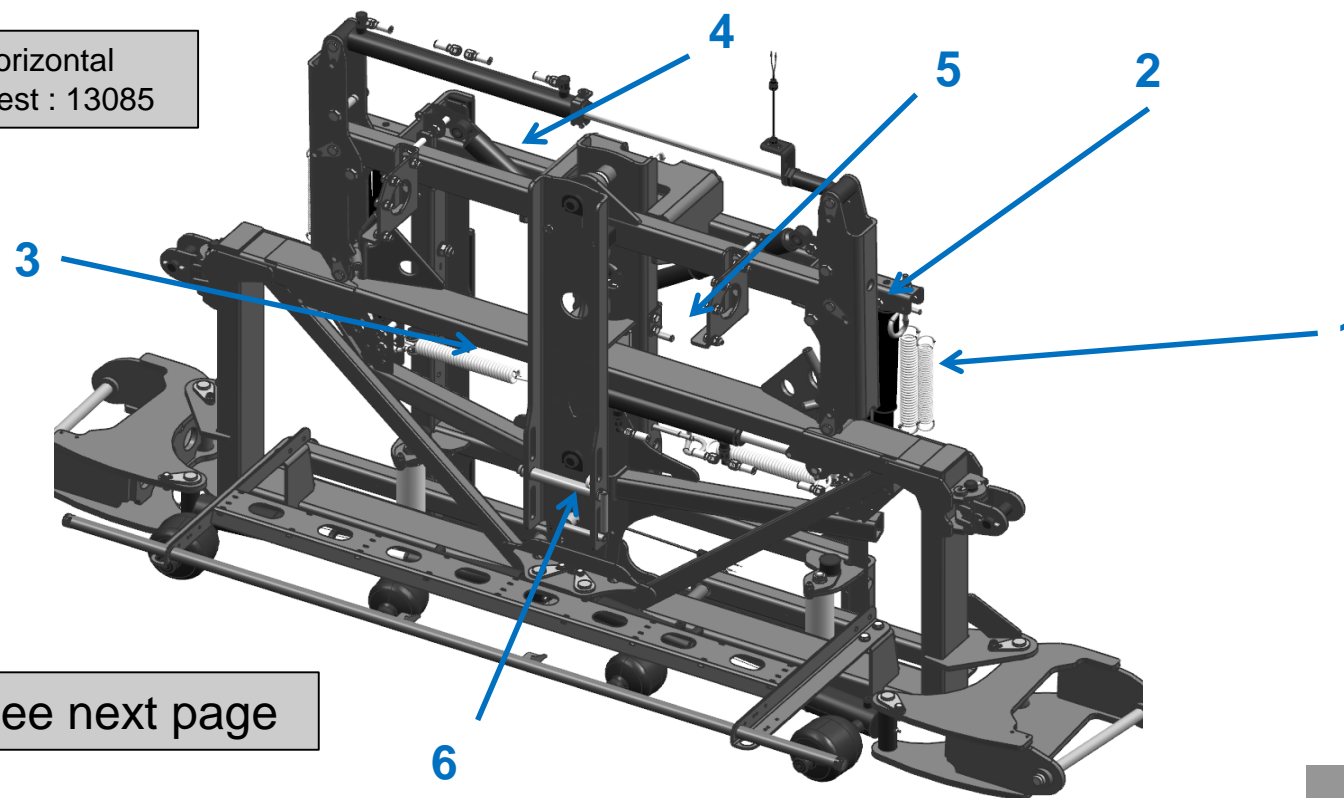
6. Flatland pin



5. Hill position pin



For adjustment/settings horizontal damping cylinders see quest : 13085



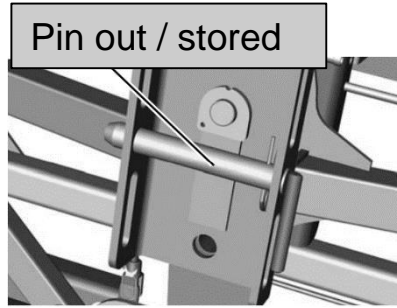
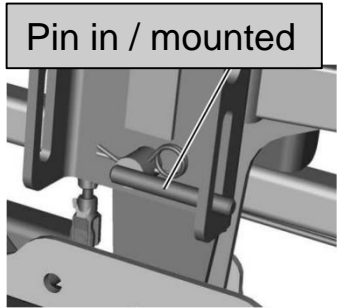
For adjustments see next page

5. HC Big Steel 27-30m (5-pf) boom

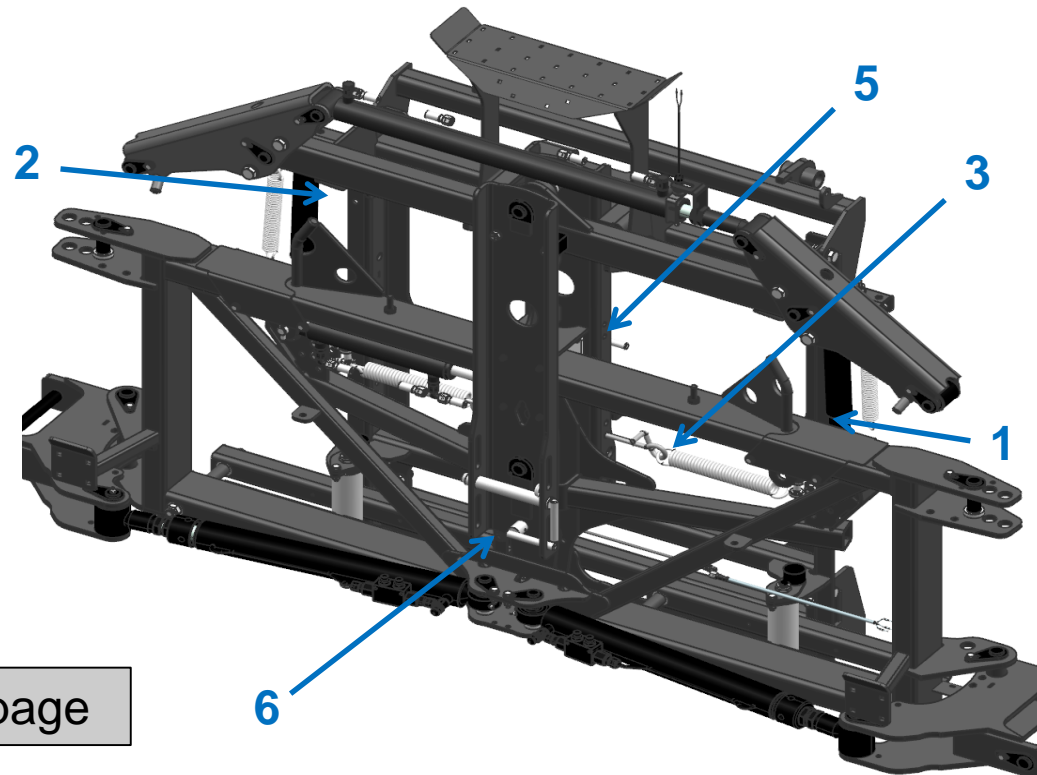
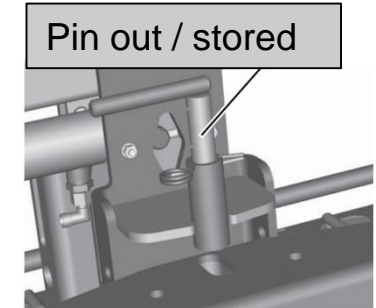
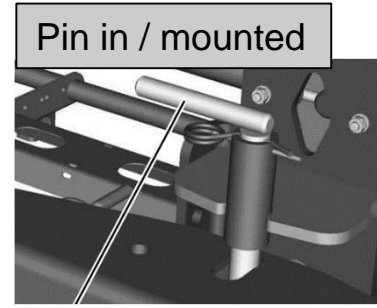
<i>Hill / boomguide comfort</i>		
	Type	Setting
1	Side springs	VNB3682493 (heavy)
2	Side absorber (inside)	2 X Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Pendulum absorbers	Black
5	Hill postion pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2x VNB3682593 (medium)
<i>Flatland</i>		
	Type	Setting
1	Side springs	2x VNB3682593 (medium)
2	Side absorber (inside)	2 X Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Pendulum absorbers	Black
5	Hill postion pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2 X VNB3682493 (heavy)
<i>Universal</i>		
	Type	Setting
1	Side springs	2x VNB3682593 (medium)
2	Side absorber (inside)	2 X Adjustable Koni
3	Pendulum springs	VNB3682493 (heavy)
4	Pendulum absorbers	Black
5	Hill postion pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2 X VNB3682493 (heavy)
<i>Boomguide pro</i>		
	Type	Setting
1	Side springs	VNB3682493 (heavy)
2	Side absorber (inside)	1x AST shock absorber
3	Pendulum springs	VNB3682493 (heavy)
4	Pendulum absorbers	Black
5	Hill postion pin	20 mm long
6	Flatland pin	25 mm long
*	Not mounted	2x VNB3682593 (medium)

6. HSS Small 18-24 (2-pf) boom

6. Flatland pin



5. Hill position pin



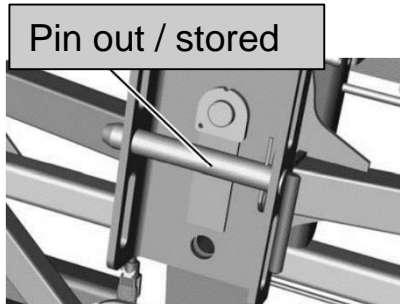
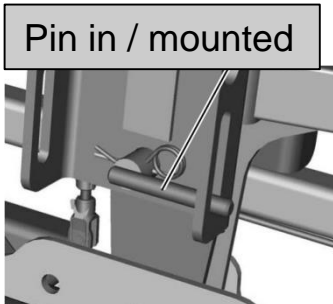
For adjustments see next page

6. HSS Small 18-24 (2-pf) boom

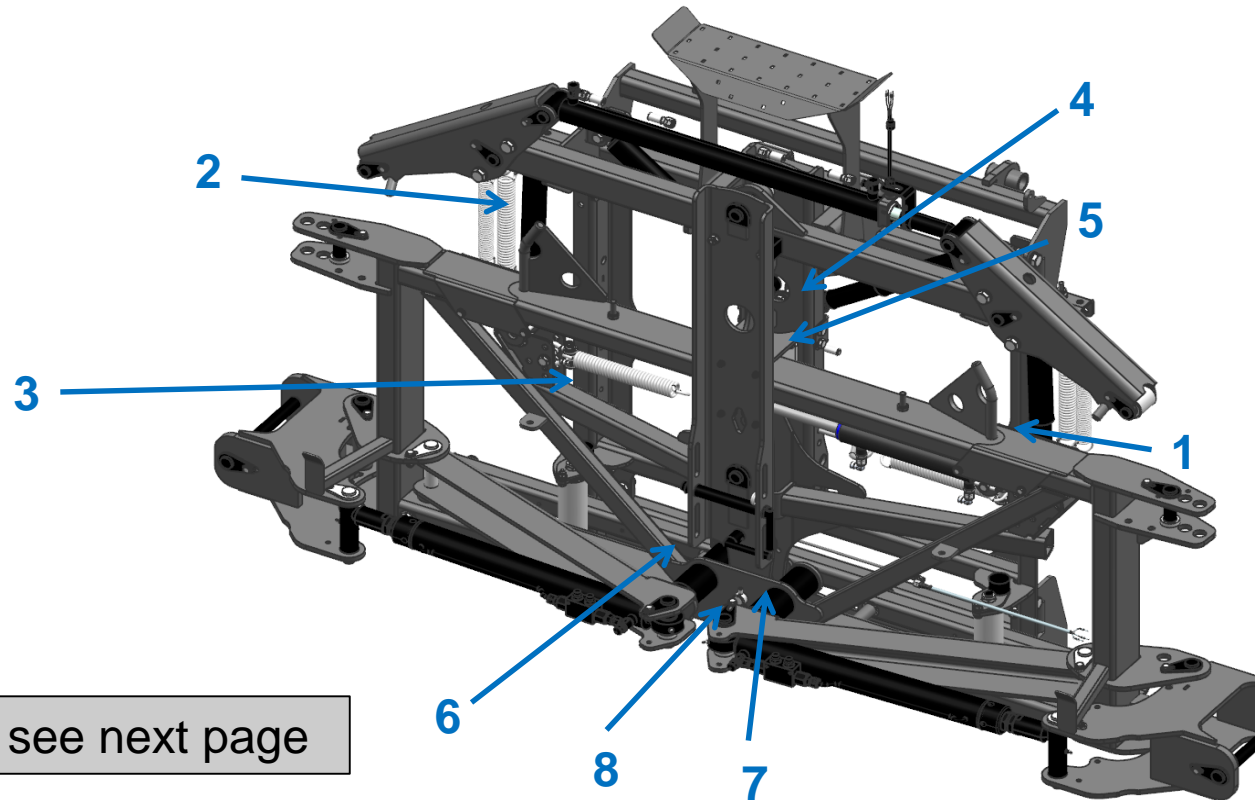
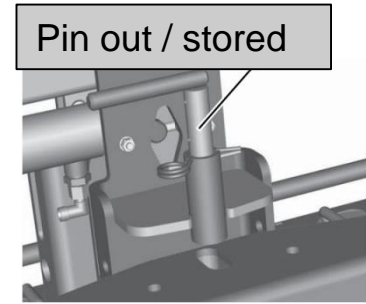
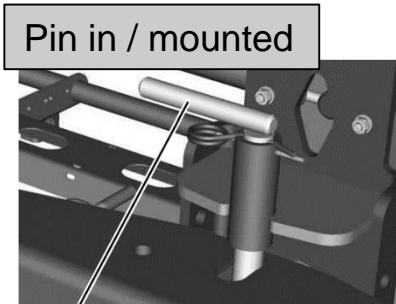
	<i>Hill</i>	Type	Setting
1	Side spring	VNB3682493 (heavy)	Spring lenght 280 mm.
2	Side absorber	Adjustable Koni	1 turn open
3	Pendulum spring	VNB3682493 (heavy)	Spring lenght 280 mm.
5	Hill position pin	20 mm long	in/mounted
6	Flatland pin	25 mm long	out/stored
*	Not mounted	2x VNB3682593 (medium)	Supplied seperately (not mounted)
	<i>Flatland</i>	Type	Setting
1	Side spring	VNB3682593 (medium)	Spring lenght 275mm
2	Side absorber	Adjustable Koni	1/2 turn close
3	Pendulum spring	VNB3682493 (heavy)	Spring lenght 280mm
5	Hill position pin	20 mm long	out / stored
6	Flatland pin	25 mm long	in / mounted
*	Not mounted	2x VNB3682493 (heavy)	Supplied seperately (not mounted)
	<i>Universeelstand</i>	Type	Setting
1	Side spring	VNB3682593 (medium)	Spring lenght 285mm
2	Side absorber	Adjustable Koni (red)	1/2 turn close
3	Pendulum spring	VNB3682493 (heavy)	Spring lenght 300mm
5	Hill position pin	20 mm long	out / stored
6	Flatland pin	25 mm long	out / stored
*	Not mounted	2x VNB3682493 (heavy)	Supplied seperately (not mounted)
	<i>Boomguide</i>	Type	Setting
1	Side spring	VNB3682493 (heavy)	Spring lenght 280 mm.
2	Side absorber	Adjustable Koni	complete closed (Maximum absorb)
3	Pendulum spring	VNB3682493	Spring lenght 280 mm.
5	Hill position pin	20 mm long	in/mounted
6	Flatland pin	25 mm long	out/stored
*	Not mounted	2x VNB3682593 (medium)	Supplied seperately (not mounted)

7. HSS Small 27-30m (3-pf) boom

6. Flatland pin



5. Hill position pin

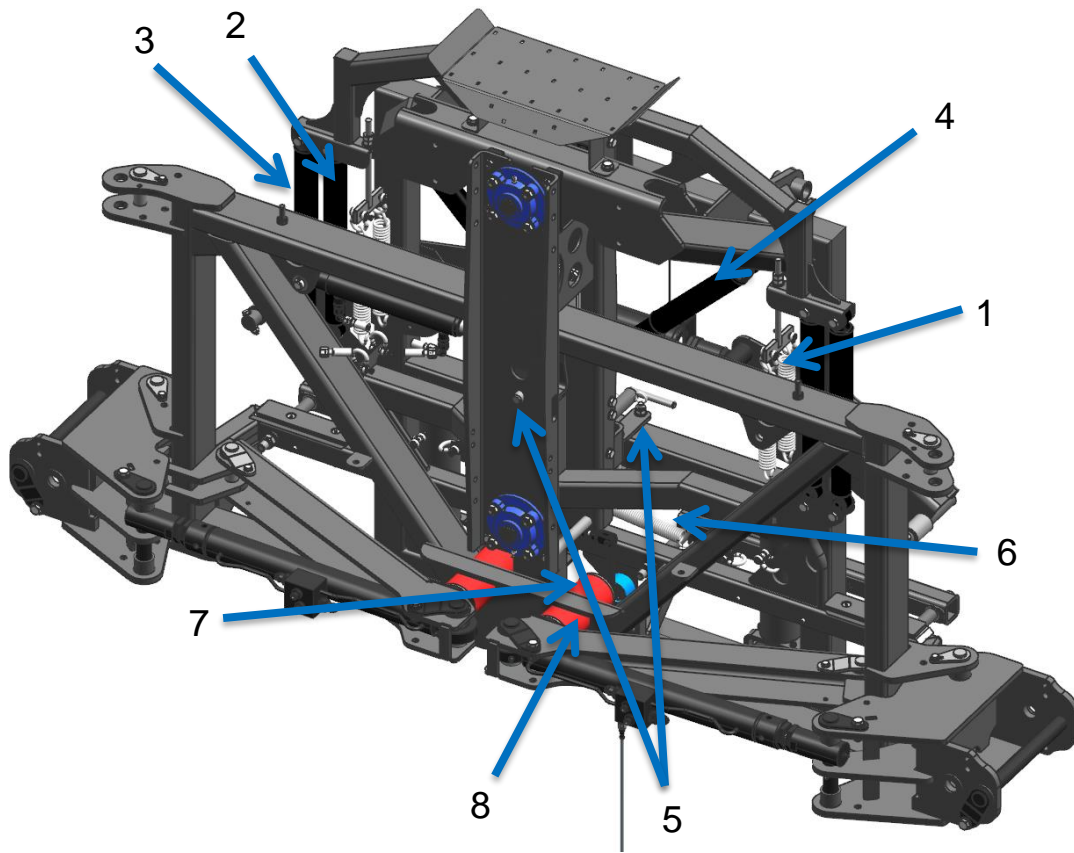


For adjustments see next page

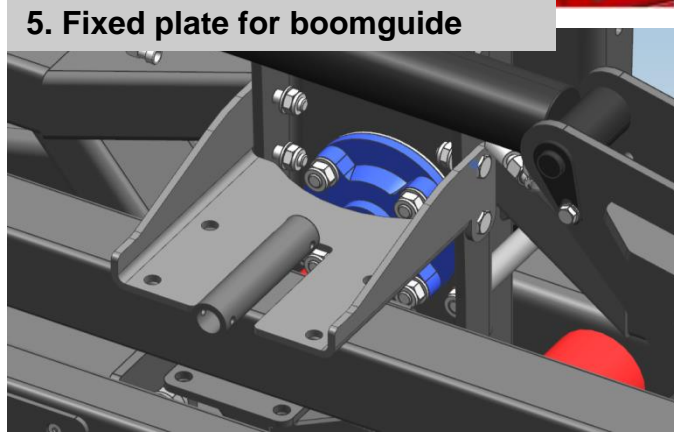
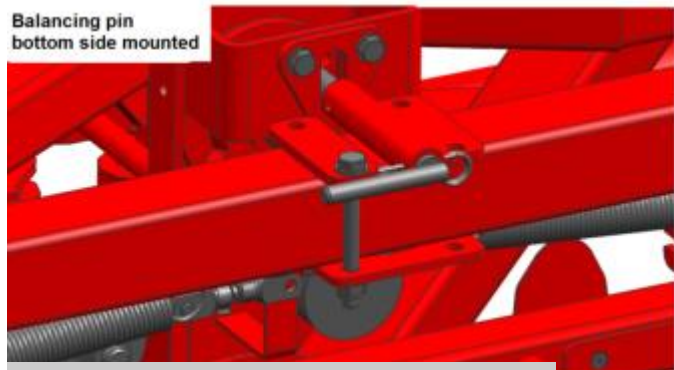
7. HSS Small 27-30m (3-pf) boom

	<i>Hill</i>	Type	Setting
1	Side springs	VNB3682493 (heavy)	Spring lenght 285mm
2	Side absorbers	Adjustable KONI	1/2 turn open
3	Pendulum springs	VNB3682493 (heavy)	Spring lenght 280mm
4	Pendulum absorbers	Black	Not adjustable
5	Hill position pin	20 mm long	in/mounted
6	Flatland pin	25 mm long	out/stored
7	Buffer frontside	Black diameter Ø63	Bit pre tension on bolts
8	Buffer backside	Black diameter Ø63	Bit pre tension on bolts
*	Not mounted	2x VNB3682593 (medium)	Supplied seperately (not mounted)
	<i>Flatland</i>	Type	Setting
1	Side springs	2x VNB3682593 (medium)	Spring lenght 280mm
2	Side absorbers	Adjustable KONI	1 turn closed
3	Pendulum springs	VNB3682493 (heavy)	Spring lenght 280mm
4	Pendulum absorbers	Black	Not adjustable
5	Hill position pin	20 mm long	out/stored
6	Flatland pin	25 mm long	in/mounted
7	Buffer frontside	Black diameter Ø63	
8	Buffer backside	Black diameter Ø63	
*	Not mounted	2x VNB3682493 (heavy)	Supplied seperately (not mounted)
	<i>Universal</i>	Type	Setting
1	Side springs	2x VNB3682593 (medium)	Spring lenght 285mm
2	Side absorbers	Adjustable KONI	1 1/2 turn closed
3	Pendulum springs	VNB3682493 (heavy)	Spring lenght 300mm
4	Pendulum absorbers	Black	Not adjustable
5	Hill position pin	20 mm long	Out/stored
6	Flatland pin	25 mm long	Out/stored
7	Buffer frontside	Black diameter Ø63	Bit pre tension on bolts
8	Buffer backside	Black diameter Ø 63	Bit pre tension on bolts
*	Not mounted	2x VNB3682493 (heavy)	Supplied seperately (not mounted)
	<i>Boomguide</i>	Type	Setting
1	Side springs	VNB3682493 (heavy)	Spring lenght 280mm
2	Side absorbers	AST shock absorber	adjustment position 5
3	Pendulum springs	VNB3682493 (heavy)	Spring lenght 300mm
4	Pendulum absorbers	Black	not adjustable
5	Hill position pin	20 mm long	in/mounted
6	Flatland pin	25 mm long	out/stored
7	Buffer frontside	Black diameter Ø63	Bit pre tension on bolts
8	Buffer backside	Black diameter Ø63	Bit pre tension on bolts
*	Not mounted	2x VNB3682593 (medium)	Supplied seperately (not mounted)

8. HSS Big 32-40m (3-pf) boom



5. Balancing pin

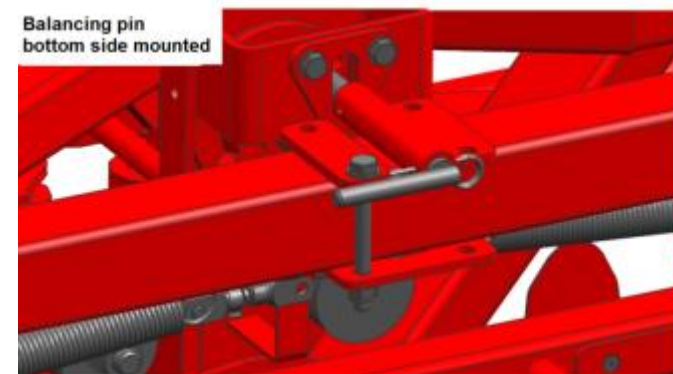
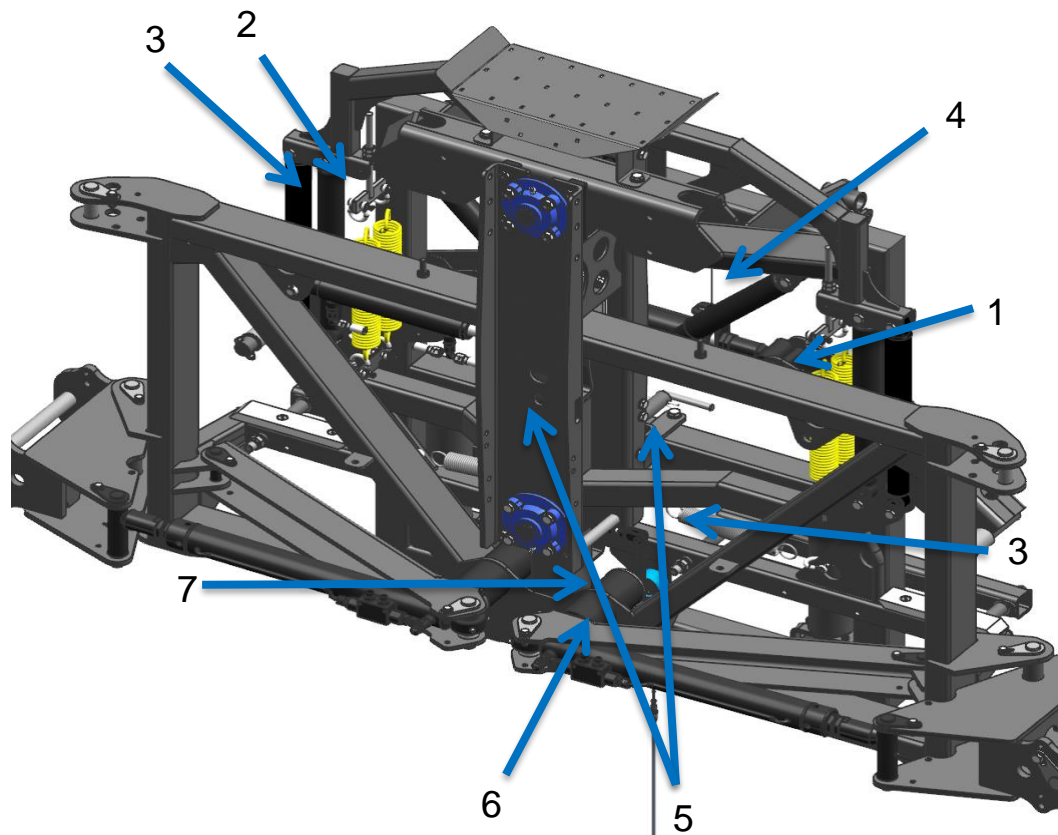


For adjustments see next page

8. HSS Big 32-40m (3-pf) boom

	<i>Hill</i>	Type	Setting
1	Side springs (2x per side)	VNB3682493 (heavy)	Spring lenght 290mm
2	Side absorbers (inside)	black	Not adjustable
3	Side absorbers (outside)	Adjustable KONI	1 turn open
4	Pendulum absorbers	Adjustable KONI	Completley open
5	Balancing pin	20 mm	Mounted bottom side/ hilly postion
6	Pendulum springs	VNB3682593 (medium)	1 cm pre-tension
7	Buffer frontside (VNB4777478)	Red diameter Ø80	small pre-tension on bolts
8	Buffer backside (VNB4987178)	Red diameter Ø80	small pre-tension on bolts
	<i>Flatland</i>	Type	Setting
1	Side springs (2x per side)	VNB3682493 (heavy)	Spring lenght 290mm
2	Side absorbers (inside)	black	Not adjustable
3	Side absorbers (outside)	Adjustable KONI	1 turn open
4	Pendulum absorbers	Adjustable KONI	1 turn closed
5	Balancing pin	20 mm	mounted top side (flatland position)
6	Pendulum springs	VNB3682593 (medium)	Spring lenght 280mm
7	Buffer frontside (VNB4777478)	Red diameter Ø80	small pre-tension on bolts
8	Buffer backside (VNB4987178)	Red diameter Ø80	small pre-tension on bolts
	<i>Universal</i>	Type	Setting
1	Side springs (2x per side)	VNB3682493 (heavy)	Spring lenght 290mm
2	Side absorbers (inside)	black	Not adjustable
3	Side absorbers (outside)	Adjustable KONI	1 turn open
4	Pendulum absorbers	Adjustable KONI	1 turn closed
5	Balancing pin	20 mm	Not mounted
6	Pendulum springs	VNB3682593 (medium)	Spring lenght 280mm
7	Buffer frontside (VNB4777478)	Red diameter Ø80	small pre-tension on bolts
8	Buffer backside (VNB4987178)	Red diameter Ø80	small pre-tension on bolts
	<i>Boomguide</i>	Type	Setting
1	Side springs (2x per side)	VNB3682493 (heavy)	Spring lenght 280mm
2	Side absorbers (inside)	AST shock absorber	Adjustment postion 10
3	Side absorbers (outside)	not mounted	
4	Pendulum absorbers	Adjustable KONI	Completely open
5	Balancing pin	fixed plate	fixed plate
6	Pendulum springs	VNB3682593 (medium)	Spring lenght 280mm
7	Buffer frontside	Red diameter Ø80	small pre-tension on bolts
8	Buffer backside	Red diameter Ø80	small pre-tension on bolts

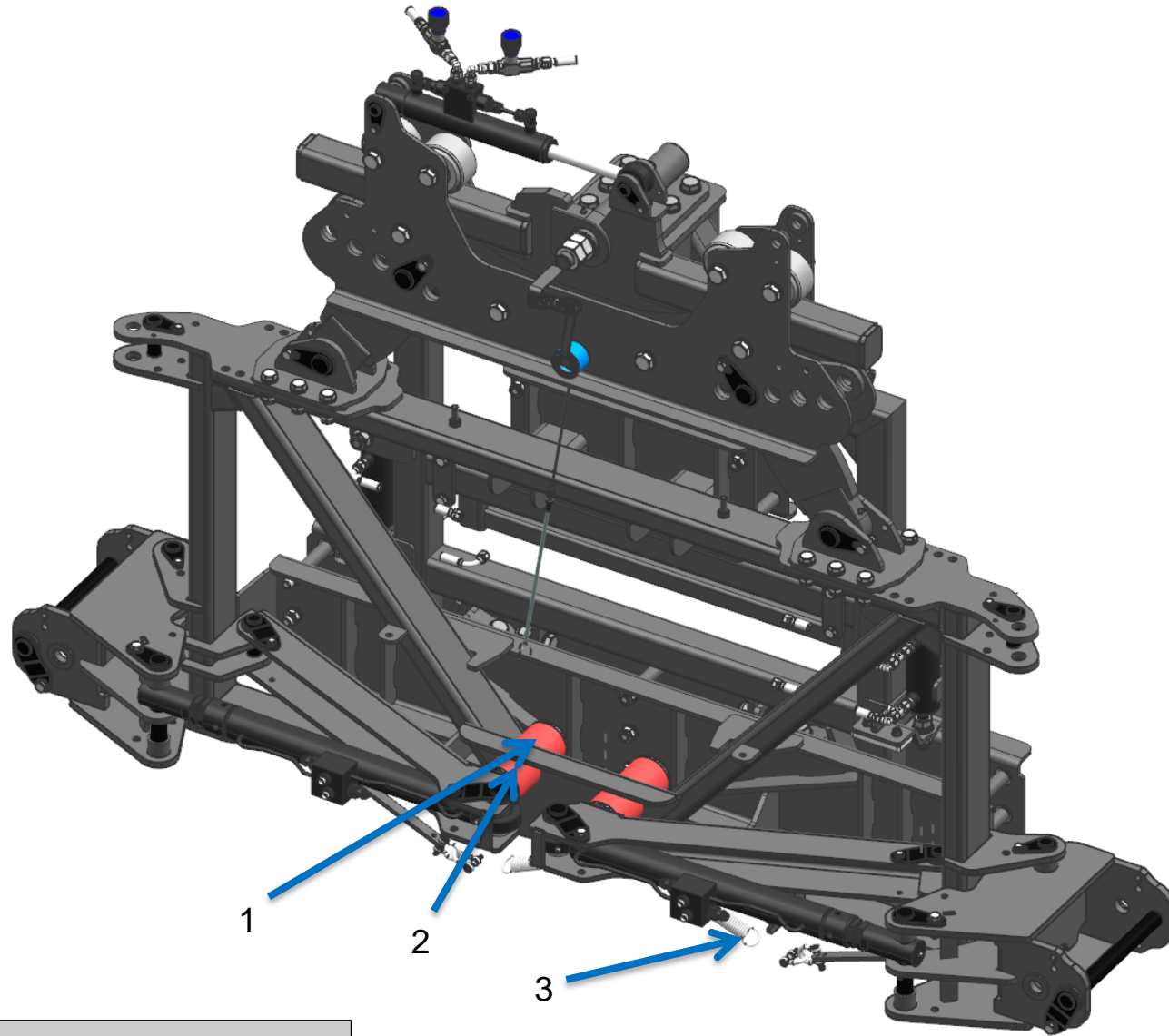
9. HSS Big 27-30m (2-pf) (steel) + HSA 21-33 m (2-pf) (aluminium)



For adjustments see next page

9. HSS Big 27-30m (2-pf) (steel) + HSA 21-33 m (2-pf) (aluminium)

<i>Hill / boomguide comfort</i>		Type	Setting
1	Side springs (2x per side)	RG00053352 Yellow	Spring lenght 330mm
2	Side absorbers (inside)	Black	Not adjustable
3	Side absorbers (outside)	Adjustable Koni	1 turn open
4	Pendulum absorbers	Black	Not adjustable
5	Balancing pin	20 mm	Mounted bottom side/ hilly postion
6	Pendulum springs	VNB4061893 (light)	Spring lenght 330mm
7	Buffer frontside	Black diameter \varnothing 80	
8	Buffer backside	Black diameter \varnothing 80	
<i>Flatland</i>		Type	Setting
1	Side springs (2x per side)	RG00053352 Yellow	Spring lenght 315mm
2	Side absorbers (inside)	Black	Not adjustable
3	Side absorbers (outside)	Adjustable Koni	1/2 turn open
4	Pendulum absorbers	Black	Not adjustable
5	Balancing pin	20 mm	mounted top side (flatland position)
6	Pendulum springs	VNB4061893 (light)	Spring lenght 330mm
7	Buffer frontside	Black diameter \varnothing 80	
8	Buffer backside	Black diameter \varnothing 80	
<i>Universal</i>		Type	Setting
1	Side springs (2x per side)	RG00053352 Yellow	Spring lenght 300mm
2	Side absorbers (inside)	Black	Not adjustable
3	Side absorbers (outside)	Adjustable Koni	1/2 turn open
4	Pendulum absorbers	Black	Not adjustable
5	Balancing pin	20 mm	Not mounted
6	Pendulum springs	VNB4061893 (light)	Spring lenght 330mm
7	Buffer frontside	Black diameter \varnothing 80	
8	Buffer backside	Black diameter \varnothing 80	
<i>Boomguide PRO</i>		Type	Setting
1	Side springs (2x per side)	RG00053352 Yellow	Spring lenght 310mm
2	Side absorbers (inside)	AST shock absorber	Adjustment position 7
3	Side absorbers (outside)	not mounted	
4	Pendulum absorbers	Black	Not adjustable
5	Balancing pin	20 mm	Mounted bottom side/ hilly postion
6	Pendulum springs	VNB4061893 (light)	Spring lenght 330mm
7	Buffer frontside	Black diameter \varnothing 80	
8	Buffer backside	Black diameter \varnothing 80	

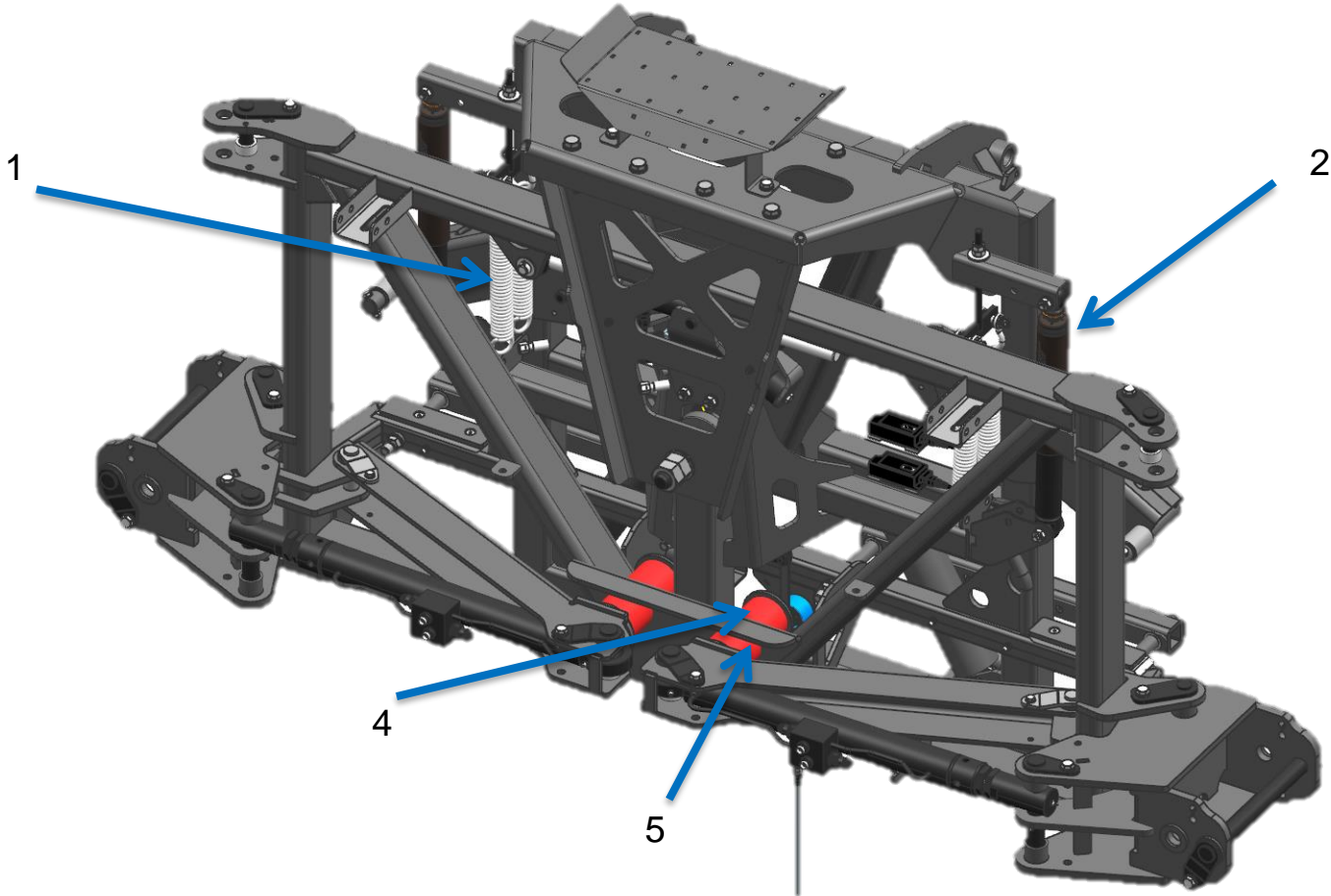


For adjustments see next page

10. HSS 32-40m (3-pf) Flatland balancing

	Flatland Balancing	Type	Settings
1	Headland curve assist springs	2x VNB3682593 (light)	Lose not tieded
2	Buffer frontside (VNB477478)	Red diameter Ø80	small pre-tension on bolts
3	Buffer backside (VNB4987178)	Red diameter Ø80	small pre-tension on bolts

11. HSS 32-40m (3-pf) Boomguide frame



For adjustments see next page

11. HSS 32-40m (3-pf) Boomguide frame

	<i>Hill / boomguide comfort</i>	Type	Setting
1	Side springs (2x per side)	A1384699	Spring lenght 305mm
2	Side absorbers (inside)	Adjustable AST	Setting 10
7	Buffer frontside	Red diameter Ø80	small pre-tension on bolts
8	Buffer backside	Red diameter Ø80	small pre-tension on bolts