

**2006**

**NEW TECH. SPECIFICATONS**  
**GEAR HUB SYSTEMS**  
**MTB COMPONENTS**

**ENGLISH**



**SRAM®**



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# SRAM S7

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

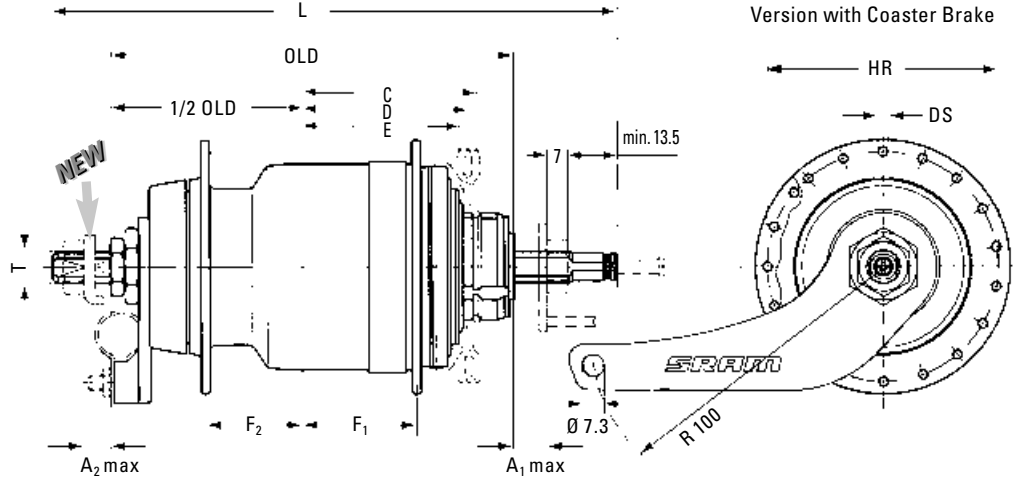
**i-BRAKE for SRAM S7:**  
see page 12.

**Caution:**

- **SRAM S7 hubs are not useable for tandems, transport bicycles, and similar loads.**
- **NEW: MY2006 SRAM S7 coaster brake version and i-BRAKE version will be „DIN Plus City“ approved.**  
**Total weight of the bicycle with rider and baggage may not exceed 125 kilograms.**

**Cycle frame:**

- Dropouts must be parallel.
- Slot width at rear dropout max. 10,5 mm.
- The strength must be such that with a maximum braking torque of 250 Nm (2200 in.lbs.) on the rear wheel no residual deformation can occur on the rear structure.



S B S

	SRAM S7 with coaster brake	SRAM S7 for i-BRAKE	SRAM S7 with drum brake	SRAM S7 without brake
<b>Type</b>	MH 7215	—	MH 7225	MH 7205
<b>Brake</b>	Coaster	i-BRAKE (see page 54)	Drum „D“   „NL“	None
<b>Over Locknut Dim., OLD</b>	130 mm	135 mm	135 mm	130 mm
<b>Length, L</b>	183.4 mm	188.5 mm	188.5 mm	183.4 mm
<b>Ends Diameter, T</b>	FG 10.5	FG 10.5	FG 10.5	FG 10.5
<b>Dropout Width Dim.</b>	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 12 mm	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 12.2 mm	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 12.2 mm	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 10 mm
<b>Holes</b>	36	36	36	36
<b>Hole Diameter, DS</b>	3.0 mm	3 mm	2.9 mm	3.0 mm
<b>Hole Ref. ø, HR</b>	75 mm	75 mm	89 mm	75 mm
<b>Flange Dist. to 1/2 OLD</b>	F <sub>1</sub> = 33 mm / F <sub>2</sub> = 34 mm	F <sub>1</sub> = 35.4 mm / F <sub>2</sub> = 32.7 mm	F <sub>1</sub> = 34.8 mm / F <sub>2</sub> = 35.7 mm	F <sub>1</sub> = 33 mm / F <sub>2</sub> = 34 mm
<b>Totally</b>	303 %	←	←	←
<b>Speed 1</b>	57 %	←	←	←
<b>Speed 2</b>	68 %	←	←	←
<b>Speed 3</b>	81 %	←	←	←
<b>Speed 4</b>	100 %	←	←	←
<b>Speed 5</b>	124 %	←	←	←
<b>Speed 6</b>	148 %	←	←	←
<b>Speed 7</b>	174 %	←	←	←
<b>Usable Dimensions</b>	1/2" x 1/8" or 1/2" x 3/32"	1/2" x 1/8" or 1/2" x 3/32"	1/2" x 1/8" or 1/2" x 3/32"	1/2" x 1/8" or 1/2" x 3/32"
<b>Line, C/D/E</b>	54/51/48 mm	55.5/52.5/49.5 mm	55.5/52.5/49.5 mm	54/51/48 mm
<b>Ratio</b>	24", 26", 28" = 1.83–1.90 / 20" = 1.83–2.00	←	←	←
<b>Shifter</b>	SRAM Grip 7	←	←	←
<b>Clickbox</b>	Clickbox S7	←	←	←
<b>Hand Brake Lever</b>	—	see page 13	see Technical Manual 2005	—
<b>Tandem</b>	—	—	—	—
<b>Weight</b>	1714 g	1695 g (complete)	1737 g	1556 g
<b>Hub Shell Material</b>	Steel	Steel	Aluminum	Steel
<b>Finish</b>	Matt Chrome Plated or Black	Matt Chrome Plated	Clear Coat	Matt Chrome Plated or Black

# SRAM S7 TECHNICAL DATA / ASSEMBLY REQUIREMENTS

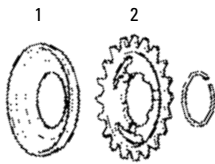
57

SHIFTERS

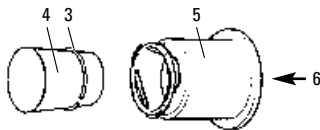
		SRAM Grip 7							
Design	Shifter Type	Twist Shifter							
	Cable Length	1450 mm	1550 mm	1650 mm	1750 mm	1850 mm	1950 mm	2050 mm	2150 mm
	Gear Indication	Window							
	Clamping Diameter	22.3 mm							
	Handlebar, Straight Area	Minimum length for shifter = 150 mm							
	Weight	89g							
	Housing	Glass filled PA							
	Grip	PP							
	Grip Cover	Thermoplastic elastomer, Overmolded							
	Clamping Collar	Aluminum							

## SRAM S7 ASSEMBLY

1

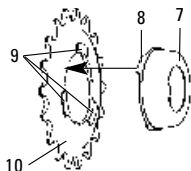


2

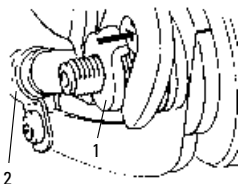


Mounting Tool  
Part No. 0582 104 000

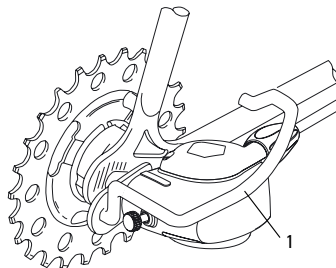
3



4



5



### ASSEMBLY HUB

- Lace the wheel as normal.
- Place the dust cap (1, Fig. 1) and sprocket (2) on the driver.
- Push sprocket circlip (3, Fig. 2) onto the cone of tool sleeve (4). Place tool sleeve with large diameter on the driver.
- Push the spring end of sliding sleeve (5) of the tool over the tool sleeve. Thrust sliding sleeve in direction (6), this forces circlip into the recess of the driver.
- Remove tool and check that the circlip is seated correctly.
- Turn dust cap (7, Fig. 3) until the three lugs (8) are between the three beads (9) on the sprocket (10).
- Position dust cap and push towards sprocket until it is felt to lock into place.
- Placing the wheel in the rear frame.

- **NEW** Fit new retaining washer (3,5 mm thick) on left axle ends (1, Fig. 4). The serrations must bear against the dropout and the lug must engage in the dropout slot.
- **Advice:**  
**For bicycles with chain tensioner use previous retaining washers (2 mm thick) – see Tech. Manual 2005.**
- On the sprocket side fit the protective bracket (1, Fig. 5) directly below the axle nut. Tightening torque on axle nuts 30–40 Nm (266–350 in.lbs.).
- Mount the brake lever using a suitable frame clamp (2, Fig. 4).
- **Caution:**  
**Mount the brake lever between the two straps of the frame clamp. The clamp must be seated on the frame without play. Use a self-locking nut! Tightening torque: 2–3 Nm (18–27 in.lbs.).**

### Advice:

- If a different protective bracket (1, Fig. 5) is used the thickness of the attachment plate must be max. 3 mm.
- Do not use additional washers.
- At least the beginning of the axle thread must be visible in front of the axle nut.

**ASSEMBLY SHIFTER /  
INSTALLING CLICKBOX /  
ADJUSTMENT /  
CONNECTING DRUM  
BRAKE / ADJUSTMENT  
DRUM BRAKE**  
see Technical Manual 2005

# SRAM P5

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

### i-BRAKE for SRAM P5:

see page 12.

### Version SRAM P5 Cargo:

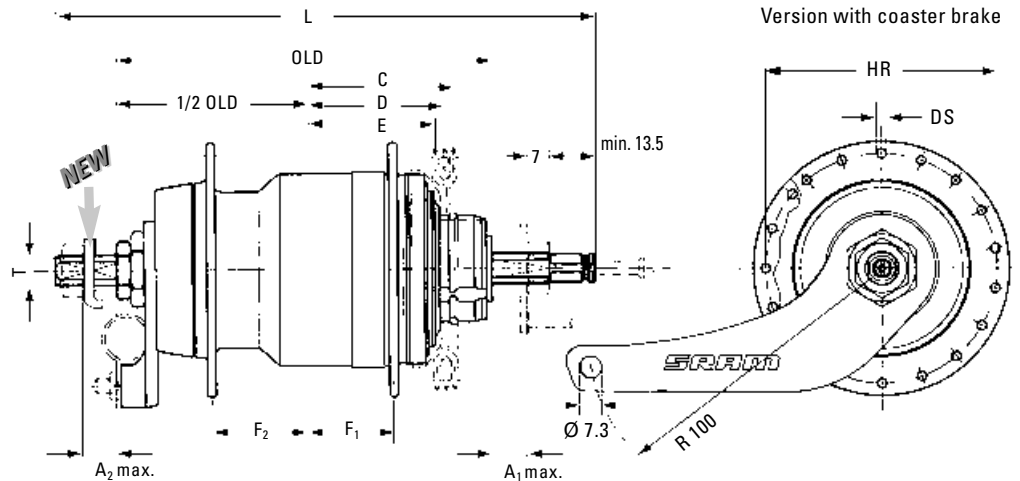
see page 6.

### Caution:

- **SRAM P5 hubs are not useable for tandems, transport bicycles, and similar loads.**
- **NEW: MY2006 SRAM P5 coaster brake version and i-BRAKE version will be „DIN Plus City“ approved.**
- **Total weight of the bicycle with rider and baggage may not exceed 125 kilograms.**

### Cycle frame:

- Dropouts must be parallel.
- Slot width at rear dropout max. 10,5 mm.
- The strength must be such that with a maximum braking torque of 250 Nm (2200 in.lbs.) on the rear wheel no residual deformation can occur on the rear structure.



SUBS

	SRAM P5 with coaster brake	SRAM P5 für i-BRAKE	SRAM P5 with drum brake	SRAM P5 without brake
<b>Type</b>	MH 5215	—	MH 5225	MH 5205
<b>Brake</b>	Coaster	i-BRAKE (see page 54)	Drum „D“   „NL“	None
<b>Over Locknut Dim., OLD</b>	122 mm	126 mm	126 mm	122 mm
<b>Length, L</b>	175 mm	179 mm	179 mm	175 mm
<b>Axle</b>				
<b>Ends Diameter, T</b>	FG 10.5   FG 10.5 toothed cone	FG 10.5	FG 10.5	FG 10.5
<b>Dropout Width Dim.</b>	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 11.5 mm	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 12.5 mm	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 10.5 mm	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 10.5 mm
<b>Spoke</b>				
<b>Holes</b>	36	36	36	36
<b>Hole Diameter, DS</b>	3,0 mm	3,0 mm	2,9 mm	3,0 mm
<b>Hole Ref. ø, HR</b>	75 mm	75 mm	89 mm	75 mm
<b>Flange Dist. to 1/2 OLD</b>	F <sub>1</sub> = 28.5 mm / F <sub>2</sub> = 29.5 mm	F <sub>1</sub> = 31 mm / F <sub>2</sub> = 27.7 mm	F <sub>1</sub> = 30.5 mm / F <sub>2</sub> = 29.5 mm	F <sub>1</sub> = 29 mm / F <sub>2</sub> = 29 mm
<b>Gear Hub Ratio</b>				
<b>Totally</b>	251 %	←	←	←
<b>Speed 1</b>	63 %	←	←	←
<b>Speed 2</b>	78 %	←	←	←
<b>Speed 3</b>	100 %	←	←	←
<b>Speed 4</b>	128 %	←	←	←
<b>Speed 5</b>	158 %	←	←	←
<b>Chain</b>				
<b>Usable Dimensions</b>	1/2" x 1/8" or 1/2" x 3/32"	1/2" x 1/8" or 1/2" x 3/32"	1/2" x 1/8" or 1/2" x 3/32"	1/2" x 1/8" or 1/2" x 3/32"
<b>Line, C/D/E</b>	49/45.5/43 mm	51.5/48.5/45.5 mm	51.5/48.5/45.5 mm	49/45.5/43 mm
<b>Ratio</b>	24", 26", 28" = 1.8–1.9 / 20" = 1.8–2.0	←	←	←
<b>Compatibility</b>				
<b>Shifter</b>	SRAM Grip 5	←	←	←
<b>Clickbox</b>	Clickbox P5	←	←	←
<b>Hand Brake Lever</b>	—	see page 13	see Technical Manual 2005	—
<b>Tandem</b>	—	—	—	—
<b>Weight</b>	1495 g	1465 g (complete)	1536 g	1330 g
<b>Finish</b>				
<b>Hub Shell Material</b>	Steel	Steel	Aluminum	Steel
<b>Finish</b>	Matt Chrome Plated	Matt Chrome Plated	Clear Coat   Clear o. Black	Matt Chrome Plated

# SRAM P5 TECHNICAL DATA / ASSEMBLY REQUIREMENTS

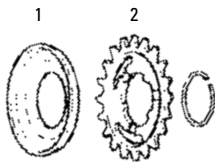
P5

SHIFTERS

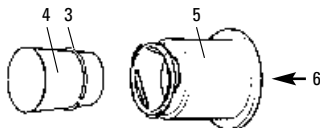
		SRAM Grip 5							
Design	Shifter Type	Twist Shifter							
	Cable Length	1450 mm	1550 mm	1650 mm	1750 mm	1850 mm	1950 mm	2050 mm	2150 mm
	Gear Indication	Window							
	Clamping Diameter	22.3 mm							
	Handlebar, Straight Area	Minimum length for shifter = 150 mm							
	Weight	89g							
	Housing	Glass filled PA							
	Grip	PP							
	Grip Cover	Thermoplastic elastomer, Overmolded							
	Clamping Collar	Aluminum							

## SRAM P5 ASSEMBLY

1

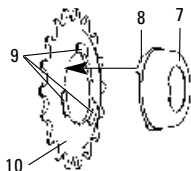


2

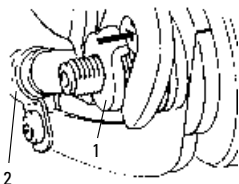


Mounting Tool  
Part No. 0582 104 000

3



4



### ASSEMBLY HUB

- Lace the wheel as normal.
- Place the dust cap (1, Fig. 1) and sprocket (2) on the driver.
- Push sprocket circlip (3, Fig. 2) onto the cone of tool sleeve (4). Place tool sleeve with large diameter on the driver.
- Push the spring end of sliding sleeve (5) of the tool over the tool sleeve. Thrust sliding sleeve in direction (6), this forces circlip into the recess of the driver.
- Remove tool and check that the circlip is seated correctly.
- Turn dust cap (7, Fig. 3) until the three lugs (8) are between the three beads (9) on the sprocket (10).
- Position dust cap and push towards sprocket until it is felt to lock into place.
- Placing the wheel in the rear frame.

- **NEW** Fit new retaining washer (3,5 mm thick) on left axle ends (1, Fig. 4). The serrations must bear against the dropout and the lug must engage in the dropout slot.

#### Advice:

**For bicycles with chain tensioner use previous retaining washers (2 mm thick) – see Tech. Manual 2005.**

- On the sprocket side fit the protective bracket (1, Fig. 5) directly below the axle nut. Tightening torque on axle nuts 30–40 Nm (266–350 in.lbs.).
- Mount the brake lever using a suitable frame clamp (2, Fig. 4).

#### Caution:

**Mount the brake lever between the two straps of the frame clamp.**

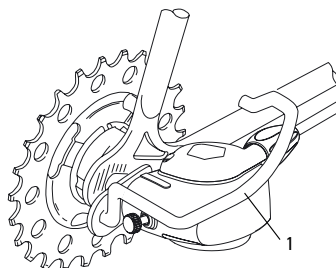
**The clamp must be seated on the frame without play.**

**Use a self-locking nut! Tightening torque: 2–3 Nm (18–27 in.lbs.).**

#### Advice:

- **If a different protective bracket (1, Fig. 5) is used the thickness of the attachment plate must be max. 3 mm.**
- **Do not use additional washers.**
- **At least the beginning of the axle thread must be visible in front of the axle nut.**

5



**ASSEMBLY SHIFTER /  
INSTALLING CLICKBOX /  
ADJUSTMENT /  
CONNECTING DRUM  
BRAKE / ADJUSTMENT  
DRUM BRAKE**

see Technical Manual 2005

# SRAM P5 CARGO

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

### Caution:

- The SRAM P5 Cargo is useable for tandems, transport bicycles and similar loads. An additional external rear brake is necessary due to the high load.
- **NEW:** MY2006 SRAM P5 Cargo coaster brake version will be „DIN Plus City“ approved. Total weight of the bicycle with rider and baggage may not exceed 125 kilograms.

### Tolerable stress:

Axle load: max. 120 kilograms  
Torque/driver body: max. 85 Nm (750 in.lbs.),  
no continuous stress.

### Identification SRAM P5 Cargo:

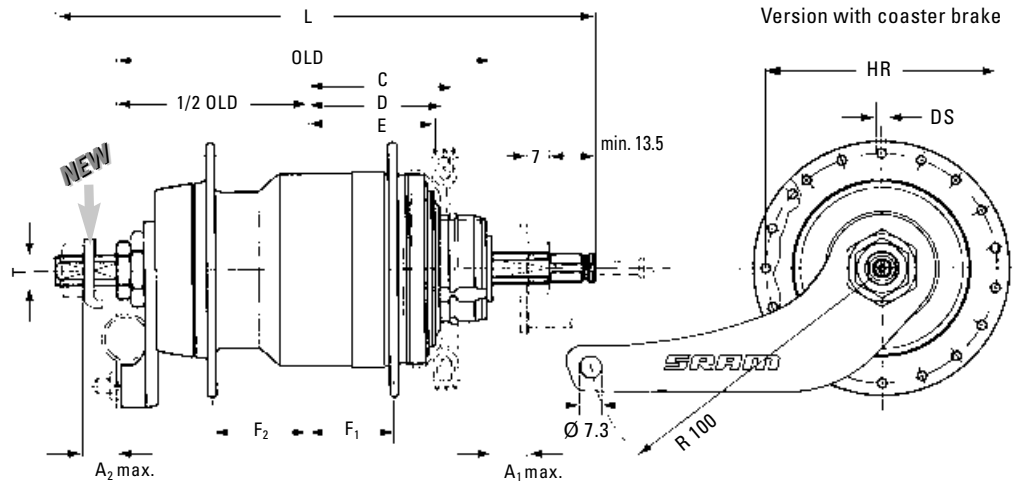
Yellow grub screw inside the axle end.

### Version SRAM P5 for normal bikes:

see page 4.

### Cycle frame:

- Dropouts must be parallel.
- Slot width at rear dropout max. 10,5 mm.
- The strength must be such that with a maximum braking torque of 250 Nm (2200 in.lbs.) on the rear wheel no residual deformation can occur on the rear structure.



		SRAM P5 Cargo with coaster brake	SRAM P5 with drum brake
	<b>Typ</b>	MH 5215 Cargo	MH 5225 Cargo
	<b>Brake</b>	Coaster	Drum „D“
<b>Over Locknut Dim., OLD</b>	<b>Length, L</b>	122 mm	126 mm
	<b>Ends Diameter, T</b>	FG 10.5 toothed cone	FG 10.5
	<b>Dropout Width Dim.</b>	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 11.5 mm	A <sub>1</sub> max. = 12.5 mm / A <sub>2</sub> max. = 12.5 mm
<b>Spoke</b>	<b>Holes</b>	36	36
	<b>Hole Diameter, DS</b>	3.0 mm	2.9 mm
	<b>Hole Ref. ø, HR</b>	75 mm	89 mm
<b>Flange Dist. to 1/2 OLD</b>	<b>F<sub>1</sub></b>	28.5 mm	30.5 mm
	<b>F<sub>2</sub></b>	29.5 mm	29.5 mm
<b>Gear Hub Ratio</b>	<b>Totally</b>	224 %	←
	<b>Speed 1</b>	67 %	←
	<b>Speed 2</b>	78 %	←
	<b>Speed 3</b>	100 %	←
	<b>Speed 4</b>	128 %	←
	<b>Speed 5</b>	150 %	←
<b>Chain</b>	<b>Usable Dimensions</b>	1/2" x 1/8" or 1/2" x 3/32"	1/2" x 1/8" or 1/2" x 3/32"
	<b>Line, C/D/E</b>	49/45.5/43 mm	51.5/48.5/45.5 mm
<b>Compatibility</b>	<b>Ratio</b>	24", 26", 28" = 1.8–1.9 / 20" = 1.8–2.0	←
	<b>Shifter</b>	SRAM Grip 5	←
	<b>Clickbox</b>	Clickbox P5	←
	<b>Hand Brake Lever</b>	—	see Technical Manual 2005
<b>Finish</b>	<b>Tandem</b>	Yes	Yes
	<b>Weight</b>	1495 g	1536 g
<b>Finish</b>	<b>Hub Shell Material</b>	Steel	Aluminum
	<b>Finish</b>	Matt Chrome Plated	Clear Coat



# SRAM P5 CARGO

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

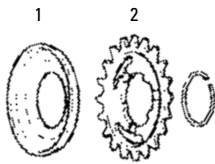


SHIFTERS

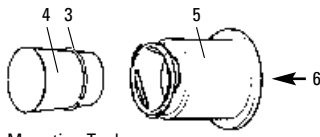
		SRAM Grip 5							
Design	Shifter Type	Twist Shifter							
	Cable Length	1450 mm	1550 mm	1650 mm	1750 mm	1850 mm	1950 mm	2150 mm	2350 mm
	Gear Indication	Window							
	Clamping Diameter	22.3 mm							
	Handlebar, Straight Area	Minimum length for shifter = 150 mm							
	Weight	89g							
	Housing	Glass filled PA							
	Grip	PP							
	Grip Cover	Thermoplastic elastomer, Overmolded							
	Clamping Collar	Aluminum							

## SRAM P5 CARGO ASSEMBLY

1

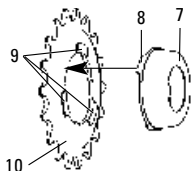


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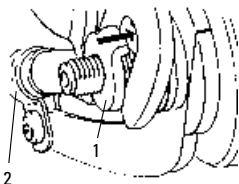


Mounting Tool  
Part No. 0582 104 000

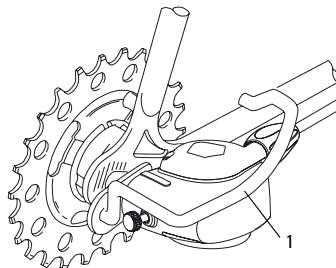
3



4



5



### ASSEMBLY HUB

- Lace the wheel as normal.
- Place the dust cap (1, Fig. 1) and sprocket (2) on the driver.
- Push sprocket circlip (3, Fig. 2) onto the cone of tool sleeve (4). Place tool sleeve with large diameter on the driver.
- Push the spring end of sliding sleeve (5) of the tool over the tool sleeve. Thrust sliding sleeve in direction (6), this forces circlip into the recess of the driver.
- Remove tool and check that the circlip is seated correctly.
- Turn dust cap (7, Fig. 3) until the three lugs (8) are between the three beads (9) on the sprocket (10).
- Position dust cap and push towards sprocket until it is felt to lock into place.
- Placing the wheel in the rear frame.

- **NEW** Fit new retaining washer (3,5 mm thick) on left axle ends (1, Fig. 4). The serrations must bear against the dropout and the lug must engage in the dropout slot.

#### Advice:

**For bicycles with chain tensioner use previous retaining washers (2 mm thick) – see Tech. Manual 2005.**

- On the sprocket side fit the protective bracket (1, Fig. 5) directly below the axle nut. Tightening torque on axle nuts 30–40 Nm (266–350 in.lbs.).
- Mount the brake lever using a suitable frame clamp (2, Fig. 4).

#### Caution:

**Mount the brake lever between the two straps of the frame clamp.**

**The clamp must be seated on the frame without play.**

**Use a self-locking nut! Tightening torque: 2–3 Nm (18–27 in.lbs.).**

#### Advice:

- **If a different protective bracket (1, Fig. 6) is used the thickness of the attachment plate must be max. 3 mm.**
- **Do not use additional washers.**
- **At least the beginning of the axle thread must be visible in front of the axle nut.**

**ASSEMBLY SHIFTER /  
INSTALLING CLICKBOX /  
ADJUSTMENT /  
CONNECTING DRUM  
BRAKE / ADJUSTMENT  
DRUM BRAKE**

see Technical Manual 2005

# SRAM T3

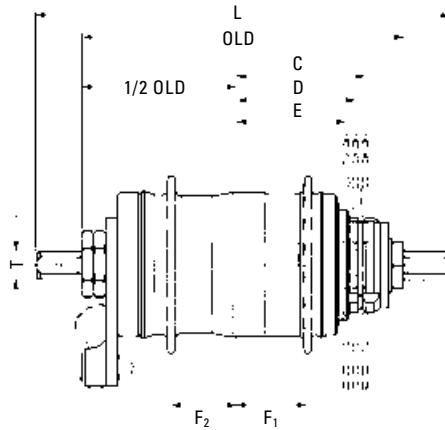
## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

**i-BRAKE for SRAM T3:**  
see page 12.

**Caution:**  
**SRAM T3 hubs are not useable for tandems, transport bicycles, and similar loads.**

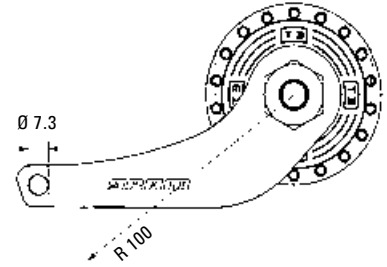
**Cycle frame:**

- Dropouts must be parallel.
- Slot width at rear dropout max. 10,5 mm.
- The strength must be such that with a maximum braking torque of 250 Nm (2200 in.lbs.) on the rear wheel no residual deformation can occur on the rear structure.



Version with Coaster Brake → HR →

DS



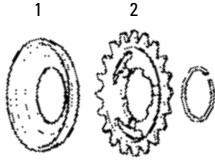
	Type	SRAM T3 with coaster brake		SRAM T3 for i-BRAKE	SRAM T3 with drum brake		SRAM T3 without brake
		MH 3115		—	MH 3125	MH 3105	
	<b>Brake</b>	Coaster		i-BRAKE (see page 54)	Drum „D”	„NL”	None
	<b>Over Locknut Dim., OLD</b>	118 mm	127 mm <i>NEW</i>	118 mm	118 mm		117 mm
<b>Axle</b>	<b>Length, L</b>	155 or 166 mm	166 mm	166 mm	164 mm		155 mm or 166 mm
	<b>Ends Diameter, T</b>	FG 10.5		FG 10.5	FG 10.5		FG 10.5
<b>Spoke</b>	<b>Holes</b>	36 or 28	36	36	36		36 or 28
	<b>Hole Diameter, DS</b>	3.0 mm		3.0 mm	2.8 mm		3.0 mm
	<b>Hole Ref. ø, HR</b>	58 mm		58 mm	89 mm		58 mm
	<b>Flange Dist. to 1/2 OLD</b>	F <sub>1</sub> =24.5/F <sub>2</sub> =25.5	F <sub>1</sub> =23.5/F <sub>2</sub> =26.5	F <sub>1</sub> = 23.7 mm / F <sub>2</sub> = 26.3 mm	F <sub>1</sub> = 25.5 mm / F <sub>2</sub> = 32.5 mm		F <sub>1</sub> = 24.5 mm / F <sub>2</sub> = 25.5 mm
<b>Gear Hub Ratio</b>	<b>Totally</b>	186 %		←	←		←
	<b>Speed 1</b>	73 %		←	←		←
	<b>Speed 2</b>	100 %		←	←		←
	<b>Speed 3</b>	136 %		←	←		←
<b>Chain</b>	<b>Line, C/D/E</b>	44.5/41.5/38.5	44/37/34 mm	44.5/41.5/38.5 mm	44.5/41.5/38.5 mm		44/41/38 mm
	<b>Ratio</b>	24°, 26°, 28° = 2.0–2.4 / 20° = 2.0–2.5		←	←		←
<b>Compatibili.</b>	<b>Shifter</b>	SRAM T3/SRAM Bandix 3		←	←		←
	<b>Hand Brake Lever</b>	—		see page 13	see Technical Manual 2005		—
	<b>Tandem</b>	—		—	—		—
	<b>Weight</b>	1182 g		1046 g (complete)	1270 g		911 g
<b>Finish</b>	<b>Hub Shell Material</b>	Steel		Steel	Aluminum		Steel
	<b>Finish</b>	Matt Chrome Plated		Matt Chrome Plated	Silver Painted		Matt Chrome Plated

	Shifter Type	SRAM T3 ( for adults )	SRAM Bandix 3 ( for kids )
		<b>Cable</b>	Twist Shifter
	<b>Cable</b>	ø 1.2 mm 2174 mm / 2500 mm	ø 1.2 mm 2174 mm
	<b>Comp. Cable Housing</b>	Capped, Compressionless with Resin Liner inside	
	<b>Gear Indication</b>	Printed	Printed
	<b>Clamping Diameter</b>	22.3 mm	22.3 mm
	<b>Handlebar, Straight Area</b>	Minimum length for shifter = 155 mm	Minimum length for shifter = 155 mm
<b>Design</b>	<b>Weight</b>	65 g	65 g
	<b>Housing</b>	PA	PA
	<b>Grip</b>	PP	PP
	<b>Grip Cover</b>	Thermoplastic elastomer	Thermoplastic elastomer
	<b>Clamping Collar</b>	Aluminum	Aluminum

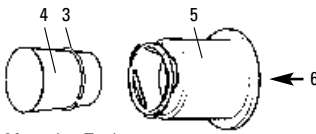
# SRAM T3 TECHNICAL DATA / ASSEMBLY REQUIREMENTS

T3

1

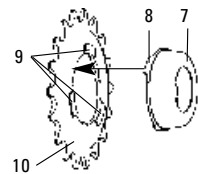


2

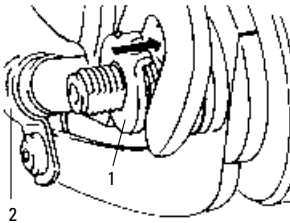


Mounting Tool  
Part No. 0582 104 000

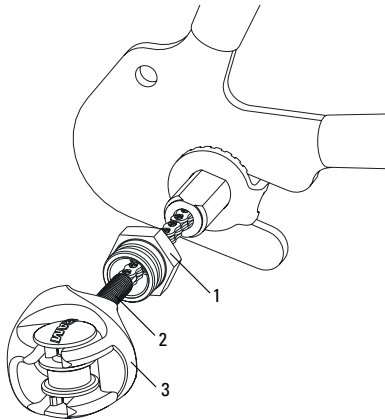
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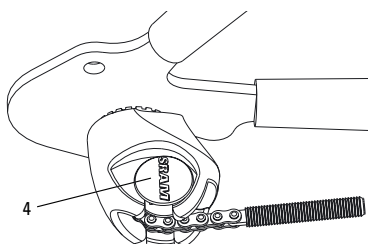
4



5



6



## ASSEMBLY HUB

- Lace the wheel as normal. See spoke length table.
- Place the dust cap (1, Fig. 1) and sprocket (2) on the driver.
- Push sprocket circlip (3, Fig. 2) onto the cone of tool sleeve (4). Place tool sleeve with large diameter on the driver.
- Push the spring end of sliding sleeve (5) of the tool over the tool sleeve. Thrust sliding sleeve in direction (6), this forces circlip into the recess of the driver.
- Remove tool and check that the circlip is seated correctly.
- Turn dust cap (7, Fig. 3) until the three lugs (8) are between the three beads (9) on the sprocket (10).
- Position dust cap and push towards sprocket until it is felt to lock into place.
- Screw tension chain (2, Fig. 5) into the axle end.
- Placing the wheel in the rear frame.
- Mount the chain.
- After positioning the wheel in the rear fork fit retaining washer (1, Fig. 4) to the outside of the dropout (hub side opposite the sprocket). The serrations must bear against the dropout and the lug must engage in the dropout slot.
- Tighten up special type axle nut (1, Fig. 5) and axle nut at other axle end. Tightening torque 30 – 40 Nm (266 – 350 in.lbs.).
- Guide tension chain (2) trough deflection pulley (3).
- Position deflection pulley at axle nut and push until it is felt to lock into place. Turn deflection pulley until the circular area is at the top (4, Fig. 6).

## Caution:

- **Only install additional axle attachments (e.g. struts) between nut and retaining washer.**
- **Cable stop bracket: dimensions see Technical Manual 2005.**
- **Axle end must protrude by min. 1 mm to max. 4 mm beyond the nut (1, Fig. 5).**

- Mount the brake lever using a suitable frame clamp (2, Fig. 4).

## Caution:

- **Mount the brake lever between the two straps of the frame clamp. The clamp must be seated on the frame without play.**
- **Use a self-locking nut! Tightening torque: 2 – 3 Nm (18 – 27 in.lbs.).**

## ASSEMBLY SHIFTER / INSTALLING CLICKBOX / ADJUSTMENT / CONNECTING DRUM BRAKE / ADJUSTMENT DRUM BRAKE

see Technical Manual 2005

## Spoke length table:

Tire Size	Cross	Length MH 3115/3105	Length MH 3125
	28 / 36 Holes	28 / 36 Holes	36 Holes
47–406 20" x 1.75 x 2	2 x / 3 x	182 mm / 184 mm	—
37–490 22" x 1 3/8	— / 3 x	— / 228 mm	—
47–507 24" x 1.75 x 2	2 x / 3 x	234 mm / 235 mm	—
37–540 24" x 1 3/8	— / 3 x	— / 254 mm	—
47–559 26" x 1.75 x 2	2 x / 3 x	258 mm / 262 mm	253 mm
37–590 26" x 1 3/8	— / 3 x	— / 254 mm	273 mm
47–622 28" x 1.75	2 x / 3 x	289 mm / 292 mm	285 mm
28–622 28" x 1 1/8	— / 3 x	— / 292 mm	285 mm
32–622 28" x 1 5/8 x 1 1/4	— / 3 x	— / 292 mm	285 mm
37–622 28" x 1 3/8 x 1 5/8	— / 3 x	— / 292 mm	285 mm
28–630 27" x 1 1/4 fifty	— / 3 x	— / 297 mm	287 mm
32–630 27" x 1 1/4	— / 3 x	— / 297 mm	287 mm

Spoke lengths are approximate values. They must be checked through lacing attempts and adjusted accordingly.



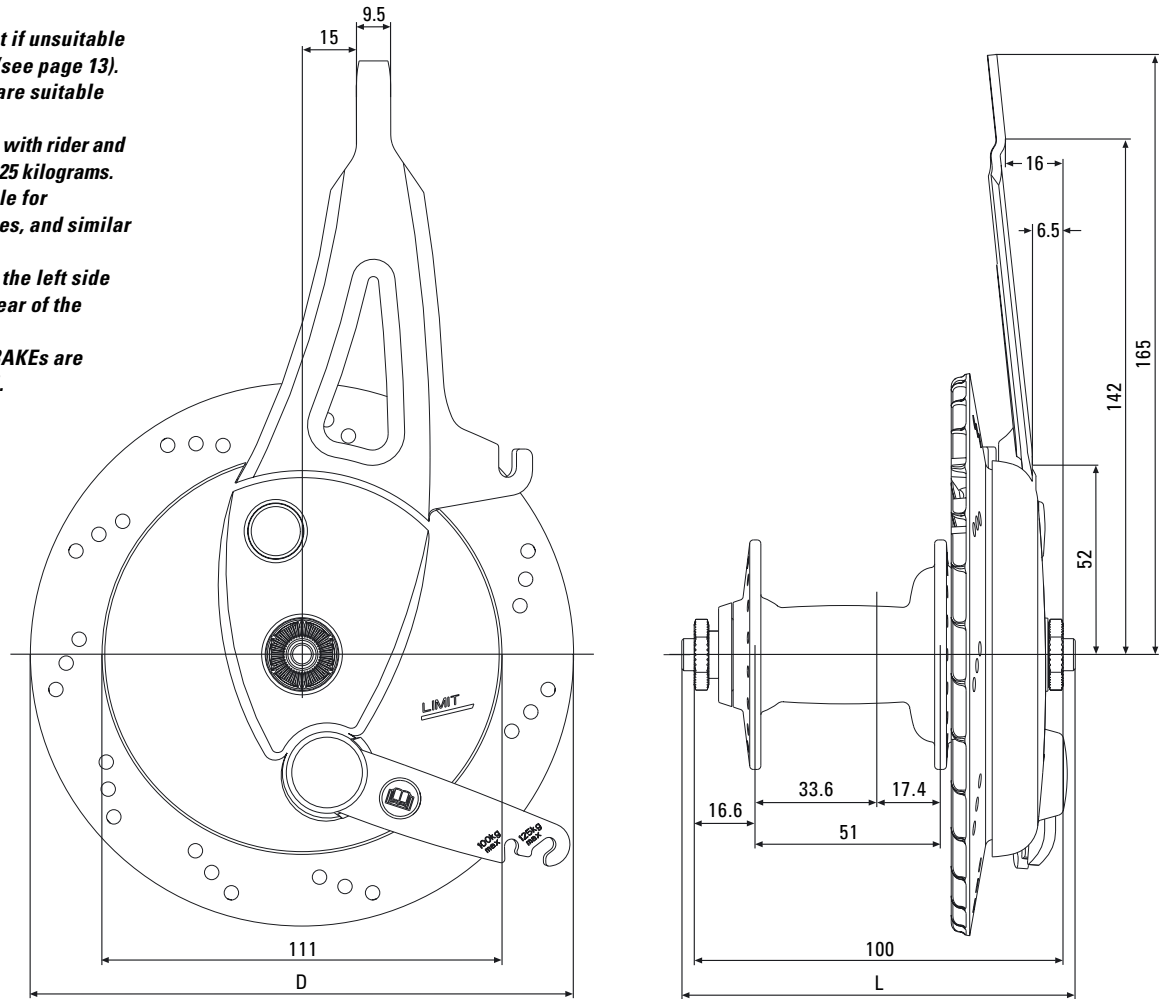
# i-BRAKE AND COMPATIBLE HUBS

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS



**Caution:**

- There is a risk of accident if unsuitable forks or frames are used (see page 13).
- Only 24"/26"/28" wheels are suitable for use.
- Total weight of the bicycle with rider and baggage may not exceed 125 kilograms.
- The i-BRAKE is not useable for tandems, transport bicycles, and similar loads.
- The i-BRAKEs must go on the left side viewed from behind the rear of the bicycle.
- **NEW:** MY2006 SRAM i-BRAKEs are „DIN Plus City“ approved.

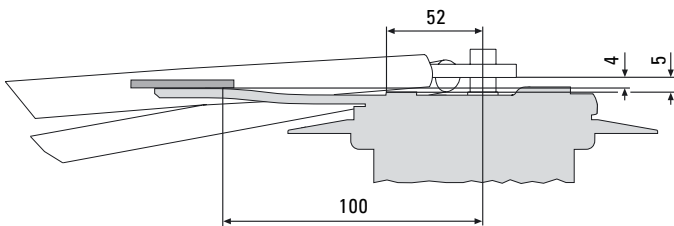
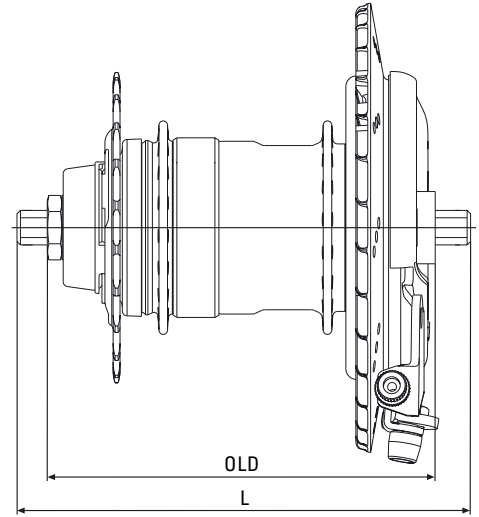
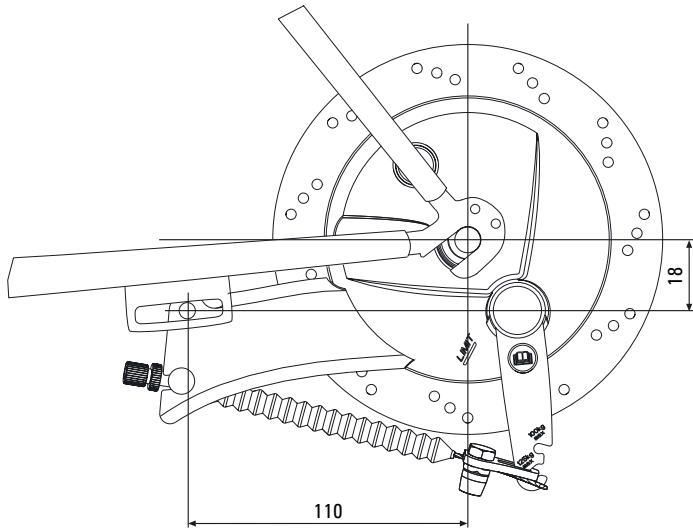


**FRONT HUBS**

<b>NEW</b>		<b>i-BRAKE System for Front Hubs</b>											
	<b>Brake Model</b>	IB 60 front						IB 40 front					
	<b>Cooling disc ø, D</b>	155 mm						135 mm					
	<b>Hub</b>	Front Hub HB 40 IB		i-LIGHT hub D724 IB		i-LIGHT hub D730 IB		Front Hub HB 40 IB		i-LIGHT hub D724 IB		i-LIGHT hub D730 IB	
	<b>Over Locknut Dim.</b>	100 mm		100 mm		100 mm		100 mm		100 mm		100 mm	
	<b>Length, L</b>	108 mm	140 mm	108 mm	140 mm	108 mm	140 mm	108 mm	140 mm	108 mm	140 mm	108 mm	140 mm
	<b>Type</b>	Hollow	Solid	Hollow	Solid	Hollow	Solid	Hollow	Solid	Hollow	Solid	Hollow	Solid
	<b>Material</b>	Steel		Steel		Steel		Steel		Steel		Steel	
	<b>Ends Diameter</b>	9 mm	M 9x1	9 mm	M 9x1	9 mm	M 9x1	9 mm	M 9x1	9 mm	M 9x1	9 mm	M 9x1
	<b>Holes</b>	36		36		36		36		36		36	
	<b>Spoke Diameter</b>	2 mm		2 mm		2 mm		2 mm		2 mm		2 mm	
	<b>Hole Reference ø</b>	54 mm		80 mm		80 mm		54 mm		80 mm		80 mm	
	<b>Bearing</b>	Cartridge		Cartridge		Cartridge		Cartridge		Cartridge		Cartridge	
	<b>Sealing</b>	Lip Seal / Labyrinth / Dust Cap						Lip Seal / Labyrinth / Dust Cap					
	<b>Tandem Compatib.</b>	—	—	—	—	—	—	—	—	—	—	—	—
	<b>Compat. brake lever</b>	Linear Pull compatible		Linear Pull compatible		Linear Pull compatible		Linear Pull compatible		Linear Pull compatible		Linear Pull compatible	
	<b>Brake anchor plate</b>	Version D		Version D		Version D		Version D		Version D		Version D	
	<b>Weight (complete)</b>	790 g		950 g		950 g		790 g		950 g		950 g	
	<b>Hub Shell</b>	Aluminum, anodized		Aluminum		Aluminum		Aluminum, anodized		Aluminum		Aluminum	
<b>Finish</b>	<b>Brake Drum</b>		Stainless steel		Stainless steel		Stainless steel		Stainless steel		Stainless steel		

# i-BRAKE AND COMPATIBLE HUBS

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS



### Caution:

- There is a risk of accident if unsuitable forks or frames are used (see page 13).
- Only 24"/26"/28" wheels are suitable for use.
- The total weight of the bicycle with rider and baggage may not exceed 125 kilograms.
- The i-BRAKE is not useable for tandems, transport bicycles, and similar loads.
- The i-BRAKEs must go on the left side viewed from behind the rear of the bicycle.
- **NEW:** MY2006 SRAM i-BRAKEs are „DIN Plus City“ approved.

# GEAR HUBS

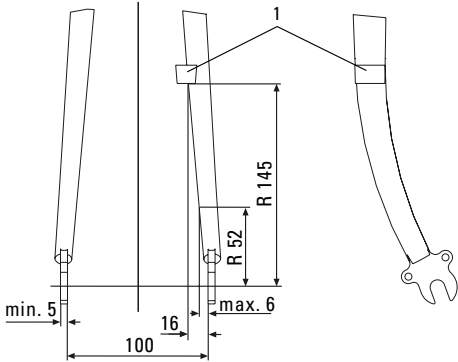
<b>NEW</b>		<b>DualDrive</b>	<b>SRAM S7</b>	<b>SRAM P5</b>	<b>SRAM T3</b>
	<b>Brake Model</b>	i-BRAKE for DualDrive	i-BRAKE for SRAM S7	i-BRAKE for SRAM P5	i-BRAKE for SRAM T3
	<b>Performance Level</b>	Comfort / City / Trekking	←	←	←
	<b>Hub</b>	DD 27 / 24 / 21 i-BRAKE comp.	SRAM S7 i-BRAKE comp.	SRAM P5 i-BRAKE comp.	SRAM T3 i-BRAKE compatible
<b>Over</b>	<b>Locknut Dim., OLD</b>	135 mm	135 mm	126 mm	118 mm
	<b>Length, L</b>	182,6 mm	188,5 mm	179 mm	166 mm
<b>Spoke</b>	<b>Ends Diameter</b>	FG 10.5	FG 10.5	FG 10.5	FG 10.5
	<b>Holes</b>	36	36	36	36
<b>Finish</b>	<b>Hole Diameter</b>	2,6 mm	3 mm	3 mm	3 mm
	<b>Hole Reference ø</b>	67 mm	75 mm	75 mm	58 mm
	<b>Tandem Compatib.</b>	—	—	—	—
	<b>Compat. brake lever</b>	Linear Pull compatible	←	←	←
	<b>Brake anchor plate</b>	Version D	Version D	Version D	Version D
	<b>Weight (complete)</b>	1095 g	1695 g	1465 g	1046 g
<b>Finish</b>	<b>Hub Shell</b>	Aluminum, anodized	Steel, matt chrome plated	Steel, matt chrome plated	Steel, matt chrome plated
	<b>Brake Drum</b>	Stainless steel	Stainless steel	Stainless steel	Stainless steel

# i-BRAKE AND COMPATIBLE HUBS

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS



1



### FRONT FORK REQUIREMENTS

#### Strength:

The strength must be such that with a maximum braking torque of 300 Nm (2700 in.lbs.) on the wheel no residual deformation can occur on the front fork.

#### Dimensions:

Important dimensions for front forks are shown in **Fig. 1**.

Fork dropouts must be parallel.

Brake arm anchor boss (1, **Fig. 1**):

Brazed-on or screwed (suspension forks)

#### Warning:

**Don't use brake arm clamps (Fig. 2).**

Mudguard and luggage carrier attachment:

Mounting screws should not collide with i-BRAKE (**Fig. 3**).

### HAND BRAKE LEVER COMPATIBILITY

- Use only Linear Pull compatible hand brake levers.
- Leverage must be 1.9 – 2.1.
- Cable pull of at least 25 mm.
- Hand brake lever with adjustable leverage:  
Adjust the leverage to get above described values of leverage and cable pull.

#### Warning:

**There is a risk of accident if unsuitable brake levers are used.**

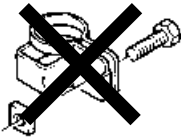
### BRAKE CABLES

- Use only new high quality cable and cable housing.
- When choosing cable housing lengths, be sure to allow enough housing for an extreme turn of the handlebars in both directions.
- Note also that different stem lengths effect cable housing length.

### ASSEMBLY

see **Technical Manual 2005**

2



### REAR FRAME REQUIREMENTS

#### Strength:

The strength must be such that with a maximum braking torque of 250 Nm (2200 in.lbs.) on the rear wheel no residual deformation can occur on the rear structure.

#### Dimensions:

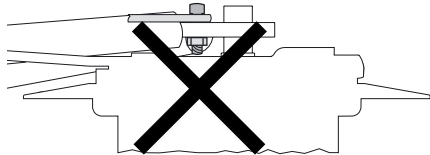
Important dimensions for rear frames see **previous page**.

Rear fork dropouts must be parallel.

Mudguard and luggage carrier attachment:

Mounting screws should not collide with i-BRAKE (**Fig. 3**).

3



# i-LIGHT FRONT HUB DYNAMO

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

		i-LIGHT Hub Dynamo								
i - LIGHT DYNAMO	Axle	Model	D324s	D330s	D330b	D730s	D730s-ib und D724s-ib			
		Version	Standard	←	←	←	i-brake compatible			
		Output	2.4 Watt	3.0 Watt	3.0 Watt	3.0 Watt	3.0 W (D724s-ib 2.4 Watt)			
		Voltage	6 V	6 V	6 V	6 V	6 V			
		Wheel ø	400 – 700 mm / 16" – 28"	←	←	←	400 – 700 mm / 16" – 28"			
	Spoke	Over Locknut Dim.	100 mm	←	←	←	100 mm			
		Length, L	140 mm	140 mm	108 mm	140 mm	140 mm	108 mm	140 mm	108 mm
		Type	Solid	Solid	Hollow	Solid	Solid	Hollow	Solid	Hollow
		Material	Steel	←	←	←	Steel			
		Ends Diameter	FG 9.5	←	←	←	M 9 x1	M 9 x1		
Spoke	Holes	36	←	←	←	36				
	Spoke Diameter	2 mm	←	←	←	2 mm				
	Hole Reference ø	80 mm	←	←	←	80 mm				
	Flange Distance	60 mm	←	←	←	49 mm				
	Offset	0 mm	←	←	←	6 mm				
	Bearing	Cartridge	←	←	←	Cartridge				
	Sealing	Double Sealed	←	←	←	Double Sealed				
	Tandem Compatib.	—	—	—	—	—	—			
Weight	N/A	N/A	N/A	N/A	N/A	N/A				
Finish Hub Shell	Aluminum	←	←	←	Aluminum, anodized	Aluminium, anodized				

## i-LIGHT ASSEMBLY



### ASSEMBLY

- Align the front wheel with hub dynamo in its mounting position. The connection terminal of the hub dynamo should be on the right side (when the bicycle is facing forward) (Fig. 1).
- Assemble fender stays and basket stays. Make sure that the hub washer and hub nut have been put on in the correct order (Fig. 2).

#### Fastening wheel / solid axle:

- Tighten the hub nut.
  - Tighten the left and right hub nuts alternately, little by little, to course that the hub dynamo connection terminal do not turn away from the correct orientation.
  - The recommended hub nut tightening torque is 20 Nm (177 in.lbs.).

#### Fastening wheel / quick release:

- Only use quick release devices with the correct length.
- Position quick release opposite to the brake (i-BRAKE version).
- Turn release lever outwards until it is at least at a right angle to the bike (position "OPEN") (Fig. 3).

- Tighten adjusting nut on the end of the skewer as much as possible by hand.
- Turn release lever to the "closed" position (the word "CLOSE" is visible from the outside) (Fig. 3).
- After closure, the release lever should be parallel to the fork. If the release lever can be closed relatively easily, the tension force is inadequate. In this case, open release lever again, tighten adjusting nut slightly and close release lever again.
- If considerable force is required to close the lever, open the lever again, undo the adjusting nut slightly and close lever again.

#### Caution:

- Do not tighten the wheel by turning the release lever clockwise (Fig. 4).
- Only use hand force.
- By incorrectly mounting the skewer or the wheel in the dropout, or by wrongly adjusting the closing force, the wheel may come loose and fall off during the ride. This may lead to severe rider injury or death.



# i-LIGHT HUB DYNAMO ASSEMBLY



3



4



5



6



## CONNECTING CABLES

- Recommended wire specifications:  
Inner wire size (AWG) 22 / Diameter approx. 0.8 mm.  
Insulation 1.8 – 2mm.
- Twist the cable wires before connecting (Fig. 5).
- Connect the cables. Bend the cable wires run them along the grooves (Fig. 6). Pay attention to a correct polarity. The system doesn't work in case of wrong connection .

## Check:

Rotate the front wheel and check the lamp illumination.

## Advice:

**Hubs equipped with i-BRAKE:**  
Please read the i-BRAKE documentation.



# X.0 / X-9 / X-7 / SX5 / SX4 / 3.0 · REAR DERAILLEURS

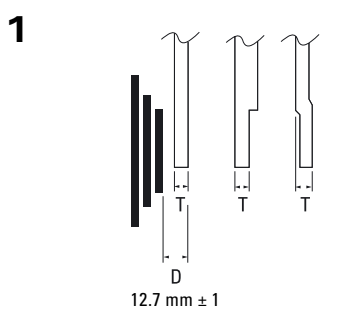
## TECHNICAL DATA / ASSEMBLY REQUIREMENTS



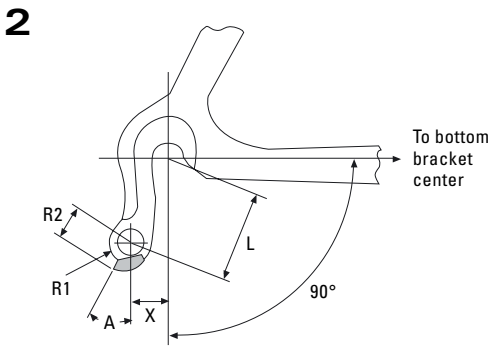
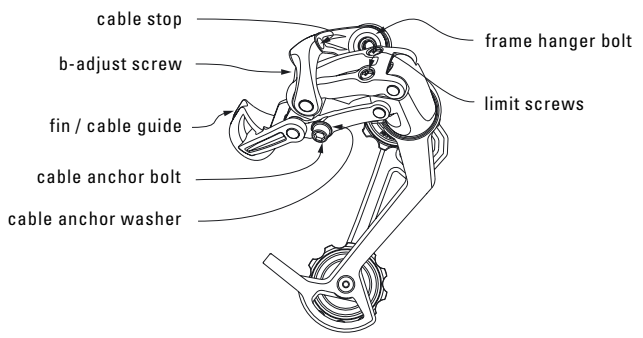
1:1

X · 0  
X - 9  
X - 7  
SX5  
SX4  
3 · 0

	X.0		X-9		X-7		SX5 <small>NEW</small>		SX4 <small>NEW</small>		3.0
<b>Speeds</b>	9/8		9/8		9/8		9/8		8/7		8/7
<b>Shifter Compatibility</b>	SRAM 1:1 Actuation Ratio 9/8 speed shifters						←		←		SRAM 1:1 8/7spd shifters
<b>Cogsets &amp; Chains</b>	SRAM/IG & HG 9/8spd		SRAM/IG & HG 9/8spd		SRAM/IG & HG 9/8spd		SRAM/IG & HG 9/8spd		SRAM/IG & HG 9/8spd		SRAM/IG & HG 8/7spd
<b>Chainrings</b>	22-32-42/44, 24-34-46, 26-36-46/48						←		←		←
<b>Chain Capacity</b>											
<b>Total</b>	45 T	37 T	45 T	37 T	45 T	37 T	45 T	37 T	45 T	37 T	45 T
<b>Cage Length</b>	Long	Medium	Long	Medium	Long	Medium	Long	Medium	Long	Med.	Long
<b>Max Sprocket</b>	34 T		34 T		34 T		34 T		34 T		34 T
<b>Min Sprocket</b>	11 T		11 T		11 T		11 T		11 T		11 T
<b>Front Difference</b>	22 T		22 T		22 T		22 T		22 T		22 T
<b>Parallelogram Spring</b>	Titanium		Steel		Steel		Steel		Steel		Steel
<b>Pulleys</b>	Cartr. bearing, stainless		Cartr.bear./Bush., hard.		Bushing, hardened		Bushing		Bushing		Bushing
<b>Direct Mount</b>	Yes		Yes		Yes		Yes		Yes		Yes
<b>Cable &amp; Housing</b>	1.1 or 1.2 mm high quality cables, 4 or 5 mm compressionless cable housing with end cap / maximum diameter of 5.8 mm										
<b>Weight</b>	210 g	205 g	230 g	225 g	275 g	N/A	309 g	N/A	309 g	N/A	275 g
<b>B-Knuckle</b>	Forged Aluminum / Anod.		Aluminum		Aluminum		Aluminum		Aluminum		Compos.
<b>Outer Link</b>	Forged Aluminum		Alu die-cast / Painted		Alu die-cast / Painted		Aluminum		Zinc Alloy		Compos.
<b>Inner Link</b>	Forged Aluminum		Aluminum / Anodized		Steel / E-coat		Steel / E-coat		Composite		Steel
<b>Outer Cage</b>	Aluminum	Carbon Comp.	Stamped AL / Anodized		Stamped AL / Anodized		Steel / E-coat		Steel / E-coat		
<b>Inner Cage</b>	Aluminum	Carbon Comp.	Stamped AL / Anodized		Steel		Steel		Steel		Compos.
<b>Hanger Bolt</b>	Aluminum / Anodized		Aluminum / Anodized		Aluminum / Anodized		Steel		Steel		



### DERAILLEUR ANATOMY



### FRAME DIMENSIONS

(see figure 1 and 2)

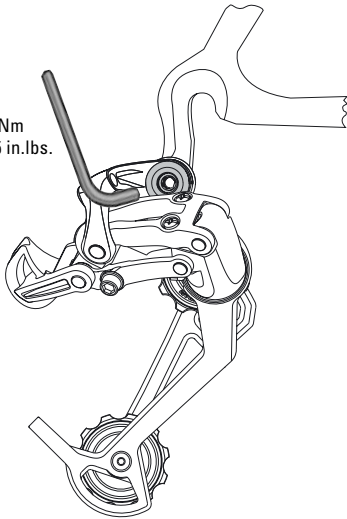
- For optimal 1:1 Actuation Ratio rear derailleur performance, the recommended rear derailleur hanger length (L) should be 28 – 30 mm.
- For a given L, use the chart below to determine other 1:1 Actuation Ratio rear derailleur hanger specifications.

L	X	A	R1	R2	T
28	6–10	25°–30°	8.5 max	11.5–13.5	7–8
30	7.5–10	25°–30°	8.5 max	11.5–13.5	7–8

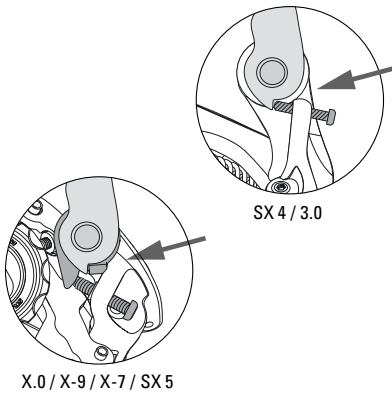
# X.0 / X-9 / X-7 / SX5 / SX4 / 3.0 • REAR DERAILLEURS ASSEMBLY

1

5 mm  
8 – 10 Nm  
70 – 85 in.lbs.

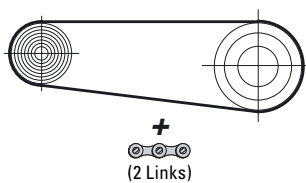


2

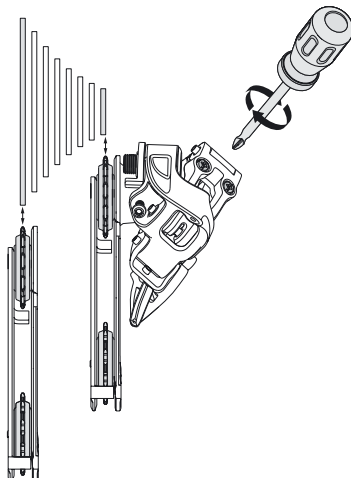


X.0 / X-9 / X-7 / SX 5

3



4



## ASSEMBLY

### Advice:

**Check the rear derailleur hanger alignment. A bent rear derailleur hanger will result in inaccurate index shifting. Outboard side impacts are the most common causes of this type of damage.**

- Attach the rear derailleur to the frame's rear derailleur hanger using a 5 mm hex head wrench (**Fig. 1**).
- Check that the b-adjust washer tab (b-adjust screw) is clear of the rear derailleur dropout tab (**Fig. 2**).
- Tighten the 5 mm hex hanger bolt to 8 – 10 Nm (70–85 in.lbs.) **Fig. 1**.

## CHAIN LENGTH

A properly measured chain will prevent damage in case of accidentally shifting to the largest chain ring and cog combination. This type of accidental shifting may cause harmful binding or seizure of the chain and potentially cause severe damage.

- Bypassing the rear derailleur, run the chain around the largest cog/large chainring combination (**Fig. 3**).
  - For rear suspension frames, position the rear suspension for the greatest chain length required.
- Add 2 LINKS or 1 link + Power Link to this length for proper chain length.

## LIMIT SCREWS ADJUSTMENT

- View the rear derailleur and pulleys from behind the rear of the bicycle (**Fig. 4**).
- Turn the limit screw marked 'H' on the outer link of the derailleur to align the upper guide pulley center with the outboard edge of the smallest cog – clockwise moves the guide pulley inboard towards the wheel.
- While turning the crank, push the rear derailleur towards the larger cogs by hand.
- Align the upper guide pulley under the largest cog, center to center, by turning the limit screw marked 'L' on the outer link – clockwise moves the guide pulley outboard away from the spokes.

## CHAIN GAP ADJUSTMENT

Chain gap is the distance between the upper guide pulley and the cog the chain is riding on. Optimal chain gap is small enough to allow quick, efficient shifts to and from any cog, but large enough to allow smooth shifts to and from the largest cog.

- Shift chain to the small chain ring.
- While turning the crank, push the rear derailleur inboard by hand to the largest cog.
- Hold the derailleur in this position while making the following adjustment.

- Use a 2.5/3 mm hex wrench (screw driver for SX 4), turn the b-adjust screw until the chain gap equals approximately 6 mm (1/4") from tip of the cog to tip of upper guide pulley (**Fig. 5**).

- Turn the b-adjust screw clockwise to increase the chain gap.
- Turn the b-adjust screw counterclockwise to decrease the chain gap.

### Advice:

- **Bicycles equipped with an 11-28 cassette may require you to set the chain gap at the smallest cog. This is due to the shallow angle of the cassette in relation to the steeper movement of the 9spd rear derailleur.**
- **It is best to measure the rear piece of cable housing between the frame and derailleur after the chain gap is determined. See figure and chart for recommended lengths.**
- **Do not use the b-adjust screw to adjust the rear derailleur to act as a chain-tensioning device or to prevent chain suck. This increases the chain gap causing poor shifting performance.**

## INDEX SHIFTING ADJUSTMENT

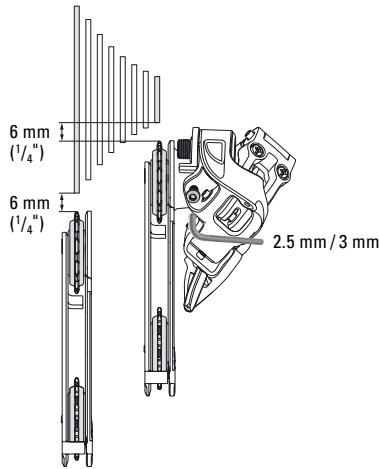
- Check that the chain and the rear derailleur are in the smallest cog position.
- Measure and cut the rear piece of cable housing. Make sure that it is not too short or long (**see figure and chart**).
- Rotate the rear shifter until the largest number and gear indication tab/dash line up.
- Turn the rear shifter barrel adjust clockwise fully into the shifter, then turn counterclockwise 1 full turn.
- Feed the rear shifter cable through the rear derailleur cable housing, stops and cable guides.
- Feed the rear derailleur cable through the rear derailleur-housing stop and through the cable guide on the fin.
- Pull the cable tight and position it under the cable anchor washer (**Fig. 6**).
- Tighten the 5 mm hex cable anchor bolt to 4 – 5 Nm (35–45 in.lbs.).
- Rapidly shift the chain and derailleur up and down the cassette several times. If the cable slips repeat the two former steps.
- Shift the chain to the smallest cog.
- While pedaling, move the shifter up one detent.
  - If the chain hesitates or does not shift to the second cog, increase the cable tension by turning the shifter barrel adjuster counterclockwise.
  - If the chain shifts beyond the second cog, decrease the cable tension by turning the shifter barrel adjuster clockwise.

# X.0 / X-9 / X-7 / SX5 / SX4 / 3.0 • REAR DERAILLEURS ASSEMBLY



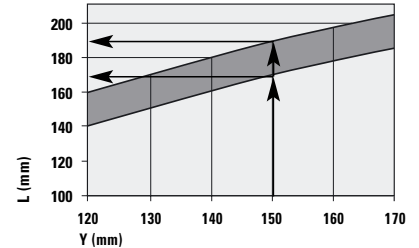
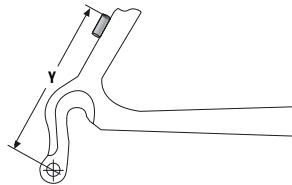
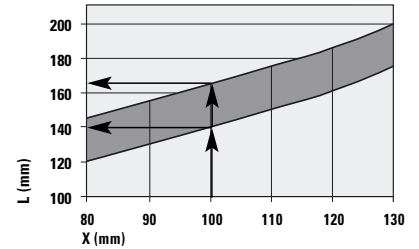
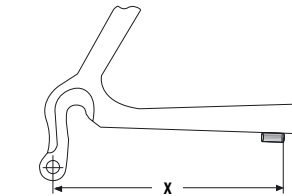
1:1

5



- Repeat the two former steps until shifting and cable tension is accurate.
- While turning the crank, shift the chain up and down the cassette and chain rings several times to ensure that your derailleur is indexing smoothly.

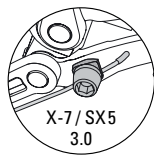
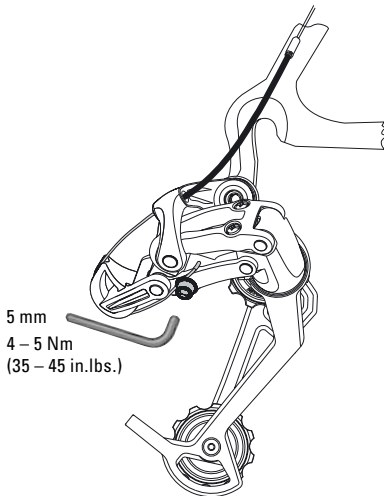
## CHART / LENGTH OF CABLE HOUSINGS



Example:  
Distance Y = 150 mm → cable housing length L = 165 – 190 mm.

**Caution:**  
*It is imperative to respect the values for the correct length of cable housing.*

6



## TROUBLESHOOTING

Problem	Cause	Remedy
Chain jumps from smallest sprocket to frame dropout.	High gear limit screw is not adjusted properly.	Turn in screw H until the guide pulley is aligned with the smallest sprocket.
Difficult or impossible to shift chain onto smallest sprocket.	High gear limit screw is not adjusted properly.	Unscrew screw H until the guide pulley is aligned with the smallest sprocket.
Chain jumps over largest sprocket and falls between the spokes and largest sprocket or inner cage plate scrapes on spokes.	Low gear limit screw is not adjusted properly.	Turn in screw L until the guide pulley is aligned with the largest sprocket.
	Rear derailleur or derailleur hanger is bent.	Straighten or replace.
Delayed shifting.	Clearance between guide pulley / sprocket is too large.	Adjust b-adjust screw by rotating counterclockwise.
Rough shifting behavior.	Clearance between guide pulley / sprocket is too small.	Adjust b-adjust screw by rotating clockwise.
Chain jumps two gears on small sprocket	Shift cable insufficiently tensioned.	Turn barrel adjuster on the shifter counterclockwise.
Delayed shifting onto larger sprocket	Shift cable insufficiently tensioned.	Turn barrel adjuster on the shifter counterclockwise.
Delayed shifting onto smaller sprocket	Shift cable is too tight.	Turn barrel adjuster on the shifter clockwise.
	Excessive cable friction, pinched or poorly routed cable.	Lubricate or replace cable and housing. Check for excessive bending of cable housing.

# SX 5 / CENTERA • TWIST SHIFTERS

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

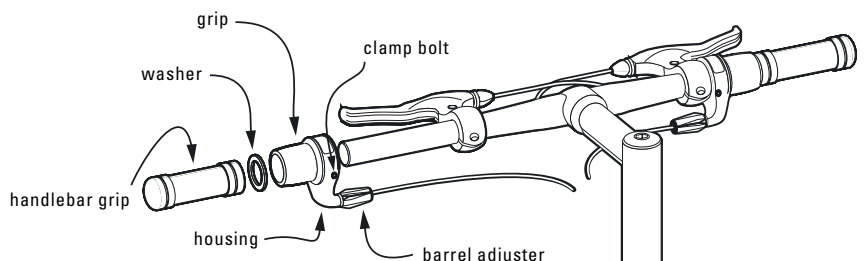
<b>SX 5</b>	<b>SX5</b> <i>NEW</i>				
	<b>Version</b>	Shorty	Shorty	Shorty	Shorty
	<b>Shifter Type</b>	Front / Micro adjust	Front / Index	Rear 1:1 Actuation Ratio	Rear 1:1 Actuation Ratio
	<b>Speeds</b>		3	9	8
	<b>Deraillieur</b>	SRAM & Shimano	SRAM & Shimano	SRAM 1:1 Actuation Ratio	SRAM 1:1 Actuation Ratio
	<b>Crankset</b>	Triple Indexed	Triple Indexed		
	<b>Cable Pull Release</b>	FFS	FFS	Standard	Standard
	<b>Cable</b>	Die Drawn Steel	←	←	←
	<b>Gear Indication</b>	Printed	Printed	Printed	Printed
	<b>Barrel Adjuster</b>	Indexing	Indexing	Indexing	Indexing
	<b>Clamping Diameter</b>	22.3mm	22.3mm	22.3mm	22.3mm
	<b>Shifter Length</b>	65 mm	←	←	←
<b>Weight</b>	N/A	N/A	N/A	N/A	

<b>CENTERA</b>	<b>Centera</b>				
	<b>Version</b>	Shorty	Shorty	Shorty	Shorty
	<b>Shifter Type</b>	Front / Micro adjust	Front / Index	Rear 2:1	Rear 2:1
	<b>Speeds</b>		3	9 <i>NEW</i>	8
	<b>Deraillieur</b>	SRAM & Shimano	SRAM & Shimano	Shimano	Shimano
	<b>Crankset</b>	Triple Indexed	Triple Indexed		
	<b>Cable Pull Release</b>	FFS	FFS	Standard	Standard
	<b>Cable</b>	Die Drawn Steel	←	←	←
	<b>Gear Indication</b>	Printed	Printed	Printed	Printed
	<b>Barrel Adjuster</b>	Indexing	Indexing	Indexing	Indexing
	<b>Clamping Diameter</b>	22.3 mm	22.3mm	22.3mm	22.3mm
	<b>Shifter Length</b>	65 mm	←	←	←
<b>Weight</b>	N/A	N/A	N/A	N/A	

### CABLE HOUSING

- Use only new high quality cable and compressionless cable housing with end caps.
- When choosing cable housing lengths, be sure to allow enough housing for an extreme turn of the handlebars in both directions.
- Note also, that different stem lengths and cable stop positions effects cable housing length.

### SHIFTER ANATOMY



# SX 5 / CENTERA • TWIST SHIFTERS ASSEMBLY



## ASSEMBLY

Front and Rear:

- Slide the shifter onto the handlebar.
  - If necessary, move the brake lever to allow for shifter and handlebar grip.
  - Bar end users – don't forget to leave room for the bar end.
- Rotate the shifter until the barrel adjuster is beneath (but out of the way of) the brake lever.
- Tighten the 3 mm hex clamp bolt to 1.9 Nm (17 in.lbs.).
- Slide the plastic washer onto the handlebar.
- Slide the handlebar grip onto the handlebar.

### Caution:

**Never use lubricants or solvents to install handlebar grips. Handlebar grips provide safety function. For this reason, they should be mounted in such a way as to make sure they do not slip off handlebar!**

- Feed the cable through the cable housing and stops.
- Attach the shifter cable to the derailleur.
- Adjust indexing per derailleur instructions.

### Caution:

- **Always check the front and rear brake levers for proper operation.**
- **If there is interference between shifters and brake levers, re-adjust lever and shifter placement.**
- **Check again for proper operation!**

# SX 4 / MRX PRO • TWIST SHIFTERS

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

SX4

**SX4** *NEW*

Com- pati- bility	<b>Version</b>	Half Pipe	Half Pipe	Half Pipe	Half Pipe	Half Pipe
	<b>Shifter Type</b>	Front / Micro adjust	Front / Index	Rear 1:1 Actuation Ratio	Rear 1:1 Actuation Ratio	Rear 1:1 Actuation Ratio
	<b>Speeds</b>		3	9	8	7
	<b>Derailleur</b>	SRAM & Shimano	SRAM & Shimano	SRAM 1:1 Actuation Ratio		←
	<b>Crankset</b>	Triple Indexed	Triple Indexed			
	<b>Cable Pull Release</b>	SRS	SRS	SRS	SRS	SRS
	<b>Cable</b>	Die Drawn Steel	←	←	←	←
	<b>Gear Indication</b>	Window	Window	Window	Window	Window
	<b>Barrel Adjuster</b>	Indexing	Indexing	Indexing	Indexing	Indexing
	<b>Clamping Diameter</b>	22.3mm	22.3mm	22.3mm	22.3mm	22.3mm
	<b>Shifter Length</b>	86mm	←	←	←	←
	<b>Weight</b>	87 g	87 g	87 g	87 g	87 g

MRX  
PRO

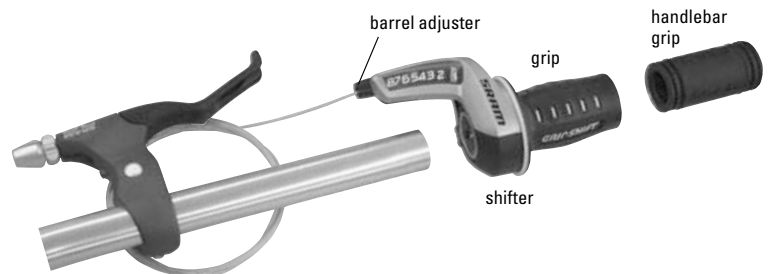
**MRX Pro**

Com- pati- bility	<b>Version</b>	Half Pipe	Half Pipe	Half Pipe	Half Pipe	Half Pipe	Half Pipe	Half Pipe	
	<b>Shifter Type</b>	Front / Micro adjust	Front / Index	Rear 2:1			Rear Shimano Rapid Rise		
	<b>Speeds</b>		3	9	8	7	9	8	7
	<b>Derailleur</b>	SRAM & Shimano	SRAM & Shimano	Shimano			Shimano Rapid Rise		
	<b>Crankset</b>	Triple Indexed	Triple Indexed						
	<b>Cable Pull Release</b>	SRS	SRS	SRS			SRS		
	<b>Cable</b>	Die Drawn Steel	←	←			←		
	<b>Gear Indication</b>	Window	Window	Window			Window		
	<b>Barrel Adjuster</b>	Indexing	Indexing	Indexing			Indexing		
	<b>Clamping Diameter</b>	22.3mm	22.3mm	22.3mm			22.3mm		
	<b>Shifter Length</b>	86mm	←	←			←		
	<b>Weight</b>	87 g	87 g	87 g			87 g		

### CABLE HOUSING

- Use only new high quality cable and compressionless cable housing with end caps.
- When choosing cable housing lengths, be sure to allow enough housing for an extreme turn of the handlebars in both directions.
- Note also, that different stem lengths and cable stop positions effects cable housing length.

### SHIFTER ANATOMY

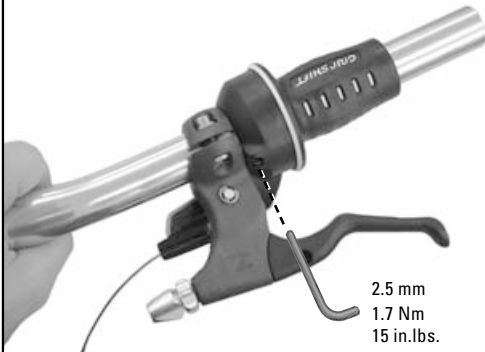




# SX 4 / MRX PRO · TWIST SHIFTERS ASSEMBLY



1



## ASSEMBLY

Front and Rear:

- Slide the shifter onto the handlebar.
  - If necessary, move the brake lever to allow for shifter and handlebar grip.
  - Bar end users – don't forget to leave room for the bar end.
- Rotate the shifter until the barrel adjuster is above (but out of the way of) the brake lever and the gear indication is clearly visible from the riding position.
- Tighten the 2.5 mm hex clamp bolt (*Fig. 1*) to 1.7 Nm (15 in.lbs.).
- Slide the handlebar grip onto bar (*Fig. 2*).

### Caution:

**Never use lubricants or solvents to install handlebar grips. Handlebar grips provide safety function.**

**For this reason, they should be mounted in such a way as to make sure they do not slip off handlebar!**

- Feed the cable through the cable housing and frame stops.
- Attach cable to the derailleur.
- Adjust indexing per derailleur instructions.

**Not recommended for use on thin walled aluminum handlebars such as Hyperlite® type handlebars.**

### Caution:

- **Always check the front and rear brake levers for proper operation. If there is interference between shifters and brake levers, re-adjust lever and shifter placement.**
- **Check again for proper operation!**

2



# X.0 · TRIGGER SHIFTERS

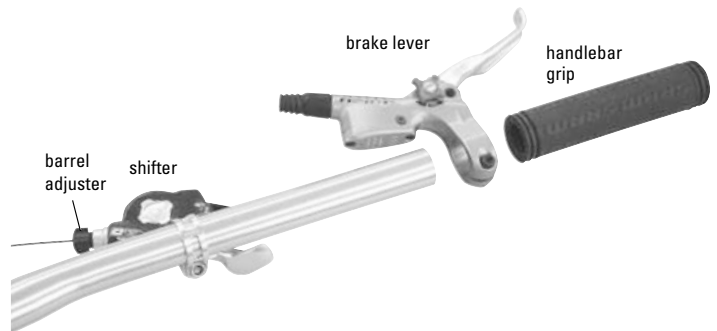
## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

<b>X · 0</b>		<b>X.0</b>		
		<b>Shifter Type</b>	Front / Index	Rear 1:1 Actuation Ratio
		<b>Speeds</b>	3	9
	<b>Com- pati- bility</b>	<b>Deraillleur</b>	SRAM & Shimano	SRAM 1:1 Actuation Ratio
		<b>Crankset</b>	Triple Indexed	
		<b>Cable Pull Release</b>	Zero loss Technology	←
		<b>Cable</b>	Teflon Coat. Stainl. Steel	Teflon Coat. Stainl. Steel
		<b>Gear Indication</b>	None	None
		<b>Barrel Adjuster</b>	Indexing, Composite	Indexing, Composite
		<b>Clamping Diameter</b>	22.3mm	22.3mm
	<b>Weight</b>	112 g	112 g	

### CABLE HOUSING

- Use only new high quality cable and compressionless cable housing with end caps.
- When choosing cable housing lengths, be sure to allow enough housing for an extreme turn of the handlebars in both directions.
- Note also, that different stem lengths and cable stop positions effects cable housing length.

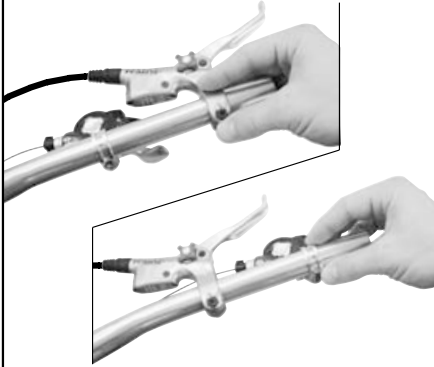
### SHIFTER ANATOMY



# X.0 · TRIGGER SHIFTERS ASSEMBLY



1



## ASSEMBLY

- Slide shifter and brake lever onto handlebar. Either component can be mounted first (*Fig. 1*).

- Slide the handlebar grip onto the handlebar.

### Caution:

**Never use lubricants or solvents to install handlebar grips. Handlebar grips provide safety function.**

**For this reason, they should be mounted in such a way as to make sure they do not slip off handlebar!**

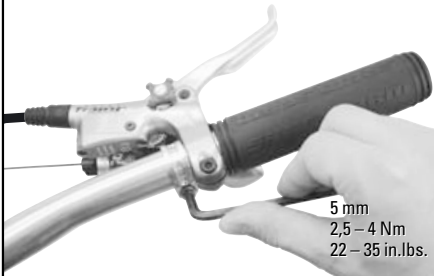
- Choose the best position for your ergonomic needs. Tighten the 5 mm hex clamp bolt to 22 – 35 in.lbs. (2,5 – 4 Nm) (*Fig. 2*).

- Feed the cable through the cable housing and stops. Make sure the shifter is in fully released position (lowest gear position (front shifter) or the highest gear position (rear shifter)).
- Attach the shifter cable to the derailleur.
- Adjust indexing per derailleur instructions.

### Caution:

- **Always check the front and rear brake levers for proper operation.**
- **If there is interference between shifters and brake levers, re-adjust lever and shifter placement.**
- **Check for proper brake lever operation again!**

2



5 mm  
2,5 – 4 Nm  
22 – 35 in.lbs.

# SX 4 / TRX · TRIGGER SHIFTERS

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

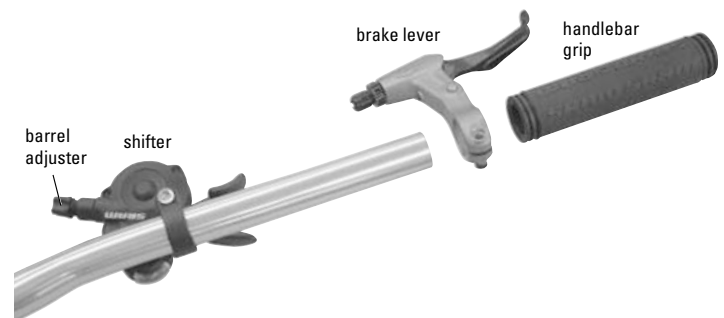
		SX4 <sup>NEW</sup>		
SX4	<b>Shifter Type</b>	Front/ Index	Rear 1:1 Actuation Ratio	Rear 1:1 Actuation Ratio
	<b>Speeds</b>	3	8	7
	<b>Derailleur</b>	SRAM & Shimano	SRAM 1:1 Actuation Ratio	
	<b>Crankset</b>	Triple Indexed		
	<b>Cable Pull Release</b>	Uni-Lever Technology	←	←
	<b>Cable</b>	Standard	←	←
	<b>Gear Indication</b>	Window	Window	Window
	<b>Barrel Adjuster</b>	Indexing	Indexing	Indexing
	<b>Clamping Diameter</b>	22.3 mm	22.3 mm	22.3 mm
	<b>Shifter Length</b>	N/A	←	←
<b>Weight</b>	130 g	130 g	130 g	

		TRX		
TRX	<b>Shifter Type</b>	Front/ Index	Rear 2:1	Rear 2:1
	<b>Speeds</b>	3	8	7
	<b>Derailleur</b>	SRAM & Shimano	Shimano	Shimano
	<b>Crankset</b>	Triple Indexed		
	<b>Cable Pull Release</b>	Uni-Lever Technology	←	←
	<b>Cable</b>	Standard	←	←
	<b>Gear Indication</b>	Window	Window	Window
	<b>Barrel Adjuster</b>	Indexing	Indexing	Indexing
	<b>Clamping Diameter</b>	22.3 mm	22.3 mm	22.3 mm
	<b>Shifter Length</b>	N/A	←	←
<b>Weight</b>	130 g	130 g	130 g	

### CABLE HOUSING

- Use only new high quality cable and compressionless cable housing with end caps.
- When choosing cable housing lengths, be sure to allow enough housing for an extreme turn of the handlebars in both directions.
- Note also, that different stem lengths and cable stop positions effects cable housing length.

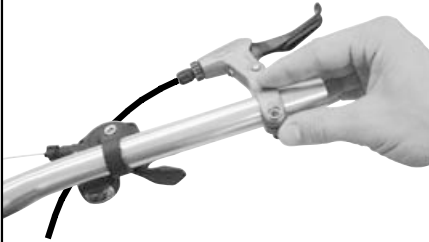
### SHIFTER ANATOMY



# SX 4 / TRX · TRIGGER SHIFTERS ASSEMBLY



1



## ASSEMBLY

- Slide first shifter then brake lever onto handlebar (*Fig. 1*).
- Slide the handlebar grip onto the handlebar.

### Caution:

**Never use lubricants or solvents to install handlebar grips. Handlebar grips provide safety function.**

**For this reason, they should be mounted in such a way as to make sure they do not slip off handlebar!**

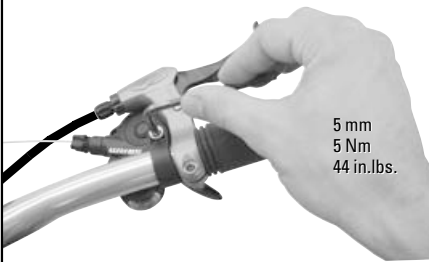
- Position the shifter as you wish. Locate the perfect position of shifter levers for your ergonomic needs. Tighten the 5 mm hex clamp bolt to 44 in.lbs. (5 Nm) (*Fig. 2*).

- Feed the cable through the cable housing and stops. Make sure the shifter is in gear position "1" (front shifter) or the HIGHEST gear number (rear shifter).
- Attach the shifter cable to the derailleur.
- Adjust indexing per derailleur instructions.

### Caution:

- **Always check the front and rear brake levers for proper operation.**
- **If there is interference between shifters and brake levers, re-adjust lever and shifter placement.**
- **Check for proper brake lever operation again!**

2



5 mm  
5 Nm  
44 in.lbs.

# CASSETTES

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

PG 990	Compati- bility	<b>PG 990</b> <i>NEW</i>		<b>PG 980</b> <i>NEW</i>			
		<b>Application</b>	MTB	MTB	MTB	MTB	
		<b>Technology</b>	Power Glide II	Power Glide II	Power Glide II	Power Glide II	
		<b>Largest Cog</b>	34 T	32 T	34 T	32 T	
		<b>Speeds</b>	9	9	9	9	
		<b>Chains</b>	SRAM / 9 speed index	SRAM / 9 speed index	SRAM / 9 speed index	SRAM / 9 speed index	
		<b>Hubs</b>	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	
		<b>Cogs</b>	11/13/15/17/20/23/26/30/34	11/12/14/16/18/21/24/28/32	11/13/15/17/20/23/26/30/34	11/12/14/16/18/21/24/28/32	
		<b>Lockring torque</b>	40 Nm	40 Nm	40 Nm	40 Nm	
		<b>Weight</b>	305 g	275 g	310 g	280 g	
		Design	<b>Cogs</b>	SAPH 440 steel	SAPH 440 steel	SAPH 440 steel	SAPH 440 steel
			<b>Spider</b>	Aluminum	Aluminum	Aluminum	Aluminum
			<b>Lockring</b>	Aluminum, anodized	Aluminum, anodized	Chrome Plated, Satin	Chrome Plated, Satin
			<b>Rivets</b>	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
<b>Finish</b>	Blast Chrome Plated		Blast Chrome Plated	Blast Chrome Plated	Blast Chrome Plated		

PG 970	Compati- bility	<b>PG 970</b>						
		<b>Application</b>	MTB	MTB	Road	Road	Road	
		<b>Technology</b>	Power Glide II	Power Glide II	Power Glide II	Power Glide II	Power Glide II	
		<b>Largest Cog</b>	34 T	32 T	26 T	23 T	23 T	
		<b>Speeds</b>	9	9	9	9	9	
		<b>Chains</b>	SRAM / 9 speed index	SRAM / 9 speed index	SRAM / 9 speed index	SRAM / 9 speed index	SRAM / 9 speed index	
		<b>Hubs</b>	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	
		<b>Cogs</b>	11/13/15/17/20/23/26/30/34	11/12/14/16/18/21/24/28/32	12/13/14/15/17/19/21/23/26	12/13/14/15/16/17/19/21/23	11/12/13/14/15/17/19/21/23	
		<b>Lockring torque</b>	40 Nm	40 Nm	40 Nm	40 Nm	40 Nm	
		<b>Weight</b>	410 g	330 g	225 g	195 g	185 g	
		Design	<b>Cogs</b>	SAPH 440 steel	SAPH 440 steel	SAPH 440 steel	SAPH 440 steel	SAPH 440 steel
			<b>Lockring</b>	Chrome Plated, Satin	Chrome Plated, Satin	Aluminum, anodized	Aluminum, anodized	Aluminum, anodized
			<b>Screw</b>	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat
			<b>Finish</b>	Chrome Plated, Satin	Chrome Plated, Satin	Chrome Plated	Chrome Plated	Chrome Plated

PG 970	Compati- bility	<b>PG 970</b>		<b>PG 950</b>				
		<b>Application</b>	Road	MTB	MTB	Road	Road	
		<b>Technology</b>	Power Glide II	Power Glide II	Power Glide II	Power Glide II	Power Glide II	
		<b>Largest Cog</b>	21 T	34 T	32 T	26 T	23 T	
		<b>Speeds</b>	9	9	9	9	9	
		<b>Chains</b>	SRAM / 9 speed index	SRAM / 9 speed index	SRAM / 9 speed index	SRAM / 9 speed index	SRAM / 9 speed index	
		<b>Hubs</b>	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	
		<b>Cogs</b>	11/12/13/14/15/16/17/19/21	11/13/15/17/20/23/26/30/34	11/12/14/16/18/21/24/28/32	12/13/14/15/17/19/21/23/26	12/13/14/15/16/17/19/21/23	
		<b>Lockring torque</b>	40 Nm	40 Nm	40 Nm	40 Nm	40 Nm	
		<b>Weight</b>	170 g	460 g	380 g	240 g	220 g	
		Design	<b>Cogs</b>	SAPH 440 steel	Steel	Steel	SAPH 440	SAPH 440 steel
			<b>Lockring</b>	Aluminum, anodized	Forged Steel	Forged Steel	Forged Steel	Forged Steel
			<b>Screw</b>	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat
			<b>Finish</b>	Chrome Plated	Chrome Plated	Chrome Plated	Chrome Plated	Chrome Plated

# CASSETTES

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS



<b>P G 8 5 0</b>	<b>Compati- bility</b>	<b>PG 850</b>						
		<b>Application</b>	MTB	MTB	MTB	Road	Road	
		<b>Technology</b>	Power Glide II	Power Glide II	Power Glide II	Power Glide II	Power Glide II	
		<b>Largest Cog</b>	32 T	30 T	28 T	26 T	23 T	
		<b>Speeds</b>	8	8	8	8	8	
		<b>Chains</b>	SRAM / 8 speed index	SRAM / 8 speed index	SRAM / 8 speed index	SRAM / 8 speed index	SRAM / 8 speed index	
		<b>Hubs</b>	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	
		<b>Cogs</b>	11/12/14/16/18/21/26/32	11/13/15/17/20/23/26/30	11/12/14/16/18/21/24/28	12/13/15/17/19/21/23/26	12/13/14/15/17/19/21/23	
		<b>Lockring torque</b>	40 Nm	40 Nm	40 Nm	40 Nm	40 Nm	
		<b>Weight</b>	280 g	310 g	250 g	230 g	220 g	
		<b>Design</b>	<b>Cogs</b>	SAPH 440 steel	SAPH 440 steel	SAPH 440 steel	SAPH 440 steel	SAPH 440 steel
			<b>Lockring</b>	Forged Steel	Forged Steel	Forged Steel	Forged Steel	Forged Steel
			<b>Screw</b>	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat
			<b>Finish</b>	Chrome Plated	Chrome Plated	Chrome Plated	Chrome Plated	Chrome Plated

<b>P G 8 3 0</b>	<b>Compati- bility</b>	<b>PG 830</b>			<b>PG 730</b>			
		<b>Application</b>	MTB	MTB	MTB	MTB		
		<b>Technology</b>	Power Glide II	Power Glide II	Power Glide II	Power Glide II		
		<b>Largest Cog</b>	32 T	30 T	28T	32T		
		<b>Speeds</b>	8	8	8	7		
		<b>Chains</b>	SRAM / 8 speed index	SRAM / 8 speed index	SRAM / 8 speed index	SRAM / 7 speed index		
		<b>Hubs</b>	9 / 8 speed HG	9 / 8 speed HG	9 / 8 speed HG	7 speed HG		
		<b>Cogs</b>	11/12/14/16/18/21/26/32	11/13/15/17/20/23/26/30	11/12/14/16/18/21/24/28	12/14/16/18/21/26/32		
		<b>Lockring torque</b>	40 Nm	40 Nm	40 Nm	40 Nm		
		<b>Weight</b>	320 g	340 g	280 g	310 g		
		<b>P G 7 3 0</b>	<b>Cogs</b>	Steel	Steel	Steel	Steel	
			<b>Lockring</b>	Forged Steel	Forged Steel	Forged Steel	Forged Steel	
			<b>Screw</b>	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat	Steel / Zinc Coat	
			<b>Finish</b>	Chrome Plated	Chrome Plated	Chrome Plated	Chrome Plated	

# POWER CHAINS

## TECHNICAL DATA / ASSEMBLY REQUIREMENTS

POWER CHAINS

	PC991 <i>NEW</i>	PC971 <i>NEW</i>	PC951 <i>NEW</i>	PC68	PC58
<b>Application</b>	MTB / Road	MTB / Road	MTB / Road	MTB	MTB
<b>Max. No. of sprockets</b>	9 only	9 only	9 only	max. 8	max. 8
<b>Compatibility Front</b>	Truvativ/HG/EXA-Drive	Truvativ/HG/EXA-Drive	Truvativ/HG/EXA-Drive	HG/IG/PG/EXA-Drive	HG/IG/PG/EXA-Drive
<b>Compatibility Rear</b>	HG/EXA-Drive	HG/EXA-Drive	HG/EXA-Drive	HG/HG-I/IG/PG/EXA-Drive	HG/HG-I/IG/PG/EXA-Drive
<b>Dimension</b>	1/2" x 11/128"	1/2" x 11/128"	1/2" x 11/128"	1/2" x 3/32"	1/2" x 3/32"
<b>Length</b>	6.65 mm	6.65 mm	6.65 mm	7.1 mm	7.1 mm
<b>Riveting</b>	Step	Step	Step	Cross Step	Step
<b>Chrome Hardened</b>	Yes	Yes	Yes	Yes	Yes
<b>Push Power</b>	2000 N / 450 lbs.	2000 N / 450 lbs.	2000 N / 450 lbs.	2000 N / 450 lbs.	1500 N / 340 lbs.
<b>Min. Tensile Strength</b>	9000 N / 2023 lbs.	9000 N / 2023 lbs.	9000 N / 2023 lbs.	9000 N / 2023 lbs.	9000 N / 2023 lbs.
<b>Weight (114 links)</b>	297 g	297 g	297 g	307 g	307 g
<b>External Pin Plate</b>	Nickel Plated	Nickel Plated	Grey	Silver/Nickel Plated	Silver/Nickel Plated
<b>Internal Pin Plate</b>	Nickel Plated	Grey	Grey	Silver/Nickel Plated	Grey/Polished
<b>Connecting Method</b>	Power Link Gold or Pin	Power Link Gold or Pin	Power Link Gold or Pin	Power Link Silver	Power Link Silver or Pin

POWER CHAINS

	PC 48	PC38 Saltshaker	PC38	PC10 Saltshaker	PC10
<b>Application</b>	MTB	MTB / Road	MTB / Road	MTB	MTB
<b>Max. No. of sprockets</b>	max. 8	max. 8	max. 8	8 / 7 / 6	8 / 7 / 6
<b>Compatibility Front</b>	HG/IG/PG/EXA-Drive	HG/IG/EXA-Drive	HG/IG/EXA-Drive	Single / HG	Single / HG
<b>Compatibility Rear</b>	HG/HG-I/IG/PG/EXA-Drive	HG/HG-I/IG/PG/EXA-Drive	HG/HG-I/IG/PG/EXA-Drive	Single / HG	Single / HG
<b>Dimension</b>	1/2" x 3/32"	1/2" x 3/32"	1/2" x 3/32"	1/2" x 3/32"	1/2" x 3/32"
<b>Length</b>	7.1 mm	7.1 mm	7.1 mm	6.9 mm	6.9 mm
<b>Riveting</b>	Step	Step	Step	Step	Step
<b>Chrome Hardened</b>	Yes				
<b>Push Power</b>	1500 N / 340 lbs.	1100 N / 247 lbs.	1300 N / 292 lbs.	1000 N / 225 lbs.	1000 N / 225 lbs.
<b>Min. Tensile Strength</b>	9000 N / 2023 lbs.	9000 N / 2023 lbs.	9000 N / 2023 lbs.	9000 N / 2023 lbs.	9000 N / 2023 lbs.
<b>Weight (114 links)</b>	307 g	307 g	307 g	300 g	300 g
<b>External Pin Plate</b>	Grey / Polished	Light Grey	Grey / Polished	Light Grey	Brown
<b>Internal Pin Plate</b>	Grey / Polished	Light Grey	Grey / Polished	Light Grey	Brown
<b>Connecting Method</b>	Power Link Silver or Pin	Power Link SS2 or Pin	Power Link Silver or Pin	Power Link SS1 or Pin	Power Link Grey or Pin

POWER CHAINS

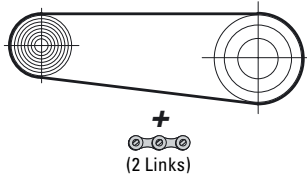
	PC1 Saltshaker	PC1 Ni	PC1	
<b>Application</b>	Gear Hubs	Gear Hubs	Gear Hubs	
<b>Max. No. of sprockets</b>	1	1	1	
<b>Compatibility Front</b>	Single	Single	Single	
<b>Compatibility Rear</b>	Single	Single	Single	
<b>Dimension</b>	1/2" x 1/8"	1/2" x 1/8"	1/2" x 1/8"	
<b>Length</b>	7.8 mm	7.8 mm	7.8 mm	
<b>Riveting</b>	Step	Step	Step	
<b>Push Power</b>	800 N / 180 lbs.	800 N / 180 lbs.	800 N / 180 lbs.	
<b>Min. Tensile Strength</b>	9000 N / 2023 lbs.	9000 N / 2023 lbs.	9000 N / 2023 lbs.	
<b>Weight (114 links)</b>	330 g	330 g	330 g	
<b>External Pin Plate</b>	Light Grey	Silver/Nickel Plated	Brown	
<b>Internal Pin Plate</b>	Light Grey	Silver/Nickel Plated	Brown	
<b>Connecting Method</b>	Snap Lock or Pin	Snap Lock, 3pcs Connection Link or Pin		



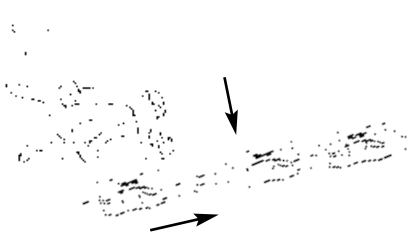
# POWER CHAINS ASSEMBLY



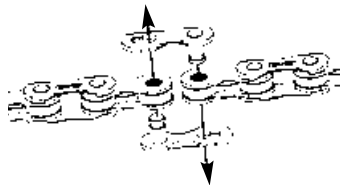
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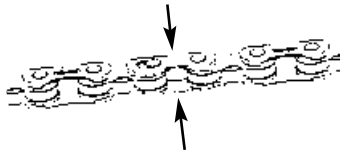
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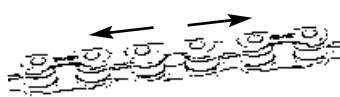
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4



5



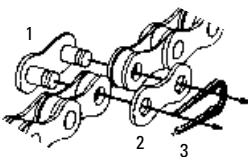
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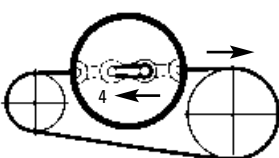
7



8



9



**PC 991 / PC 971 / PC 951 / PC 68 / PC 58 / PC 48 / PC 38 / PC 10**  
 (  $\frac{1}{2}$ " x  $\frac{3}{32}$ " AND  $\frac{1}{2}$ " x  $\frac{11}{128}$ " )

**PC 1**  
 (  $\frac{1}{2}$ " x  $\frac{1}{8}$ " )

### Chain length:

- Shorten chain to the length specified by the derailleur manufacturer.
- SRAM derailleurs:
  - Place chain over largest front chainwheel and largest rear sprocket and add 2 links or 1 link + Power Link (Fig. 1).
  - For rear suspension frame, position the rear suspension for the greatest chain length required.

### Closing standard version with clamping pin:

Fit chain, bring the two ends together and press pin (Fig. 2) through with assembly tool. **The pin must extend by the same amount at both outer plates. It must be possible to move the connecting link slightly.**

### Power Link connecting links:

#### Caution:

- **Use only for SRAM chains, use as specified, to avoid material damage or the rider to fall off his bicycle resulting in injury.**
- **Use only Power Link Gold for closing Hollow Pin chains (no pin).**

Power Link Gray	gray coloured for PC 10
Power Link SS1 (SaltShaker 1)	light gray coloured for PC 10 SaltShaker
Power Link Silver	silver coloured for PC 38
Power Link SS2 (SaltShaker 2)	light gray coloured for PC 38 SaltShaker
Power Link Gold	gold coloured for PC 991, PC 971, PC 951

### Closing:

- Fit chain, bring the ends together and insert both halves of the Power Link into the chain ends. (Fig. 3)
- Press both halves of the Power Link together (Fig. 4) and lock in place by pulling the chain apart. (Fig. 5)

### Opening:

- Press both plates of the Power Link together (Fig. 4) while sliding the chain ends together (unlock). Remove the two halves of the link from the chain ends.

### Caution:

**Always use a new Power Link when fitting a new chain. Failure to shorten the chain properly or to lock it exactly into place may cause damage to the chain and eventually total chain failure, material damage or the rider to fall off his bicycle resulting in injury.**

### Closing chain with Snap Lock:

- Fit the shortened chain, bring the ends together and connect with the Snap Lock. Place the outer plate on one pin (Fig. 6).
- Gently flex the chain until the outside connector plate snaps into position over the second pin (Fig. 7).

### Caution:

- **Make sure plate is fully seated in the pin channel and plates are parallel to each other.**
- **If movement of the connector plate is noticed a new Snap Lock must be used.**
- **Always use a new Snap Lock when fitting a new chain. Failure to shorten the chain properly or to lock it exactly into place may cause damage to the chain and eventually total chain failure, material damage or the rider to fall off his bicycle resulting in injury.**

### Closing chain with 3pcs Connection Link:

- Fit the shortened chain, bring the two ends together and connect with the chain lock. The chain lock consists of an outer plate with pins (1, Fig. 8), an outer plate (2) and a retaining spring (3).
- Insert outer plate with pins (1) into the chain ends, attach outer plate (2) and press chain lock together (1+2).
- Attach retaining spring (3) with the closed end of the retaining ring pointing in the direction of chain travel (Fig. 9).
- Slide retaining spring in the direction of arrow (4, Fig. 9) to engage it in the grooves in the pins.

### Closing standard version with clamping pin:

Fit chain, bring the two ends together and press pin (Fig. 2) through with assembly tool. **The pin must extend by the same amount at both outer plates. It must be possible to move the connecting link slightly.**

# NOTICES

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