



Contiem
Flight Reference Card builder

Test data set

PNG cover sheet

CONTIEMTEST-KD559-FRC01-00

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PRE-RIDE

RIDING

AFTER RIDING

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INTRODUCTION

Physical description of a bicycle

A bicycle (refer to Figure 1) is a frame and a number of movable components with mechanical parts that are completely open. There are no covers or sheet metal panels that prevent access to the mechanical parts. Thus, you can disassemble the different components of a bicycle (refer to Figure 1) to do:

- an inspection
- a maintenance task
- a repair task

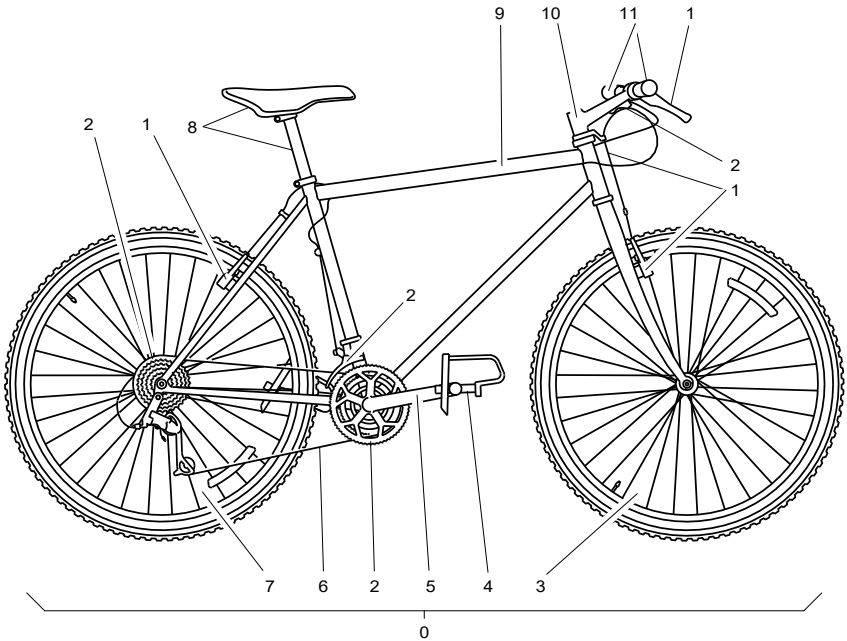


Figure 1 Complete bicycle

The parts that you can immediately identify on a bicycle are given in Table 1.

Table 1 Bicycle parts

Item	Refer to	Definition
Frame	Figure 1	A bicycle frame is made of metal tubes that are welded together.
Wheels		The wheels include these parts: <ul style="list-style-type: none"> - Hub - Spokes - Metal rim - Rubber tire
- Rear wheel	Figure 1	
- Front wheel	Figure 1	
Seat and seat post	Figure 1	These install into the seat tube with a mechanism you can use to change the height.
Handle bars	Figure 1	A horizontal bar that attaches to the stem with grips at the ends that attach to the brake levers and the shifters.
Handle bar stem	Figure 1	This attaches the handle bar to the steering tube (head set).
Cranks	Figure 1	A lever that extends from the bottom of the bracket to the pedal.
Pedals	Figure 1	The two platforms for the feet that attach to the crank.
Chain	Figure 1	A circular set of links that connect the chain ring to the cogs on the freewheel.

Item	Refer to	Definition
Gears	Figure 1	<p>The gears include:</p> <ul style="list-style-type: none"> - Front chain ring - Rear freewheel - Front and the rear derailleur - Shift lever on the handle bars - Cables
Brakes	Figure 1	<p>The brakes include:</p> <ul style="list-style-type: none"> - Actuators on the handlebars - Brake cable - Brake callipers - Brake pads



WARNING: Make sure that the bulb is cool before you replace it.

Functional description of a bicycle

Below is a list of the different bicycle components and a functional description of them.

Frame	The frame is the skeleton of the bicycle. Refer to for a functional description of the frame system ### Error unable to find target for reference to DMC-S1000DBIKE-AAA-DA0-10-20-00AA-215A-A### .
Wheel	The wheel is the point of contact between the bicycle and the road for the bicycle to have movement. Refer to for a functional description of the wheel.
Spokes	The spokes are thick wires with tension applied that connect the hub to the rim. You can adjust the tension with the nipple on the rim side.

Hub	The hub attaches to the center of the wheel where the axle and the bearings are.
Metal rim	The metal rim is a metal ring that has a U-shaped cross section to hold the spokes on the inner side and the tire on the outer side. ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA0-10-20-00AA-400A-A### .
Seat	The seat, which is also known as the "saddle", is used as the support platform for the person to sit on the bicycle.
Seat post	The seat post is used as a support post for the seat and to change the height of the seat for the rider.
Handle bar	The handle bar is a horizontal bar with handles on each end. The handle bar is a steering mechanism that the rider uses to change the direction of the bicycle. The brake levers are also on the handle bar. Refer to ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA2-20-00-00AA-720A-A### for information on how to install the handle bar. Refer to ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA2-20-00-00AA-520A-A### for information on removing the handlebar.
Handle stem	bar The handle bar stem (the stem) attaches the handle bar to the steering tube. Refer to ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA2-10-00-00AA-720A-A### for information on how to install a stem. Refer to ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA2-10-00-00AA-520A-A### for information on how to remove the stem.
Brake levers	When you operate the brake lever, the brake pads move against the wheel to decrease the speed. The brake lever on the left side operates the front brake. The brake lever on the right side operates the rear brake.

Brakes	When you operate the brakes, the brake pad moves against the wheel to decrease the speed of the bicycle. Refer to ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA1-00-00-00AA-041A-A### for a description of the braking system.
Shifters	The shifters are the mechanisms that you use to change the gears on the bicycle. There are 7 different types of shifters that have been developed over the years, but they all have the same functionality. When you operate the shifters, they pull the control cable to move the derailleur towards a larger diameter chain ring. The shifters can also loosen the cable to let the derailleur move towards a smaller diameter chain ring. Refer to for a functional description of the shifters.
Crank	The crank moves the power to the chain rings when the pedals operate ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-D00-00-00-00AA-130A-A### .
Pedals	The pedals move the force of movement from the feet to the cranks.
Chain	The chain moves the power from the chain rings to the cogs on the freewheel. Refer to ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA4-10-00-00AA-251B-A### for the procedure on how to clean the chain.
Gears	The gears have different mechanisms that function together to change the speed of the bicycle. These mechanisms include: <ul style="list-style-type: none"> - the sprockets - the chain ### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA1-10-00-00AA-251A-A### - the derailleur

Error unable to find target for reference to DMC-S1000DBIKE-AAA-DA0-10-20-00AA-400A-A### Refer to for a functional description of the gear system.

Chain rings

The chain rings (also known as the "chain wheel") pull on the chain when the cranks turn.

Derailleur

A derailleur moves the chain from one sprocket to another to change the gears. There are two different types of derailleur, the front and the rear. The highest ratio (highest gear) is when the chain is on the largest sprocket on the front and the smallest at the rear. To get the lowest gear, the smallest sprocket is at the front and the largest at the rear. Refer to for a functional description of the derailleur system.

Checked Out	Key	Title	Status	Attachment
	ICN-B6865-S1000D0406-001-01	Test ICN Create	Inwork	
	ICN-S3627-S1000D0619-001-01	Test populated graphic	Inwork	

Figure 2 Test ICN Create

Checked Out	Key	Title	Status	Attachment
	ICN-B6865-S1000D0406-001-01	Test ICN Create	Inwork	
	ICN-S3627-S1000D0619-001-01	Test populated graphic	Inwork	

Figure 3 Test ICN Create

Checked Out	Key	Title	Status	Attachment
	ICN-B6865-S1000D0406-001-01	Test ICN Create	Inwork	
	ICN-S3627-S1000D0619-001-01	Test populated graphic	Inwork	

Figure 4 Test ICN Create

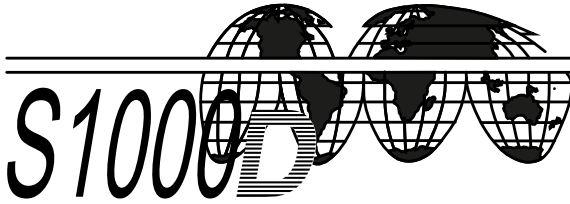


Figure 5 S1000D logo

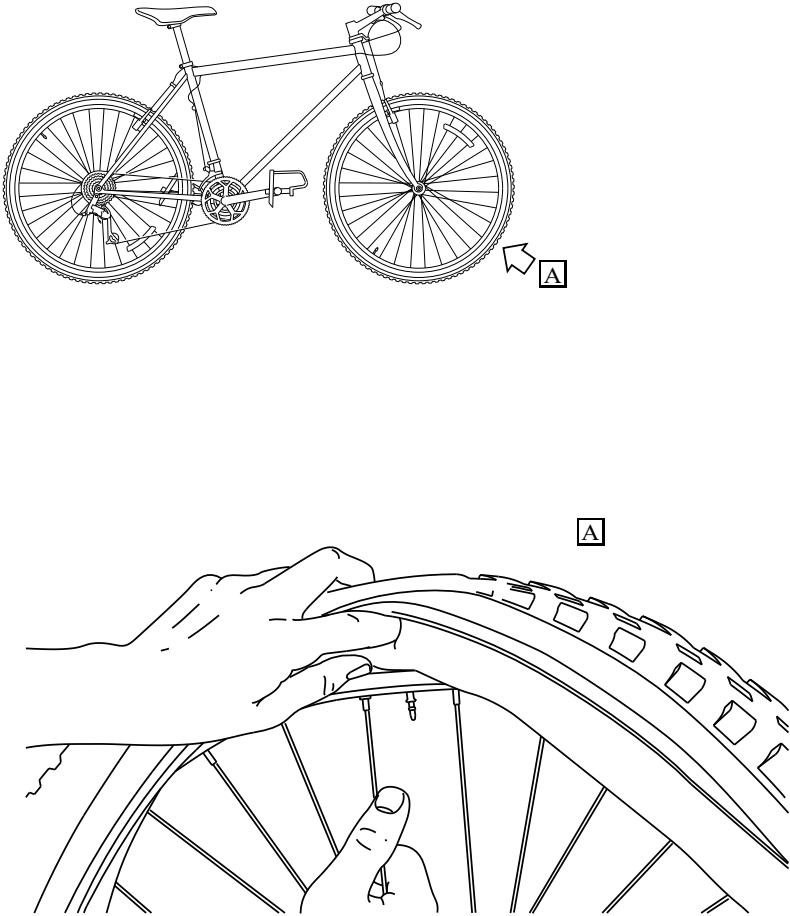


Figure 6

Introduction

Data about the bicycle and its control system is given in this document. This data will help you operate the bicycle.

This is just a test reference to a figure in another data module (Figure 21).

Description of controls

Controls

Data about the controls that follow is given in this document:

- Steering Card xv
- Shifters Card xv
- Brakes Card xv
- Pedals Card xvi

Steering

The handlebars are used to steer the bike. They are at the front of the bicycle. You hold one of the handlebar grips with each hand and move the handle bar to change the direction of the bike.

Shifters

The gears control the ratio of pedal rotation to wheel rotation. You can change this with the shifters . The shifters are on the handlebar.

A description of the two shifters follows in Table 2.

Table 2 Shifter correlation

Shifter Location	Affected Gears
Left	The buttons on the left shifter changes the gears on the front derailleur.
Right	The buttons on the right shifter changes the gears on the rear derailleur.

Brakes



WARNING: *If you operate the front brake without the rear brake you can cause a crash.*

You can decrease the speed of the bike with the brakes. You operate the brakes with the brake levers on the handlebar.

A description of the brake levers follows in Table 3.

Table 3 Brake lever correlation

Brake Lever Location	Affected Brake
Left	This lever operates the front brake.
Right	This lever operates the rear brake.

Pedals

The Platform Pedals are at the bottom of the seat tube. You operate the Platform Pedals to move the bicycle forward.

Sequential list levels and indentation testing

1. I'm the first listItem
2.
 - I'm a random list embedded in a sequential list
 - My bullets should align with the text above me in the previous item.
3. Another listItem
4. And another listItem
5. And another listItem
6. And another listItem
7. And another listItem
8. And another listItem
9. And another listItem
10. When we get to item 10 we need to check the spacing again
 10. Especially for 'sub' sequential lists
 - 1.
 10. Especially for 'sub' sequential lists
 - 2.
 10. Especially for 'sub' sequential lists
 - 3.
 10. Especially for 'sub' sequential lists
 - 4.
 10. Especially for 'sub' sequential lists
 - 5.

10. Especially for 'sub' sequential lists
6.
10. Especially for 'sub' sequential lists
7.
10. Especially for 'sub' sequential lists
8.
10. Especially for 'sub' sequential lists
9.
10. Especially for 'sub' sequential lists
10. 10. But of course if we get this deep it's going to go a bit crazy
10.
1.
10. Alternatively
10.
 - 2. • Use a procedure and steps, sub steps, etc
 - Use levelledParas and sub paras etc

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PRE-RIDE

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 7

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable
4. Clearance..... Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
 - <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

Pre-ride

Calipers

1. Link wire..... Firmly attached
2. Quick release..... Engaged
3. Caliper arms..... Minimal play

Levers

1. Levers..... Secure
2. Action..... Smooth movement through full range
3. Travel..... Does not contact handlebar when fully pulled

Riding

Cables

1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires

..... No cuts or fraying
2. Routing..... No bends or pinches
3. Movement..... Smooth full and free movement front and rear

After riding

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 4 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

Index

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing
5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
6. Spokes..... Check

If damaged spokes found



CAUTION: Riding with damaged or broken spokes could cause catastrophic wheel failure

7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

1. Headset bearings..... Tight

HANDLEBAR



WARNING: Do not ride with a cracked or loose stem

Stem cracked

1. Replace stem

Stem is loose in fork tube

1. Tighten stem clamp bolt

Handlebars loose in stem

1. Tighten handlebar clamp bolts
2. Handlebar stem..... Tight; no play in handlebars or steering

- 3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

- 1. Computer Display.....

ALTITUDE	0 miles
SPEED	0 mph
DISTANCE	0 miles
SPEED	0 mph
DISTANCE	0 miles

DRIVE TRAIN

Check all the components of the drive train

Pedals

- 1. Visual inspection..... Clean; no significant fouling or foreign objects
- 2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

- 3. Bearings..... Smooth to spin and no obvious play

Bottom bracket

- 1. Bearing..... Smooth to spin and no obvious play
- 2. Bearing shells..... Tight

Chain

- 1. Visual inspection..... Clean; no significant fouling or foreign objects
- 2. Links..... Easy movement of links

Gears

1. Visual inspection..... Clean; no significant fouling or foreign objects

Motion

Raise rear wheel:

- (a) Pedal forward.....All cogs and chain move freely
- (b) Pedal backward.....Freewheel ratchets smoothly
- (c) Pedal forward. Change up and down through gears...Gear change is smooth and responsive. Chain does not rattle when clicked into gear.

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 8

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable

Pre-ride

4. Clearance.....Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
- <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

Riding

Calipers

1. Link wire.....Firmly attached
2. Quick release.....Engaged
3. Caliper arms.....Minimal play

After riding

Lever

1. Levers.....Secure
2. Action.....Smooth movement through full range
3. Travel.....Does not contact handlebar when fully pulled

Cables

1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires

.....No cuts or fraying
2. Routing..... No bends or pinches
3. Movement..... Smooth full and free movement front and rear

Index

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 5 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing
5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
6. Spokes..... Check

If damaged spokes found



CAUTION: Riding with damaged or broken spokes could cause catastrophic wheel failure

7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

1. Headset bearings..... Tight

HANDLEBAR



WARNING: Do not ride with a cracked or loose stem

Stem cracked

1. Replace stem

Stem is loose in fork tube

1. Tighten stem clamp bolt

Handlebars loose in stem

1. Tighten handlebar clamp bolts
2. Handlebar stem..... Tight; no play in handlebars or steering
3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

1. Computer Display.....	ALTITUDE	0 miles
	SPEED	0 mph
	DISTANCE	0 miles
	SPEED	0 mph
	DISTANCE	0 miles

DRIVE TRAIN

Check all the components of the drive train

Pedals

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

3. Bearings.....Smooth to spin and no obvious play

Bottom bracket

1. Bearing.....Smooth to spin and no obvious play
2. Bearing shells.....Tight

Chain

1. Visual inspection.....Clean; no significant fouling or foreign objects
2. Links.....Easy movement of links

Gears

1. Visual inspection.....Clean; no significant fouling or foreign objects

Motion

Raise rear wheel:

- (a) Pedal forward.....All cogs and chain move freely
(b) Pedal backward.....Freewheel ratchets smoothly
(c) Pedal forward. Change up and down through gears...Gear change is smooth and responsive. Chain does not rattle when clicked into gear.

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 9

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable
4. Clearance..... Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
 - <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

Calipers

1. Link wire..... Firmly attached
2. Quick release..... Engaged
3. Caliper arms..... Minimal play

Levers

1. Levers..... Secure

2. Action.....Smooth movement through full range
3. Travel..... Does not contact handlebar when fully pulled

Cables

1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires

.....No cuts or fraying
2. Routing..... No bends or pinches
3. Movement..... Smooth full and free movement front and rear

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 6 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing

- 5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
- 6. Spokes..... Check

If damaged spokes found



CAUTION: *Riding with damaged or broken spokes could cause catastrophic wheel failure*

- 7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

- 1. Headset bearings..... Tight

HANDLEBAR



WARNING: *Do not ride with a cracked or loose stem*

Stem cracked

- 1. Replace stem

Stem is loose in fork tube

- 1. Tighten stem clamp bolt

Handlebars loose in stem

- 1. Tighten handlebar clamp bolts
- 2. Handlebar stem..... Tight; no play in handlebars or steering
- 3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

- | | | |
|--------------------------|----------|---------|
| 1. Computer Display..... | ALTITUDE | 0 miles |
| | SPEED | 0 mph |
| | DISTANCE | 0 miles |
| | SPEED | 0 mph |
| | DISTANCE | 0 miles |

Pre-ride
Riding

DRIVE TRAIN

Check all the components of the drive train

Pedals

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

3. Bearings..... Smooth to spin and no obvious play

Bottom bracket

1. Bearing..... Smooth to spin and no obvious play
2. Bearing shells..... Tight

Chain

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Links..... Easy movement of links

Gears

1. Visual inspection..... Clean; no significant fouling or foreign objects

Motion

After riding
Index

Raise rear wheel:

- (a) Pedal forward.....All cogs and chain move freely
- (b) Pedal backward..... Freewheel ratchets smoothly
- (c) Pedal forward. Change up
and down through gears...Gear change is smooth and responsive.
Chain does not rattle when clicked into gear.

RIDING

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 10

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable
4. Clearance..... Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
 - <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

Pre-ride

Calipers

1. Link wire..... Firmly attached
2. Quick release..... Engaged
3. Caliper arms..... Minimal play

Levers

1. Levers..... Secure
2. Action..... Smooth movement through full range
3. Travel..... Does not contact handlebar when fully pulled

Riding

Cables

1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires

..... No cuts or fraying
2. Routing..... No bends or pinches
3. Movement..... Smooth full and free movement front and rear

After riding

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 7 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

Index

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing
5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
6. Spokes..... Check

If damaged spokes found



CAUTION: *Riding with damaged or broken spokes could cause catastrophic wheel failure*

7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

1. Headset bearings..... Tight

HANDLEBAR



WARNING: *Do not ride with a cracked or loose stem*

Stem cracked

1. Replace stem

Stem is loose in fork tube

1. Tighten stem clamp bolt

Handlebars loose in stem

1. Tighten handlebar clamp bolts
2. Handlebar stem..... Tight; no play in handlebars or steering

3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

1. Computer Display.....

ALTITUDE	0 miles
SPEED	0 mph
DISTANCE	0 miles
SPEED	0 mph
DISTANCE	0 miles

DRIVE TRAIN

Check all the components of the drive train

Pedals

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

3. Bearings..... Smooth to spin and no obvious play

Bottom bracket

1. Bearing..... Smooth to spin and no obvious play
2. Bearing shells..... Tight

Chain

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Links..... Easy movement of links

Gears

1. Visual inspection..... Clean; no significant fouling or foreign objects

Motion

Raise rear wheel:

- (a) Pedal forward.....All cogs and chain move freely
- (b) Pedal backward.....Freewheel ratchets smoothly
- (c) Pedal forward. Change up and down through gears...Gear change is smooth and responsive. Chain does not rattle when clicked into gear.

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 11

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable

4. Clearance.....Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
- <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

Calipers

1. Link wire.....Firmly attached
2. Quick release.....Engaged
3. Caliper arms.....Minimal play

Lever

1. Levers.....Secure
2. Action.....Smooth movement through full range
3. Travel.....Does not contact handlebar when fully pulled

Cables

1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires

.....No cuts or fraying
2. Routing..... No bends or pinches
3. Movement..... Smooth full and free movement front and rear

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 8 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing
5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
6. Spokes..... Check

If damaged spokes found



CAUTION: *Riding with damaged or broken spokes could cause catastrophic wheel failure*

7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

1. Headset bearings..... Tight

HANDLEBAR



WARNING: Do not ride with a cracked or loose stem

Stem cracked

1. Replace stem

Stem is loose in fork tube

1. Tighten stem clamp bolt

Handlebars loose in stem

1. Tighten handlebar clamp bolts
2. Handlebar stem..... Tight; no play in handlebars or steering
3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

1. Computer Display.....

ALTITUDE	0 miles
SPEED	0 mph
DISTANCE	0 miles
SPEED	0 mph
DISTANCE	0 miles

DRIVE TRAIN

Check all the components of the drive train

Pedals

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

3. Bearings.....Smooth to spin and no obvious play

Bottom bracket

1. Bearing.....Smooth to spin and no obvious play
2. Bearing shells.....Tight

Chain

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Links..... Easy movement of links

Gears

1. Visual inspection..... Clean; no significant fouling or foreign objects

Motion

Raise rear wheel:

- (a) Pedal forward.....All cogs and chain move freely
- (b) Pedal backward.....Freewheel ratchets smoothly
- (c) Pedal forward. Change up and down through gears...Gear change is smooth and responsive. Chain does not rattle when clicked into gear.

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 12

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable
4. Clearance..... Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
 - <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

Calipers

1. Link wire..... Firmly attached
2. Quick release..... Engaged
3. Caliper arms..... Minimal play

Levers

1. Levers..... Secure

2. Action.....Smooth movement through full range
3. Travel..... Does not contact handlebar when fully pulled

Cables

1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires

.....No cuts or fraying
2. Routing..... No bends or pinches
3. Movement..... Smooth full and free movement front and rear

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 9 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing

- 5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
- 6. Spokes..... Check

If damaged spokes found



CAUTION: *Riding with damaged or broken spokes could cause catastrophic wheel failure*

- 7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

- 1. Headset bearings..... Tight

HANDLEBAR



WARNING: *Do not ride with a cracked or loose stem*

Stem cracked

- 1. Replace stem

Stem is loose in fork tube

- 1. Tighten stem clamp bolt

Handlebars loose in stem

- 1. Tighten handlebar clamp bolts
- 2. Handlebar stem..... Tight; no play in handlebars or steering
- 3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

1. Computer Display.....	ALTITUDE	0 miles
	SPEED	0 mph
	DISTANCE	0 miles
	SPEED	0 mph
	DISTANCE	0 miles

DRIVE TRAIN

Check all the components of the drive train

Pedals

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

3. Bearings..... Smooth to spin and no obvious play

Bottom bracket

1. Bearing..... Smooth to spin and no obvious play
2. Bearing shells..... Tight

Chain

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Links..... Easy movement of links

Gears

1. Visual inspection..... Clean; no significant fouling or foreign objects

Motion

Raise rear wheel:

- (a) Pedal forward..... All cogs and chain move freely
- (b) Pedal backward..... Freewheel ratchets smoothly
- (c) Pedal forward. Change up
and down through gears... Gear change is smooth and responsive.
Chain does not rattle when clicked into
gear.

AFTER RIDING

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 13

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable
4. Clearance..... Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
 - <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

After riding

Pre-ride

Calipers

1. Link wire..... Firmly attached
2. Quick release..... Engaged
3. Caliper arms..... Minimal play

Levers

1. Levers..... Secure
2. Action..... Smooth movement through full range
3. Travel..... Does not contact handlebar when fully pulled

Riding

Cables

1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires
 No cuts or fraying
2. Routing..... No bends or pinches
3. Movement..... Smooth full and free movement front and rear

After riding

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 10 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

Index

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing
5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
6. Spokes..... Check

If damaged spokes found



CAUTION: Riding with damaged or broken spokes could cause catastrophic wheel failure

7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

1. Headset bearings..... Tight

HANDLEBAR



WARNING: Do not ride with a cracked or loose stem

Stem cracked

1. Replace stem

Stem is loose in fork tube

1. Tighten stem clamp bolt

Handlebars loose in stem

1. Tighten handlebar clamp bolts
2. Handlebar stem..... Tight; no play in handlebars or steering

- 3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

- 1. Computer Display.....

ALTITUDE	0 miles
SPEED	0 mph
DISTANCE	0 miles
SPEED	0 mph
DISTANCE	0 miles

DRIVE TRAIN

Check all the components of the drive train

Pedals

- 1. Visual inspection..... Clean; no significant fouling or foreign objects
- 2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

- 3. Bearings..... Smooth to spin and no obvious play

Bottom bracket

- 1. Bearing..... Smooth to spin and no obvious play
- 2. Bearing shells..... Tight

Chain

- 1. Visual inspection..... Clean; no significant fouling or foreign objects
- 2. Links..... Easy movement of links

Gears

1. Visual inspection..... Clean; no significant fouling or foreign objects

Motion

Raise rear wheel:

- (a) Pedal forward.....All cogs and chain move freely
- (b) Pedal backward.....Freewheel ratchets smoothly
- (c) Pedal forward. Change up and down through gears...Gear change is smooth and responsive. Chain does not rattle when clicked into gear.

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 14

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable

- 4. Clearance.....Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
 - <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

Calipers

- 1. Link wire.....Firmly attached
- 2. Quick release.....Engaged
- 3. Caliper arms.....Minimal play

Lever

- 1. Levers.....Secure
- 2. Action.....Smooth movement through full range
- 3. Travel.....Does not contact handlebar when fully pulled

Cables

- 1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires

.....No cuts or fraying
- 2. Routing..... No bends or pinches
- 3. Movement..... Smooth full and free movement front and rear

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 11 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing
5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
6. Spokes..... Check

If damaged spokes found



CAUTION: Riding with damaged or broken spokes could cause catastrophic wheel failure

7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

1. Headset bearings..... Tight

HANDLEBAR



WARNING: Do not ride with a cracked or loose stem

Stem cracked

1. Replace stem

Stem is loose in fork tube

1. Tighten stem clamp bolt

Handlebars loose in stem

1. Tighten handlebar clamp bolts
2. Handlebar stem..... Tight; no play in handlebars or steering
3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

1. Computer Display.....

ALTITUDE	0 miles
SPEED	0 mph
DISTANCE	0 miles
SPEED	0 mph
DISTANCE	0 miles

DRIVE TRAIN

Check all the components of the drive train

Pedals

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

3. Bearings.....Smooth to spin and no obvious play

Bottom bracket

1. Bearing.....Smooth to spin and no obvious play
2. Bearing shells.....Tight

Chain

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Links..... Easy movement of links

Gears

1. Visual inspection..... Clean; no significant fouling or foreign objects

Motion

Raise rear wheel:

- (a) Pedal forward.....All cogs and chain move freely
- (b) Pedal backward.....Freewheel ratchets smoothly
- (c) Pedal forward. Change up and down through gears...Gear change is smooth and responsive. Chain does not rattle when clicked into gear.

Pre-ride inspection

BRAKES

The following steps apply to front and rear brakes.



Figure 15

Pads

1. Surface..... Free of unwanted material
2. Brake blocks..... Secure
3. Pad depth..... Acceptable
4. Clearance..... Clearance must be checked all the way around in case of out-of-true wheels and adjusted as follows:
 - <2mm adjust to widen the gap
 - 2 to 5 mm correct clearance
 - >5mm adjust to reduce the gap



NOTE: Acceptable clearance is when the pad does not rub the rim when brakes are not applied, but the brake lever does not travel all the way to the

Calipers

1. Link wire..... Firmly attached
2. Quick release..... Engaged
3. Caliper arms..... Minimal play

Levers

1. Levers..... Secure

2. Action.....Smooth movement through full range
3. Travel..... Does not contact handlebar when fully pulled

Cables

1. Visually inspect:
 - Cable sheath
 - Exposed inner wires
 - Pinch bolts retaining inner wires

.....No cuts or fraying
2. Routing..... No bends or pinches
3. Movement..... Smooth full and free movement front and rear

TIRES

1. Visual inspection..... No splits, bulges, foreign objects or excessive build up of mud or debris
2. Pressure..... Tubes inflated as per Table 4

Table 12 Correlation of tire pressure and terrain

Tire Pressures	Min	Max
Off Road	35lbs	40lbs
On Road	55lbs	60lbs

WHEELS

1. Visual inspection..... No cracks or bulges in the rim
2. Axle nuts / quick release..... Tight
3. Bearing play..... Confirm no sideways movement at the rim
4. Bearings..... Spin the wheel and listen for smooth revolution of the bearing

- 5. Rim..... While spinning confirm rim is true without significant sideways deviation or flat spots
- 6. Spokes..... Check

If damaged spokes found



CAUTION: *Riding with damaged or broken spokes could cause catastrophic wheel failure*

- 7. Damaged spokes..... Replace before use (see DMC reference)

HEADSET

- 1. Headset bearings..... Tight

HANDLEBAR



WARNING: *Do not ride with a cracked or loose stem*

Stem cracked

- 1. Replace stem

Stem is loose in fork tube

- 1. Tighten stem clamp bolt

Handlebars loose in stem

- 1. Tighten handlebar clamp bolts
- 2. Handlebar stem..... Tight; no play in handlebars or steering
- 3. Handlebars..... Free to turn front wheel fully in both directions until limited by frame

Computer

1. Computer Display.....	ALTITUDE	0 miles
	SPEED	0 mph
	DISTANCE	0 miles
	SPEED	0 mph
	DISTANCE	0 miles

DRIVE TRAIN

Check all the components of the drive train

Pedals

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Security..... Pedal threads secure in crank arms



NOTE: Remember pedals tighten forward into the crank, so the left pedal tightens anti-clockwise.

3. Bearings..... Smooth to spin and no obvious play

Bottom bracket

1. Bearing..... Smooth to spin and no obvious play
2. Bearing shells..... Tight

Chain

1. Visual inspection..... Clean; no significant fouling or foreign objects
2. Links..... Easy movement of links

Gears

1. Visual inspection..... Clean; no significant fouling or foreign objects

Motion

Raise rear wheel:

- (a) Pedal forward..... All cogs and chain move freely
- (b) Pedal backward..... Freewheel ratchets smoothly
- (c) Pedal forward. Change up
and down through gears... Gear change is smooth and responsive.
Chain does not rattle when clicked into
gear.

SUPPORTING INFORMATION

BRAKES



WARNING: Make sure the light glass is not broken before handling it

Brake system

The most important part of the bicycle is the brake system. Only a minimum maintenance of the brake system is necessary. But, when a problem does occur, make sure you to do the necessary maintenance as quickly as possible. If you do not do this the bicycle will be dangerous to use.

There are nine different types of brake systems. The one found on most bicycles is the cantilever brake (refer to Cantilever brake Card 43).

Cantilever brake

New para text in here. **### Error unable to find target for reference to DMC-S1000DBIKE-AAA-DA1-10-00-00AA-251A-A###**

The brake system (refer to Figure 18) has these primary components:

- the brake lever (refer to Brake lever Card 47)
- the brake cable Figure 17
- the brake arm Cantilever brake Card 43
- the brake clamp (also known as calipers)
- the brake pads (refer to Brake pads Card 46)

Checked Out	Key	Title	Status	Attachment
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	ICN-S3627-S1000D0619-001-01	Test populated graphic		

Figure 16 Test ICN Create

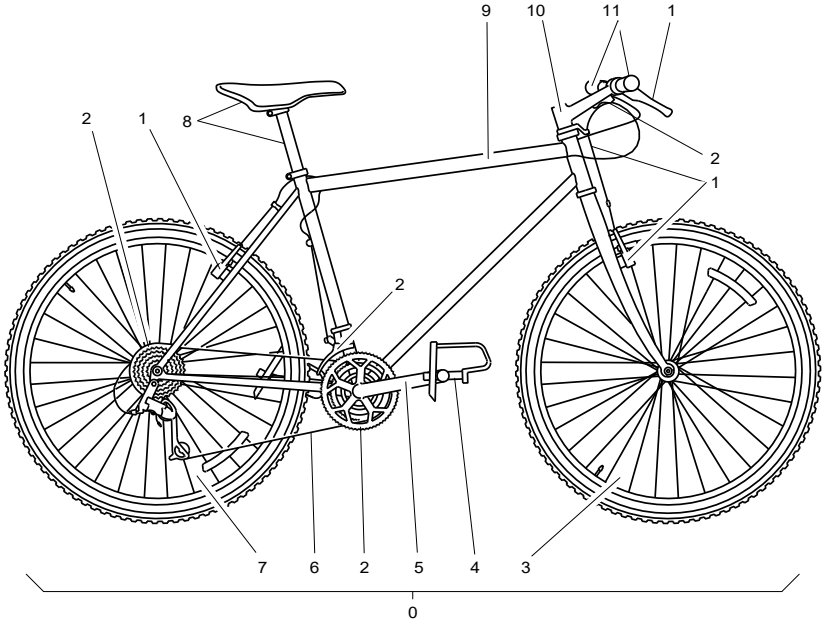


Figure 17

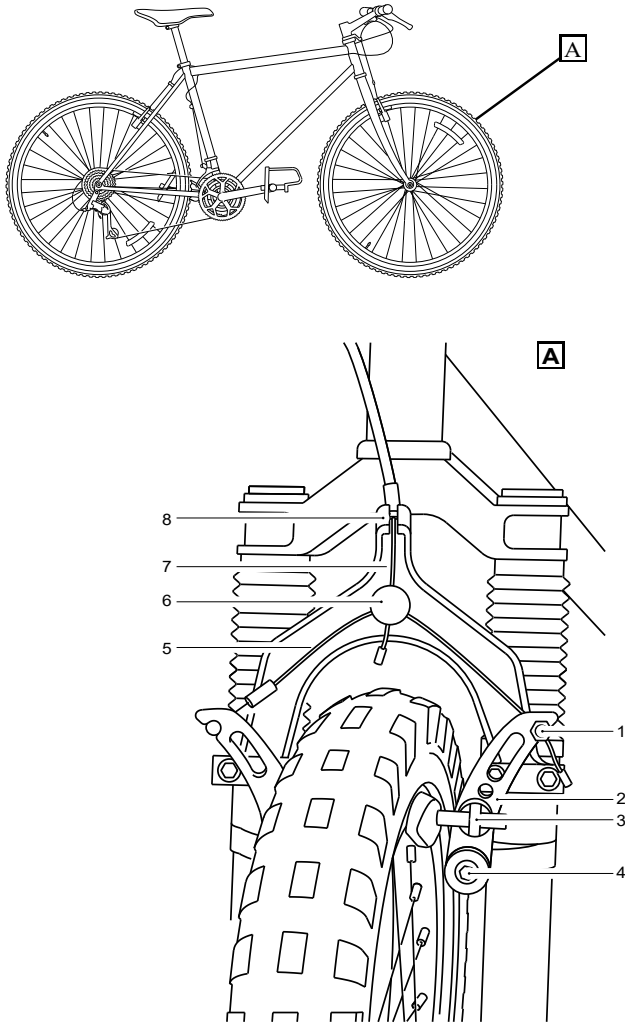


Figure 18 Cantilever brake with straddle cable

A cable that goes from the brake levers on the handlebars pulls the two levers on the brakes together. This presses the brake pads against the outer rim of the wheel, which decreases the speed of the bicycle.

Brake pads

There are four brake pads (refer to Figure 19) on the bicycle. Two are found on the front wheel and two on the rear wheel. The brake pads are made out of hard wearing rubber. The pads press against the rim of the wheel to cause friction when the you operate the brake levers.

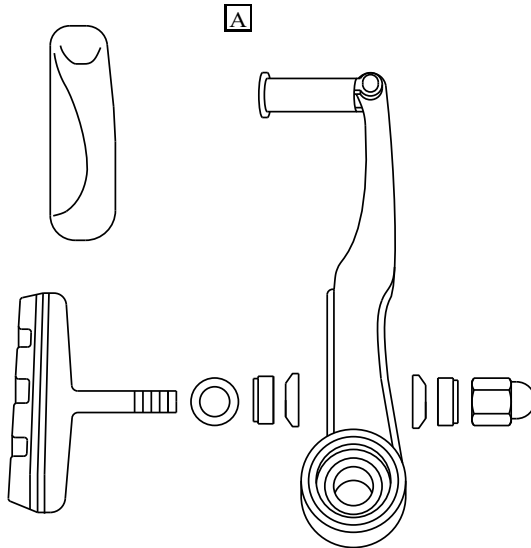
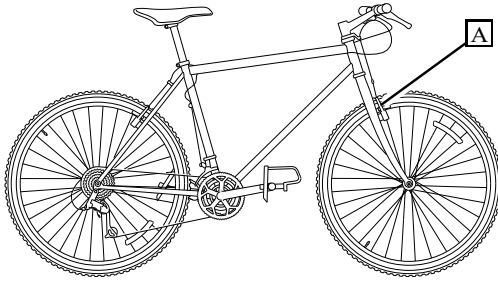


Figure 19 Exploded diagram of a brake

Brake lever

The brake levers (refer to Figure 20) are easily damaged. The lever is installed in the mount. A clamp bolt holds the mount. This bolt is not visible because it is found in the mount. The lever turns on a lever pivot bolt. The

adjuster lock nut holds the brake cable. This lock nut adjusts the tension of the cable.

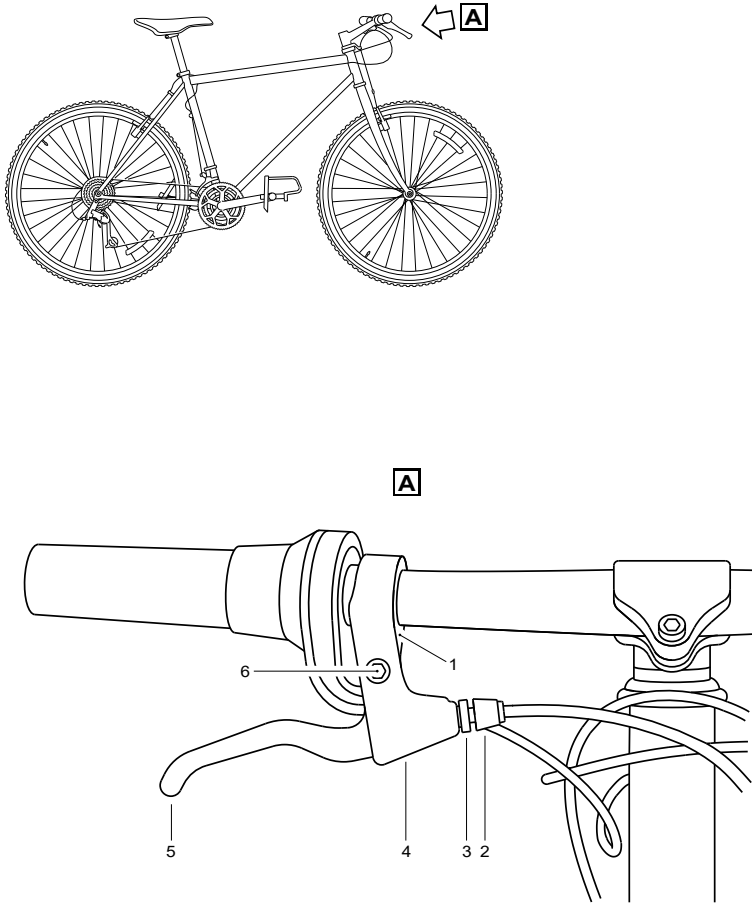


Figure 20 Typical components of a mountain bicycle lever

The left brake lever holds the brake pads on the front wheel and the right brake pads hold the brakes on the rear wheel.

Operator 0,3

- 1) Put the bicycle in a vertical position.
- 2) Hold the handle bars and push the bicycle forwards.
- 3) Apply the brakes.
- 4) Make sure that the wheels lock and the bicycle stops.

WHEELS



WARNING: Make sure the light glass is not broken before handling it

The bicycle wheel

The spoked system (refer to Figure 21) of a bicycle is a complex structure. The wheel assembly has these parts:

- the tire
- the tube
- the spokes
- the spoke nipples
- the valve
- the hub

Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA2-10-00-00AA-520A-A### On their own, the individual components are not very strong. But, when they are installed together, the components make the complete wheel (refer to Figure 21). The complete wheel is resistant to almost any type of heavy loads and operation.

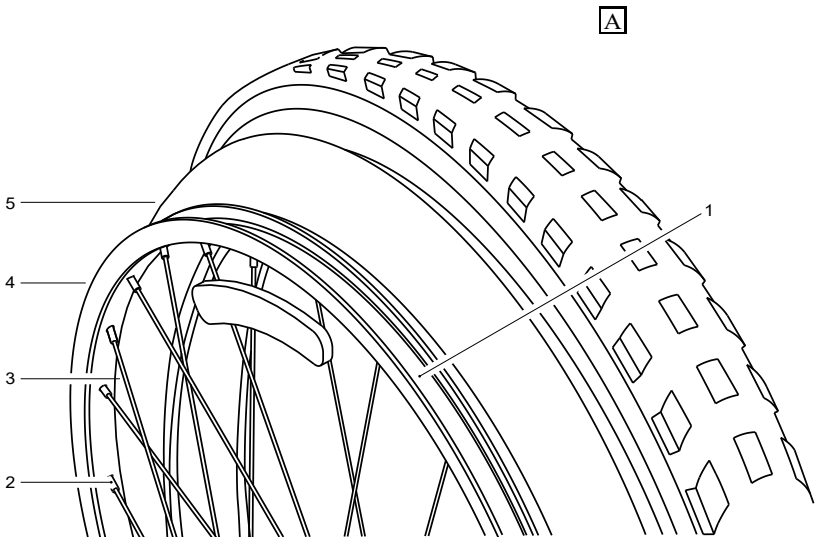
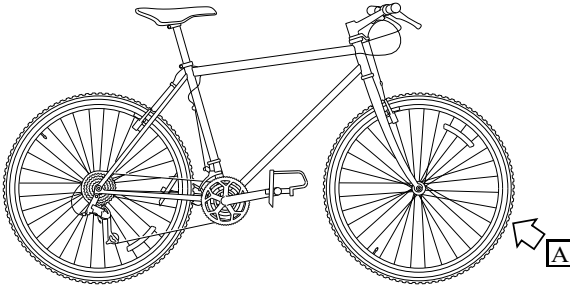


Figure 21 Parts of the wheel

Spokes

The spokes go out from the hub and go across and below each other. The spoke nipples attach the spokes to the rim with the threads on the end of the

spokes. You can use the spoke nipples to adjust the tension of the spokes. The tension on each of the spokes must be equal.

Wheel rim

The rim (refer to Figure 22) of the wheel has a lining of rim tape. This tape protects the tube from damage that the rough edges on the spoke nipples can cause.

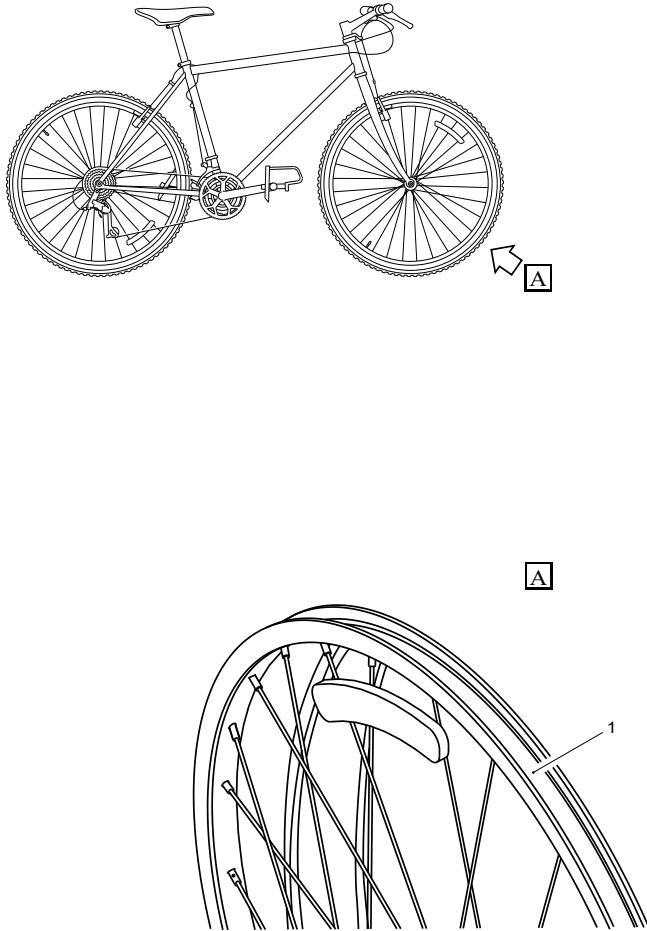


Figure 22 The tire and rim

Tube and tire

The tube and the tire install on the rim. The sidewalls of the tire have markings on them. These which are used to indicate the correct direction of rotation. The markings also make sure the tire installs on the rim and that the

directional arrows points in the correct direction. You install the tube into the tire before you inflate it. The tube has a valve (refer to Figure 23) which you put through the hole in the rim. This valve (refer to Figure 23) is used to inflate the tube and the tire to the correct pressure. A dust cap installs on the valve (refer to Figure 23) to prevent damage that dust and debris can cause.

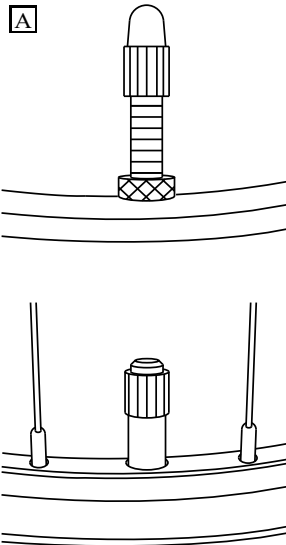
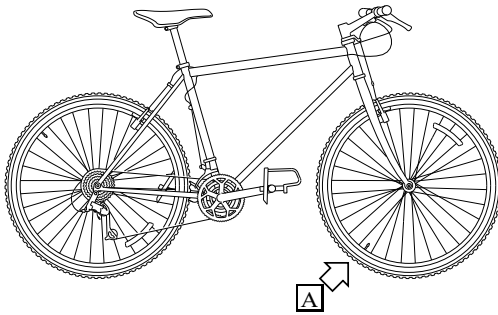


Figure 23 Valve

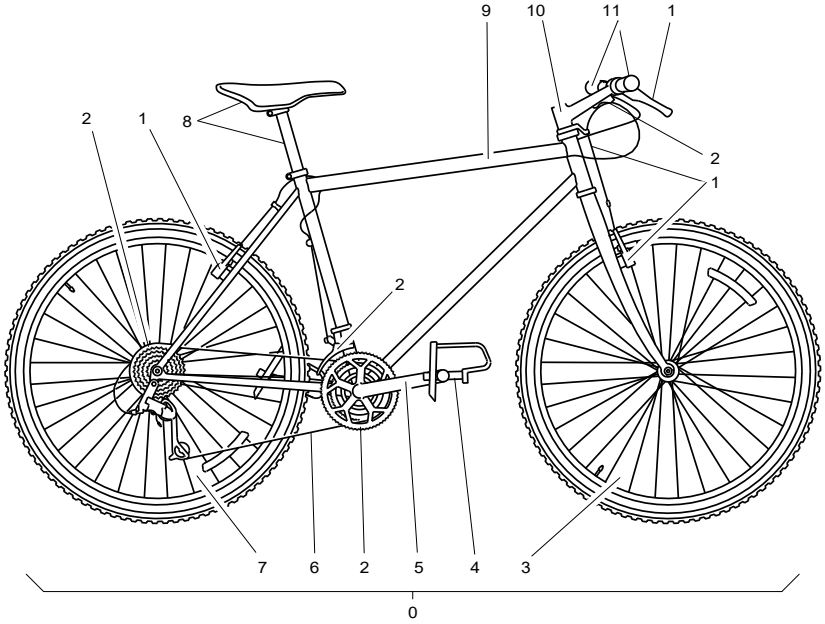


Figure 24
FRAME

The bicycle frame

The frame is the skeleton, or primary part of your bicycle. Its structure makes the bicycle resistant to large forces.

The initial frames (refer to Figure 25) were tubes of aluminum or steel welded together.

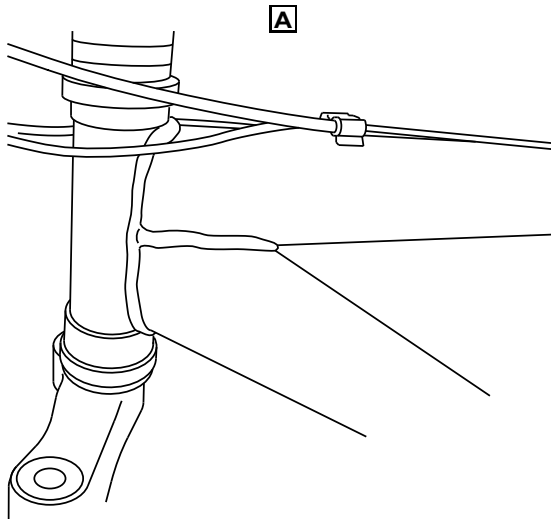
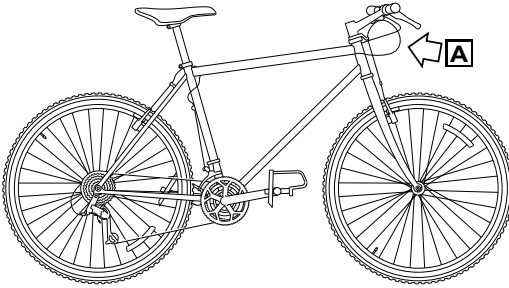


Figure 25 Welded frame joints

Subsequent frames (refer to Figure 26) can be made out of a wide variety of materials, including aluminum, titanium, or chrome-molybdenum (chromoly).

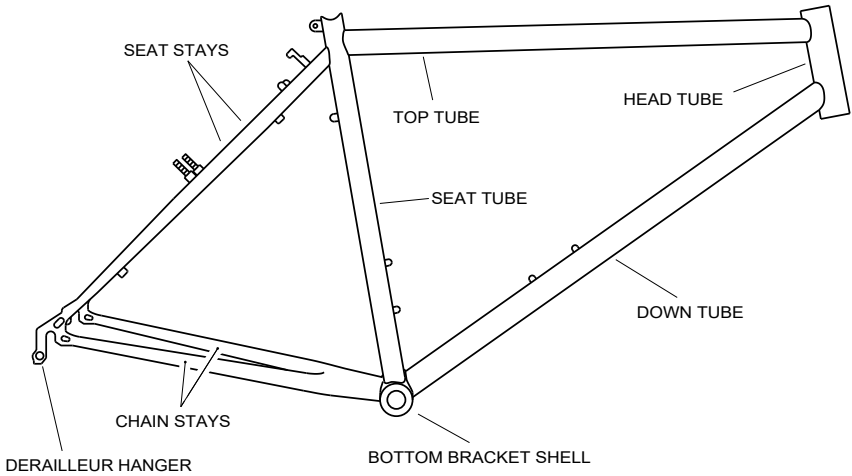


Figure 26 Frame

Other Frames are different and can also be of different materials (for example, titanium or chromoly). Some bicycle frames are of carbon fiber. To get this material, it is necessary to put sheets of carbon fiber cloth on foam forms and epoxy them in position. This procedure gives a very light, strong structure that can have different shapes.

The frame includes the parts that follow:

- the top tube (the higher bar of the bicycle frame)### Error unable to find target for reference toDMC-S1000DBIKE-AAA-D00-00-00-01AA-941A-D###
- the down tube (the section of the frame that extends from the stem to the bottom bracket)
- the head tube (the part of the frame that the fork steerer tube goes through)
- the seat tube (the vertical part of the frame that is the rear of the front triangle and that is between the bottom bracket and the top tube)
- the seat stay (the tube that includes the distance between the seat tube and the rear dropouts)
- the chain stay (the tube that is the bottom part of the rear triangle)

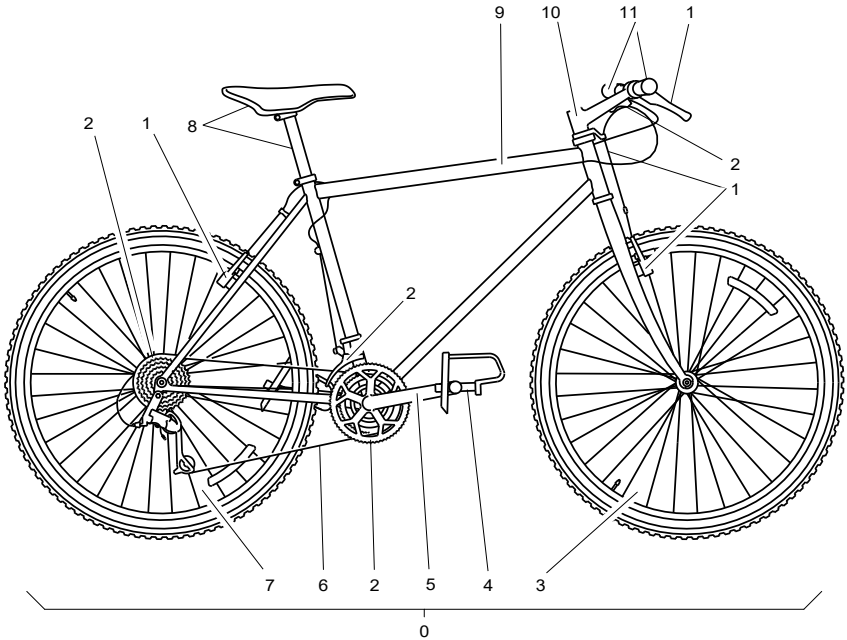


Figure 27
STEERING



WARNING: Make sure the light glass is not broken before handling it

Steering

The steering on the bike is what enables the bike to manoeuvre in a given direction during travel. The steering system on the bike is made of three parts, they are:

Handlebar Card 58 The handlebar

Headset Card 58 The headset

Stem Card 58 The stem

Handlebar

This consists of a horizontal bar attached to the stem with hand grips at the end. Brake levers and shifters are also attached to this bar although they do not have any part in the steering mechanism. The handlebars maneuverability is a sideways swiveling action. The handlebars themselves do not provide this swiveling, the headset (also known as the steering tube) is the mechanism that enables the handlebars to swivel.



Figure 28 S1000D logo

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Figure 29 Test ICN Create

Headset

This mechanism is situated in front of the frame and connects the front fork to the stem and handlebars. The headset allows the handlebars to swivel left and right for steering purposes.

For a full description of the headset, refer to .

Stem

The stem is a piece that attaches the handlebar to the steering tube. Basically the stem is just a threaded stem bolt situated inside the steerer tube and is what attaches the handlebars to the headset.

**WARNING:***My warning including a symbol*

Headset

**WARNING:***My warning risk**My warning mitigation*

The headset (refer to Figure 32) is a pair of bearings on the two ends of the head tube of the frame. These bearings permit the fork to turn rearward and forward (for example, to let the rider turn the handlebars for the steering).

The headset (refer to Figure 32) includes the parts that follow:

The bearing races that push into the head tube see BicycleNormal operation procedures (crew)

a bearing race that pushes on the fork steerer tube **### Error unable to find target for reference toDMC-S1000DBIKE-AAA-D00-00-01-00AA-520A-A###**

an adjustable upper race

two sets of ball bearings **### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA0-10-20-00AA-921A-A###**

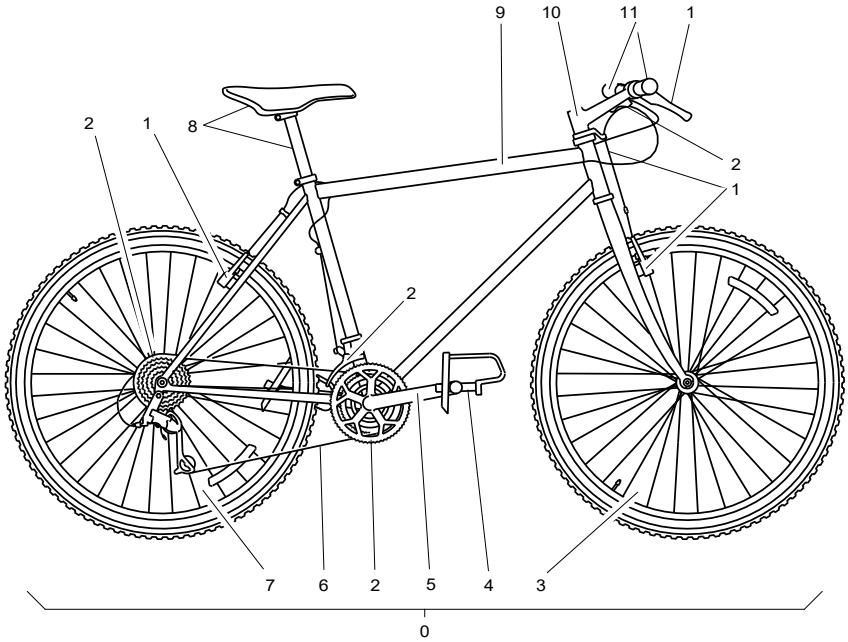


Figure 30

A headset has cups that are pushed into the head tube and a ring on the fork. All three must be fully parallel. It is usually necessary to remove rough paint to get all three fully parallel.

The upper race installs onto the steerer tube with a thread. See Figure 31A locknut is used to safety the upper race.

A clamp bolt holds the stem to the steerer tube.

The fourth remaining bearing race is part of a nut that installs on the threaded top end of the fork. This is done after you install it in the head tube. It is sometimes necessary for some headsets to have more thread at the top of the head tube. If the fork is too long, the spacer rings can be installed. If it is too short, there is a limit to the number of headsets you can use.

For an illustration of the parts of the headset (refer to Figure 32).

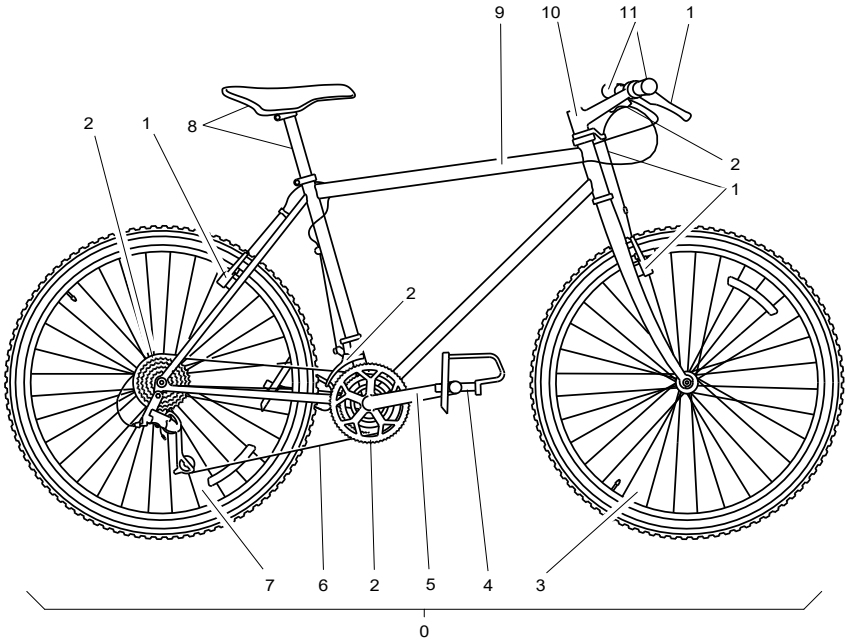
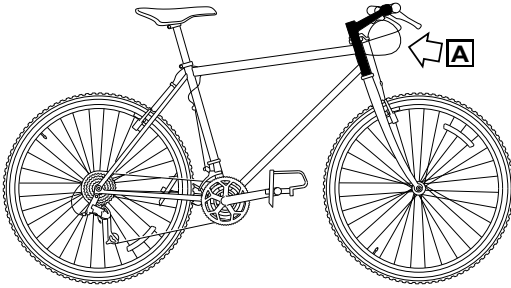


Figure 31



A

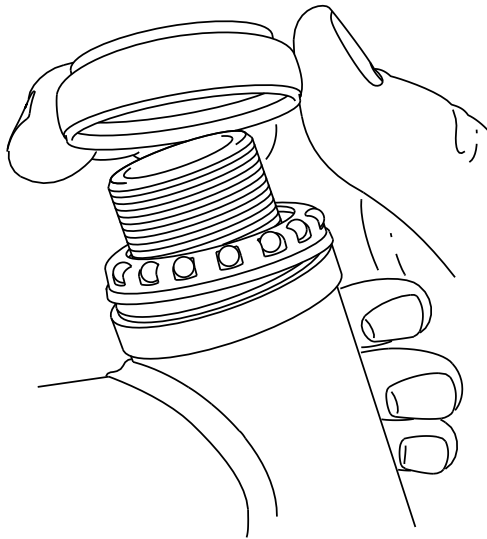


Figure 32 Headset

This needs a warning

Paragraph that involves something dangerous.### Error unable to find target for reference toDMC-S1000DBIKE-AAA-DA3-10-00-00AA-411A-A### Any Basic Computer (ABC) - see Figure 30.

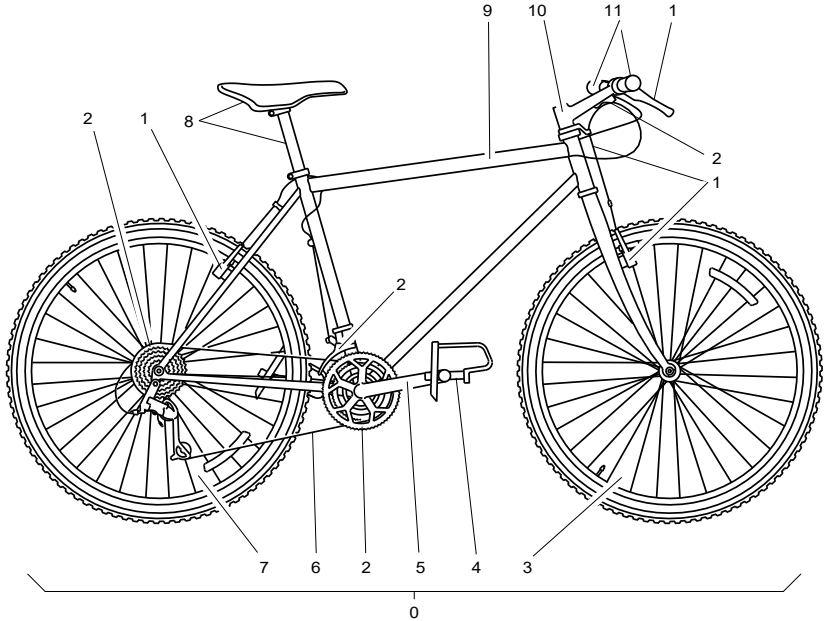


Figure 33 Bike overview

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Paras are the main building blocks for text content Another Acronym Description (AAD)

Table 13 My table title

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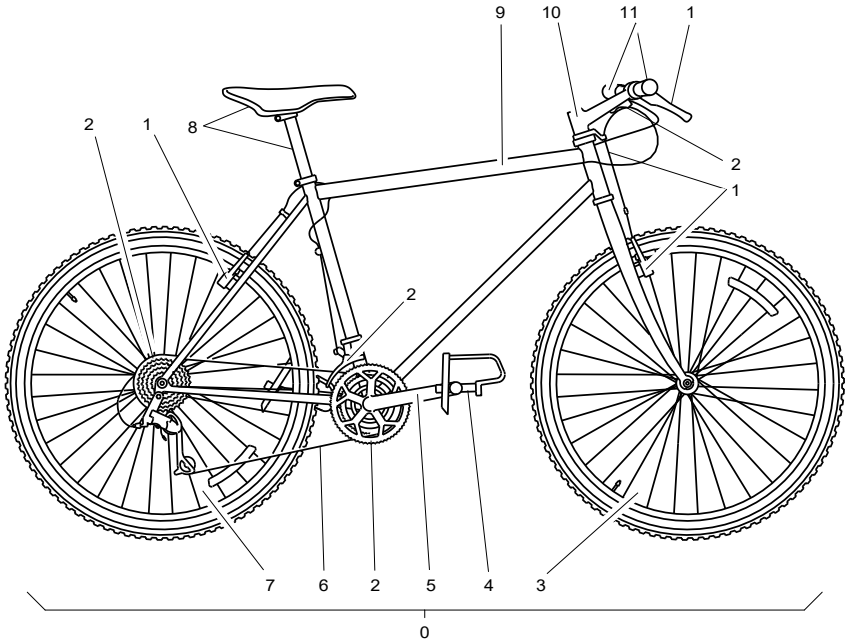


Figure 34 Bike overview

I want a xref to the figure - Figure 30

DRIVETRAIN

Drive train

The drive train is the group of components that are necessary for the operation of the bicycle. The drive train is the primary system for the movement of the bicycle. A typical drive train has the chain wheels, the chain, the pedals and the saddle.

Since the drive train has many components, it is necessary to do a regular maintenance. The drive train maintenance is easy and the users can disassemble

and assemble each part of the drive train. Because of this, when one part is defective, it is possible to remove and replace it with a new one.

GEARS

Gears

The gears include the mechanism, the hubs and the shifters.

The description of the mechanisms is given in

The description of the shifters is given in

The bicycles of these days can have 27 gears or more. The mountain bikes use a set that includes:

- Three socket sprockets of different dimension on the front
- Nine socket sprockets of different dimensions at the rearShiftersDescription of how it is made

This set gives the gear ratios.

The shifters installed on the handlebars change the gears and operate the mechanisms (also known as derailleurs). These derailleurs are cable-actuated mechanisms. They move the chain from the different sprockets.

The hub is the center of the wheel and contains the axle and bearings.

The gears let the rider crank at the pedals at a constant movement on slopes of different angles.



WARNING: Make sure the light glass is not broken before handling it

Derailleur

There are two different types of derailleur, the front and the rear.

Front derailleur

The front derailleur (refer to Figure 35) contains two types of screws to keep the movement of the derailleur to a minimum. These screws are:

the stop screw low-gear

the stop screw high-gear

The function of these screws is to prevent the rider from over shifting . If this occurs, the chain will go out of the chain wheel.

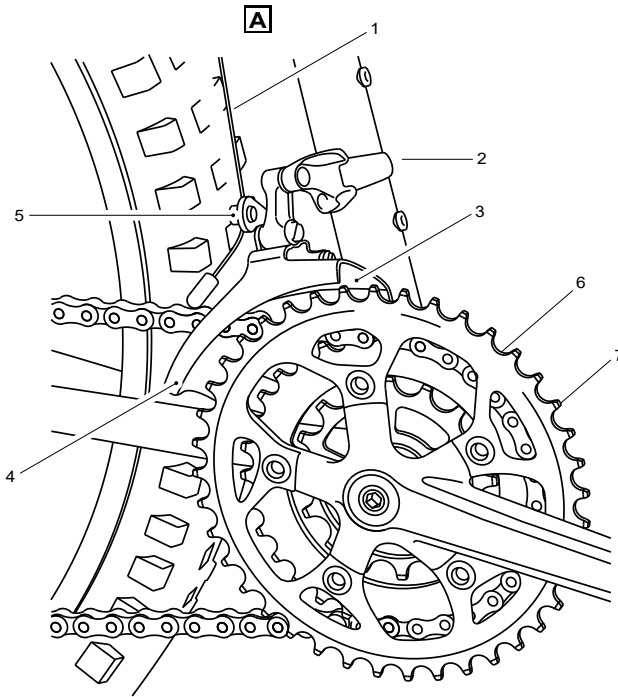
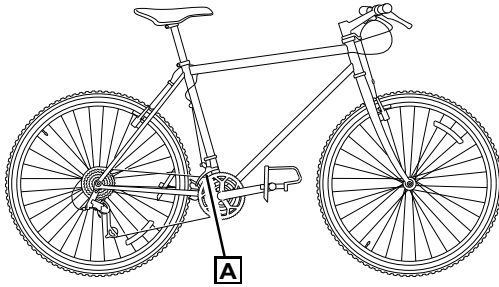


Figure 35 Front derailleur

The derailleur is installed on the bicycle seat tube with a clamp and is parallel to the three front sprockets. See BicycleNormal operation procedures (crew)

The shift cable is connected between the shifters on the handle bars and the cable clamp bolt on the front derailleur. This operates the derailleur. On the sprockets there is an inner and outer cage. The clamp attaches the cage.

Rear derailleur

The rear derailleur (refer to Figure 36) section contains the sprockets for the different gear changes. When the cable clamp bolt is tight, it holds the shift cable in its position. A screwed bolt holds the tension wheel.

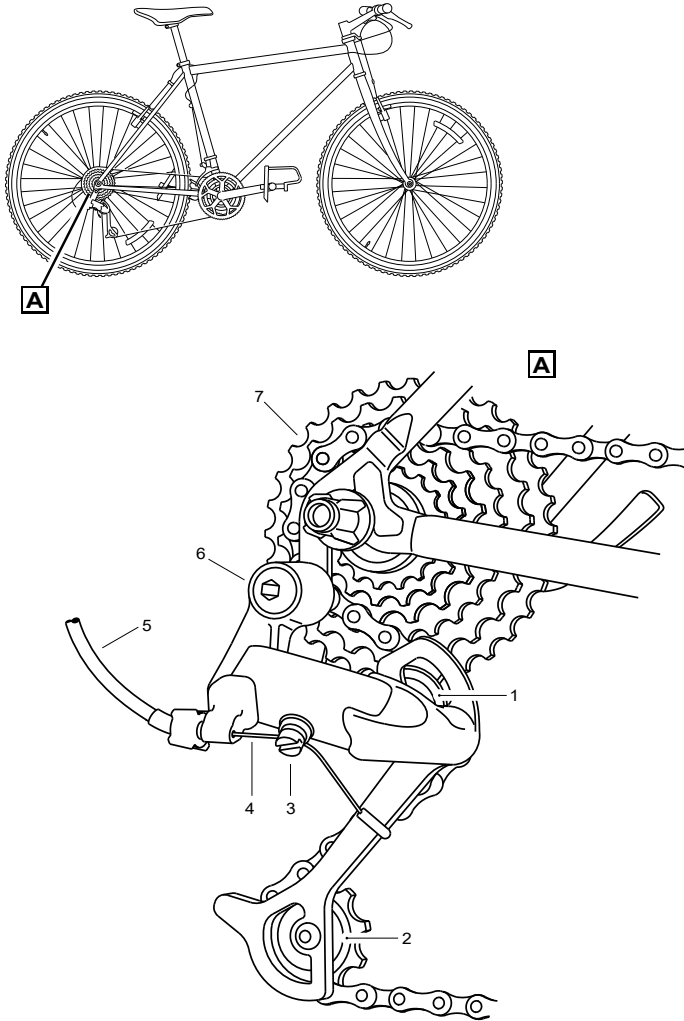


Figure 36 Rear derailleur

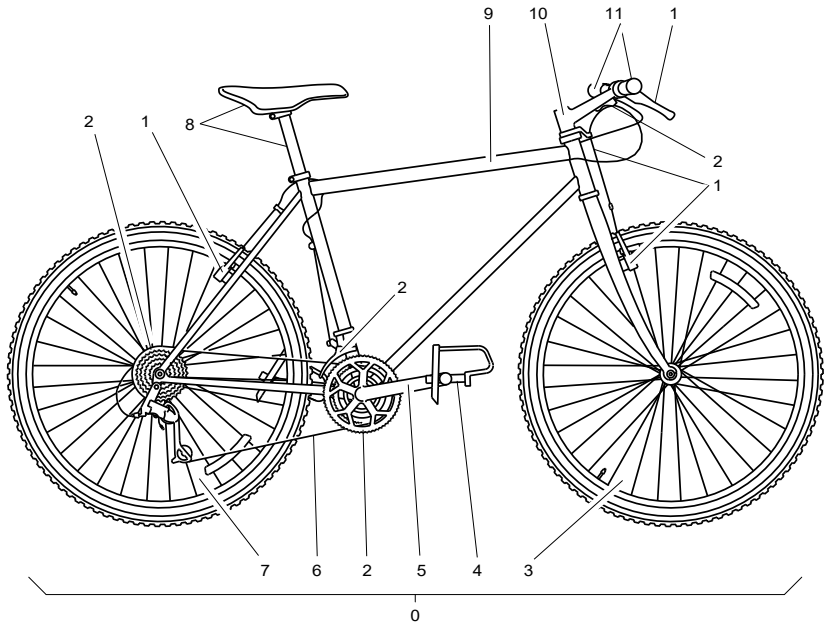


Figure 37

The derailleur mounting bolt connects the derailleur to the frame. When the user attaches this bolt, this makes sure that the cage plates are parallel with the chain rings.

The guide wheel has the function to move the chain with the derailleur. It moves the chain from one sprocket to the other. The guide wheel must not move on its axis. If this occurs, there will be wear on the wheel. The position of the guide wheel is below the largest sprocket.

Shifters

The thumb shifter is a usual type in modern bicycles. It is possible to adjust this type of shifter for operation in the index position or in the friction position. The differences between the two are:

- The index shifters change the gears with a click of a lever.
- The friction shifters hold the derailleur in its position by friction.

The thumb shifters (refer to Figure 38) are held on the bicycle with a screw. The paragraph that follows gives a description of a thumb shifter.

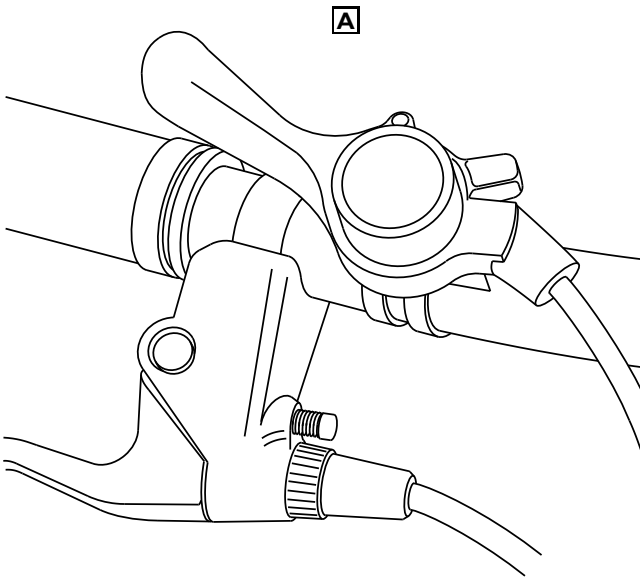
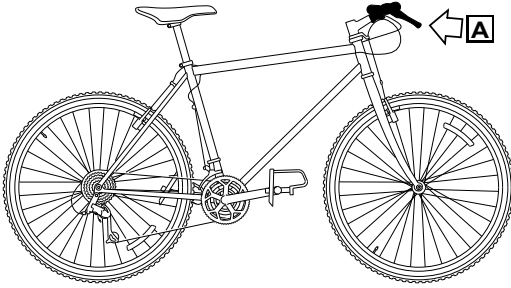
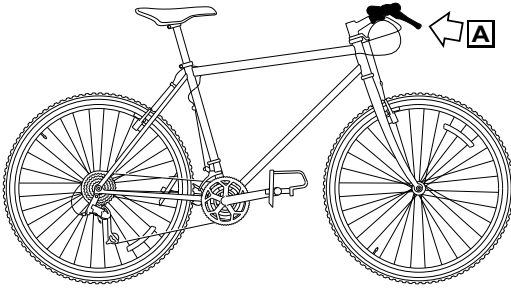


Figure 38 Thumb shifter index type

How a thumb shifter is made up

A wing nut (refer to Figure 39) from the top of the lever holds the thumb shifter. The lever is on top of the mount and the mount is on the handle bar with a nut. To remove the mount, it is necessary to loosen the nut of two turns (refer to Figure 40), then the mount can move from the handle bar from the top of the lever. The lever sits on top of the mount and the mount is fixed into place on the handle bar by a nut.



A

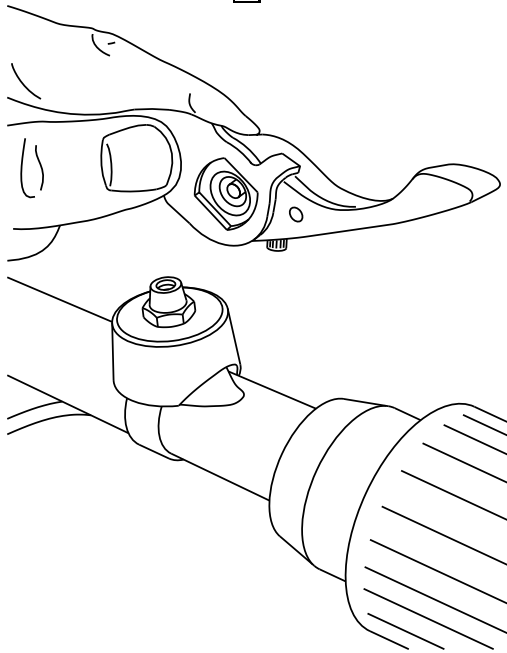


Figure 39 Unscrew wingnut

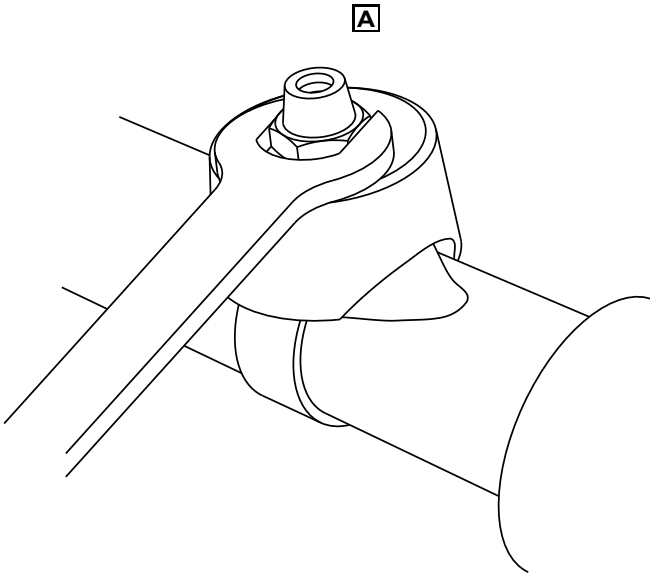
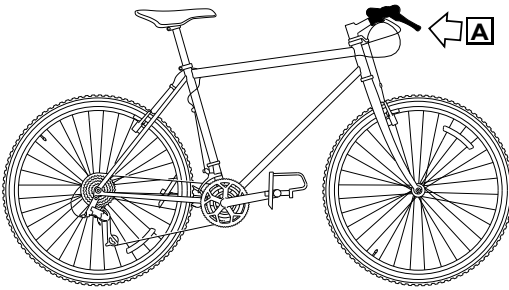


Figure 40 Loosen the nut

On modern models of this shifter, there is a clamp bolt that holds the shifter in its position (refer to Figure 41). The user can loosen the clamp bolt with an applicable tool. This lets the shifter release the handlebar.

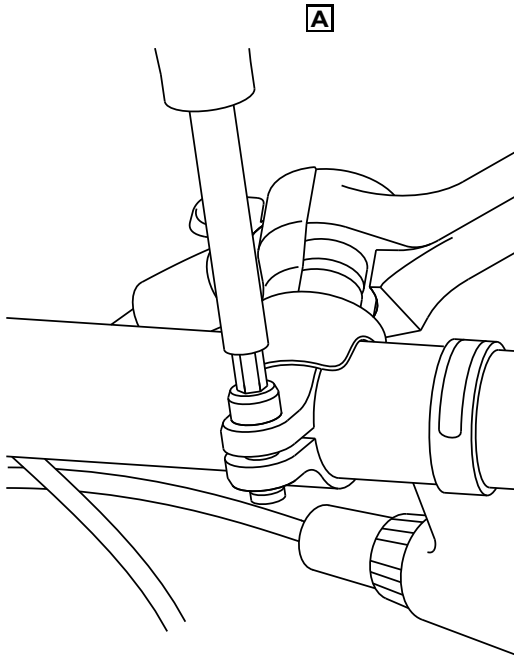
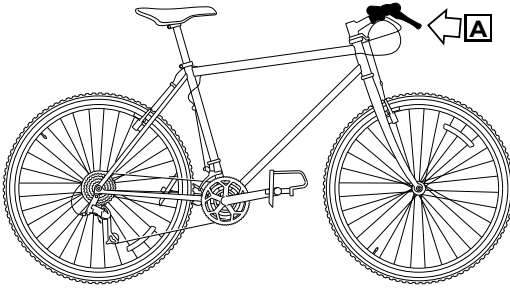


Figure 41 Loosen the shifter clamp bolt

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