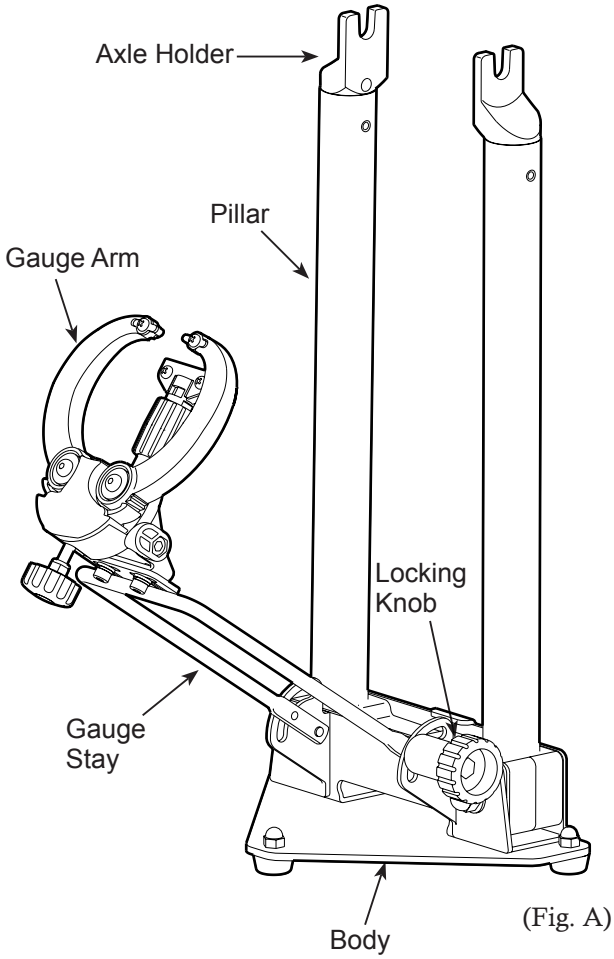
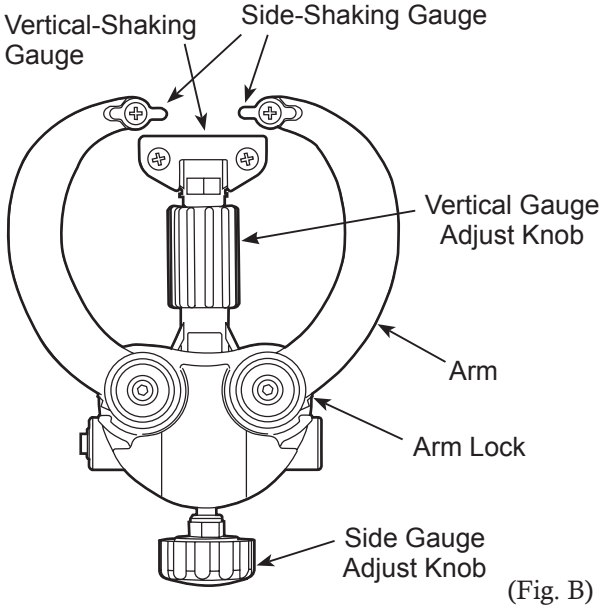
MINOURA Wheel Truing Stand **FT-100 / FT-100 Combo**

(version 3.1 2026/6)

Components



(Fig. A)



(Fig. B)

When you need to order replacement parts, refer the schemastics on the last page then order it with the correct part number or part name.

⚠ Important Notes

- ***Turing wheels is done at your risk. Minoura is not liable for any damage that may be caused by improper use of the stand. Wrong wheel adjustment may cause poor brake performance or spoil bike stability. You can use FT-100 only when you accept this caution. And Minoura will understand you accept this caution when you start using FT-100.***

- ***Only use the FT-100 to true bicycle wheels and for no other purpose.***

- ***FT-100 will work with the 9mm quick release skewers and the fixed nut axels as well as the 12mm / 15mm thru axles. Oversize 20mm thru axle will not fit to FT-100.***

- ***Both pillars are constructed to move together. This helps to read just the gauge position when changing to a different hub. This is NOT an "Auto-Centering" feature. You must use a wheel dishing tool to check wheel symmetry.***

- ***When mounting a wide hub and tightening the skewer, the wheel may not seat correctly because the axle holders will have to become angled.***
  Use the contained "Angle Adjust Shim" to keep the wheel horizontal and set the wheel in the deepest position on the Axle Holder when you tighten the quick release skewer.

- ***You will use only one Side Shaking Gauge when checking the wheel. Widely open and lock the gauge arm which you don't use.***

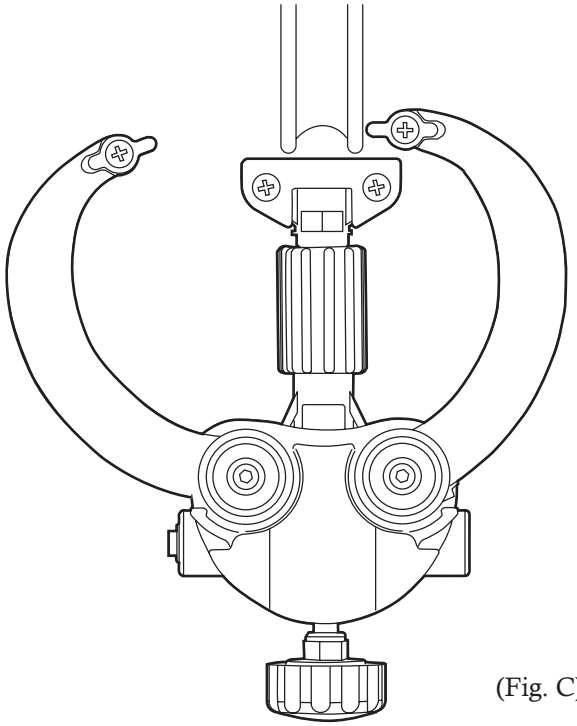
Side Shaking Gauge

Side Shaking Gauge is for checking the horizontal movement of the wheel.
The purpose of this job is making the distance (gap) between the rim surface and the brake shoe equal on all around the wheel in order to expect greater brake performance.
This job can be accomplished with the tire on or off the wheel.

Set the wheel on the stand and position the tip of the Side Shaking Gauge 1 – 2 mm away from the rim surface (do not touch). (see Fig. C)

Rotate the wheel slowly (do NOT spin fast) and look at the clearance between the rim surface and the gauge tip. The gap will change vary and when the rotating wheel comes in contact with the gauge, you will hear a light scratching sound.

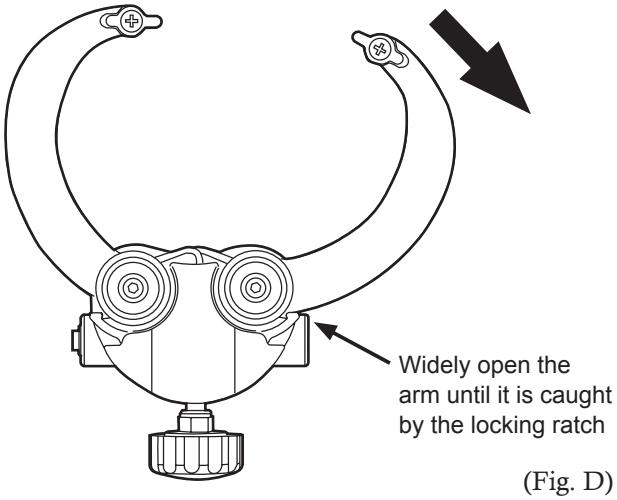
Turn the nipples to make this gap equal on all around the wheel.



(Fig. C)

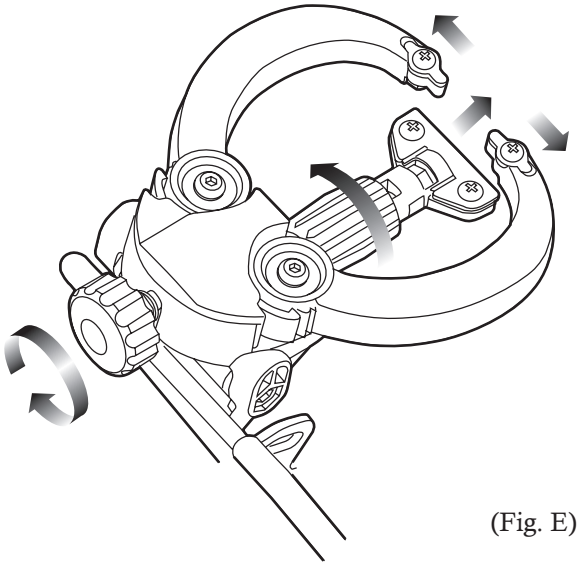
In case that you see the wheel from right hand side to true the wheel.

On side shaking truing job, you use either right or left side gauge. You will not use both gauges at once.
Depends on your dominant eye, use the gauge arm on your favorite side.
Fig.C shows then case you are dexitral.



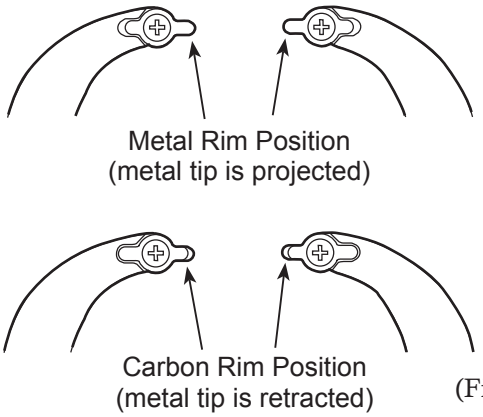
(Fig. D)

The side shaking gauge arm can be locked in widely opened position.
Hold the arm and move open. When the arm is caught by the locking ratch, you will feel click. This is the locking position. (see Fig. D)
Do not force to open more.
To close the arm, push it inward.



(Fig. E)

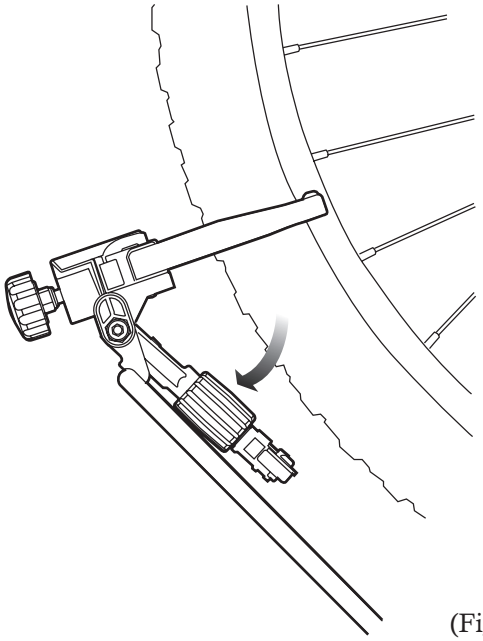
Turn the Side Gauge Adjust Knob, then both arms move together. If the arm is in locked position, it will not move even you turn the knob.



(Fig. F)

Turing wheels means the gauge has to touch the rim and this may cause some light scratching.

If you use an expensive carbon rim and you do not want to scratch it, flip the metal piece on the Side Shaking Gauge (the gauge plate is unsymmetrical). In this position, only the plastic arm body contacts the rim and it will not damage the rim. (see Fig. F)
The contact sound between the tool and rim will become fainter and more difficult to hear.



(Fig. G)

The angle of the gauge arm should be set as deep as possible. (see Fig. G)
If the Vertical Shaking Gauge touch the tire, fold it down or remove the tire.

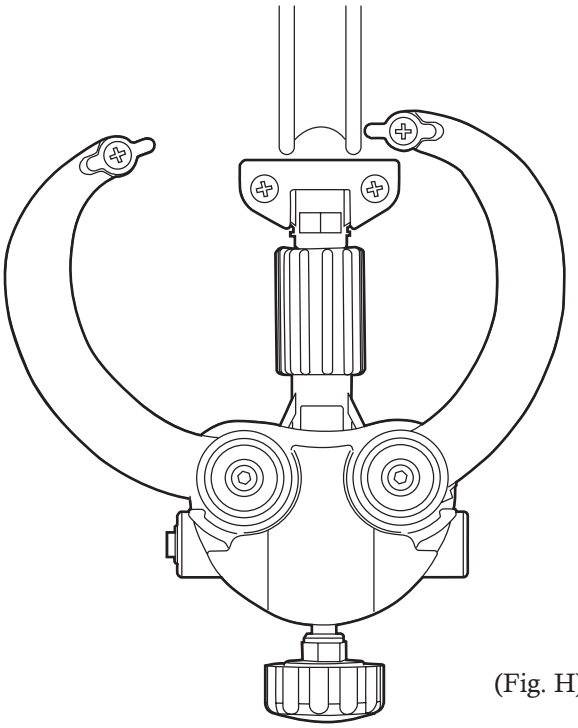
Vertical Shaking Gauge

Vertical Shaking Gauge is for checking the vertical movement of the wheel.
The purpose of this job is making the wheel concentric circle to make the riding smoother.
You must remove the tire from the wheel when doing this job.

Raise up the Vertical Shaking Gauge Arm (and extend the arm length by turning the center barrel type knob if necessary) to position the tip 1 – 2 mm away from the rim edge (do not touch). (see Fig. H)

Rotate the wheel slowly (do NOT spin fast) and look at the clearance between the rim edge and the gauge tip. The gap will change vary and when the rotating wheel comes in contact with the gauge, you will hear a light scratching sound.

Turn the nipples to make this gap equal on all around the wheel.



(Fig. H)

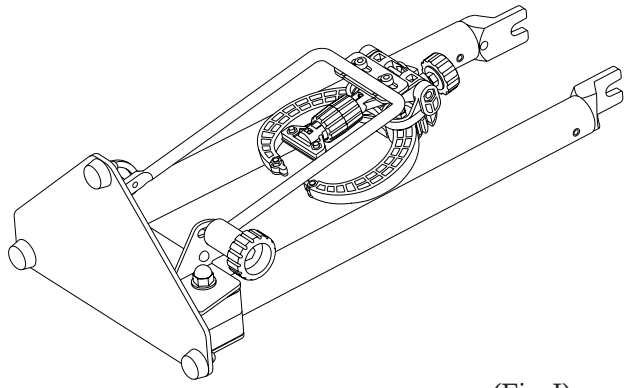
The gauge arm angle against the rim should be as deeply as possible.

Turing wheels means the gauge has to touch the rim and this may cause some light scratching.

If you use an expensive carbon rim and you do not want to scratch it, remove the metal bracket from the Vertical Shaking Gauge and only the plastic part contacts the rim.
Be sure the contacting sound will have to become very small and difficult to listen.

If the Vertical Shaing Gauge has been twisted by some reason, it will contact only either edge of the rim.
Even in this condition, you can continue the wheel truing job without any problem, but if you want to have the gauge contacts both edges at once, twist the gauge.

How To Fold Down



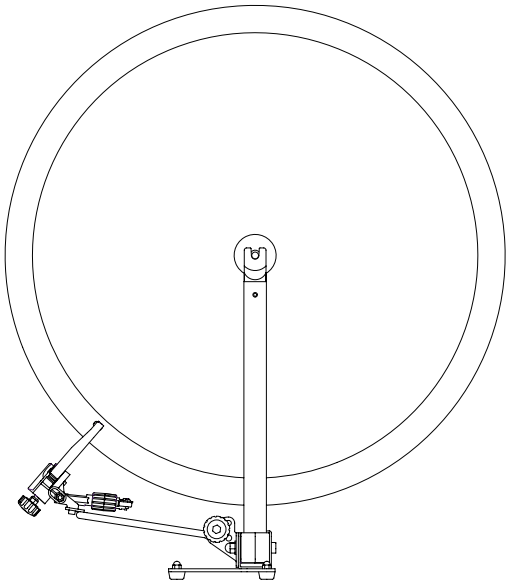
(Fig. I)

FT-100 is completely foldable for easier transportation and compact storage.
To fold down, follow the steps;

1. Shut the Side Gauge as narrow as possible. (if you do not want to change the gauge clearance, you can leave it in current position)
2. Close the pillars by pushing inward from both sides at same time.
3. Loosen the Lock Knob.
4. Fold the gauges ***downward*** and push toward the Pillars.
5. Tighten the Lock Knob.
6. Turn the Anti-Rolling Leg to store under the body, then tighten the triangle head knob bolt.

⚠ ***Be careful not to pinch your fingers between the body and stay.***

⚠ ***Do not try to store the gauge between the pillars.***
If strong sideward shock is applied, the plastic gauges should be broken.



Pillars

To open or close the pillars, hold them with both hands and move at once.
If you move just one side pillar or push or pull the pillar to different direction, your FT-100 should be deformed.
This will cause a serious problem that FT-100 no longer holds the wheel in proper angle and you cannot expect correct result from wheel truing job.

Steps of Wheel Truing Job

Usually, wheel truing job is done with the following steps.
Different job step may force you to re-adjust the point you already done and it will take time longer.
You need to think about the jobs totally. You should not focus on just one point.

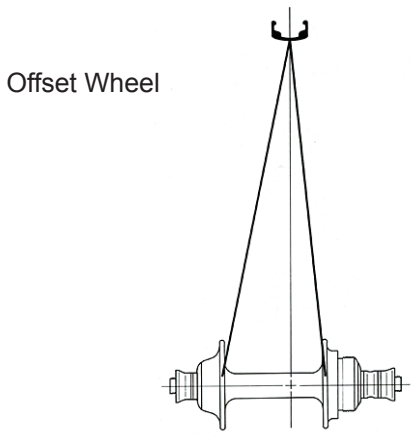
1. Vertical shaking adjustment
↓
2. Side shaking adjustment
↓
3. Wheel symmetry check & Off-set adjustment
↓
4. Spoke tension adjustment

You need to have a long fuse. Wheel truing job is quite difficult for beginners and you should not expect right result from just one action.
If you feel that you cannot finish it by yourself, it is highly recommended to ask to a professional or well-skilled mechanics.
Some shaking on the wheel is not problem for your daily use, but be careful about the spoke tension. Bad adjustment will cause serious accident.

About Offset Wheel Setting

At first, you should understand that you should fix the vertical movement prior to the horizontal movement, especially on the rear wheel because of its unique wheel system named ***"Offset"***.

Tensioning the front wheel is much easier than the rear. Rear wheel tensioning requires Offset Tensioning.



(Fig. J)

The rear wheel has a different spoke angle pattern when looking at it from behind. (see Fig. J)
A rear hub is not symmetrical to the wheel. Flanges can be far from center. Because the rear hub must have extra space for the set of transmission gears, you will need to true using Offset Tensioning.

If offset wheel, the torque works mostly only to the right side (gear side) spokes. Because right side spokes should be assembled more vertically than left side.
Understand that right side spoke tension is more important than left side spoke's one in this offset assembling.
Well adjusted right side spokes can keep your wheel stable in the future. Left side spoke tension is just a help.

The nipple should not be loosened at any time. Nipples are made from softer alloys or brass and are prone to stripping easily.

⚠ ***You must use a correct spoke wrench which fits the nipples perfectly, especially when you use light alloy nipples on your wheel.***
If you use wrong size one, the nipple will become round easily and you cannot continue your work any more.

How To Fix Vertical Movement

The vertical movement within 3 mm may not cause any troubles. But if you want to be it as zero as possible for smoother ride, you should try the following process again and again.

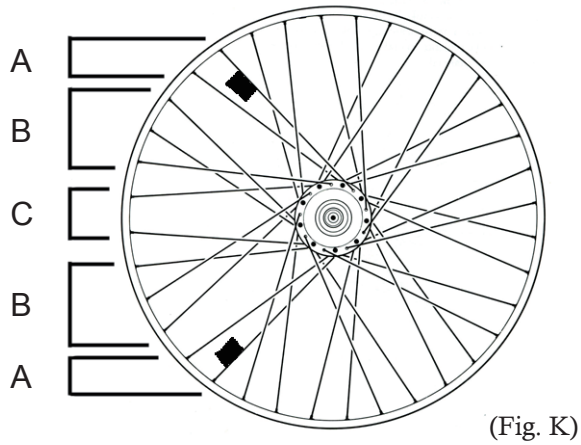
Be sure, in this case, you should tighten both side of the nipples equally.

1.
You set the wheel on the FT-100 and see the Vertical Gauge.
Put the tip of the Vretical Gauge close to the surface of the rim.

2.
Rotate the wheel slowly, and check the vertical movement. Do NOT spin fast.

3.
Attach tapes to two spokes; one is in the beginning and another one is in the ending of vertical movement.

4.
Make three (3) groups of spokes between your tape markers as below;



(Fig. K)

Group-A: 3 or less spokes in the beginning and in the ending of vertical movement.

Group-B: 3 or less spokes between Group-A, except for the center spoke.

Group-C: The center 1 or 2 between the tapes.

5.
If the rim moves to outward, tighten both side nipples.
If the rim shakes inward, do NOT try to loosen the nipples. Tighten both far side nipples.
This is because the nipples are made of soft material, so its thread can be broken easily by loosening.

6.
Tighten the spokes as below;

- Group-A nipples = about 1/8 turns
- Group-B nipples = about 1/4 turns
- Group-C nipples = about 1/2 turns

Then check the vertical movement again with rotating the wheel slowly.
If the wheel moves yet, continue the process again.

If you hear a strange sound or see narrow metal "lines" or residue, your nipple will fail soon.
Do NOT apply any lubricant to quiet the sound. Put a new nipple on immediately.

Do NOT tighten the spoke more than 1/2 turns at one time. Wheel truing must be done step by step. Otherwise, you will loose the spoke tension balance completely.

How To Fix Horizontal Movement

The horizontal movement within 2 mm may not cause any troubles. But if you want to be it as zero as possible for smoother ride, you should try the following process again and again.

1.
You set the wheel on the FT-100 and see the Side Gauges.
Put the tips of them close to the surface of the rim side wall. Do not make them touch the rim.

2.
Rotate the wheel slowly, and check the horizontal movement. Do NOT spin fast.

3.
Attach tapes to two spokes; one is in the beginning and one is in the ending of horizontal movement.

4.
Make three (3) groups of spokes between your tape markers as below;

Group-A: 3 or less spokes in the beginning and in the ending of horizontal movement.

Group-B: 3 or less spokes between Group-A, except for the center spoke.

Group-C: The center 1 or 2 between the tapes.

5.
If the rim moves to right, tighten the left side nipples. Do NOT loosen the right side nipples. This is because the nipples are made of soft material, so its thread can be broken easily by loosening.

6.
Tighten the spokes as below;

- Group-A nipples = about 1/8 turns
- Group-B nipples = about 1/4 turns
- Group-C nipples = about 1/2 turns

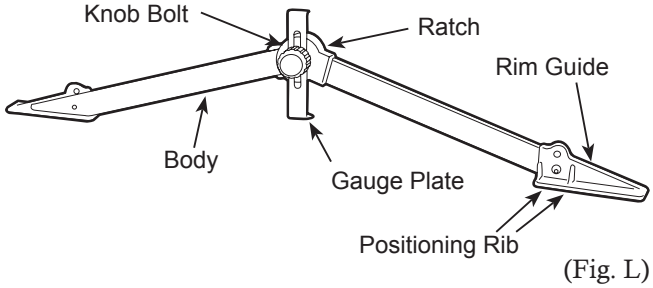
Then check the horizontal movement again with rotating the wheel slowly.
If the wheel moves yet, continue the process again.

If you hear a strange sound or see metal "lines" or residue, your nipple will fail soon.
Do NOT apply any lubricant to quiet the sound. Put a new nipple on immediately.

Do NOT tighten the spoke more than 1/2 turns at one time. Wheel truing must be done step by step. Otherwise, you will loose the spoke tension balance completely.

There are several ways to true the bike wheel, and there are many spoke crossing patterns available depends on the purpose on wheel.
Above is just one example and you do not have to follow our way.
You should refer a bike maintenance guidebook or ask to well-educated mechanics to learn more effective techniques.

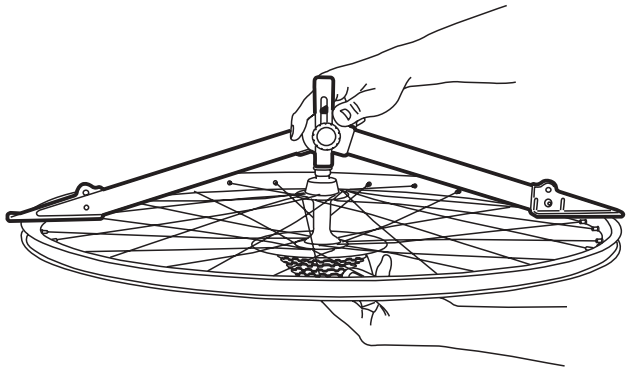
FCG-310 Wheel Dishing Tool



(Fig. L)

You may get a special FT-100 version that contains useful optional tools; a wheel disinig tool **FCG-310** and a nipple wrench **NW-300**.
FCG-310 is the tool for checking if the wheel is set exactly symmetric (the rim is aligned on the exact center line of the hub).
It's designed foldable for compact storage.
FCG-310 can be used on any sized wheel between 18" and 700c (except 24").

How To Use FCG-310



(Fig. M)

1. To open the FCG-310, loosen the Knob Bolt then open the Frame with both hands.

2. Look for the grooves on the inside of the Ratches that fix the angle when the Frame is opened.
Extend until the grooves meet and lock into place by pushing them each other.

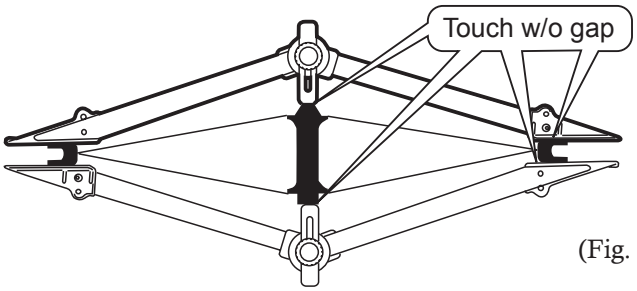
3. Turn the Gauge Plate counter-clockwise to locate the hole at the down end side.
Put the Gauge Plate on the flat groove on the outside of the Ratch, then tighten the Knob Bolt temporally.

⚠ ***If you have tightened the Knob Bolt even when the Gauge Plate does not sit in the groove correctly, it will have to be damaged. Be sure that this plate cannot be replaced.***

4. Attach the FCG-310 to the wheel as shown in Fig. M.
While keeping both Rim Guides touching the rim, loosen the Knob Bolt to slide down the Gauge Plate until it touches the end of the hub.

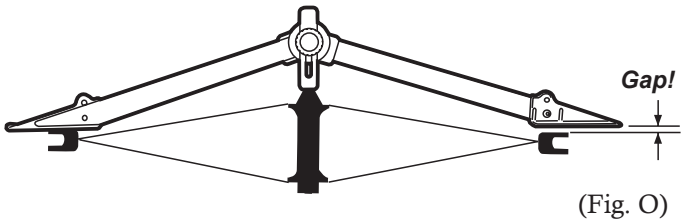
5. While keeping this position, attach the FCG-310 to another side to check if there is a gap between the rim and the Rim Guide (see Fig. O) or between the Gauge Plate and the hub end.

<Properly Adjusted>



(Fig. N)

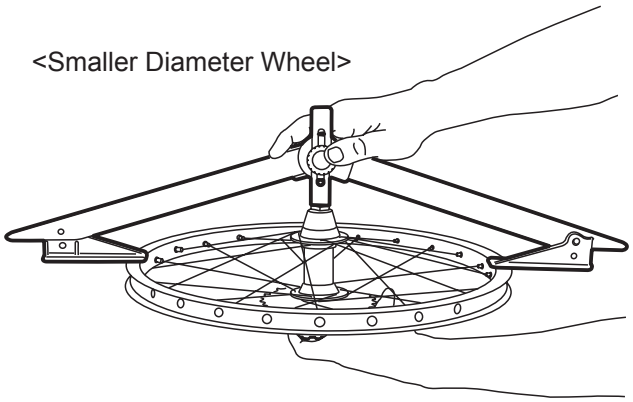
<Wrong Adjusted>



(Fig. O)

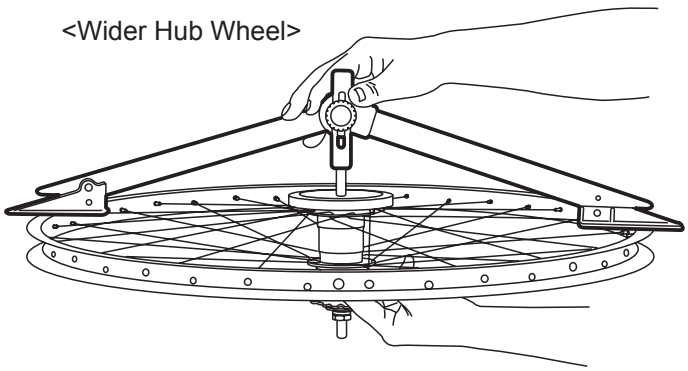
Other Rim Guide Positions

<Smaller Diameter Wheel>



(Fig. P)

<Wider Hub Wheel>



(Fig. Q)

NW-300 Spoke Wrench

NW-300 is a standard spoke wrench set with 14G and 15G size gauges.
Uusually we say, the number is smaller, the nipple size is smaller, however, it is just a guidance.
Apply the gauge to your actual nipples and confirm if it fits perfectly.
If it is loose, do NOT use it, otherwise the nipple will have to be damaged.

If unfortunately both gauges do not fit to your nipples, buy another type of spoke wrench at your local bike shop.

Limited Warranty Policy (digest)

1. Only the original user who purchased this FT-100 in brand-new and unopened condition at an authorized Minoura dealer, authorized internet retailer or authorized mail order house (hereafter "Original User") is covered under the Minoura Warranty Service Program (hereafter "Warranty Service").

2. Any used or new FT-100, either purchased or given through a shop, internet auction site or person-to-person will NOT be covered under Warranty Service, except under special circumstances to be determined by Minoura.

3. The warranty period shall start from the date of purchase. If the reciept is not presented, Minoura reserves the right to extend or deny Warranty Service.

4. All warranties will be void if the FT-100 is damaged due to user's abuse, disassembly, unauthorized alteration or midification, or used in any way not intended as described in the instructions manual.

5. Only issues caused by manufacturer's defects will be covered to all users at Minoura's expense. The period expires in a maximum of 7 years after the last production.

For more detailed information, refer both the attached "**MINOURA LIMITED WARRANTY POLICY**" card and our web site (https://www.en.minoura.jp).
Web can offer you the latest and more correct information.

For More Information...

MINOURA Japan Headquarters
(for ALL customers)

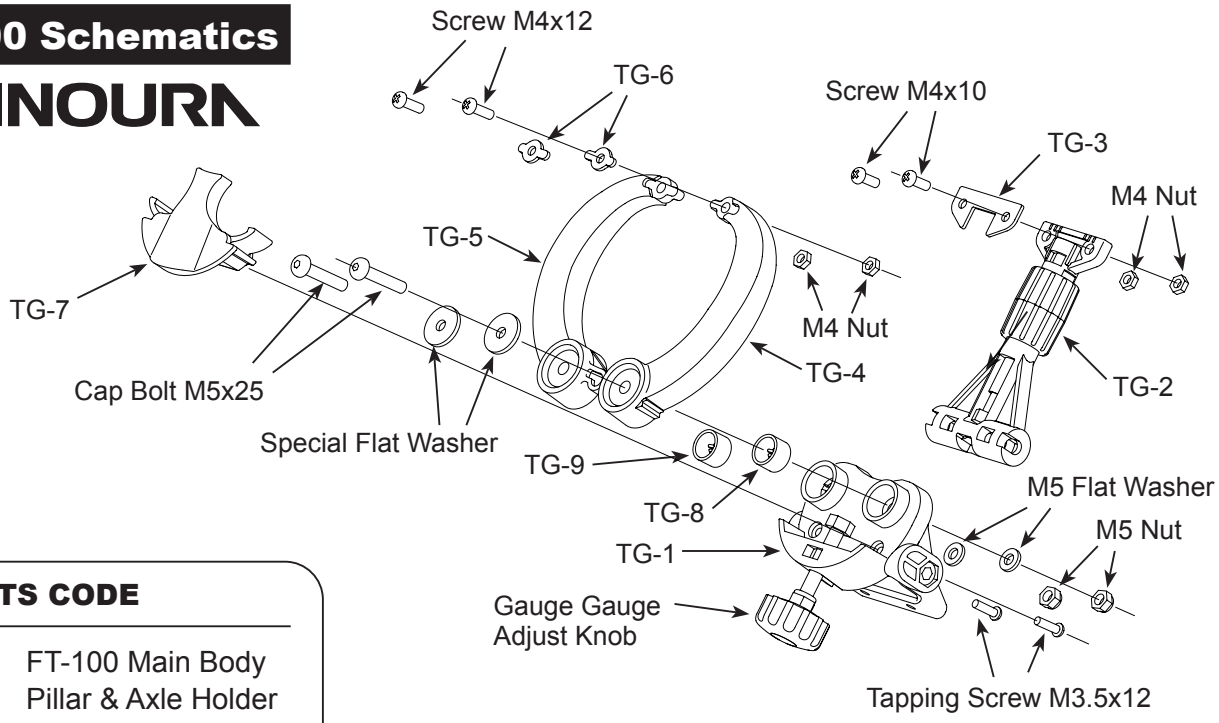
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Web www.minoura.jp

Made in Japan

FT-100 Schematics

MINOURA



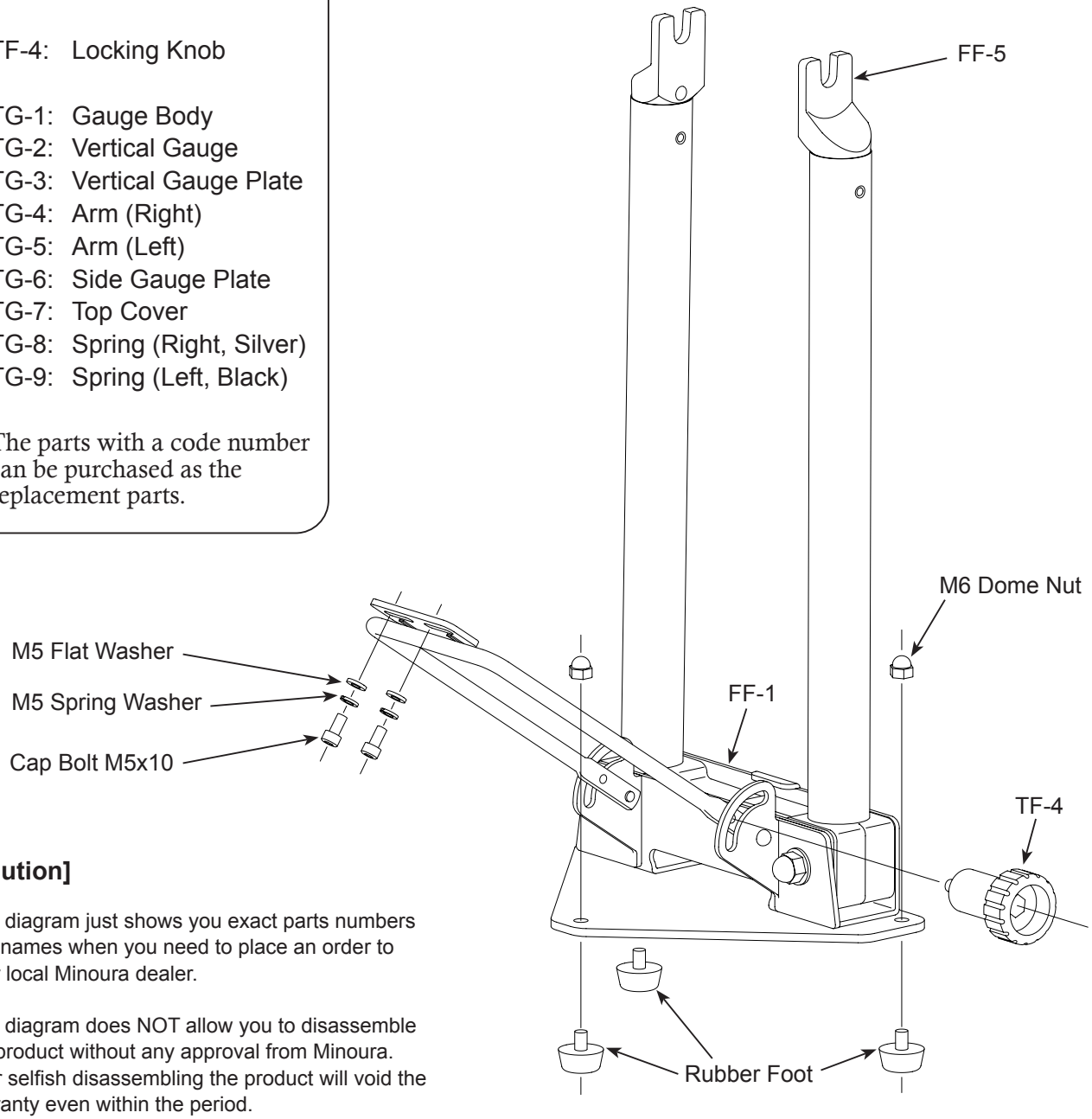
PARTS CODE

FF-1: FT-100 Main Body
FF-5: Pillar & Axle Holder

TF-4: Locking Knob

TG-1: Gauge Body
TG-2: Vertical Gauge
TG-3: Vertical Gauge Plate
TG-4: Arm (Right)
TG-5: Arm (Left)
TG-6: Side Gauge Plate
TG-7: Top Cover
TG-8: Spring (Right, Silver)
TG-9: Spring (Left, Black)

The parts with a code number can be purchased as the replacement parts.



[Caution]

This diagram just shows you exact parts numbers and names when you need to place an order to your local Minoura dealer.

This diagram does NOT allow you to disassemble the product without any approval from Minoura. Your selfish disassembling the product will void the warranty even within the period.