Wheels

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Front Wheel Diagram

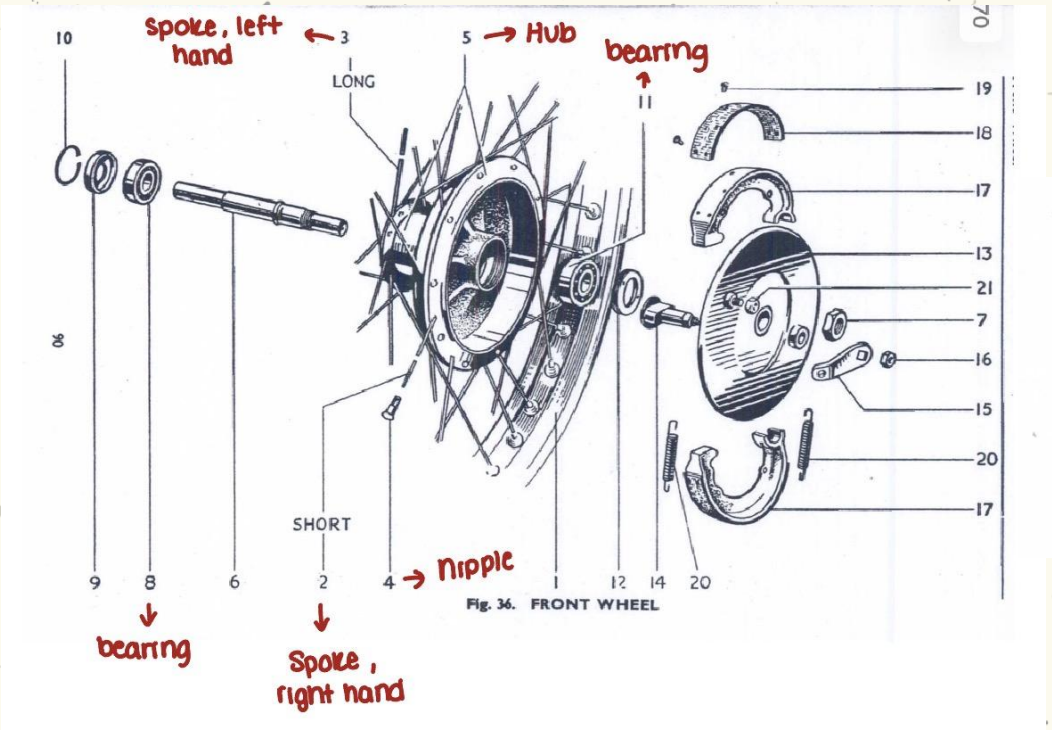

Fig. 36. FRONT WHEEL

INDEX TO FIG. 36

Index No.	Description.	Index No.	Description.
1	Rim, front wheel.	12	Ring, front wheel R.H. locking.
2	Spoke, right hand (short).	13	Plate, front brake anchor.
3	Spoke, left hand (long).	14	Cam, front brake.
4	Nipple, spoke.	15	Lever, front brake.
5	Hub and brake drum assembly.	16	Nut, front brake lever.
6	Spindle, front wheel.	17	Shoe, front brake c/w lining.
7	Nut, front wheel spindle.	18	Lining, front brake.
8	Bearing, front wheel L.H.	19	Rivets, front brake lining.
9	Dustcap, front wheel L.H.	20	Spring, front brake shoe.
10	Circlip, front wheel L.H.	21	Nut, front brake anchor.
11	Bearing, front wheel R.H.		

Rear Wheel Diagram

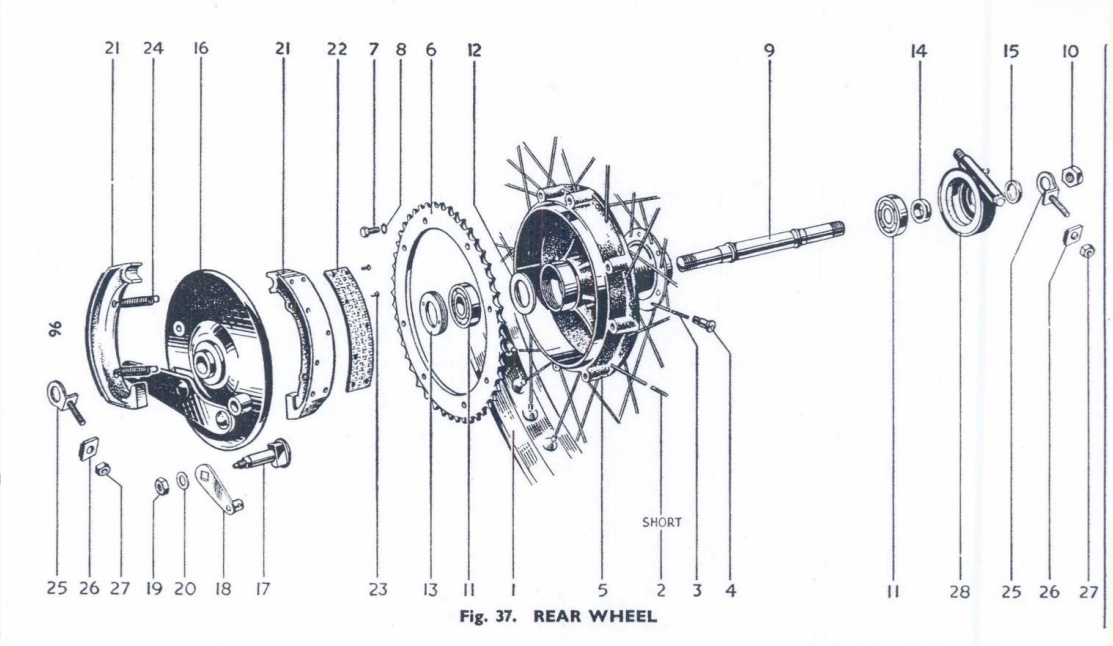

Fig. 37. REAR WHEEL

INDEX TO FIG. 37

Index No.	Description.	Index No.	Description.
1	Rim.	15	Distance piece, R.H. outer.
2	Spoke, L.H. (short).	16	Plate, brake anchor.
3	Spoke, R.H. (long).	17	Cam, brake operating.
4	Nipple, spoke.	18	Lever, brake operating.
5	Hub and brake drum.	19	Nut.
6	Sprocket (54 teeth).	20	Washer.
7	Bolt, sprocket fixing.	21	Shoe, rear brake c/w lining.
8	Washer, spring.	22	Lining, brake.
9	Spindle.	23	Rivet, brake lining.
10	Nut, spindle.	24	Spring, shoe return.
11	Bearing.	25	Adjuster, chain.
12	Ring, bearing backing.	26	Cap, chain adjuster.
13	Ring nut, L.H. bearing.	27	Nut.
14	Distance piece, R.H. inner.	28	Gearbox, speedometer drive.

Evolution/Overview of our work

Measuring the offset (distance between the wheels true centerline and the hub) to ensure we ordered the correct rims for the restored bike

took photos of the wheels prior to taking them apart and labeled them to ensure that we understood the patter of the spokes and would be able to replicate it when we put together the

Then began the process of taking apart the wheels:

- we sawed off the rubber tire
- then we started the process by unscrewing the nipples, and then eventually ended up cutting the spokes when that became too difficult

While we waited for the new wheels to come in, we worked on the hubs — sandblasted them, cleaned them, painted them

Step 1: Ordering New Rims

- How we measured offset:
  - Find backspace: Measured from hub mounting face to the inner rim lip
- Ordering improper rims:
  - Means installing wheels that do not match the original hub, offset, diameter, or width specifications for your specific make and model.
  - Possibility of resulting in dangerous handling, structural failure, and inability to properly mount tires or brake systems.
- What we ordered:
  - Rims we ordered: M2 and M3
- Website we used: Central Wheel Components Ltd

Step 2: Labeling and Disassembling

Labeling we did → Shown in video

- We labeled the spokes before disassembling because it would help us greatly in understanding where to place the new spokes when we got the new rims for the new tires. (Foreshadow: they helped a lot when rebuilding!)
- Take off the tire (let out some of the air from the tire) and then use tire irons to pry the tire off the rim
- Loosen and remove the spokes, use a spoke wrench, loosen each spoke nipple evenly all around (which is where the spoke meets the rim), then pull the spokes out!
- Then, the wheel comes apart into 3 parts, the rim (outer circle), the hub (center piece), and the spokes (the thin metal rods)
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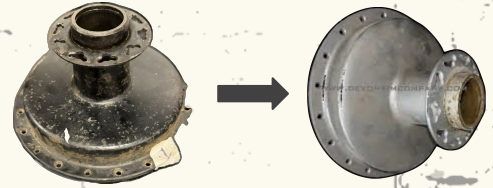
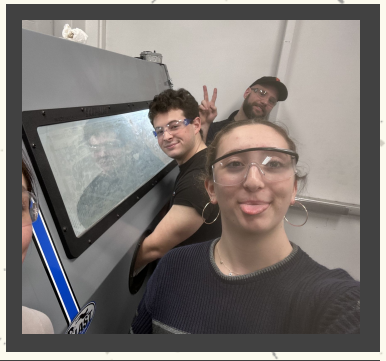
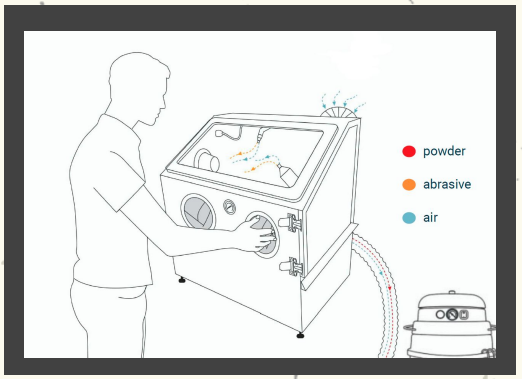
Step 3: Sandblasting and Painting

- Parts we sandblasted: front tire hub and rear tire hub





- Needed to be careful not to sandblast threading → used cover and washers
- Removed paint with sandblaster, and some rust to prime for painting



Step 4: Reassembling

Packing the Bearing:

Wheel Physics: Spoke Arrangement and Load

Materials:

- Strong
- Efficient
- Workable
- Resistant to Corrosion
- Cost-effective
- Available

We have a 40-spoke wheel design → 10 groups of 4 spokes

Forces:

Dead Load: wheel and the motorcycle

Live Load: rider, passenger, gas/oil, luggage, etc.

Static Load: Wheel at rest
- Gravity

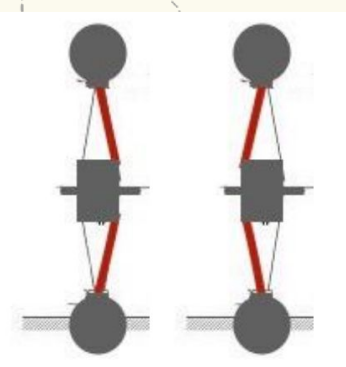
Dynamic Load: Wheel in motion
- Applying motor power
- Applying brakes
- Turning
- Impact

Wheel Physics: Spoke Arrangement and Load

Top 20 spokes: Gravity

Backward leaning 20: Acceleration

Forward leaning 20: Deceleration



Right/Left 20: Turning

Step 5: Truing

1. Lateral Trueness (side-to-side)
2. Radial Trueness (up-and-down)
3. Centering the Hub
4. Spoke Tension

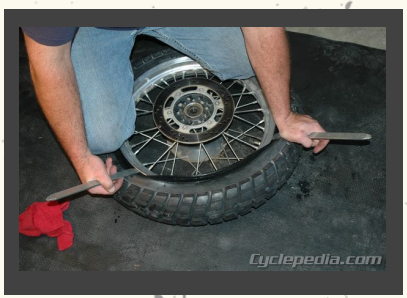
Use a truing stand

- Prevents uneven braking
- Protects spokes
- Gets rid of “wobbliness”

Step 6: Tire to Wheel Assembly

- Covered spoke nipples with rim strip/electrical tape to protect inner tube
- Pre-inflated inner tube halfway before fitting over rim
- Fit tire over rim and inner tube using tire irons
    - Needed to be careful not to crimp inner tube
    - Used multiple tire irons

wheel



Tire irons


Thank You