

This is known as "high-temperature sludge." Coaster brake damage can be prevented by allowing the bicycle to cool off for a while, and by putting several drops of No. 20 oil into the brake through the hole in the hub.

IMPORTANT:

1. *Poor brakes* cannot be repaired by tightening. When they do not work properly, parts are worn and must be replaced.

2. *Locked brakes.* Sometimes the wheel freezes and will not turn forward or backward. This is referred to as "locked brakes." This condition is caused by loose rear axle nuts which have allowed the adjusting cone to turn inside the brake and lock the parts. To correct this condition, loosen the adjusting cone and tighten the rear axle nuts.

THE MORROW COASTER BRAKE

(Figs. 51 - 52)

Driving (Pedaling Forward)

The rear wheel is driven forward by the combined action of:

- | | | |
|----------------------|-----|--|
| 103B sprocket | } { | These two parts are called
the sprocket-driver. |
| 107B driving screw | | |
| 110B clutch rings | | |
| 111B sleeve expander | | |

When the sprocket-driver turns, the two clutch rings "A" are expanded by two wedges "B" (only

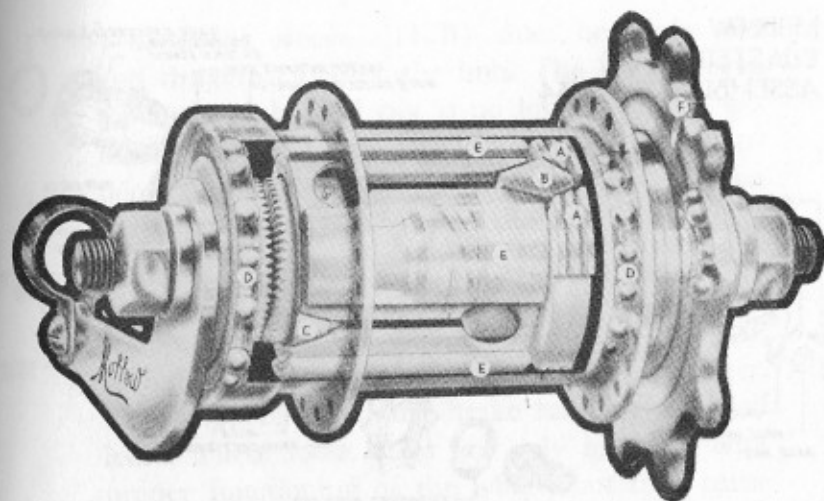


Fig. 51. X-ray view of Morrow coaster brake.

one showing), forcing the clutch rings against the sides and end of the hub shell. If these parts are in good condition, forward motion will be immediate and positive.

DRIVING TROUBLES:

1. *Slipping.* This means that the sprocket-driver is not pulling steadily. The feet slip when the pedals aren't engaged. There is a slip, some pull, then another slip, etc. This is caused by one of the following, usually the first:

- a. Worn clutch rings (110B). If they have been worn smooth, they cannot grip the hub to drive the wheel forward.

against the hub. Often the brake shoes are still good (the grooved sides), but the expander slot is worn and spread. This cannot be repaired and means that the brake sleeve must be replaced.

Braking (Pedal Is Pushed Backward)

The rear wheel is stopped by the combined action of:

103B-107B	sprocket-driver
111B	sleeve expander
112B	brake sleeve
113B	sleeve expander with teeth
114B	brake side cone

When you push back on the pedals to apply the brakes: the four wedges "B" and "C" (two on each end) are automatically forced into the expanding steel sleeve, bringing the four brass brake shoes "E" into contact with the inner surfaces of the hub shell. The wheel should stop at once.

BRAKING TROUBLES:

1. See notes on "general coaster brake troubles," on page 79.
2. Poor brakes are caused by:
 - a. Worn out, cracked, or broken brake sleeve (112B). It cannot be repaired or adjusted. The brake sleeve must be replaced.
 - b. Replacement should be done immediately, as 113B and 114B get excessive wear when 112B is worn out.

To Take Apart the Morrow Coaster Brake

Always begin this job at the sprocket end. Then straddle the wheel and screw out the adjusting cone, taking it completely off the axle. Always lay parts in a clean place, where you will be able to find them immediately when needed later.

To prevent the rest of the brake from turning, tighten the lock nut securely on the brake arm side. This locks the brake arm assembly onto the axle, making it easier to unscrew the adjusting cone. A vise with copper-covered jaws will make this job easier. However, two pieces of lead placed against the jaws can be substituted for the copper covering. If no vise is available, cover the axle with a cloth to protect the threads, and hold it firmly with pliers.

To Assemble the Morrow Coaster Brake

Grease the parts lightly with No. 3 cup grease. Driving screw (107B) should be oiled with No. 20 oil but not greased.

CONE AND AXLE ASSEMBLY (Figs. 53, 54):

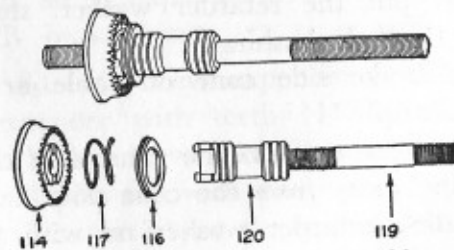


Fig. 53. Axle and cone assembly.

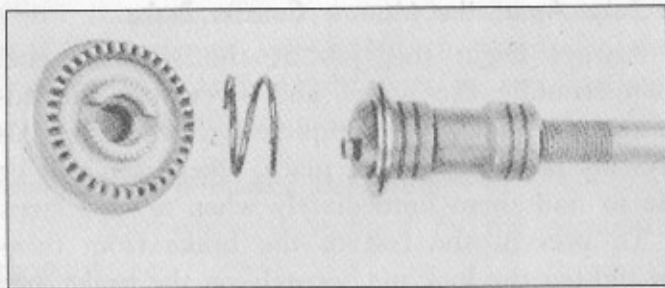


Fig. 54. Cone and axle assembly.

114B brake side cone	119B axle
117B spring	118B dust cap
116B retarder washer	123B brake arm
120B axle bushing	132B lock nut

Start with a new axle. This makes it easier. Note that the brake side cone (114B) has two slots. Next note that the axle bushing has two extensions. These extensions *must* fit into the slots. In this way they hold the brake side cone stationary. *This is important.*

1. Begin by screwing the axle bushing onto the axle until the extensions on the axle bushing are flush with the end of the axle.

2. Next put the retarder washer, small end first, onto the axle bushing.

3. Lay brake side cone on table or bench, toothed side up.

4. Lay the spring on the cone with the ends of the spring *away from* the cone slots.

5. Holding retarder washer on with the fingers, press down against the spring. Insert the

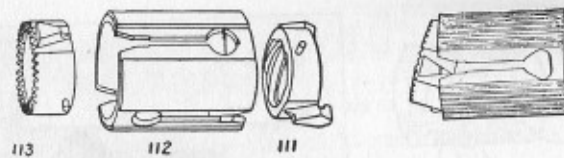


Fig. 55

Fig. 56

Fig. 55. Brake sleeve assembly. Fig. 56. Entering the toothed sleeve expander.

bushing extensions into the cone slots and screw in the axle. Once started, the axle should screw in easily. Never force it on. Screw in the axle until it extends an inch beyond the brake side cone.

6. Now install dust cap and brake arm and tighten with lock nut.

7. Set aside this assembly temporarily.

DRIVING SCREW ASSEMBLY:

107B driving screw	105B sprocket dust cap
103B sprocket	104B sprocket lock nut

These parts are seldom, if ever, taken apart.

BRAKE SLEEVE ASSEMBLY:

111B sleeve expander	113B sleeve expander with teeth
112B brake sleeve	

The old type sleeve expander (111B) and the sleeve expander with teeth (113B) are held inside the brake sleeve (112B) with pins. To remove, pull pins out with pliers and the parts will slip out. The new type sleeve expanders have no pins. Instead, they have small projections on the

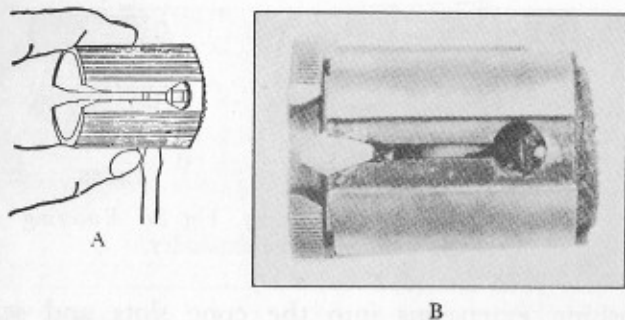


Fig. 57. A. Nut and sleeve expander in position.
B. Assembled brake sleeve assembly.

sides of each part. These hook under the edge of the holes in the brake sleeve. They can be inserted into the brake sleeve by a smart slap with the palm of the hand (Figs. 56 and 57A). To remove, use a screw driver to expand the brake sleeve.

Putting Together the Morrow Coaster Brake:

1. Slip the clutch retaining ring (110½B) under the projections on the sleeve expander (111B).
 2. Install clutch rings (110B) onto retaining ring (Fig. 57B).
 3. Holding clutch rings in place, carefully slip brake sleeve assembly into the hub (the larger end).
 4. Install No. 68 bearing (115B), *ball side facing inward*.
 5. Install cone and axle assembly (Fig. 59).
- Now turn the wheel over (Fig. 60).

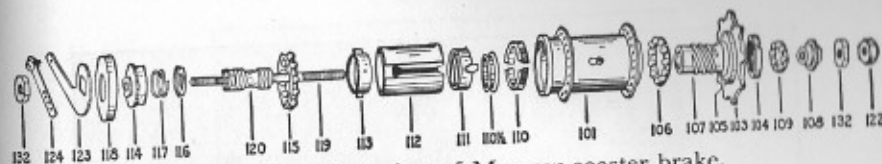


Fig. 58. Exploded view of Morrow coaster brake.

MORROW PARTS

- | | |
|----------------------------------|---|
| 108B Adjusting Cone | 124B Arm Clip Clamp |
| 109B Ball Retainer for Axle Cone | 127B Lost Motion Washer |
| 110B Clutch Rings, Per Pr. | 128B Pin to Fasten Parts into 112B —
(Per 100 .12) |
| 110½ Clutch Retaining Ring | 129B Sprocket Remover Tool |
| 111B Nut & Sleeve Expander | 130B Oil Hole, Cover & Screw
(New Type) |
| 112B Brake Sleeve | 132B Cone & Arm Lock Nut |
| 113B Sleeve Expander | 133B Cone & Axle Assembly |
| 114B Cone, Arm Side | 134B Brake Sleeve Assembly |
| 115B Ball Retainer, Arm Side | 101B Hub Shell |
| 116B Retarder Washer | 102B Oil Hole Cover & Screw |
| 117B Spring | 103B Sprocket |
| 118B Dust Cap, Arm Side | 104B Sprocket Lock |
| 119B Axle Cap | 105B Sprocket Dust Cap |
| 120B Axle Bushing | 106B Ball Retainer Sprocket (Side) |
| 122B Axle Nut | 107B Printing Screw |
| 122½B Axle Washer | |
| 123B Brake Arm | |

1. Install No. 55 bearing (106B), flat side out.
2. Screw in driving screw assembly.
3. Install No. 23 bearing (109B), flat side out.
4. Screw on adjusting cone (108B) (Fig. 61).
5. Screw on lock nut (132B).

CAUTION: Always use a lock nut. Without it the brake gets loose and doesn't work properly. This may also cause damage to the inside parts. To tighten lock nut, hold the adjusting cone firm-

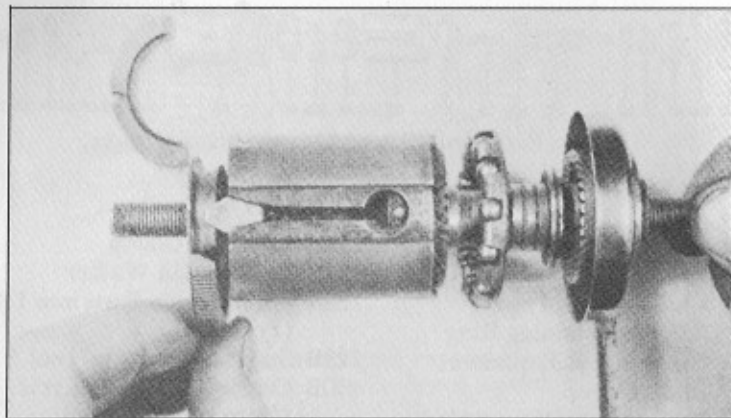


Fig. 59. Assembling the Morrow.

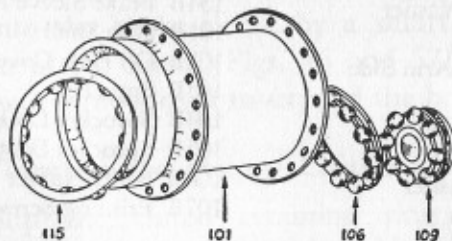


Fig. 60. Installing the bearings.

ly with a wrench and tighten the lock nut with another wrench.

If the wheel coasts lazily, or if there are rumbling noises, the wheel is too tight. Loosen the adjusting cone.

If the wheel is loose when you shake the axle, tighten the adjusting cone. Keep adjusting until the wheel is firm and spins freely.

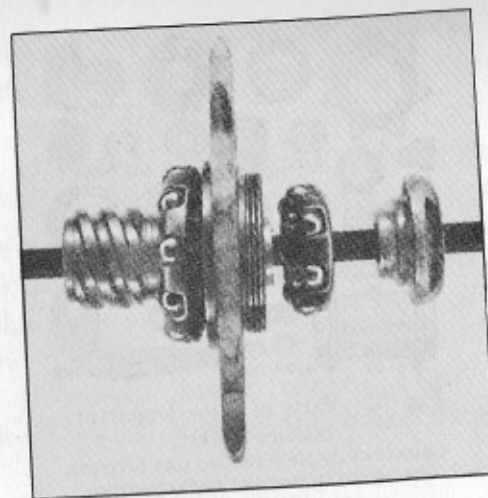


Fig. 61. Installing driving screw assembly.

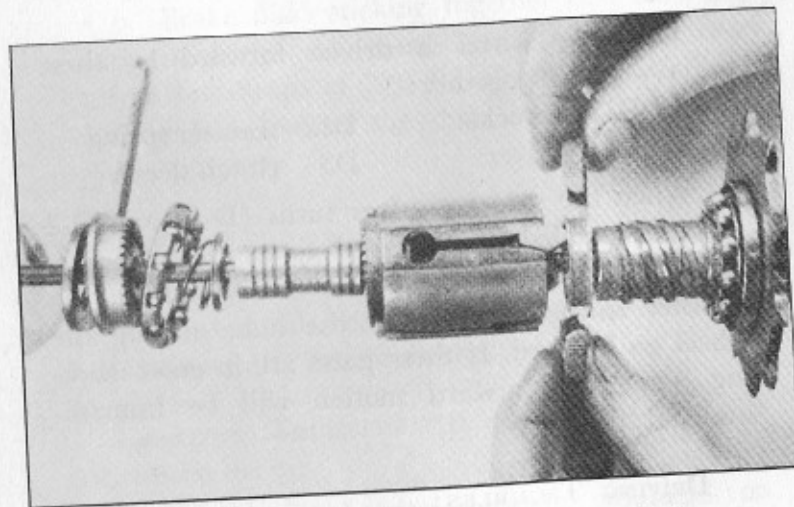


Fig. 62. Assembled parts for Morrow coaster brake.