Neighborhood Bike Works

Earn-A-Bike Activity Book

Name_____

Dates_____

3916 Locust Walk, Philadelphia, PA 19104 • 215-386-0316
•www.neighborhoodbikeworks.org info@neighborhoodbikeworks.org

Neighborhood Bike Works Shop Rules v.2.0

1 Respect is the word

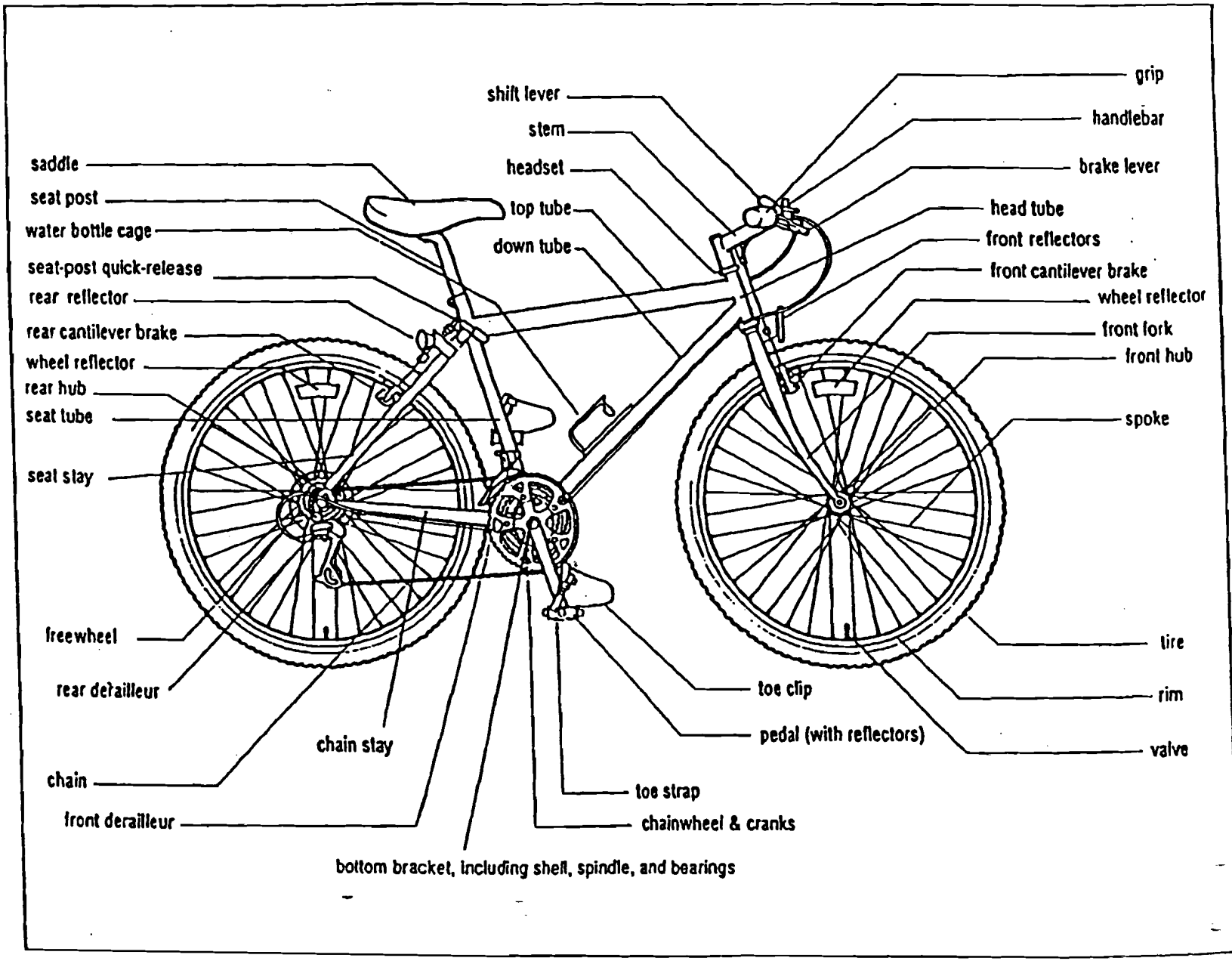
2 Act Safely

3 Organize to achieve

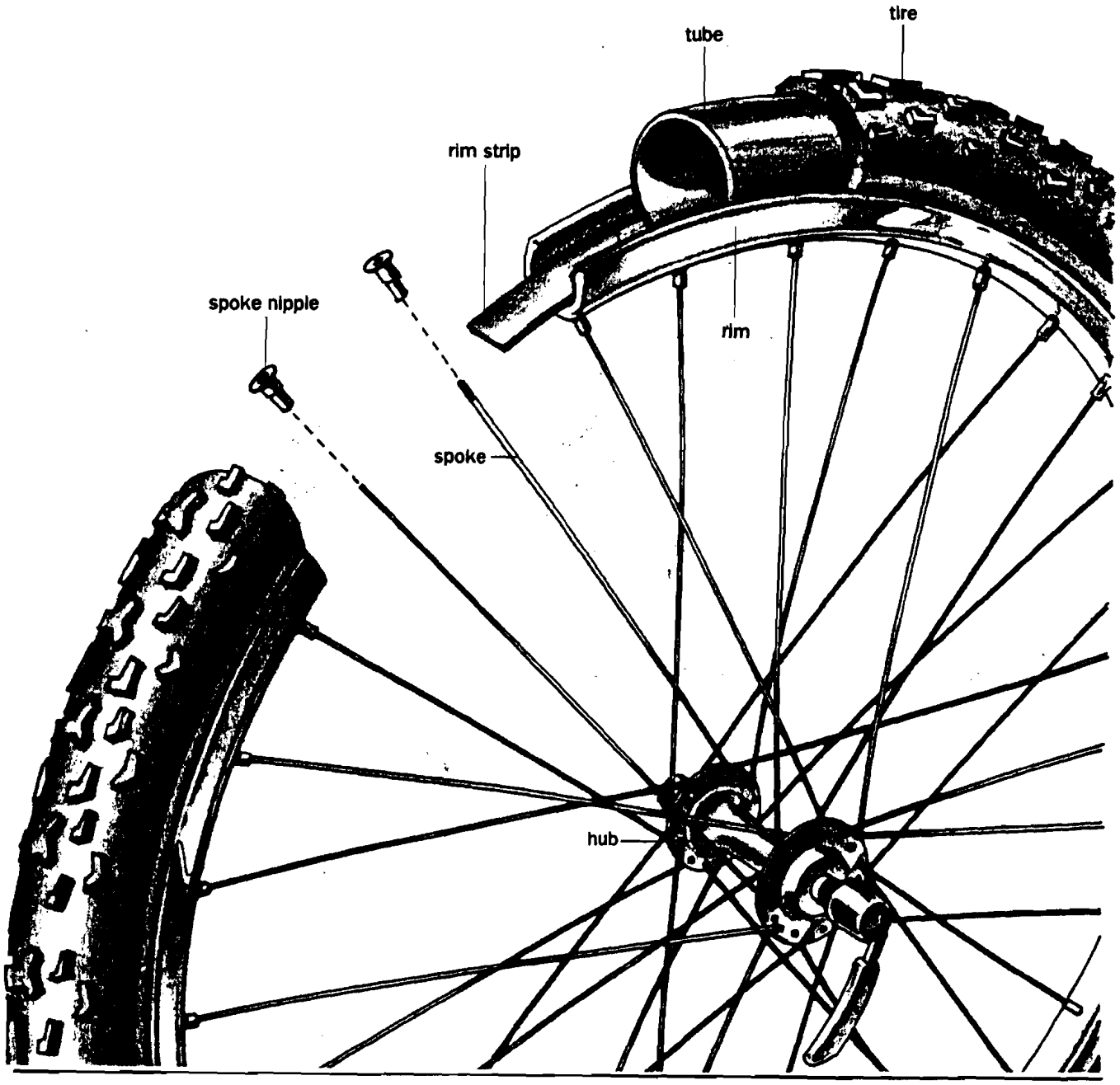
4 Teamwork will get you there

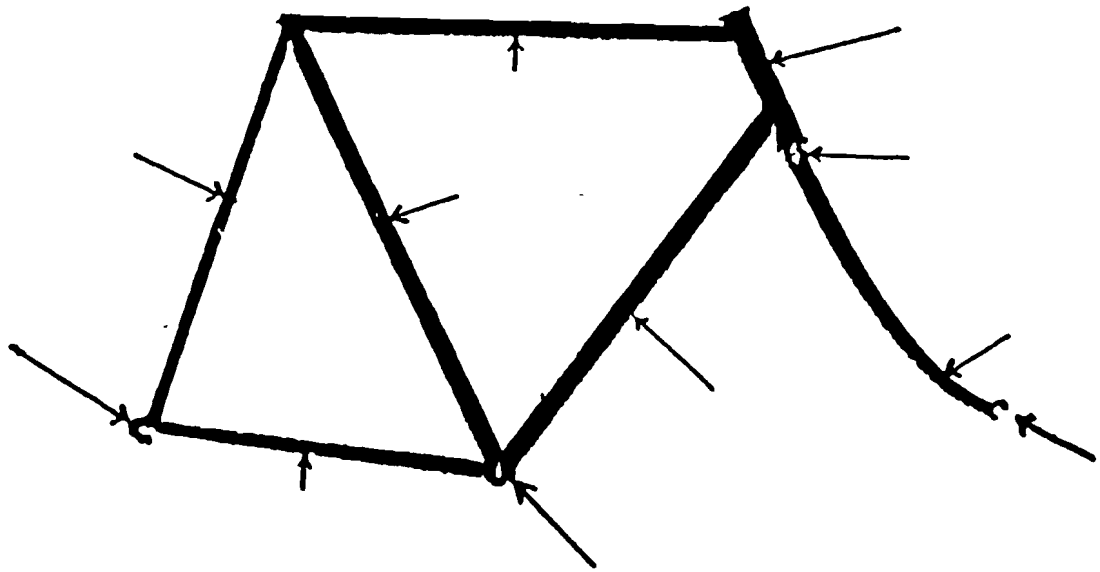
5 Waste not, want not.

FIG. 1-2: Anatomy of a mountain bicycle.



WHEELS AND TIRES





THE FRAME

Name_____ Date___/_____/_____

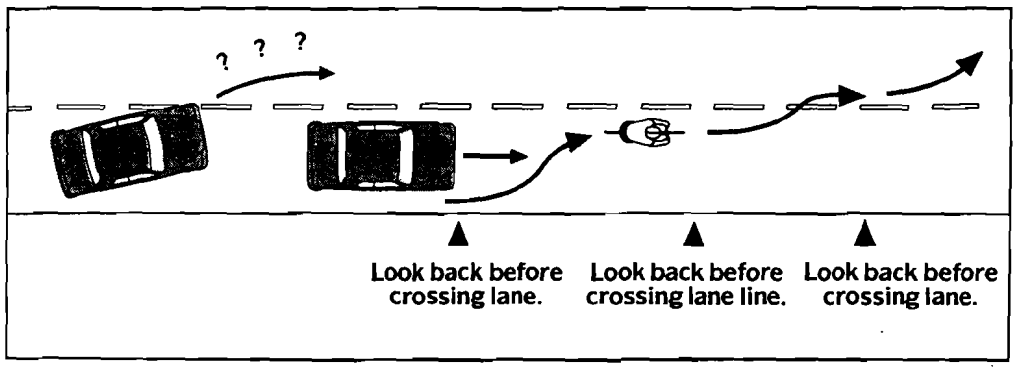
WHAT DO YOU KNOW ABOUT BICYCLING?

		TRUE	FALSE
1	I should ride my bike facing traffic so that I can see what's coming		
2	All Bike riders must stop at stop signs and red lights like car drivers do.		
3	I have to stop my bike when I hear a siren from and ambulance police car or fire truck.		
4	I don't need lights on my bike because I already have reflectors		
5	Bicycle riders can safely carry packages in one hand because they can steer with the other.		
6	Bicycle riders must give hand signals before making turns		
7	On my bike I only have to look for cars straight ahead when crossing a road or riding out of a driveway.		
8	It is OK for two people to ride on a bike if one sits on the seat and the other sits on the handlbars.		
9.	I don't need to wear a bike helmet because I don't ride my bike around cars		
10.	It is OK to ride a bike that is too big for me because I can grow into it next year.		

YOU HAVE A RIGHT TO THE ROAD!

Lane Positioning-

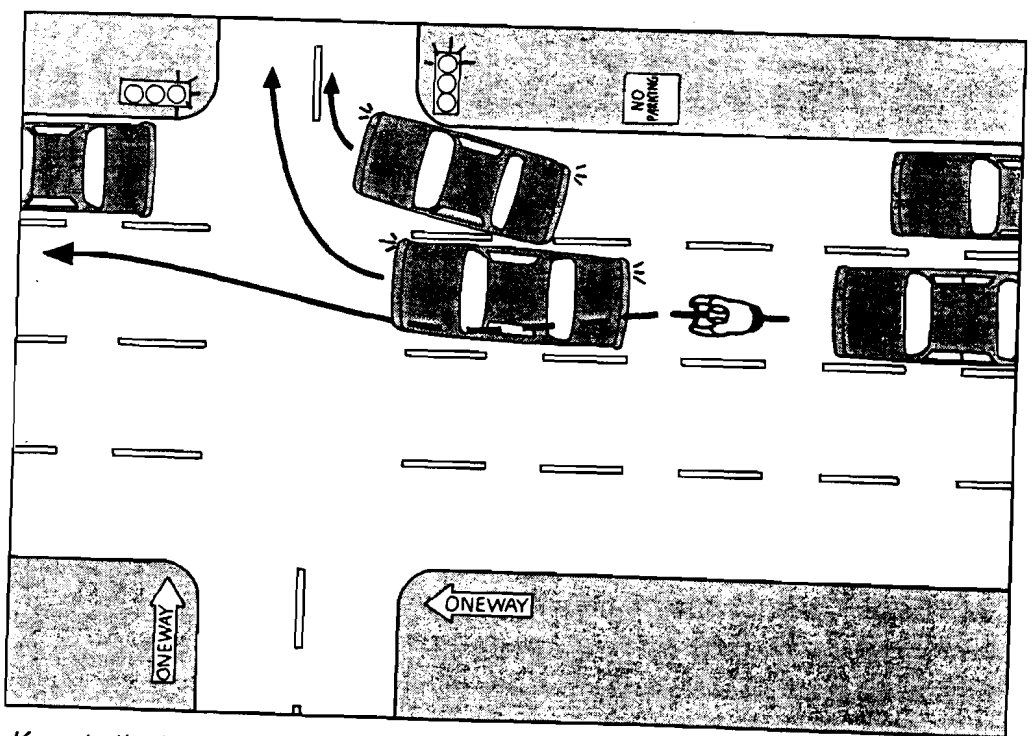
Almost always ride on the right side of the lane, far enough away from opening car doors of parked cars, and far enough away from passing cars. When you are turning left or traveling the speed of traffic, or the lane is too narrow for cars and cyclists-Take the lane. Ride in the center of the lane and take up your rightful space. If you are making a left turn or taking the lane follow the diagram below-



Cross a lane in two steps; one to cross the lane line and the next to cross to the other side of the lane.

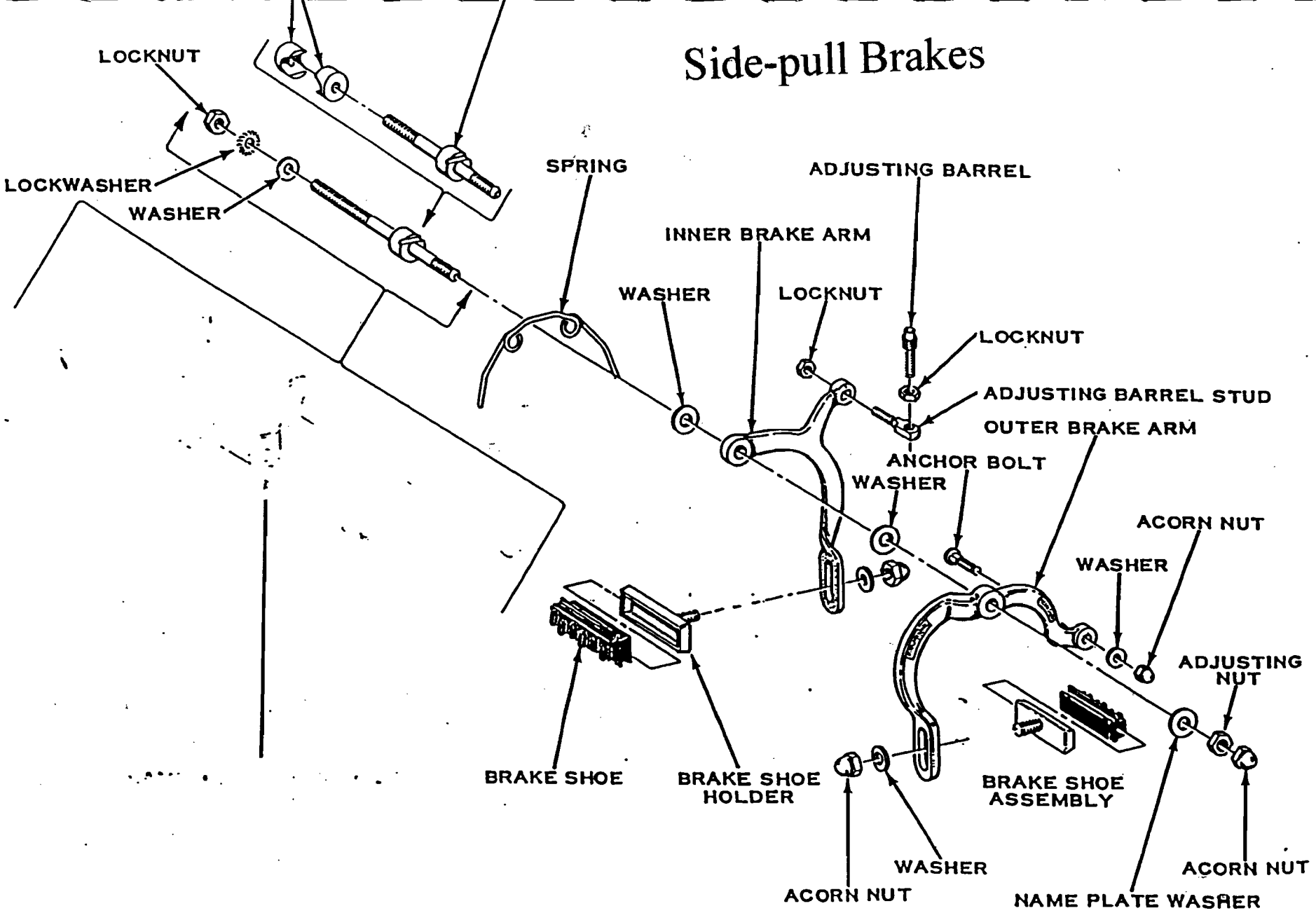
Always ride straight, look behind you, signal, and make your move.

Don't pass on the right unless you are sure it's safe. Watch out for right turning cars that could cut you off. Try and always pass on the left.



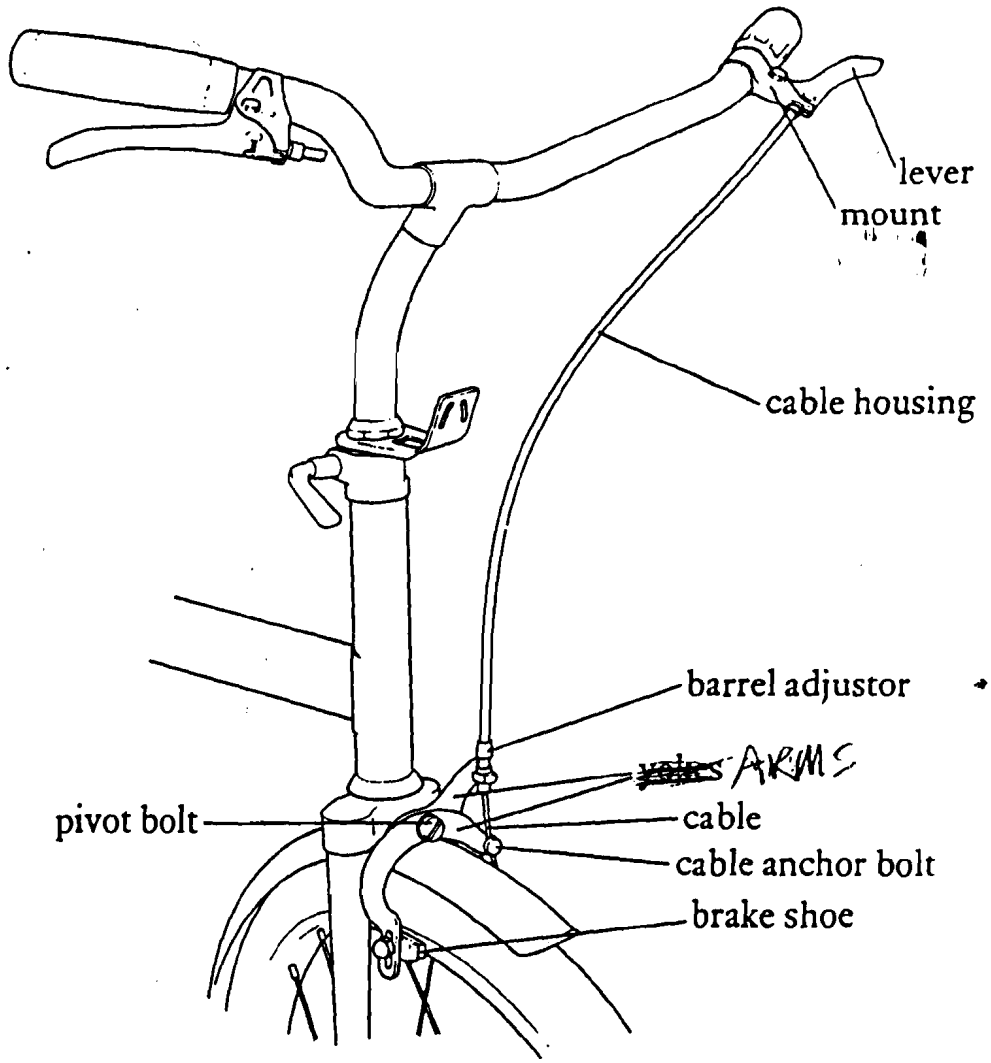
Keep to the left of right-turning traffic when going straight through an intersection. Do not go to the right of traffic unless you are turning right.

Side-pull Brakes



Exploded view of a Schwinn-Approved, Weinmann, and Altenburger side-pull caliper brake assembly.

Side-Pull



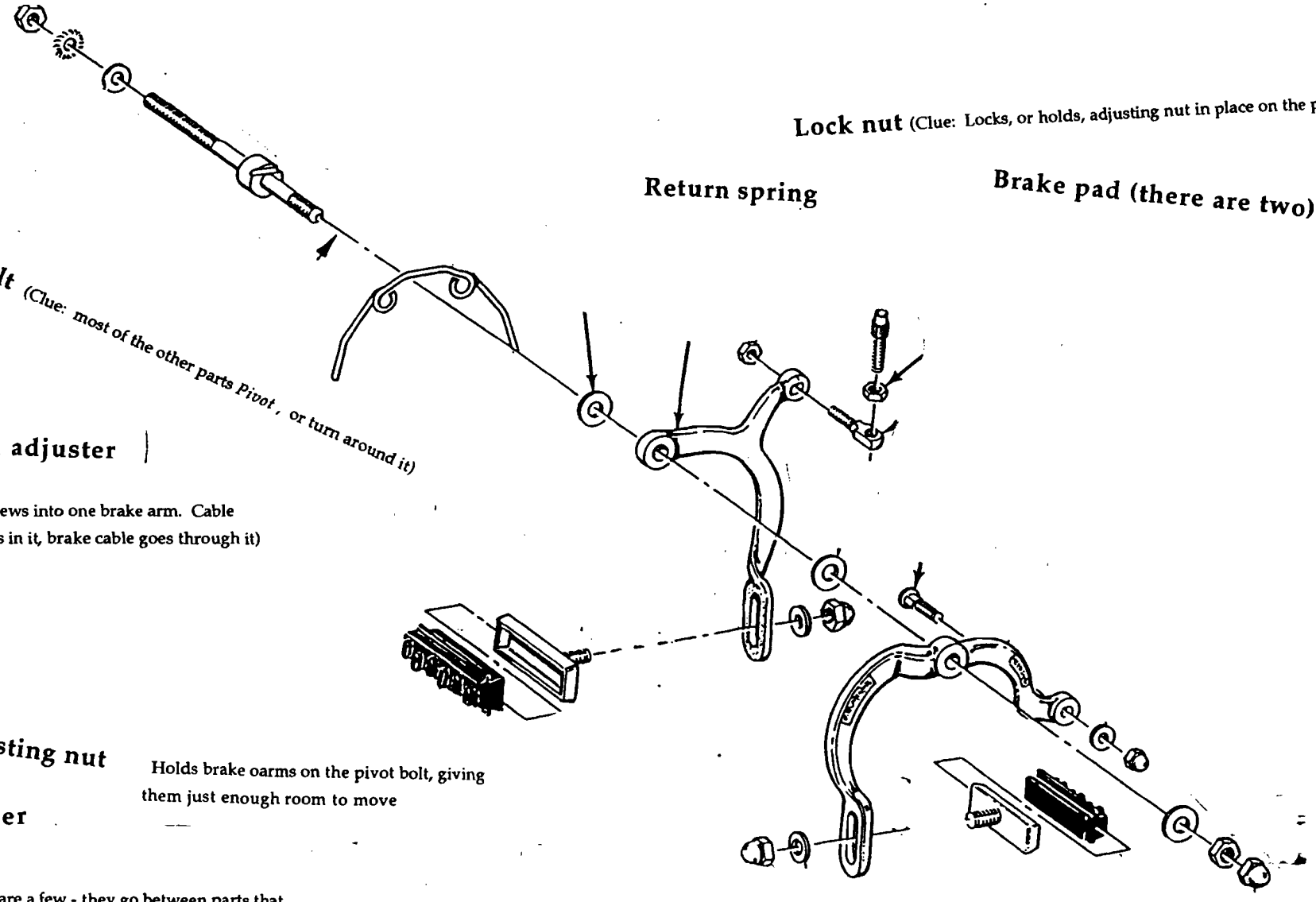
Lubrication

Try to avoid the use of oil. At the brake levers it works out over everything and gets your hands dirty every time you ride. At the brake mechanism it dribbles down to the brake shoes, cutting braking power. A better product is a spray such as WD-40 or LPSW-1, dry film lubricants which displace water and do not attract dirt. Use the little plastic nozzle which comes with the can for pin-point accuracy, and spray pivot bolts, all exposed cable (use a piece of paper or cardboard as a backstop to prevent the spray from going all over the bike), yoke cable anchor points, brake lever pivots, and inside the cable housings. Machines used once or twice a week need lubrication every two months, those in daily use, monthly. More often on tours.

Sidepull Brake Quiz

Your Name:_____ Date ___/___/___

Brake arm (there are two) (Clue: the main part of the brake)



Lock nut (Clue: Locks, or holds, adjusting nut in place on the pivot bolt)

Return spring

Brake pad (there are two)

Pivot bolt (Clue: most of the other parts *Pivot*, or turn around it)

Barrel adjuster

(Clue: it screws into one brake arm. Cable housing sits in it, brake cable goes through it)

Adjusting nut

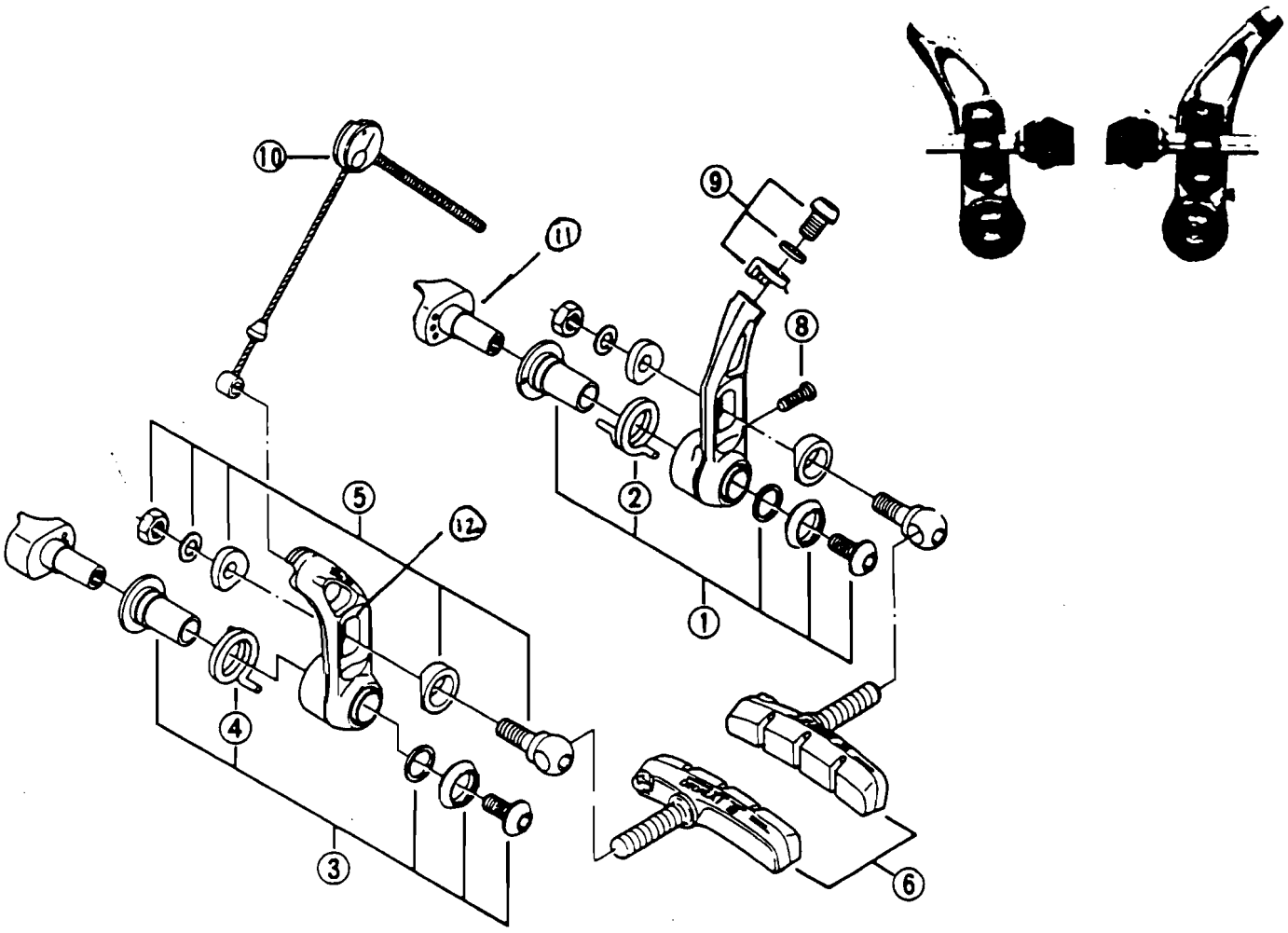
Holds brake oarms on the pivot bolt, giving them just enough room to move

Washer

Clue: There are a few - they go between parts that re bolted together and help them move easily)

Anchor Bolt (Clue: it holds the brake cable to one of the brake arms)

CANTILEVER BRAKES



LABEL THE FOLLOWING

2.

6.

9.

10.

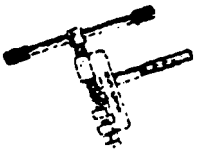
11.

12.

Tool Quiz

Write the number of the name of the tool next to the picture

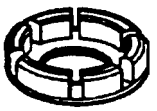
1. Cone wrench



2. Adjustable wrench

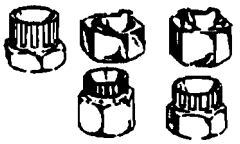
3. Cable cutter

4. Chain link tool



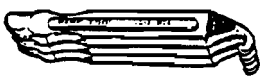
5. Y-Wrench

6. Tire levers



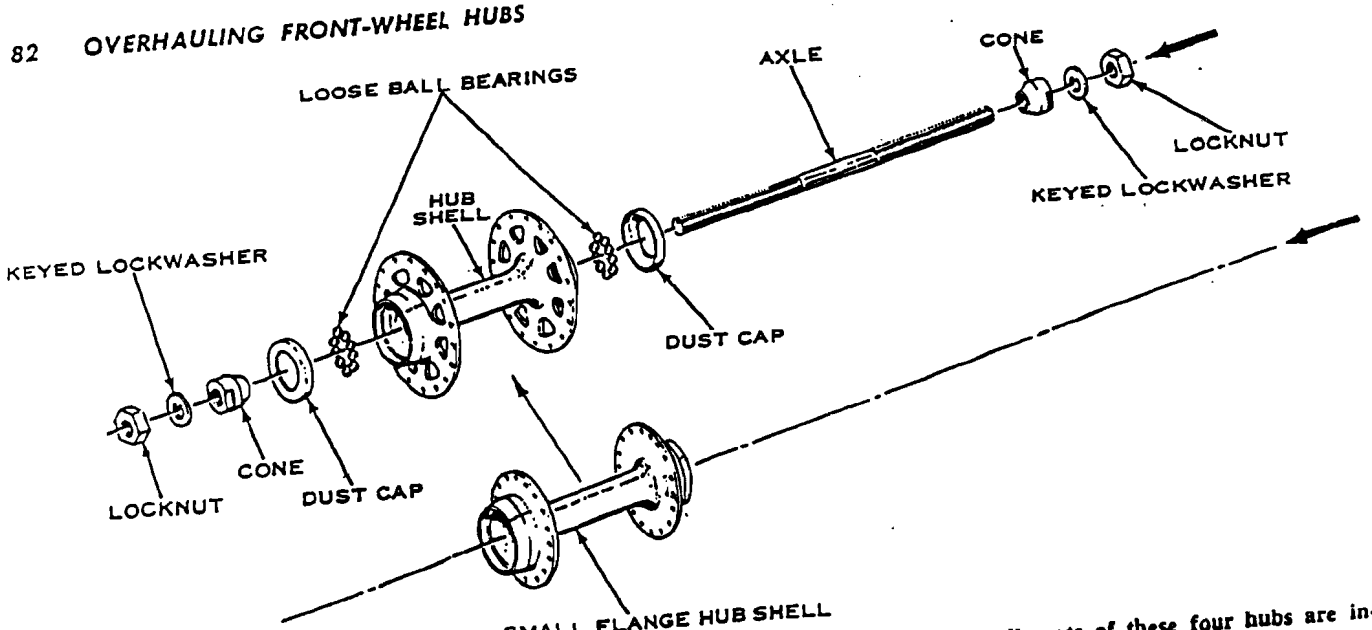
7. Crank extractor

8. Allen keys

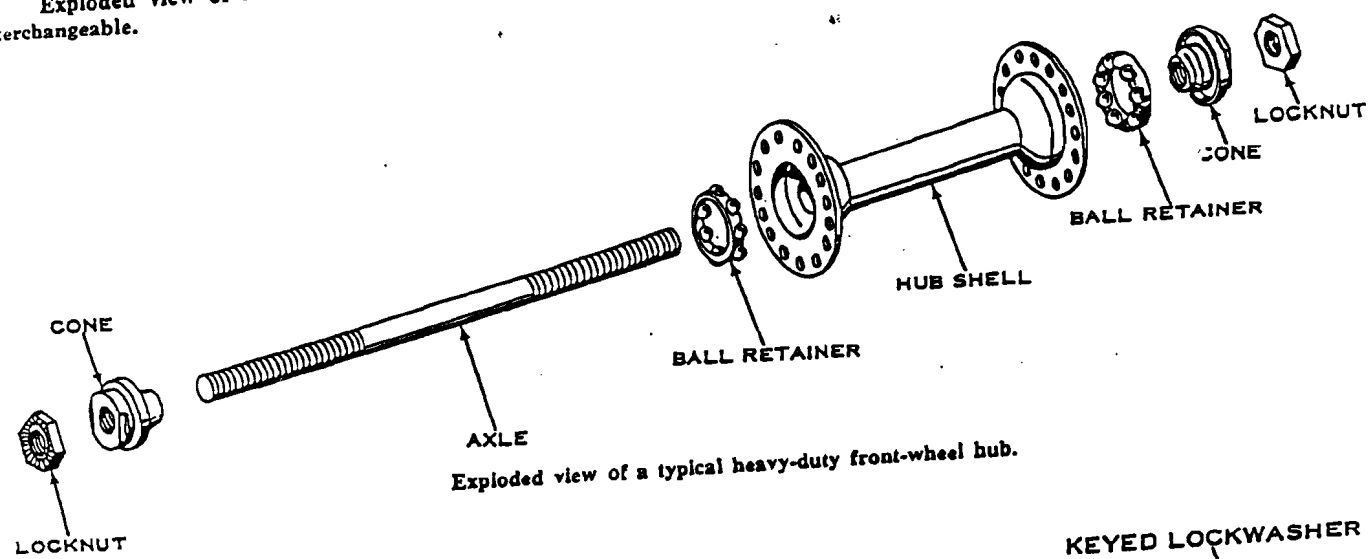


9. Freewheel removers

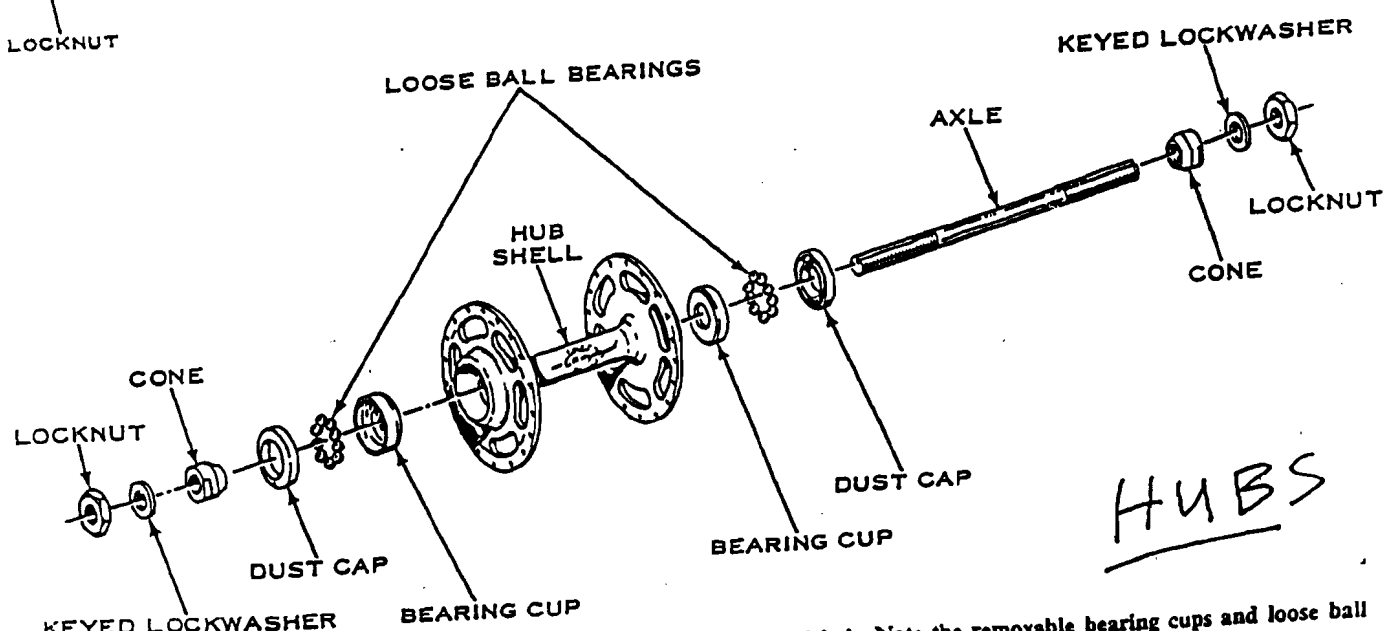
10. Spoke wrench



Exploded view of a Schwinn-Approved, Sprint, Normandy, and Atom front-wheel hub. All parts of these four hubs are interchangeable.



Exploded view of a typical heavy-duty front-wheel hub.

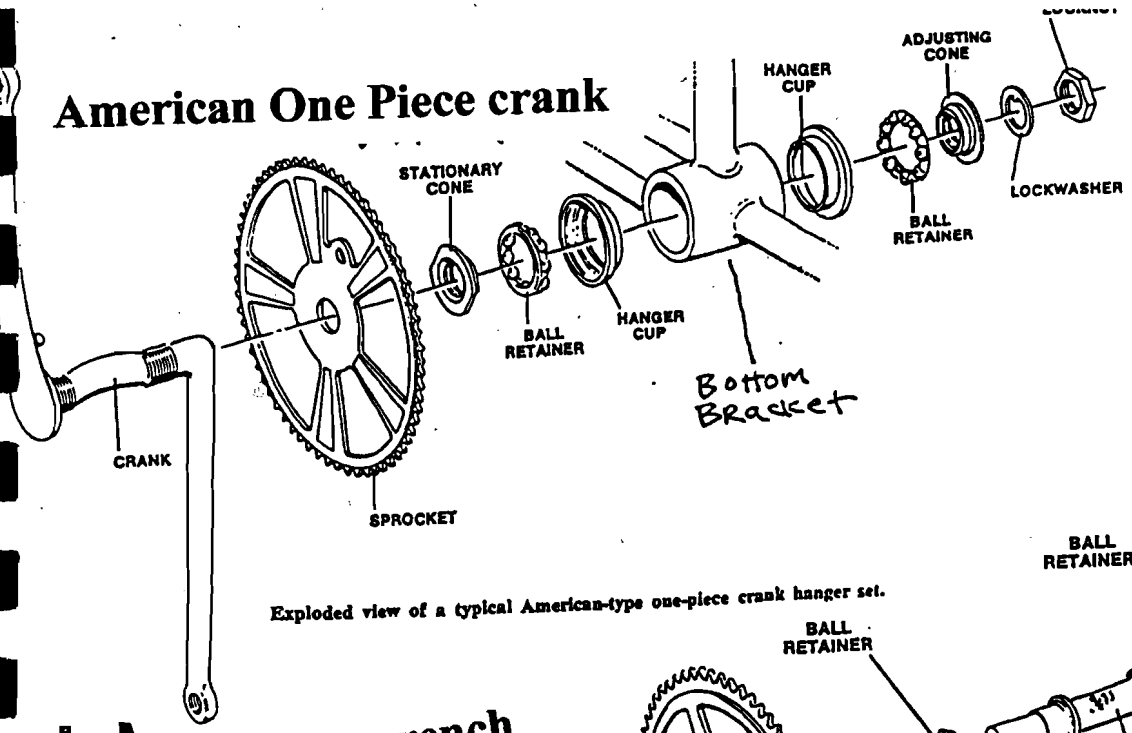


HUBS

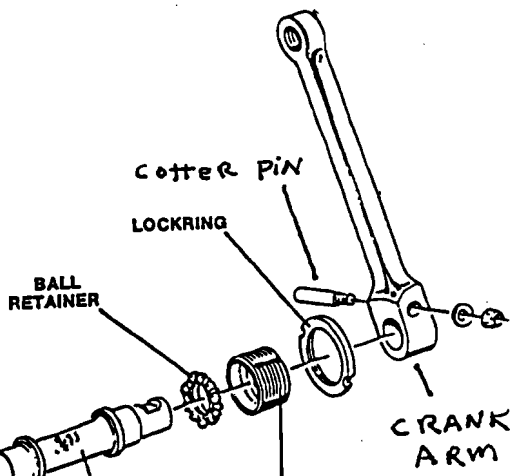
Exploded view of a Campagnolo Track, lightweight, precision front-wheel hub. Note the removable bearing cups and loose ball bearings.

3 Types of Bottom Brackets

American One Piece crank

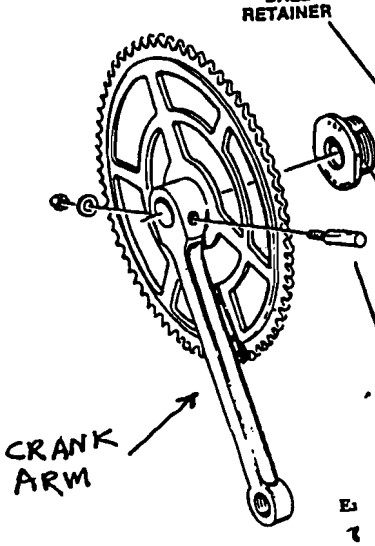


Exploded view of a typical American-type one-piece crank hanger set.



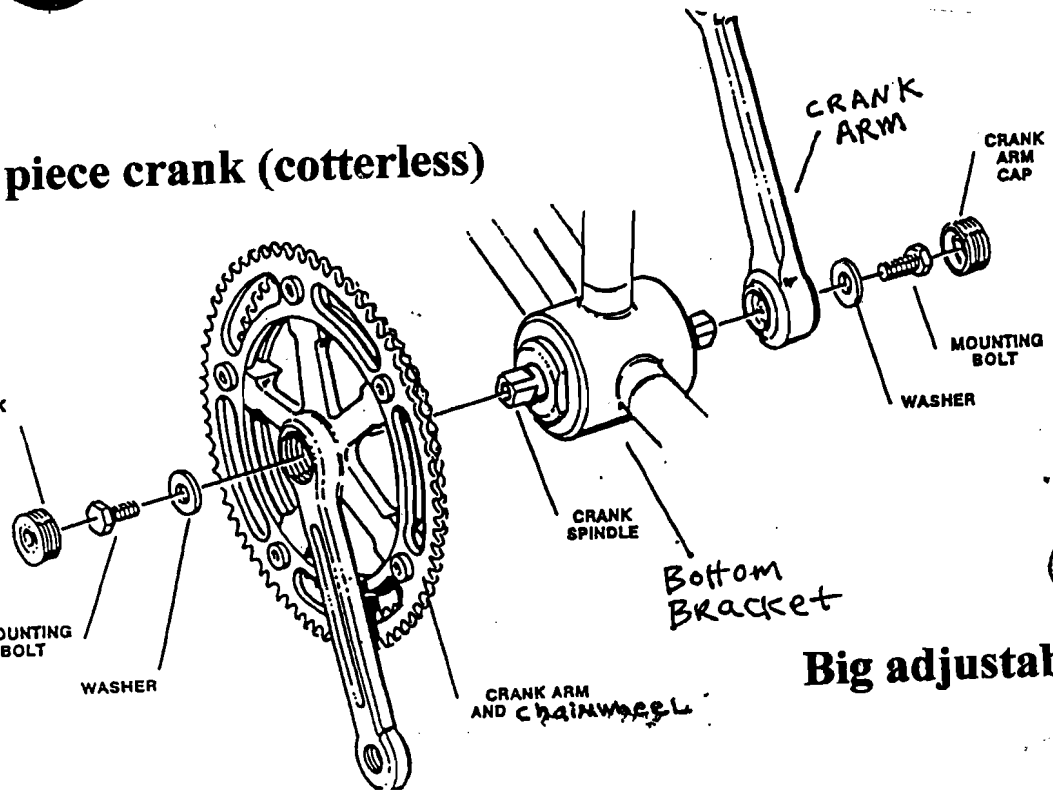
spanner wrench

(2)

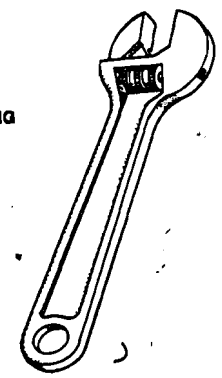


Cottered crank

piece crank (cotterless)



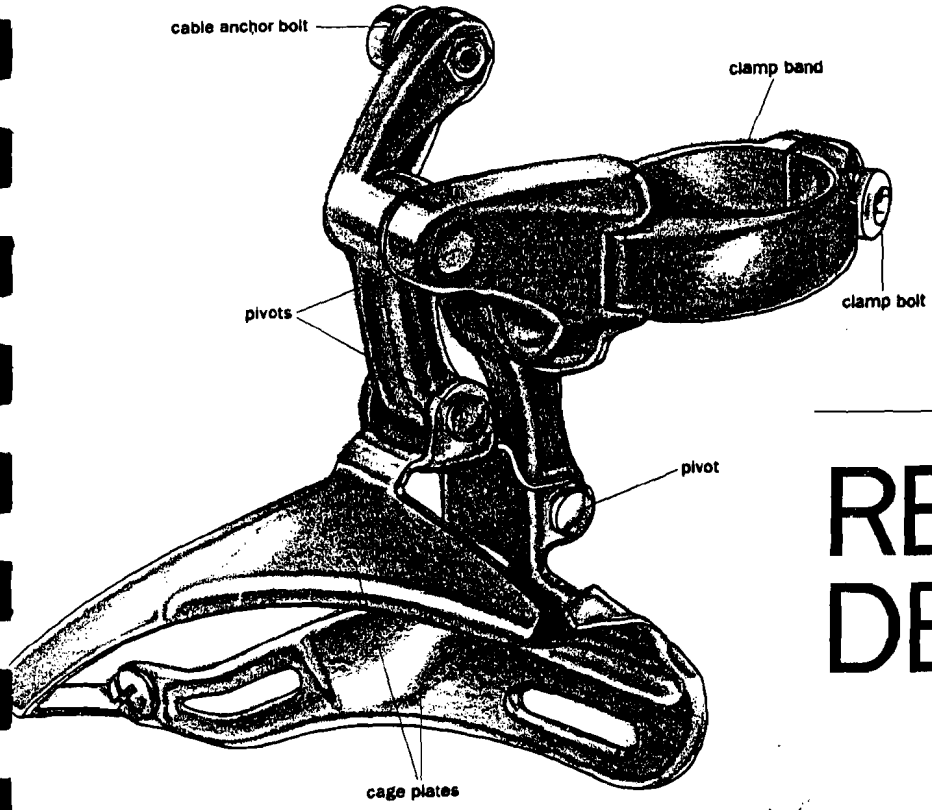
Crank puller



Big adjustable wrench

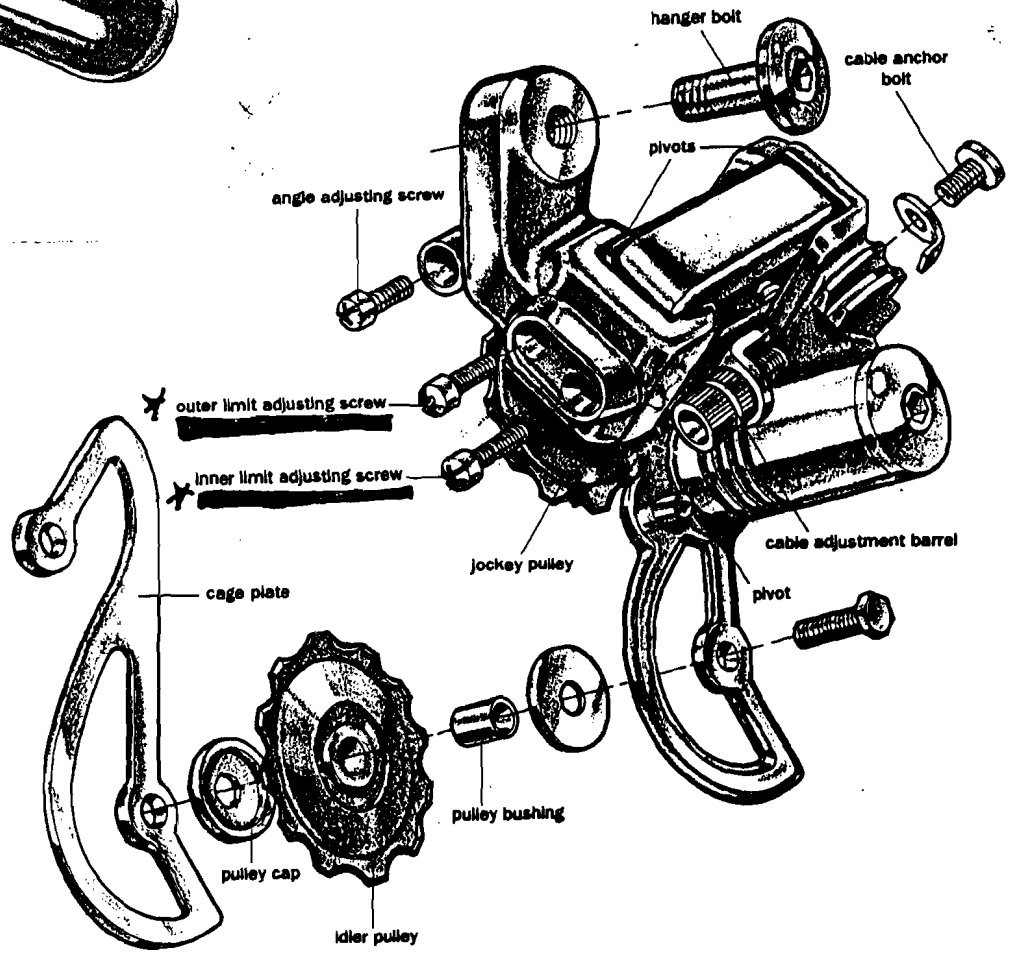
Use the right kind of tool for each different type of bottom bracket.

FRONT DERAILLEURS



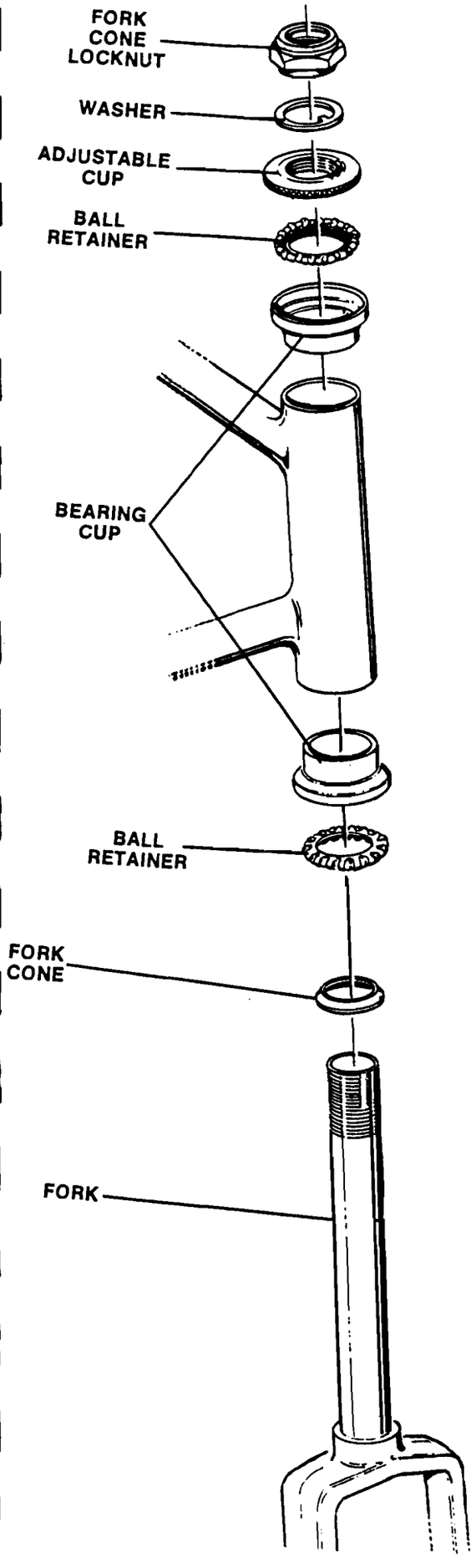
***Limit adjusting screws** allow you to correct the movement of the derailleur. These screws limit the range of motion in your derailleur from side to side

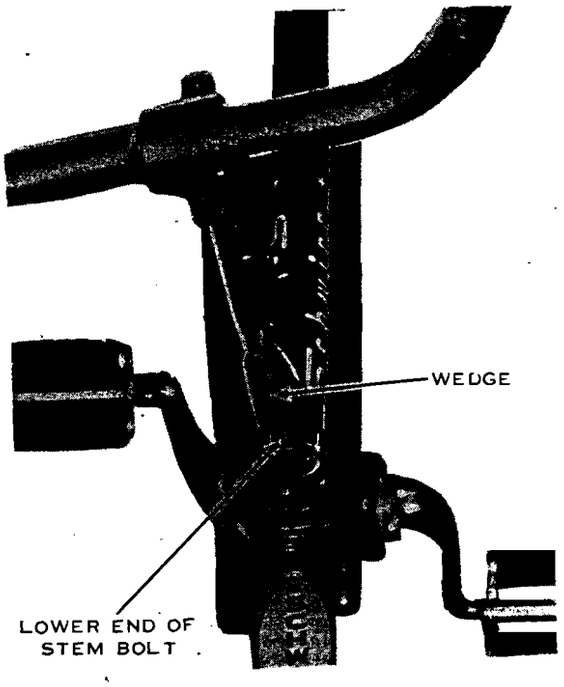
REAR DERAILLEURS



If your chain keeps popping off of your freewheel, you simply take a phillips head screw driver and tighten your **Limit adjusting screws (or limit screws.)**

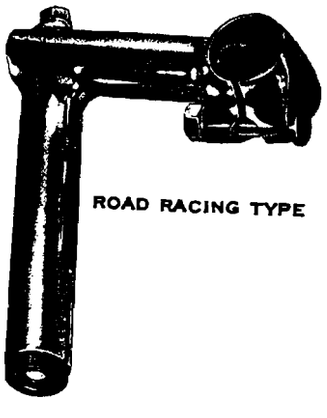
Headset parts





When loosening the stem bolt-

DON'T lose the wedge in the head tube!



10. HEADSETS

Headset Parts

1. Look at the diagram.
2. Be sure you can name and identify the parts.

Headset Overhaul

1. Remove the front wheel (and loosen the front brake cable,if necessary).
2. Unscrew the handlebar stem bolt, lift out the entire handlebar assembly and place it aside.
3. Use 30/32 headset wrench to unscrew the locknut. Lift out the washers and spacers.
4. While holding the fork from moving, unscrew the race.
5. Remove the fork and bearings. Measure & count the bearings, if loose.
6. Clean and inspect all surfaces. Replace as needed.
7. Grease and reinstall the parts in the reverse order. (If you are using loose bearings ask your instructor for help).

Headset Adjustment

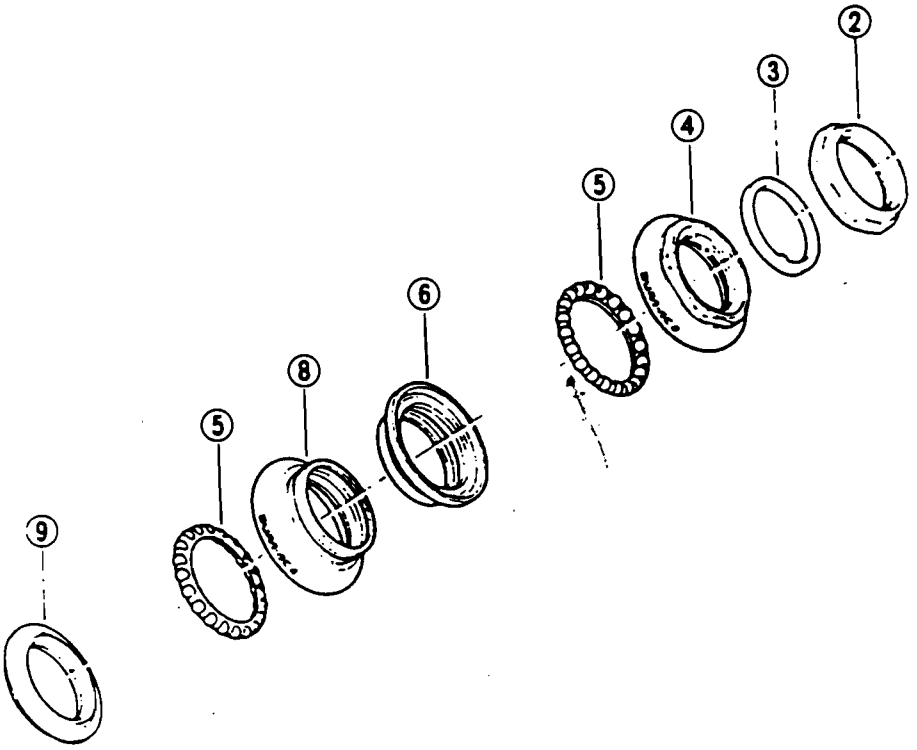
1. Bottom out the race until it just touches the bearings.
2. Back off 90 degrees.
3. Holding the fork and race, tighten the lockring. At this point there must be play. If there is no play, backoff another 45 degrees.
4. Now loosen the lockring and tighten the race a small amount (2-3 mm) and holding the race & fork stationary retighten the lockring.
5. Continue the adjustment in step 4 until all play is gone.

WAY TO GO! You have overhauled & adjusted your headset.

JOURNAL QUESTIONS

1. List or draw 5 road hazards.
2. List at least 2 ways that all bearing adjustments are similar.

HEADSET



LABEL THE FOLLOWING

2.

3.

4.

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9.

http://www.tidepool.com/alliance/index.html

Why Transportation Shouldn't Be Cars
Modern History Isn't Very Pretty
Fact Sheet #3 from the Alliance for a Paving Moratorium

Approximately one million animals per day are killed on U.S. roads. Cars are the leading cause of death of endangered species such as the mountain lion in Southern California.

Source: *Auto-Free Times, Spring 1996*

Sixty-five percent of all carbon monoxide emitted into the environment is from road vehicles, which besides being fatal, contributes to global warming by removing hydroxyl radical from the air, allowing buildup of methane (a powerful greenhouse gas).

Source: *Greenpeace's Environmental Impact of the Car, 1992*

In African communities cargo transported on the (usually a woman's) head or back is on average 17 kilograms. One could comfortably carry 50 kg on a bicycle; 150 kg with the attachment of a trailer. Unfortunately, cultural mores discourage women from using bicycles.

Source: *Bikes for Africa; Institute for Transportation and Development Policy.*

Countries like Brazil, Turkey, India and Kenya are spending from 30 to 50% of their foreign exchange on oil imports. The South is responsible for 45% of the annual increases in fuel emissions causing global warming and creating serious health problems. Much of this can be attributed to the growth of private car use, expected to double by the year 2010 from the current fleet of 500 million cars.

Source: *Michael Replogle andWalter Hook, Institute for Transportation and Development Policy, in Race, Poverty and the Environment, Fall 1995 (Earth Island Institute)*

Each year, more than 500,000 people die in road accidents. Seventy percent of these deaths are in "developing countries." Two-thirds of deaths involve pedestrians, of which one-third are children. In Africa, between 60 and 80% of urban dwellers use some form of public transport, walk, or use bicycles. A similar situation exists in Asia.

Source: *The World Bank, The Urban Age, Fall 1993.*

Public transport trips represent about 25% of all urban trips in Europe, but only 4% in the United States.

Source: *ibid*

The first large scale urban streetcar abandonment's were orchestrated by General Motors in 1925. GM went on to bankroll National City Lines (buses), which began buying up streetcar companies, and, with Standard Oil of California (Chevron), Phillips Petroleum, Firestone Tire and Mack Truck tore out the tracks in eighty-five American cities.

Source: *Martha Olson, in Race, Poverty and the Environment, Fall 1995*

Traffic calming-utilizing speed bumps, narrower streets and [reduced field of vision]-have contributed to a 50% reduction in pedestrian vehicle accidents in Europe. Canadians imported a Danish program, Safe Routes to Schools, installing traffic calming to slow speeds on key streets and reduced accidents by 85%.

Source: *ibid*

From 1960 to 1990, U.S. auto travel increased 198% in miles traveled; there were 133% more registered cars; 126% more fuel was used; licensed drivers increased by 91%, while the nation's population went up 39%. Whereas 69.5% of Americans commuted by car in 1960, 86.5% did so in 1990. Commuting by public transit decreased from 12.6% of all commuters to 5.3%, and walking decreased from 10.4 to 3.9%. Those working at home decreased from 7.5% to 3%.

Source: *Federal Highway Administration, U.S. Dept. of Energy (San Francisco Examiner's Nov.26, 1995 edition)*

In 1994 U.S. drivers motored 2.3 trillion miles, up from "only" 603 billion miles in 1955.

Source: *ibid*

Increasing congestion on U.S. Interstate Highways has been measured by the percent of roads at or near capacity at rush hour, from 1975 when it was 41%, to 1993's 69%. Due to funding new-road construction, pavement worsens on the Interstates to the point that 58.4% of these highways need repair now or will in the very near future.

Source: *ibid*

Every minute, the U.S. loses three acres of productive farmland to urban sprawl, via road building and car/truck dependence. Since the first Earth Day, 1970, we have lost more than 40 million acres of farmland to development. In Lodi, Calif., rich soils 40 feet deep were covered recently by a Wal-Mart lot.

Source: *American Farmland Trust*

In American cities, close to half of all urban space goes to accommodate the automobile, leaving more land devoted to cars than to housing. Nearly 100,000 people a year are displaced in the U.S. by new highway construction.

Sources: *Michael Renner, Worldwatch Paper #84 (1988); Jeremy Rifkin, Entropy: Into the Greenhouse World (Bantam, 1989). Reproduced in Getting There: Strategic Facts for the Transportation Advocate (Advocacy Institute, 1996)*