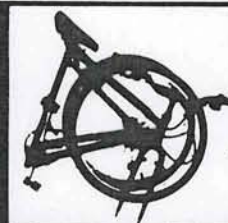
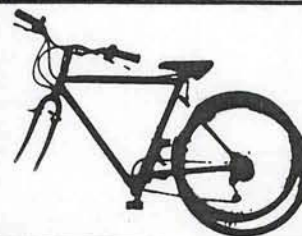
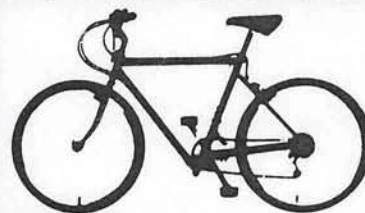


MONTAGUE

USA



OWNER'S
MANUAL

 *Biframe*

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INTRODUCTION

CONGRATULATIONS on the purchase of your new MONTAGUE BIFRAME bicycle. This manual is designed to give you the information you need for the safe operation and maintenance of your new bicycle. Please read it thoroughly before riding your bicycle.

Your bicycle's serial number is stamped on the underside of the bottom bracket shell. Record the serial number in this manual in the event that your bicycle is lost or stolen. You may also want to register your serial number with your local police department.

MODEL NAME.....

SERIAL NUMBER.....

COLOR.....

DATE OF PURCHASE.....

PLACE OF PURCHASE.....

PROPER FRAME FIT

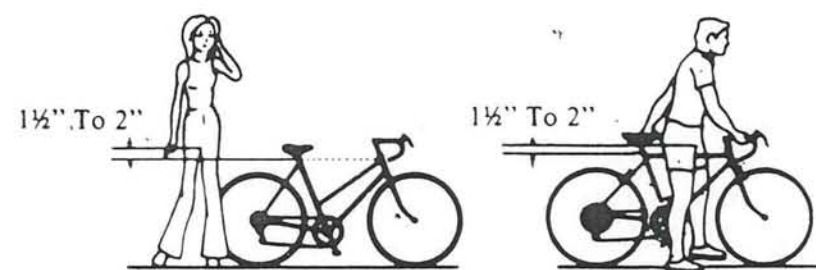


Figure 1

OWNER'S RESPONSIBILITY

Before riding your BiFrame bicycle, carefully follow all assembly instructions. Make sure that all nuts, bolts and screws are securely tightened.

Make sure this bicycle fits the intended rider. Bicycles come in a variety of sizes. Personal adjustment of seat and handlebars is necessary to assure maximum safety and comfort. Bicycles come with a wide variety of equipment and accessories; make sure that the rider can operate them. Check the seat position, adjusting it up or down so that with the ball of the rider's foot on the pedal in its lowest position, the rider's knee is slightly bent. Rider should also be able to straddle the bicycle with between 1.5" to 2" clearance above the top tube when standing with both feet on the ground. Measurement for a woman's bike should be determined using a men's model as a basis (Figure 1).

All five of the BiFrame's quick releases must be securely fastened before riding the bicycle. The five quick releases are (1) the front wheel quick release lever, (2) the front brake quick release, (3) the seat quick release lever and (4 & 5) the top and bottom seat tube quick release levers (Figure 2).

Make sure that anyone to whom you loan your BiFrame understands how to work the quick release levers and how to fold and unfold the BiFrame properly.

The owner is responsible for required normal maintenance services, such as those listed in the section "Inspection and Maintenance" in this booklet, to keep the bicycle in good operating condition.

The manufacturer is not responsible for failure, injury, or damage caused by improper completion of assembly or improper maintenance after shipment.

PARTS OF YOUR BICYCLE AND LOCATION OF BIFRAME QUICK RELEASES

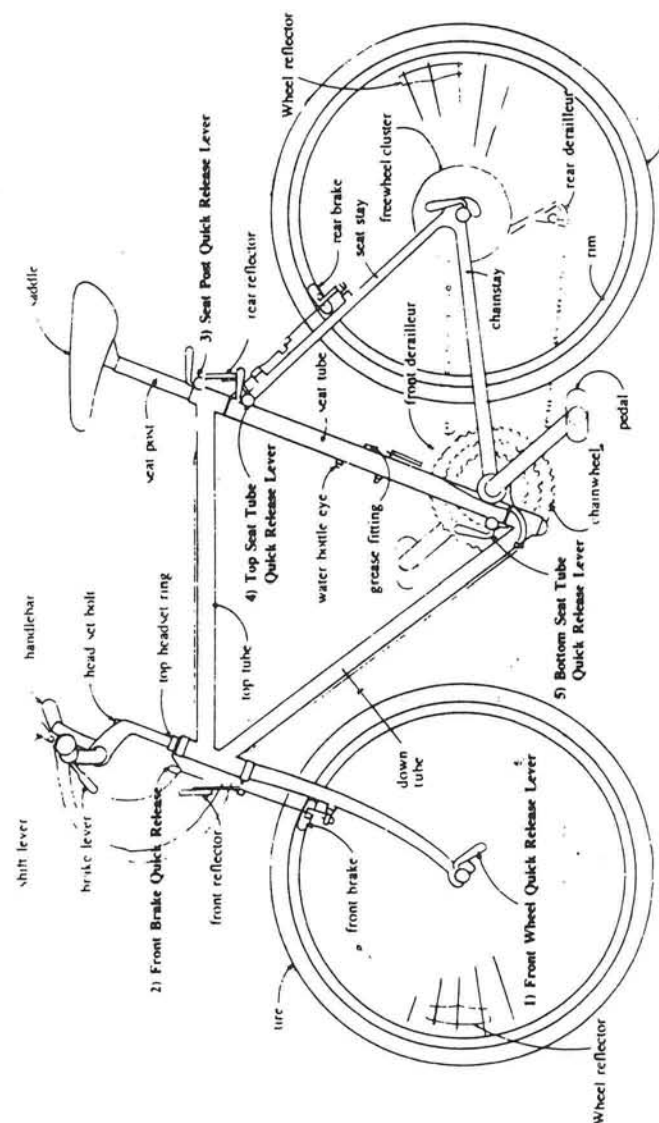


Figure 2

OPERATION OF QUICK RELEASES

QUICK RELEASE LEVERS:

Great care should be taken when locking the quick release levers on the bicycle:

- Move the quick release lever to the wide open position so that the word "open" on the lever faces out, away from the bicycle.
- Tighten the adjusting nut in a clockwise direction by hand as tightly as possible, as shown in Figure 3a.
- Flip the lever 180 degrees up and over to the closed position (Figure 3b). You should begin to feel the lever resist movement as it approaches the halfway point between open and closed.
- If the lever does not provide firm resistance, move the quick release lever back to the open position and turn the adjusting nut a half turn clockwise.
- If the lever can not be pushed in flush with the bike because it is too tight, move the quick release lever back into the open position and turn the adjusting nut one quarter turn counter clockwise.
- Repeat until you feel resistance slightly past the halfway point.
- It should take a lot of pressure for you to push the lever into the closed position.

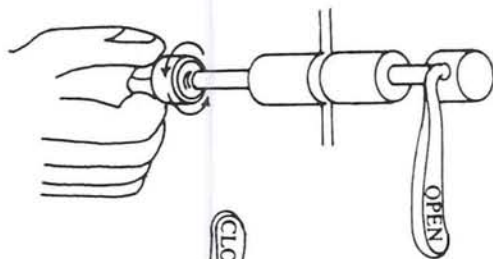


Figure 3a

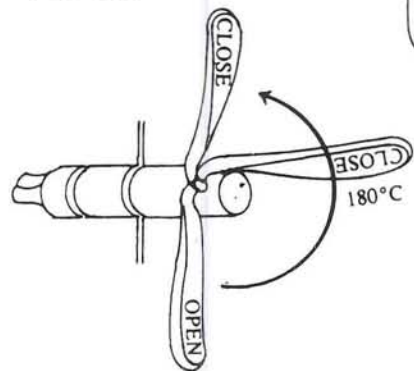


Figure 3b

OPERATION OF QUICK RELEASES (CONTINUED)

FRONT BRAKE QUICK RELEASE:

- To loosen the front brake for folding, pull the front brake quick release tab so that it is pointing up. (Figure 4a)
- To tighten the front brake for riding push the tab so that it is pointing towards the ground. (Figure 4b).

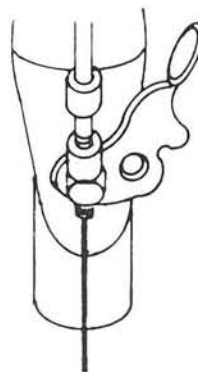


Figure 4a

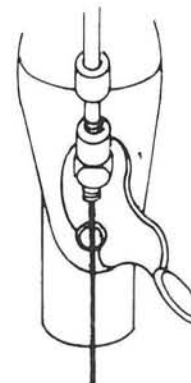
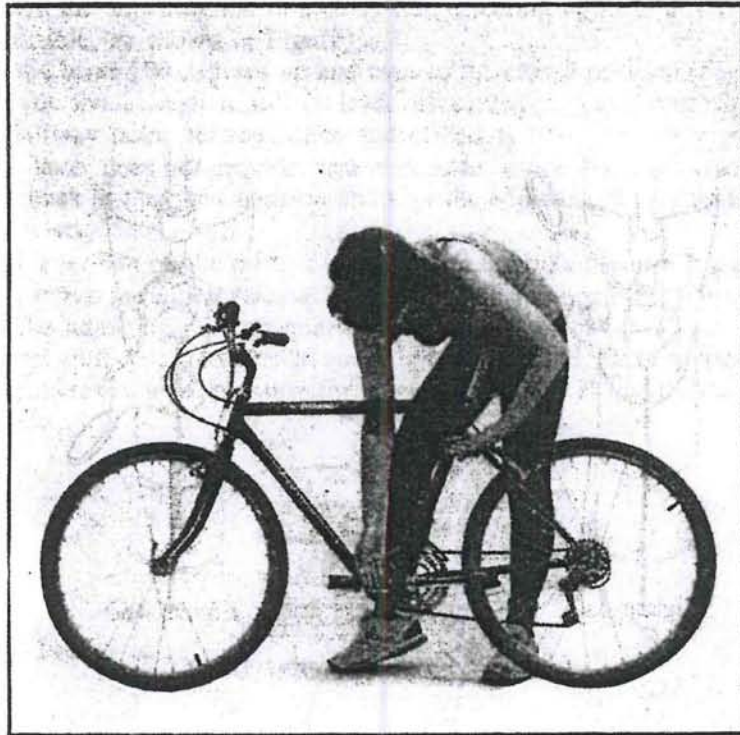


Figure 4b

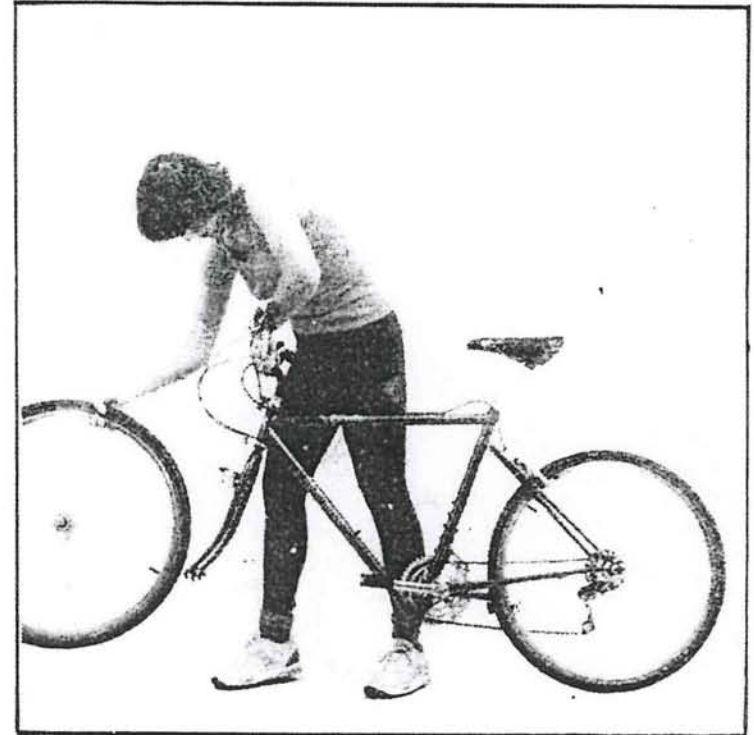
CAUTION: It is very important that you use the quick releases properly to ensure the safe operation of your bicycle. If any of the procedures is unclear, have an authorized bicycle dealer demonstrate the proper procedures to you.

FOLDING THE MONTAGUE BIFRAME

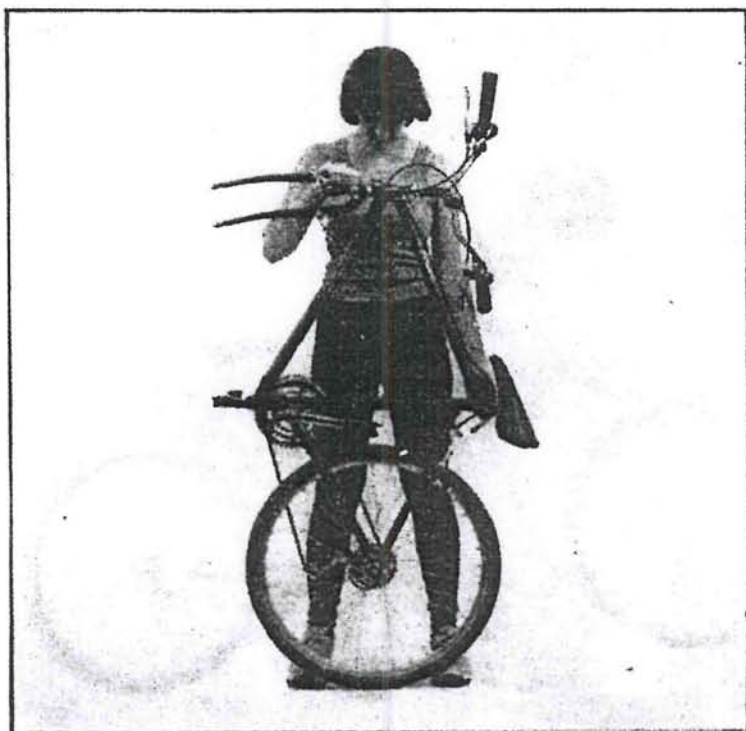
The Montague BiFrame has been designed to fold and unfold quickly and easily, without requiring any tools. A few simple steps must be followed, however, in order to assure safe operation and to avoid scratching or damaging the bicycle while it is being folded and unfolded.



- Stand on the chain side of the BiFrame.
- Unlock the two quick release levers located on the seat tube.
- A third quick release lever located at the top of the seat tube can be used to lower the seat.



- Unlock the front brake quick release.
- Unlock the front wheel quick release lever. You will have to rotate the adjusting nut counter-clockwise several times before the wheel will come off the fork.
- Remove the wheel and set it aside.



- Stand the BiFrame on end. Place your feet on either side of the rear wheel so that it doesn't roll around.
- Turn the handlebars so that they are facing away from you.
- Align the pedals so that the pedal closest to you is at the bottom of its swing, pointed directly to your right.

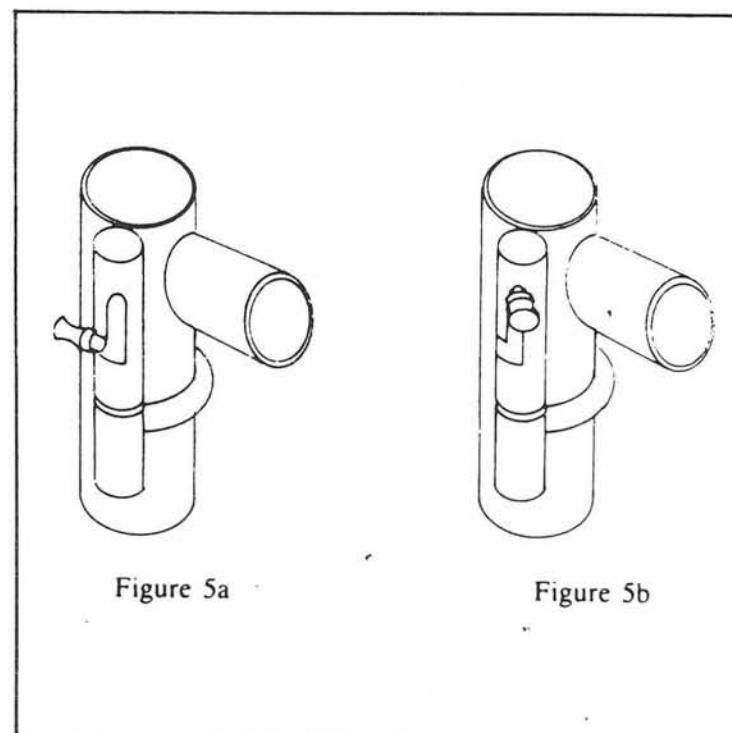


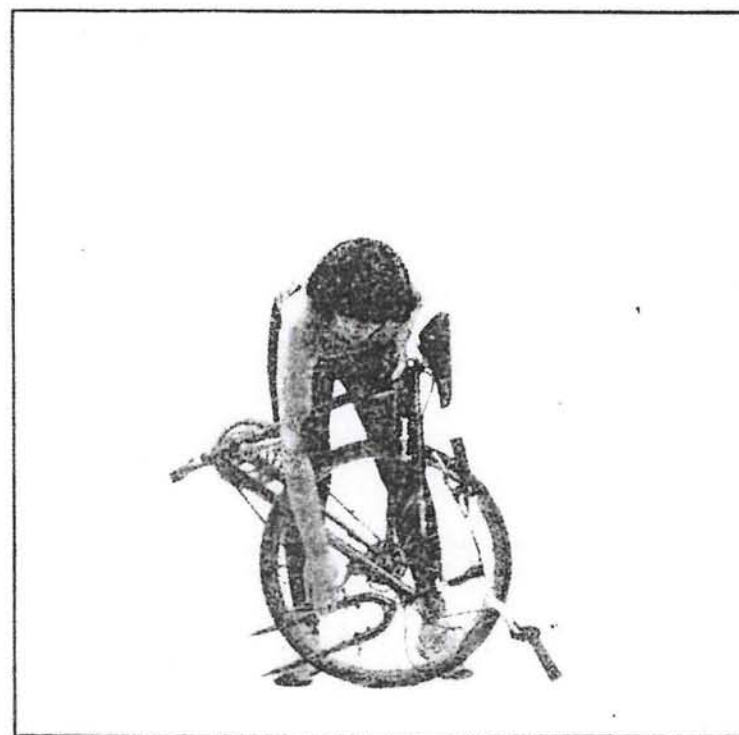
Figure 5a

Figure 5b

- Hold the handlebars (or the handlebar stem) with your right hand.
- Hold the seat post with your left hand and with your left thumb, unlock the safety latch under the seat by moving the latch from the position shown in Fig. 5a to the position shown in Fig. 5b.



- Push the top half of the frame down and away from you.



- Continue folding until the handlebars are pushed in tightly against the rear wheel. The pedal arms should now be able to spin freely.
- Relock the two quick release levers on the seat tube to prevent unfolding during transport or storage.

UNFOLDING THE MONTAGUE BIFRAME

- To unfold the BiFrame, first loosen the seat tube quick release levers.
- Rotate the pedals so that the pedal on the chain side of the BiFrame is at the bottom of its swing pointed away from the seat.
- Grabbing the handlebar stem with your right hand, and the back wheel with your left hand, pull open the BiFrame, until the safety latch snaps into place.
- Tighten the two seat tube quick release levers.
- Put the front wheel back on the bicycle, tightening the front wheel quick release lever (see instructions on page 19).
- Tighten the front brake quick release
- Raise the seat as necessary.
- While the BiFrame is equipped with an automatic safety latch for your protection, this safety latch is designed to be used only in conjunction with the quick release mechanisms.

Make sure the safety latch is in the locked position shown in Fig. 5a before riding the bicycle.

NOTE: The BiFrame can sometimes get caught in the folded position. This can happen when the bicycle is not folded flat enough which causes the pedal and crank arm to hit the down tube when rotated. If this happens, manually turn the rear wheel in the direction it would spin if the bicycle were being ridden. At the same time, turn the pedal and crank arm in the same direction until they are in the proper position for unfolding.

CAUTION: It is very important to lock all five quick releases securely before riding: (1) the front wheel quick release lever, (2) the front brake quick release, (3) the seat quick release lever and (4 & 5) the top and bottom seat tube quick release levers.

If you do not understand how to fold and unfold the BiFrame, be sure to ask your dealer for assistance.

SAFETY ON THE ROAD

Wear a helmet that meets Ansi Z290.4 requirements.

Observe all traffic regulations. Obey red and green lights, one-way streets, stop signs, etc.

Ride with the traffic, not against it. Ride single file in a straight line.

Have satisfactory signaling device to warn of approach.

Give pedestrians the right of way.

Slow down at all street intersections and look to the right and left before crossing.

Always use proper hand signals for turning and stopping.

Watch for cars pulling out into traffic and for sudden opening of car doors.

Avoid potholes, drainage grates or other road surface hazards. Cross railroad tracks at a right angle.

Never hitch on other vehicles, do not "Stunt" ride or race in traffic. Don't weave in and out of traffic or swerve from side to side.

Never carry other riders or packages that obstruct vision or proper control of the bicycle.

Before riding, check your brakes. Be sure they are operating efficiently and that your bicycle is in perfect running condition.

CAUTION IN WET WEATHER RIDING

No brakes work as well under wet conditions as they do under dry conditions. In rainy or wet weather, special precautions must be taken to insure safety in stopping. Proper adjustment and cable lubrication will help, but the major precaution rests with you. Increased lever forces are required on wet or rainy weather and care must be exercised to maintain safety under these conditions. Ride slower than normal and apply your brakes sooner than normal conditions would require.

INSPECTION AND MAINTENANCE

SAFETY LATCH: The safety latch located at the top of the seat tube must be kept clean and well lubricated. Once every six months or sooner if necessary, a few drops of a lightweight all-purpose lubricating oil should be applied to the latch pin.

SEAT TUBES: The BiFrame folds using concentric seat tubes. These tubes must be lubricated on a regular basis, at least once every six months or sooner, if the BiFrame becomes difficult to fold. Keep the Bi-Frame stored indoors. Do not allow water to enter into the seat tubes. A grease valve, located behind the water bottle braze-ons on the seat tube, is provided for this purpose. To lubricate the seat tubes:

- Attach a grease gun to the grease valve. (Grease guns are available at hardware stores.)
- Force grease into the seat tube with the grease gun.
- Continue until grease is escaping through the top and the bottom of the seat tube, indicating that the entire tube has been greased.

INSPECTION: Every week or two tighten all nuts and bolts. Check all hardware to see that no parts are worn or damaged, that there is correct fork and frame alignment, and that all components are seated in proper position.

BRAKES Keep brake shoes adjusted to rim. Replace worn or missing shoes. Do not wax or oil rim. Keep brake cables and brake pivot bushing lubricated.

COASTER BRAKE: Be sure that brake operates smoothly without locking or grabbing when applied normally. Keep brake arm securely fastened to bicycle frame. Have checks made on brake periodically for wear on interior discs or shoes.

CONTROL CABLES: Replace worn or damaged cables. Do not kink cables. Cables stretch with use; adjust accordingly. Keep control cable lubricated.

FRONT FORK: Bent or damaged fork should be replaced. Never attempt to repair by straightening.

HEAD BEARINGS: Keep tight and lubricated. The handlebar must turn freely.

FRONT WHEEL: Keep axle nuts tight. Wheel should be centered in fork. Keep wheel bearings adjusted and keep spokes tight and wheel in proper alignment.

CRANK BEARINGS: Crank assembly should turn freely without side play. Keep locknut tight and keep bearings clean and well adjusted.

CRANKS & PEDALS: Replace bent cranks. Do not attempt to straighten. Check crank bolt or nut (depending on axle type) regularly to make sure crank arms stay tight. Replace pedals if bearings are tight or frozen and if thread is lost or badly worn. Keep pedal bearings lubricated.

CHAINRINGS: Replace if chainring teeth are bent or damaged. Keep chainrings tight on crank.

REAR WHEEL: Keep axle nuts tight and wheel centered in chainstays. Keep spokes tight and wheel properly aligned.

WHEEL ALIGNMENT: Wheels should rotate smoothly without wobbling from side to side. Have them aligned (trued) if necessary.

HANDLEBAR: Adjust for your comfort. Make sure minimum insertion mark on the stem remains inside the frame. Tighten securely. Replace worn grips. Make sure they fit snugly.

CHAIN: Check frequently for damage and stretch and readjust if necessary. Lubricate several times each season. Use a lightweight all-purpose oil, being careful to oil each link.

DERAILLEUR UNITS: Shift levers only while pedaling. Keep units adjusted. Do not allow bicycle to fall on derailleur units. Keep derailleurs and freewheel lubricated.

SEAT ADJUSTMENT: Adjust for comfort of the rider. Be sure that minimum insertion mark on seat post remains in the frame. Securely tighten the seat post binder bolt and position the angle of seat for comfort of the rider. Securely tighten seat post binder bolt until seat will no longer turn.

TIRES: Make sure that tires are inflated according to pressure indication on tire sidewall. A foot or frame pump should be used. Pressurized unregulated pumps should not be used. The tire should be properly seated in the rim and the fitting of the tire bead and rim bead should be checked.

REFLECTORS: Reflectors should be kept clean, securely fastened and positioned for bicycle identification at night from front, rear and lateral visibility. Damaged units should be promptly replaced.

FRAME: Immediately replace a bent or broken frame. Frame damage can cause excess stress or failure in other bicycle parts.

BIFRAME SPECIAL ASSEMBLY INSTRUCTIONS

PROPER FRAME ALIGNMENT: If, for some reason, the BiFrame frame does not seem properly aligned while it is in the riding position, take it to your bicycle dealer for re-adjustment before riding it.

To correct the frame alignment:

- Locate the special set screw located below the bottom bracket shell and behind the chain ring (see Figure 6 below).
- Use a 2.0 mm Allen wrench and adjust the set screw by turning it clockwise to move the rear drop-outs to the left and counter-clockwise to move the rear drop-outs to the right.

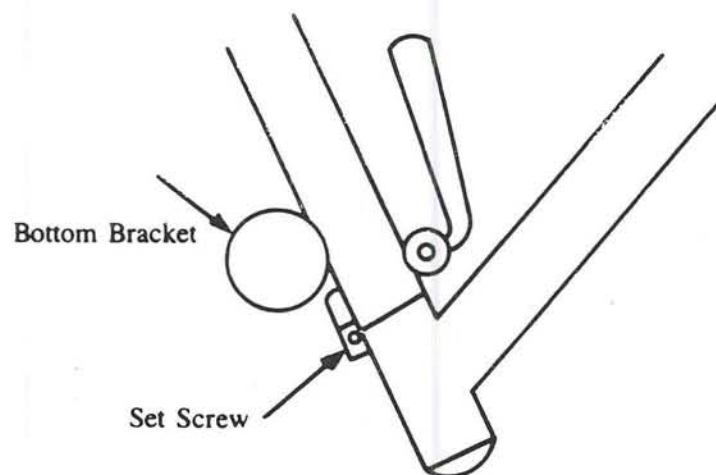


Figure 6

FRONT BRAKE QUICK RELEASE MECHANISM: Before installing the handlebars, remove the top headset ring shown in Figure 2. Install front brake quick release and replace top headset ring.

INSTALLATION OF RACKS

RACKS: A special rear rack attachment piece is provided free with the Montague BiFrame for easy installation of any single stay rear rack.

To install a rear rack (see Figure 7 below):

- Thread the rear brake cable through middle hole on attachment piece.
- Bolt attachment piece to seat stay connector bar (attachment piece goes on far side of bar).
- Place rack on bicycle and bolt to attachment piece.
- Follow manufacturer's directions for installing rack onto bicycle.

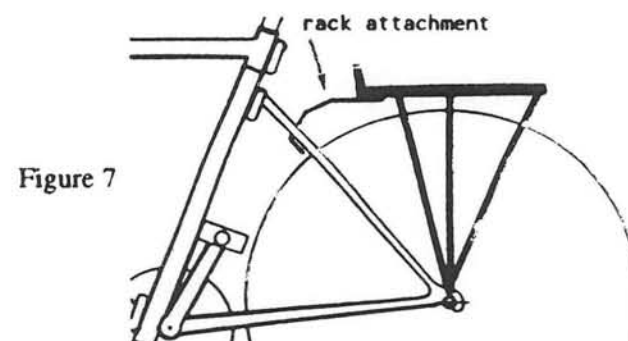


Figure 7

OTHER ACCESSORIES

DOWN TUBE PROTECTOR: This nylon patch is provided free with the BiFrame and serves to protect the down tube from scratches caused by the pedal if it is not in the correct position while folding the BiFrame. The protector can be removed if desired.

CARRYING CASE: A water resistant Cordura® nylon carrying case is available. It has an over-the-shoulder strap and an inner pocket for the front wheel. See your dealer for more details.

Other exciting accessories are in the process of being developed for the Montague BiFrame. If you mail in your owner's registration card, we will keep you posted on the latest developments.

TOOLS NEEDED FOR ASSEMBLY AND MAINTENANCE

Small adjustable wrench
Large adjustable wrench
Set of 4,5,6mm Allen wrenches
Medium flat screwdriver
Medium Phillips screwdriver
Slip-joint pliers
Flat thin open end wrench 15mm—17mm
Tire levers
Air pump
Grease gun

Before assembling, remove the bicycle and all accessories. Carefully check the carton for loose parts before discarding. Be careful to avoid scratching frame when untying or unpacking components.

ASSEMBLY AND ADJUSTMENT INSTRUCTIONS

FRONT WHEEL

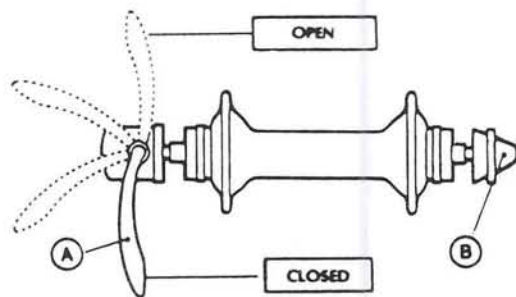
REMOVAL: For quick release hubs, disengage the front brake quick release lever and open the hub quick release skewer by pulling the skewer lever away from the wheel and turning it 180 degrees toward the front of your bicycle. Unhook the retention clip from the fork blades. Slip the wheel out of the fork.

INSTALLATION: For quick release hubs, 1) Position the opened quick release lever so that it is on the left side of the bicycle and points toward the front. 2) Guide the axle into the fork slots, being careful not to knock the brake shoes loose. 3) With axle inserted all the way in, center the wheel between the fork blades. 4) Attach retention clips to the screw head retainers. 5) Tighten or loosen the adjusting nut until you feel a definite resistance 1/2 of the way to closed position. 6) Push the skewer lever all the way to the rear to lock the wheel securely in place. 7) Test the skewer lever. If you can rotate it up and down, it is too loose. 8) Reopen the quick release lever and tighten the adjusting nut until you can't rotate the lever up and down in the locked position.

Re-engage the brake quick release lever or brakes. Squeeze the brakes tightly a few times and check for proper adjustments.

FRONT WHEEL RETENTION CLIPS: Montague bicycles use one of 2 styles of retention systems to help ensure that the front wheel is properly mounted and secure.

- Style 1. Retention clip: This clip is retained on the axle with a shouldered bearing adjustment nut. The clip must be swung into position and attached to the screw head retainer on the inside of each fork blade.
- Style 2. Sunkin dropout: The front fork dropouts are recessed and the adjusting nut must be rotated to remove and install front wheel.



WARNING

Place quick release lever into locked position. Levers should be curved in toward the bicycle for locked position.

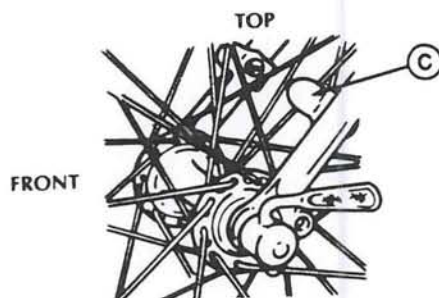


Figure 8

- A Skewer lever
- B Adjusting nut
- C Retention clip

CAUTION

Before riding test brakes to be sure they have been properly installed.

CAUTION

Reinstall retention clips.

INSTALL HANDLEBAR STEM

Loosen expander bolt so that expander wedge is not tight in bottom of handlebar stem. Insert stem into head tube to at least the minimum insertion line. This line must stay inside the head tube at all times. Align the stem with the front wheel and tighten expander bolt to a minimum of 180 inch/pounds.

CAUTION: Do not overtighten. Overtightening may cause risk of injury to rider.

CAUTION: To prevent possible loss of control or system steering damage, minimum insertion mark must remain inside the head tube at all times.

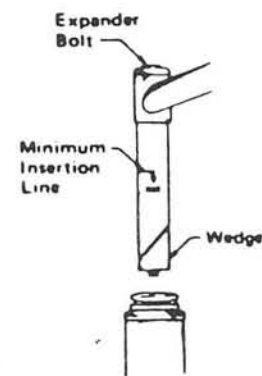


Figure 9

INSTALL HANDLEBAR

Slide handlebar through the eye of the stem clamp until the enlarged section is centered in the eye of the stem. Tighten binder bolt or bolts with force between 180–220 inch/pounds.

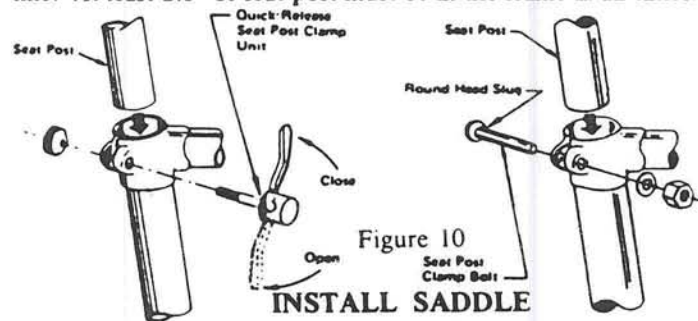
Check stem tightness by holding front wheel between your legs and trying to turn handlebar side to side. It should not move.

INSTALL SEAT POST

QUICK RELEASE SEAT POST BINDER: Insert quick release unit through the frame. Attach the nut to the quick release unit. Insert seat post into seat tube to at least the minimum insertion line. With quick release lever in open position, tighten nut against the frame. Adjust the tightness of the nut so that when quick release lever is in closed position, the seat post cannot be rotated in the frame.

REGULAR SEAT POST BINDER: Insert seat post into seat tube to at least the minimum insertion line. Tighten nut on seat post binder bolt so that post cannot be rotated in frame.

CAUTION: Do not raise seat post beyond the minimum insertion line. At least 2½" of seat post must be in the frame at all times.



Loosen the seat clamp nut and position the seat clamp on the seat post with the clamp forward of the seat bolt. For a seat post with a built-in seat clamp, loosen bolt and place the straight section of the seat rails between the top and bottom plates. With the saddle in level position, tighten the seat clamp nut/bolt so that saddle will not rotate and will remain level.

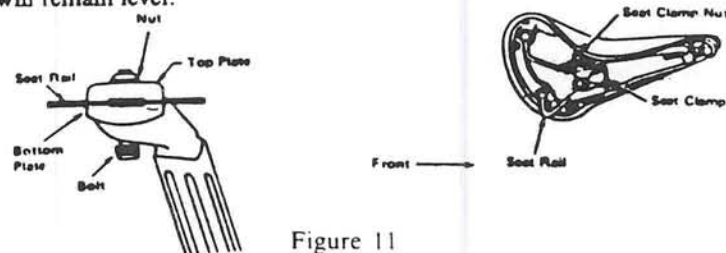


Figure 11

INSTALL PEDALS

Each pedal has a different thread. Forcing the wrong pedal into the wrong crank arm will destroy the threads in the crank arm. Pedals are stamped "R" and "L" on the ends of the axle shaft or on the pedal wrench shoulder. Before installing pedals, place a drop or two of light oil on the threaded section of the pedal axle. The right pedal is installed by turning the pedal axle clockwise. The left pedal is installed by turning the pedal axle counter-clockwise. Tighten pedals securely. The shoulder of each pedal should fit tightly against the crank arm.

CAUTION: Always start threading the pedals into the crank by hand to prevent stripping the threads. Bike must not be ridden if pedals are loose.

NOTE: Left and right are determined from riding position on the bicycle.

INSTALL REFLECTORS

Your bicycle comes equipped with mounting reflector brackets. Securely attach the front reflector (white) to the front mounting bracket and the rear reflector (red) to the rear mounting bracket. Side reflectors must be mounted within three inches of the inside to the rim.

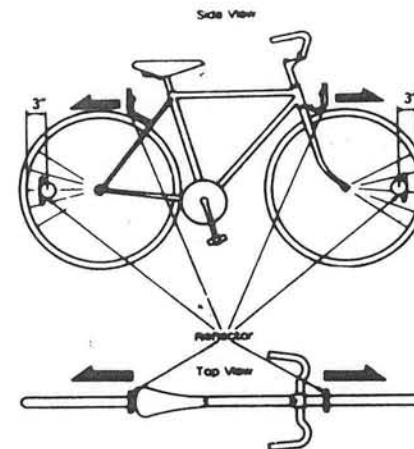


Figure 12

INSTALL BRAKE LEVERS, SHIFT LEVERS, GRIPS

Slide shift levers onto the handlebar so that the cables face towards the stem of the handlebar. Install mounting nuts and bolts but do not tighten. Install the brake levers the same way. Do not tighten yet.

CAUTION: The lever for the rear brake must be mounted on the right side of the handlebar and the lever for the front brake must be mounted on the left side of the handlebar.

Slide the handlebar grips completely onto the handlebar and install the handlebar end plugs, if applicable, as far as they will go into the handlebar.

Slide the brake levers back to the handlebar grip. Rotate to find the most convenient operating position and tighten the brake lever clamp securely.

Slide the shift lever(s) back to the brake levers. Rotate to find the most convenient operating position and tighten the shift lever clamp(s) securely.

NOTE: On some brake levers, the handlebar to lever distance can be adjusted by turning the reach adjuster bolt. Whenever this adjustment is made, make sure to check the braking action and re-adjust if necessary by following instructions in brake adjustment section.

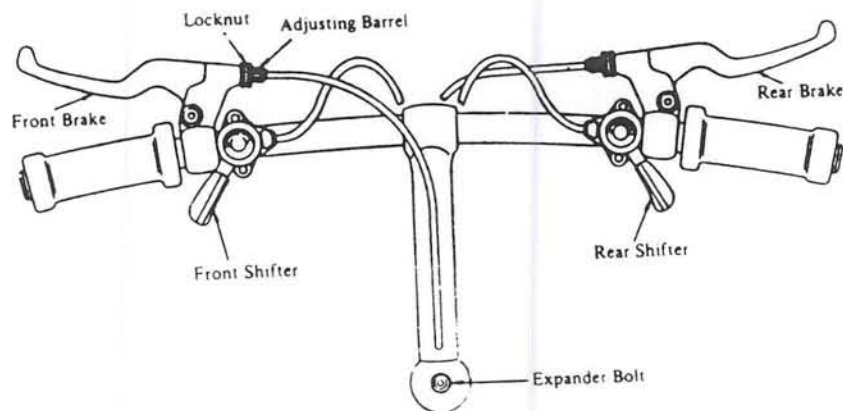


Figure 13

INSTALLATION AND ADJUSTMENT OF BRAKES

WARNING: Always inspect the brakes before riding to be sure they are functioning properly.

WARNING: If you find it difficult to do the brake fitting and adjustment, it is recommended that the work be done by a qualified bicycle mechanic. Do not attempt to ride the bicycle if brakes do not function properly.

CANTILEVER BRAKES: Make sure the cantilever brazed-on bosses on the frame or fork are clean and free of paint. Slide a brake arm onto the boss; it must be able to spin freely on the boss. Remove the brake arm. If the brake arm did not spin freely, clean the surfaces with a fine emery cloth.

Apply a light grease to the outside surface of the boss. Do not get any grease inside the threaded portion of the boss.

For the front brake, insert the straight end of the spring into the hole in the boss, then mount the brake arms and engage the spring to the brake arm for the right and left sides. Both of the rubber brake shoes should be facing upwards. If they are not, switch the arms right to left and left to right. Secure the brake arm in place by using the washer (with serrations, if any, facing outward) and the mounting bolt. If too much binding occurs during installation, remove the mounting bolt and make sure the threaded area of the brazed-on boss is free of debris.

Repeat the same procedure for the rear brakes.

CAUTION: Do not overtighten mounting bolts. This can cause the stud to expand, impairing movement of the brake arms.

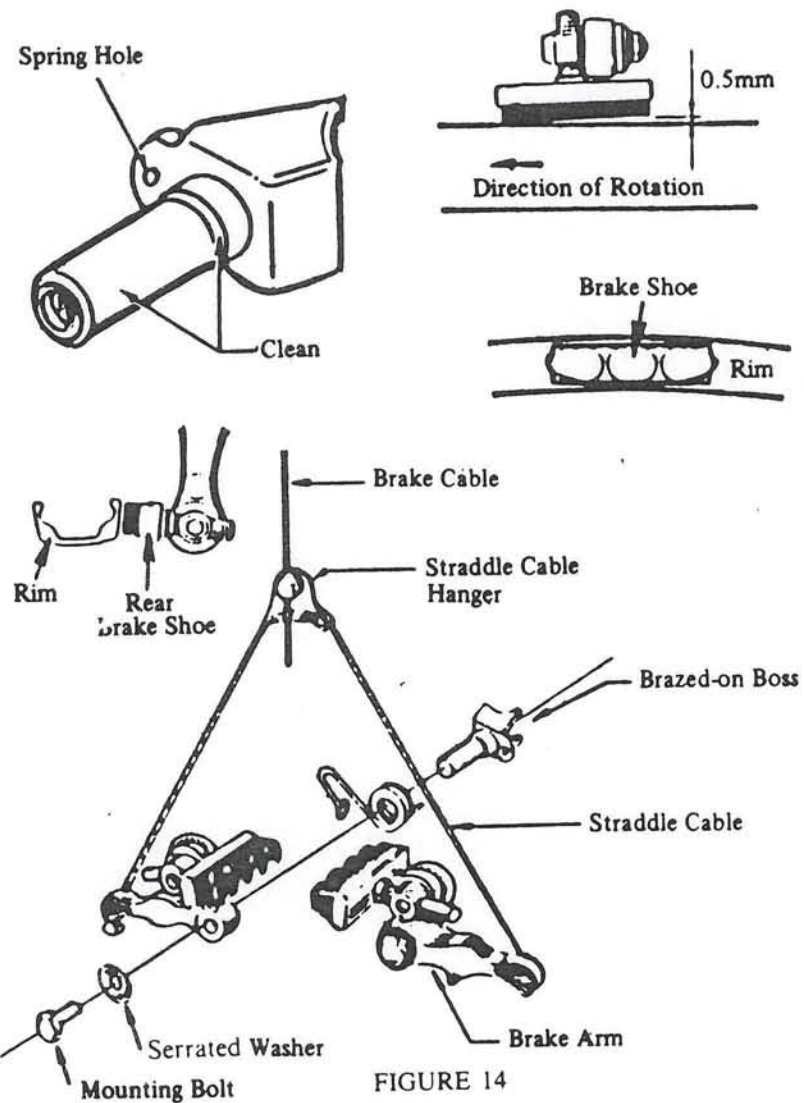
Position the brake shoes so that the rim face and the brake shoes are aligned; the top and bottom of the pad should contact with the rim at the same time. If the rim face is deeper than the brake pad face, the pad should contact the rim as high as possible without overlapping the tire. Position the shoe so that when viewed from the top, the front of the shoe strikes the rim slightly before the rear of the shoe. Secure in place by using an allen wrench to hold the brake shoe bolt in place while tightening the nut. Tighten the nut securely at a torque of 60–69 inch/pounds so that the brake shoe bolt cannot move.

Attach the straddle cable hanger to the straddle cable and insert the brake cable into the hole in the cable anchor bolt in the straddle cable hanger. Place the ends of the straddle cable into the ends of the

CANTILEVER BRAKE INSTALLATION

brake arms.

Adjust the clearance between the rim and brake shoe by moving the brake cable through the cable anchor bolt and tighten securely. Flex the cable and housing while squeezing the brake lever to seat and compress the cable housing. Make sure that the casing is properly seated in all casing lugs, ferrules, adjusting barrels and levers. Readjust the shoe clearance using the cable anchor bolt to eliminate any slack in the cable. Make sure that the braking action is effective well before the brake lever touches the grip. Minor adjustments for the brake shoe to rim clearance can be made by using the adjusting barrels on the brake levers. Be sure to lock the adjusting barrel in place by tightening the locknut against the brake lever.



OPERATION OF DERAILLEUR GEARS

Multiple gear ratios provide a means of maintaining a constant pedaling rate, regardless of road level conditions. Maintaining a constant pedaling rate is the most efficient cycling technique and is less tiring over long distances than pedaling at varying rates and then coasting.

The derailleurs are activated by cables connected to shift levers located on the handlebar. Derailleurs work by moving the chain from one sprocket to another. The left lever controls the front derailleur and the right lever controls the rear derailleur.

Change only one gear (front or rear) at a time. Continue pedaling, with relaxed pressure, while moving shift levers to the gear position that allows the pedaling pressure and rate you find most comfortable. Shift only when pedals and wheels are in motion. Never back-pedal while shifting gears. Never force the shift levers.

Chain noise often results from changing gears. If chain noise continues after shifting, move the appropriate shift lever slightly backward or forward to fine adjust chain alignment and eliminate the noise.

DERAILLEUR ADJUSTMENTS

REAR DERAILLEUR: With the right shift lever all the way forward, the rear derailleur should position the chain on the smallest rear sprocket. If the chain does not reach the smallest sprocket, adjust limiting screw "H" (moving it out, away from the derailleur housing) allowing the necessary additional outward travel of the derailleur.

Once adjusted, limiting screw "H" should be moved to bottom against the derailleur housing, stopping any additional outward travel of the derailleur and preventing the chain from running off the smallest sprocket.

With the rear derailleur positioned so that the chain is on the smallest sprocket (right shift lever all the way forward), there should be no trace of slack in the control cable. Normally a few counter-clockwise turns of the barrel adjustment, where applicable, will take up most of all of the slack in the cable. If it doesn't, a cable adjustment is necessary. Note, some derailleurs do not have a barrel adjustment and therefore require a cable adjustment. If a cable adjustment is required, loosen cable anchor nut freeing the cable. Pull the cable

taut and retighten nut securely.

With the right shift lever all the way back, the rear derailleur should position the chain on the largest rear sprocket. Adjust limiting screw "L" to allow for this and position it to bottom against the derailleur housing to prevent any additional inward travel of the rear derailleur. This will stop the chain from running off the inside of the large rear sprocket.

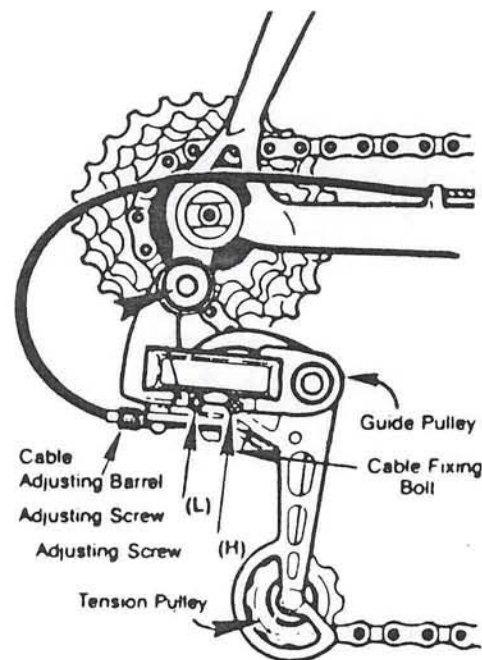


Figure 15

FRONT DERAILLEUR: The derailing cage must be positioned high enough to clear the chain wheels while shifting. If an adjustment is necessary, loosen the frame clamp and reposition accordingly. When retightening the frame clamp nut, make sure the curvature of derailing cage is concentric to the curvature of the chainwheel and that the derailing cage is in line with chainwheel.

Move left shift lever all the way forward and adjust limiting screw "L" to center derailing cage and chain over the smaller chainwheel against the derailleur housing.

Place left lever all the way back, centering derailing cage and chain over the large chainwheel and adjust screw "H".

These adjustments will limit the inward and outward movement of the derailing cage so the chain will not derail to the left of the inside chainwheel or to the right of the outside chainwheel.

Loosen the cable anchor nut and pull all slack out of the cable through the anchor bolt. Retighten the cable anchor nut securely.

CAUTION: Wing tension screws located on the shift levers should be adjusted only tight enough to prevent any unwanted gear change which can be caused by the spring tension of the derailleur.

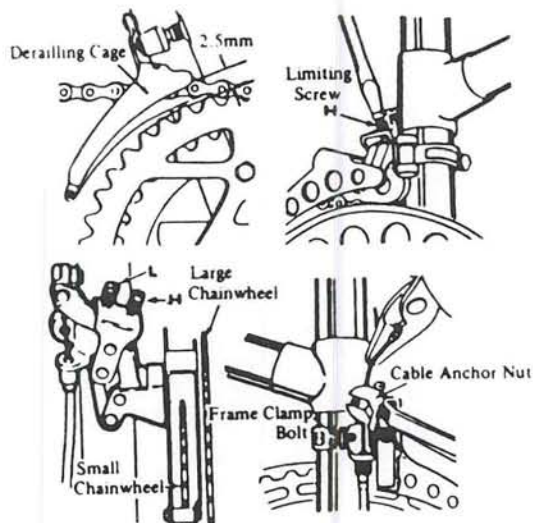


Figure 16

SUNTOUR ACCUSHIFT DERAILLEURS: Check axle placement in the rear dropouts. If the dropouts have horizontal slots, move the rear axle as far forward as is safely possible. This moves the rear derailleur's guide pulley closer to the freewheel.

Center the guide pulley directly under the smallest freewheel cog by adjusting the rear derailleur's high gear limit screw (H). This adjustment is critical: Accushift indexing is keyed to this centered guide pulley position. After adjusting the high gear limit screw, adjust the low gear limit screw (L) so that the guide pulley centers directly under the largest freewheel cog.

After cable installation, push the shift lever a few times to remove initial cable slack. Then retighten cable.

Confirm that the chain is the correct length by shifting into highest gear (smallest freewheel cog and largest chainring). Then, while holding the rear derailleur body parallel to the chainstay, locate the small dot on the pulley cage (on the Alpha 3000, the rear derailleur uses the cage pivot stop pin as reference instead of a dot). If the chain is the correct length, then the dot will line up with specific reference marks on the main body of the rear derailleur.

Turn the angle adjusting screw counterclockwise as far as possible. This rotates the rear derailleur forward, putting it even closer to the freewheel and optimizing guide pulley placement. If the guide pulley is too close to the freewheel, it will not be able to shift the chain off the largest freewheel cog. If you notice this, turn the angle adjusting screw clockwise to move the rear derailleur back. Adjust until the chain shifts off the largest cog. In most cases, the angle adjusting screw can remain all the way out.

In order to fine tune for perfect shifting performance, start with the largest freewheel cog and shift to the next smallest cog. Adjust cable tension at cable adjusting barrel if required. Continue through all cogs, then shift up to ensure adjustments. If necessary, you can easily turn the cable adjusting barrel by pushing the shift lever back to loosen cable tension. Make sure the guide pulley aligns with each cog during this process.

With the chain on any freewheel cog (except the innermost) and the shift lever in "Index" mode, move the lever slightly, taking up the small amount of free movement designed into the system. The rear derailleur must move a corresponding amount. If it does not, there is a cable binding problem. The source of the drag must be located and eliminated. Be sure all cable routes are free of dirt, grit, filings and grime. If necessary, clean and grease the cable guide under the bottom bracket.

BEARING ADJUSTMENTS

There are four places on the bicycle that contain bearings that may require adjustment: the headset, front hub, crankset and rear hub.

HEADSET BEARINGS: To check bearing adjustment, lift up handlebar at the grips. There should be no play of the handlebar stem and fork, but the handlebar must be able to turn freely and easily.

To adjust, remove head lock nut and reflector bracket. Turn the adjusting cone clockwise until fingertight. Replace reflector bracket and tighten head lock nut setting the adjustment.

HUB BEARINGS: To check bearing adjustment, hold the wheel bearings checked off the ground and try rotating it. The wheel bearings adjustment must be set so that the wheel can turn easily and freely with only a trace of side play at the wheel rim.

To adjust, remove the wheel and loosen locknut on one side of the wheel while holding the adjusting cone on the same side of the hub with a flat open-end wrench and rotate the adjusting cone as needed to eliminate side play. Tighten the locknut while holding the adjusting cone in the desired position.

CRANK BEARINGS: To check bearing adjustment, hold one end of the crank and trying to move it sideways. There should only be a trace of play. The crank bearing adjustment must be set so that the crank can turn easily and freely.

To adjust, remove the lockring and loosen or tighten adjusting cup at left side. Check proper rotation and side play. Reset lockring and tighten.

TIRE CARE AND WHEEL ADJUSTMENT

Keep tires inflated to the pressure indicated on the sidewall of the tire. Use hand or foot pump to inflate the tire. Improper tire pressure will cause excessive wear, causing premature replacement. Blowouts are the result of overinflation or may be caused by the tire not being properly on the rim when inflated.

Whenever you hear any irregular noise from the wheels or the brakes touch to the rim, the wheels should be checked and repaired. If there is minor loosening of the spokes, you may tighten the nipples, but it is recommended that you take the bicycle to a bicycle mechanic. Wheels should be checked regularly for spoke tightness and true alignment.

Montague Corporation
P.O. Box 381118
Cambridge, MA 02238
U.S.A.