



# **In-store Assembly Guide**

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## **PART ONE: BIKE ASSEMBLY AND REPAIR**

# Section One: Basic Types of Bikes

This section names and describes the most common types of bikes that Apollo Assemblers build. For each bike, the basics that differentiate a particular bike from another are identified. This is important as you will report your work based upon the type of bikes you assemble.



## Mountain Bike

Mountain bikes are designed for heavier-duty use than other bikes and are also called ATB (All Terrain Bike).

They typically come equipped with straight handlebars, which have bar ends, tires that are wide and knobby, and occasionally models have front and or rear suspensions.

Mountain bikes are multi-speed and models have 20, 24, or 26 inch wheels.



## Road Bikes

As the name implies, these bikes are designed for road use.

They are lighter weight than most bikes with narrow tires and have curled under handlebars.

Road bikes are multi-speed bikes and models have either a 24 or 26 inch wheel size.



## Comfort Bikes

Comfort bikes are designed for flat road use and are often called Cruisers.

These bikes are usually equipped with wide “balloon” tires, wide comfortable seats, and raised handlebars for upright seating.

Comfort cruisers are single speed bikes and models have either a 24 or 26 inch wheel size.





### **Freestyle Bikes**

Freestyle bikes are designed for trick riding.

These bikes have a rotor brake that allows the handlebars to rotate 360 degrees without tangling any cables that are part of its braking system.

Freestyle bikes are single speed and models have a 20 inch wheel size.



### **Single Speed Bike**

Single speed bikes are designed for young riders who are not yet ready for larger, multi-speed bikes.

These bikes generally come equipped with a coaster brake and may be equipped with one or two hand brakes.



### **Sidewalk Bikes**

Sidewalk bikes are for children who are still learning to ride.

These bikes come equipped with training wheels and coaster brakes. Occasionally, a sidewalk bike will be equipped with one or two handbrakes.

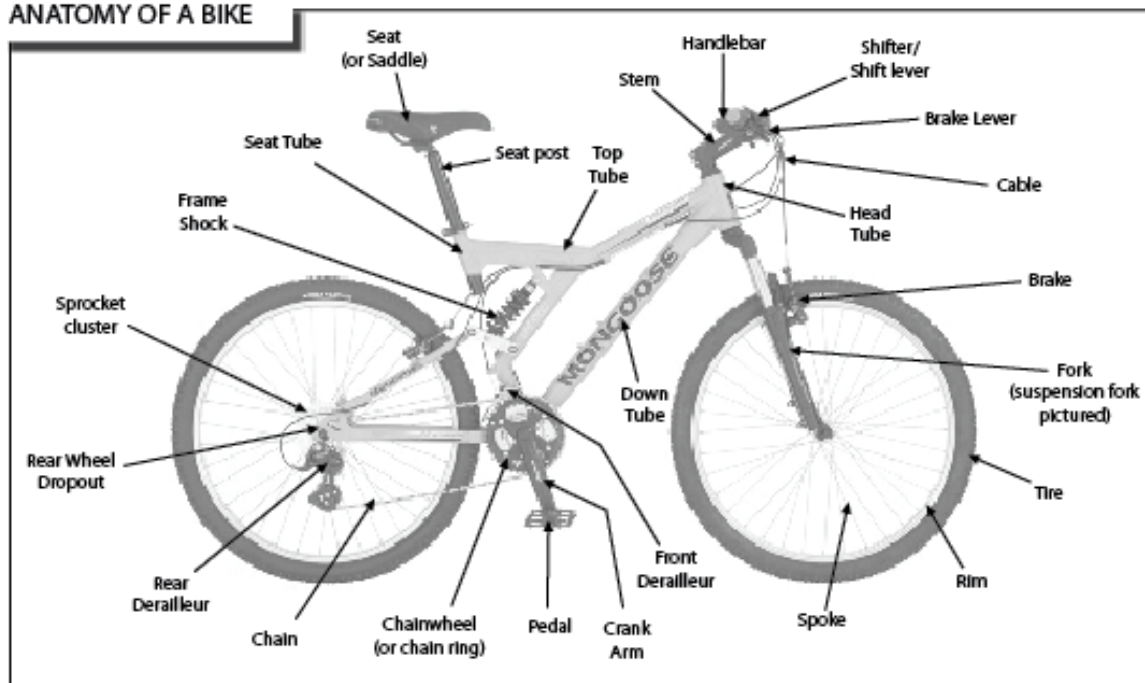
## **Bike Assembly Reporting Codes**

Bike assembly reporting codes are used to track the type of bike that was assembled and match it with the appropriate pay rate. Once you've completed your assemblies and repairs, you will report your work order using the code that matches the bike you assembled. Codes may vary from one retailer to the next, so be sure to use the correct codes for the retailer you are working in. If you have questions in regards to the proper codes to use, always contact your District Manager to discuss.

## **Section Two: Bike Anatomy**

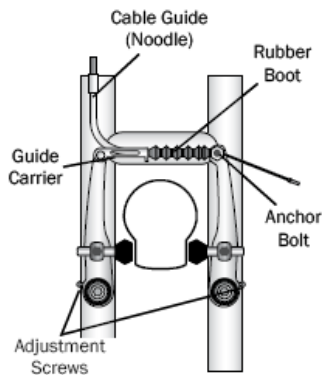
One of the best ways to learn about bikes is to first learn the separate parts that make up the bike. By learning the parts terminology first, you'll be able to more effectively and accurately communicate with your Trainer, other Assemblers who assemble and repair bikes, as well as the parts department. The key component parts of a bike are identified in the illustration below. Smaller parts that combine to create larger components of a bike are identified in the illustrations that follow.

## ANATOMY OF A BIKE

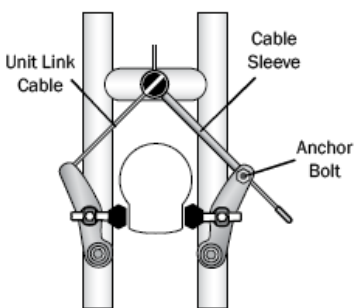


## TYPES OF BRAKES

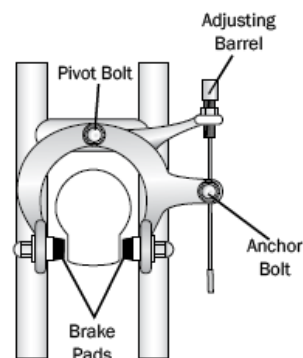
There are three common types of braking systems you will encounter. Illustrated below are each type of brake and the names of the parts of the brakes. (Note: You will also occasionally encounter Disc Brakes. Details on disc brakes can be found on page 25.)



**Linear Pull  
(V-Brakes)**

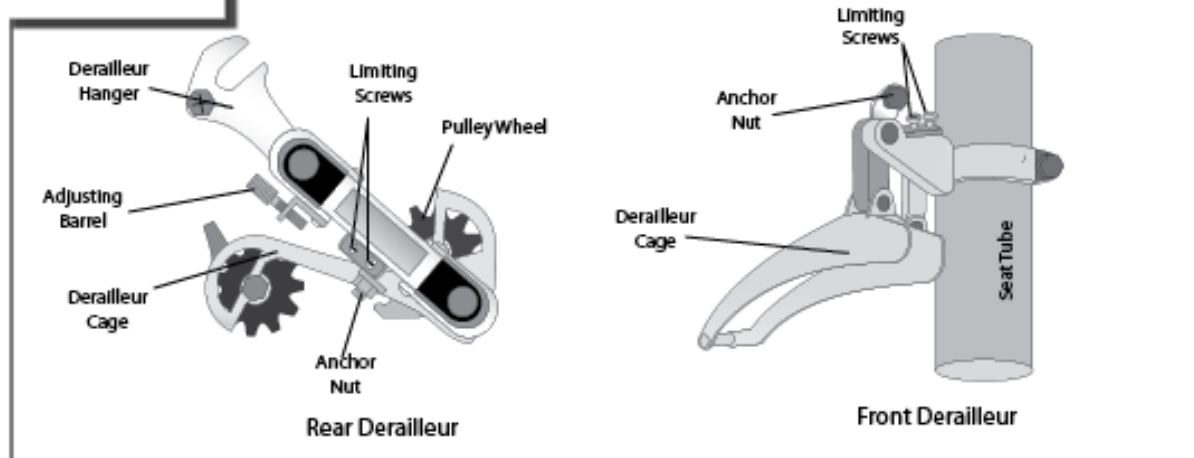


**Cantilever  
Brakes**

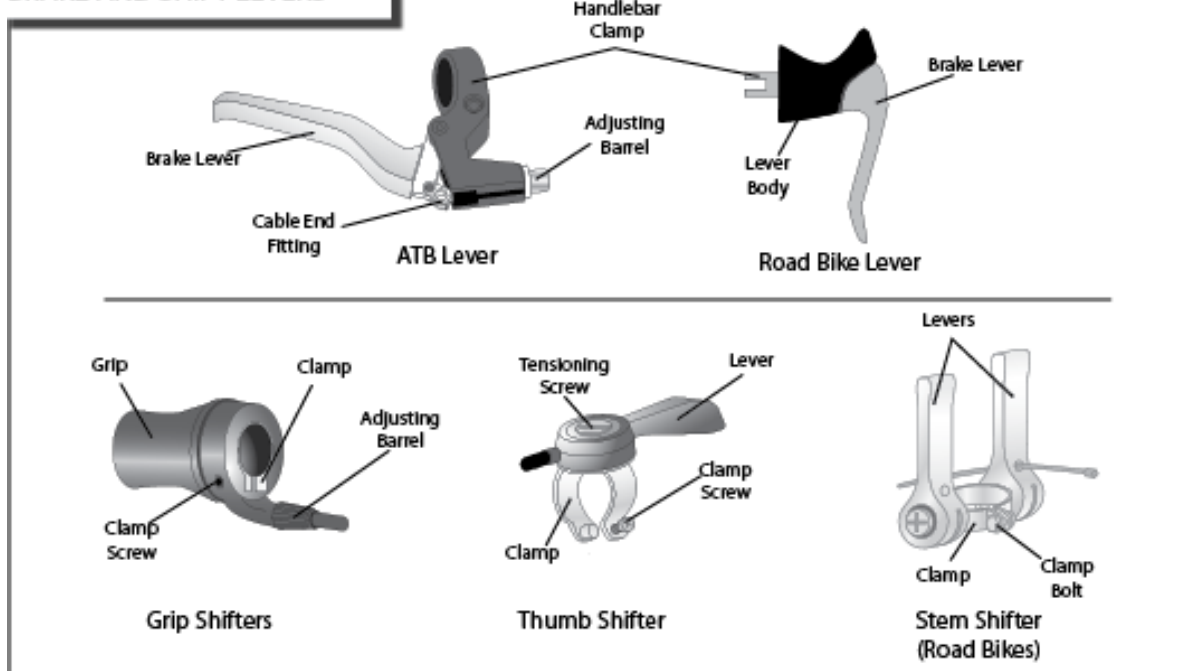


**Side pull Caliper  
Brakes**

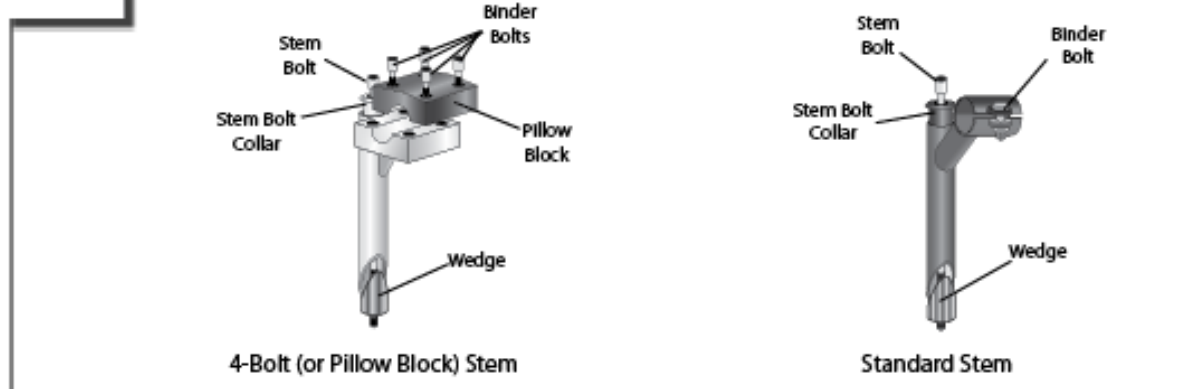
## DERAILLEURS



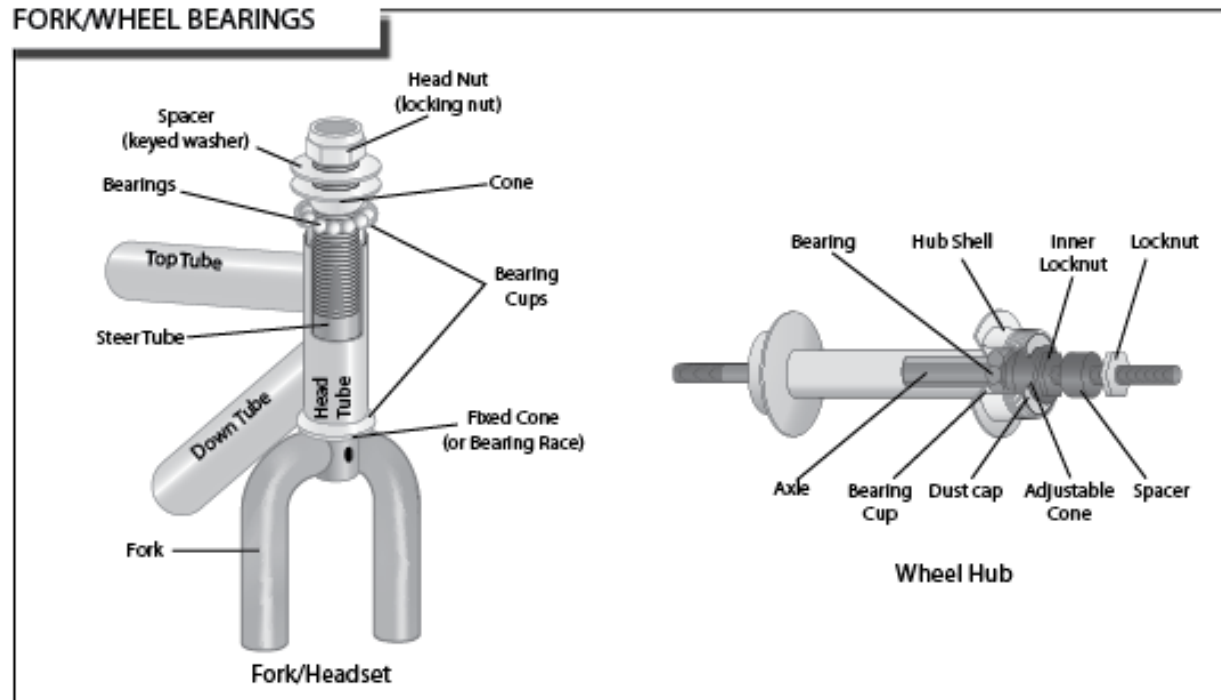
## BRAKE AND SHIFT LEVERS



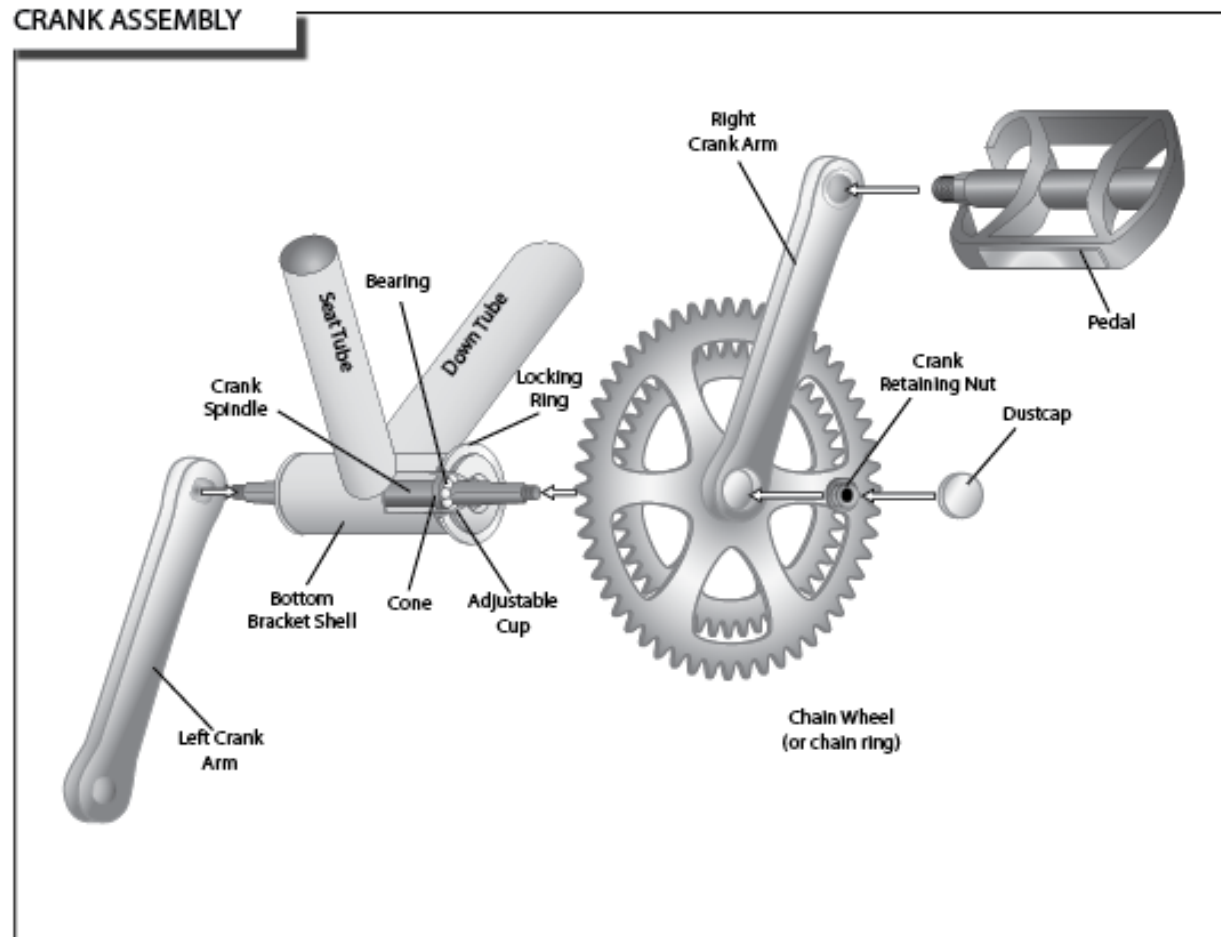
## STEMS

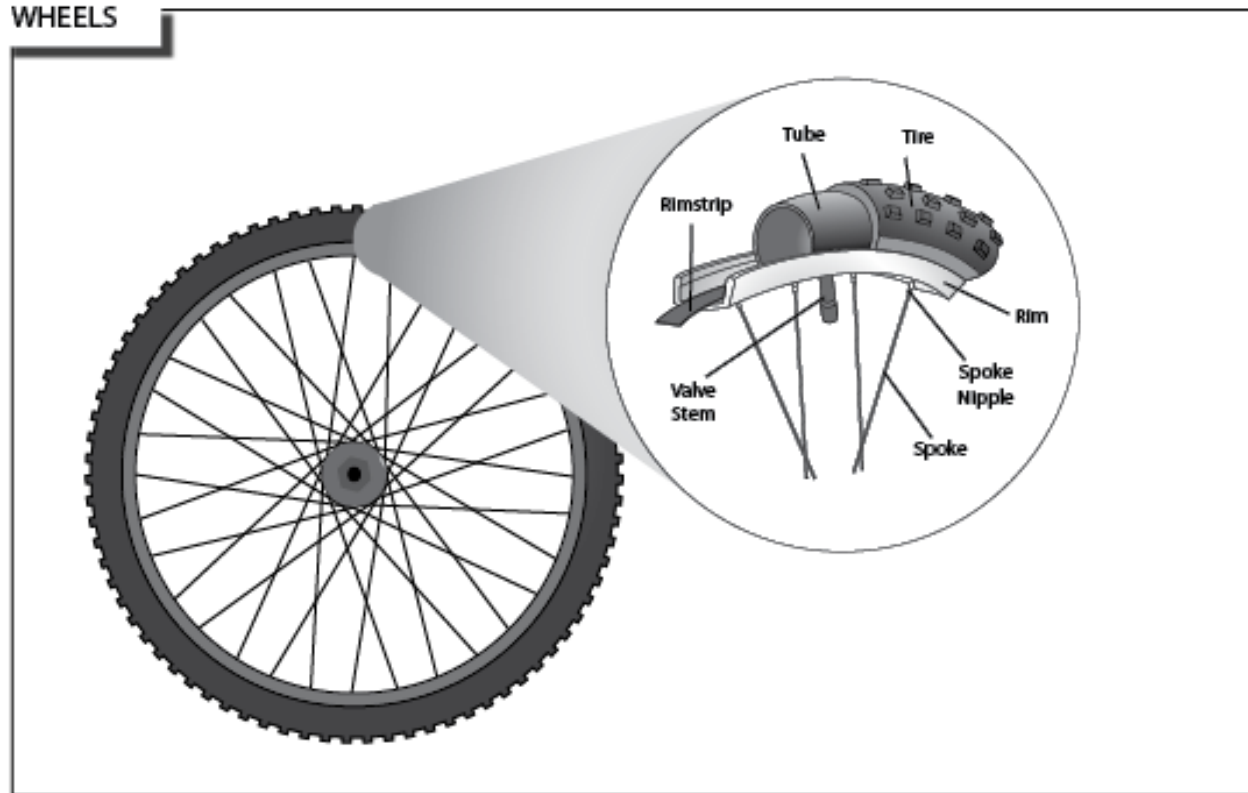


## FORK/WHEEL BEARINGS



## CRANK ASSEMBLY





### Important Note About Bike Components

The components shown here are just a sample of the more common parts of the bikes you will encounter. If you encounter a bike with different components, refer to the owner's manual for specific information about that part.

## Section Three: Bike Standards and Adjustments

Part of the value that Apollo brings to its customers is standardization. This simply means that if an Assembler builds a bike in the northeast, then the same model bike assembled in the southwest by a different Apollo Assembler will look and ride the same. The assembly guidelines in this section are designed to standardize how Assemblers assemble bikes. Apollo's general assembly standards are introduced below. In this section, you will find instructions and illustrations for the basic installation and adjustment of the components you will encounter during most bike assembly and repair work.



### Important Note about General Bike Assembly

Since there are a variety of bike manufacturers, it is important to refer to the owner's manual for specific bike assembly guidelines if you are uncertain about a procedure. *Do not alter or adjust the manufacturer's pre-installed parts.*

### FRONT OF BIKE ASSEMBLY STANDARDS

#### Stem and Handlebars

- Stem inserted past minimum insert line
- Stem bolt tight
- Stem not resting on weld
- Handlebars tight

#### Reflector (Front AND Rear)

- Unobstructed

#### Brakes (Front AND Rear)

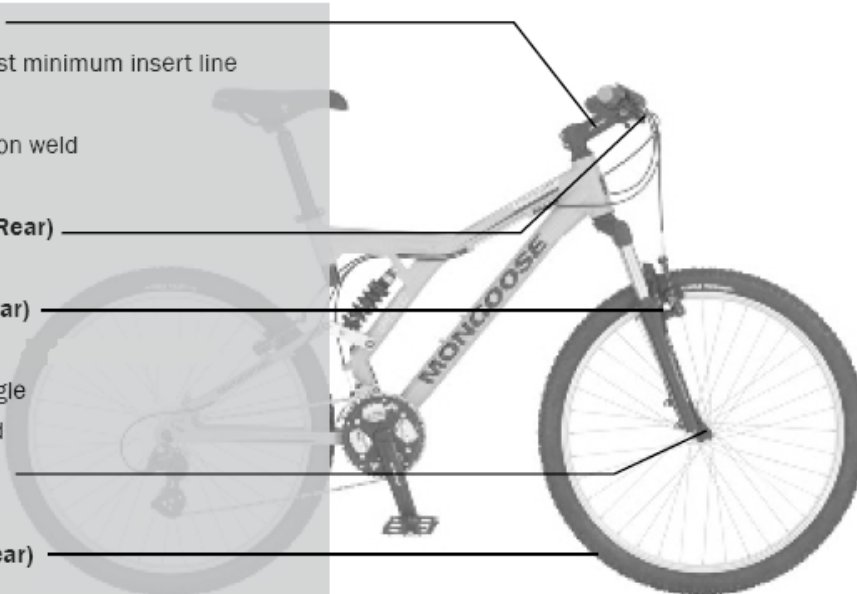
- Adjusted properly
- Levers at 45° angle
- Cables not kinked

#### Wheel Retaining Nuts

- Tight

#### Wheels (Front AND Rear)

- Trued
- Valve Stem straight and cap is installed
- Spoke nipples not "mushrooming"

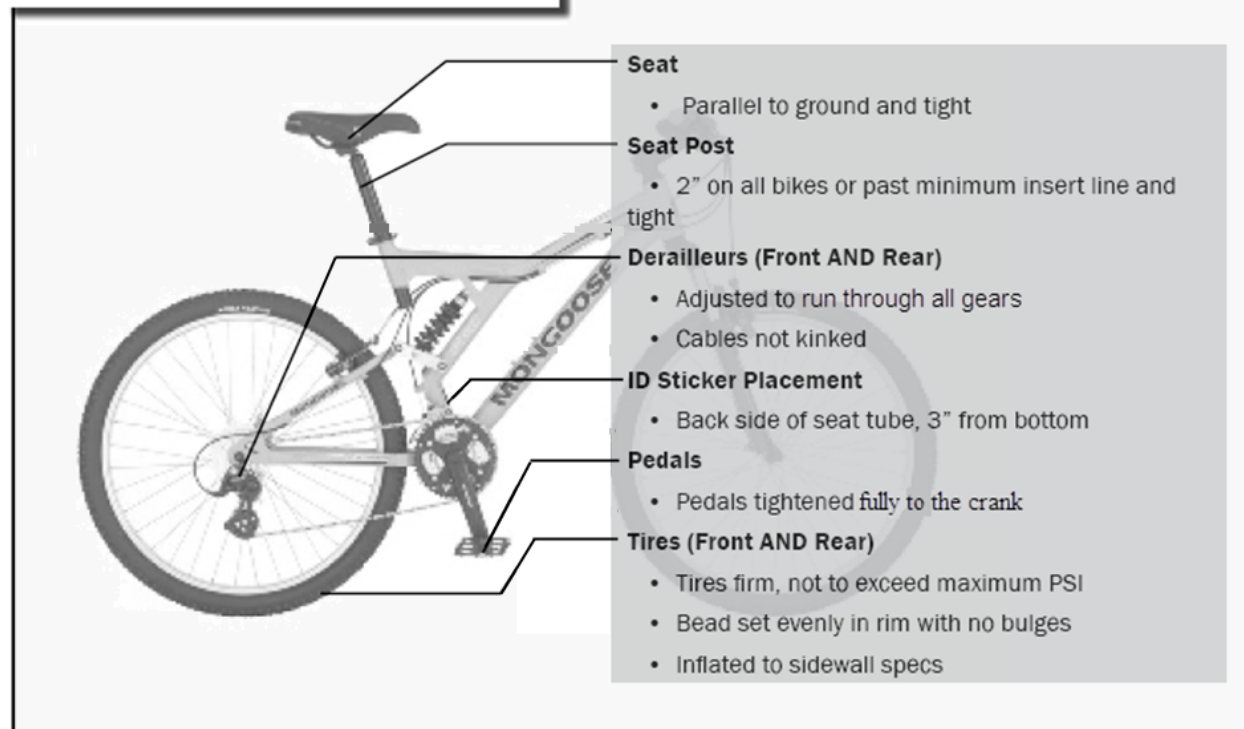


**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**





## REAR OF BIKE ASSEMBLY STANDARDS



## HANDLEBAR POSITIONING STANDARDS

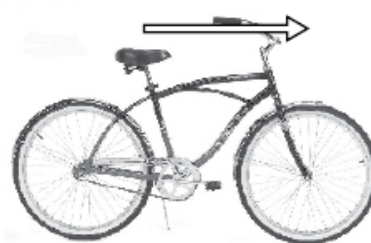
### Sidewalk/Single Speed/Freestyle Bikes

Position the handle bars so they are parallel to the head tube



### Cruiser Bikes

Position the handle bars so they are roughly parallel to the ground



## TRAINING WHEEL STANDARDS



Make sure both training wheels are either touching the ground or are no more than ½" from the ground.

Both training wheels should be the same distance from the ground.

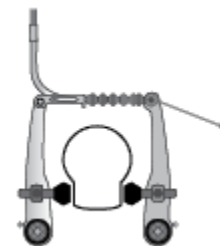
**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**



## Brake Adjustment

### Linear Pull Brakes (V-Brakes)

The V-brake system is one of the most common you will encounter. V-brakes are known as Linear Pull brakes because a single cable attaches directly to the brake arms, eliminating the need for additional cable sections or large calipers to engage the brakes. Linear pull brakes consist of two separate arms, each mounted on a pivot arm that is welded to the frame or fork.



### Installing and Adjusting Linear Pull Brakes

The directions listed below apply after the brake arms have been attached to the frame or fork, the cable has been attached to the lever, but has not been attached to the brake itself. In many instances, the cable may already be attached to the brake by the manufacturer, making some of these steps unnecessary.

1. Run the cable through the cable guide (noodle) and rubber sleeve.
2. Hook cable guide into the guide carrier.
3. Run the cable through the anchor bolt.
4. Use your fourth hand on the cable to pull the brake pads to the rim. The brake arms should be nearly parallel to each other and the forks. Tighten the anchor bolt.
5. Position the brake pads (see Brake Pad Alignment).
6. Stretch the cable by squeezing the brake lever a few times as hard as you would in a panic stop. This action should create a gap between the pads and the rim.
7. Toe the brake pad (see next page).
8. Adjust the brake pads so there is equal spacing between the pads and the rim (this is called “centering”).



### Centering Linear Pull Brakes

To center the brake, find the adjusting screw (can be found on one or both brake arms) and based on the brake pad's position, follow the appropriate direction listed below depending on if the pad is:

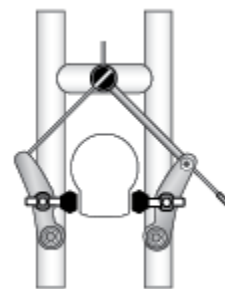
- Too close on the left, turn the screw on the left arm clockwise to increase the clearance on that side.
- Too close on the right, turn the screw on the right arm clockwise to increase the clearance on that side.

If there is only one adjusting screw, turn the screw either clockwise or counter-clockwise to increase or decrease pad clearance as necessary.

**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**

## Cantilever Brakes

Cantilever brakes are similar to V-brakes in that they consist of two separate arms mounted to the frame or fork. However, cantilever brakes differ in that the main cable coming from the brake lever will be routed through a second cable carrier, known as a unit link cable. The cable may already be attached to the brake by the manufacturer, making some of these steps unnecessary.



### Installing and Adjusting Cantilever Brakes

1. Run the brake cable through the slot in the unit link cable carrier and out through the sleeve.
2. Connect the end of the unit link cable to the cantilever arm by placing the barrel shaped end into the space provided.
3. Run the brake cable through the anchor bolt.
4. Draw the cable up with your fourth hand until the unit link cable is parallel with the line on the cable carrier and then tighten the anchor bolt.
5. Position the brake pads (see Brake Pad Alignment, next page).
6. Stretch the cable.
7. Toe the brake pad (see below).
8. Check for proper spacing between pads and rim and adjust if necessary.

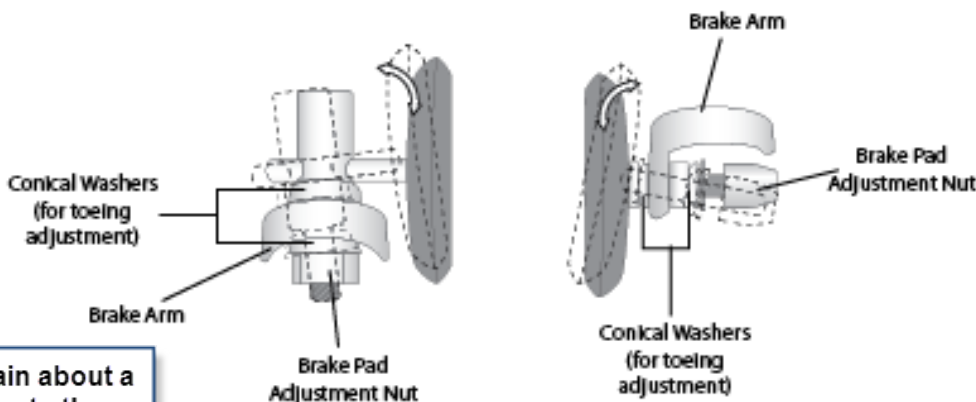
## Adjusting Brake Pads (V-Brake and Cantilever Brakes)

### Toe the Brake Pad

Loosening the pad adjustment nut will allow you to position the brake pad wherever necessary.

By moving around a conical washer, the brake pads can be toed in or out, and adjusted up or down to whatever angle you need.

Toeing the brakes reduces noise when braking.



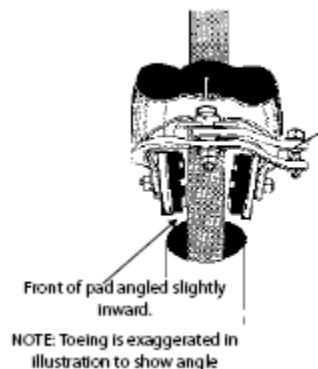
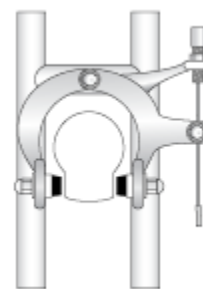
If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.

## Caliper Brakes

Caliper brakes are side pull brakes mounted on a single pivot bolt. Generally, these types of brakes are the easiest brakes to adjust.

### Adjustment of Caliper Brakes

1. Check that the cable is seated correctly at all cable housing ends and the adjusting barrel is screwed all the way in.
2. If the brake is not adjusted correctly, attach your fourth hand tool to the exposed end of the brake cable, loosen the anchor nut, squeeze the fourth hand until both pads are against the rim, and tighten the nut.
3. Adjust the brake pads so they are square to the rim (see below).
4. Stretch the cable in the same manner as with adjusting V-brakes.
5. Toe the brake pad so that the front edge of the pad strikes the rim slightly before the rear edge (see illustration). Toeing is important to optimize stopping power, reduce brake squeal, and to even pad wear. Be sure not to over toe.
6. To center the brake, place an offset wrench on the flat sided spacer between the brake body and the fork. While holding the pivot nut on the back of the fork, turn the wrench either right or left as necessary to center the brake. If the brake has no flat sided spacer, center the brake by loosening the pivot bolt mounting nut, centering it by hand, and retightening the nut. Squeeze the brake lever after each try to check the brake's new adjusted position.



*Assembly Note:* Another option for centering caliper brakes on some models is to use a flathead screwdriver and hammer. Place the tip of the screwdriver on the brake spring and tap it with a hammer to center the brake. Check the owner's manuals to see which manufacturers recommend this.

#### Brake Pad Alignment

Brake pads need to be adjusted to resemble the correct examples illustrated below. When correct, the brake pad will give the rider the greatest friction between the pad and the rim, which results in maximum stopping power. The outcome will be better brake performance.

Correct  
Pad is square to the rim and centered on the rim.



Incorrect  
Pad is square to the rim, but not centered on the rim.



Incorrect  
Pad is centered, but not square to the rim.



Correct.  
Pad is angled so the face of the pad is parallel to the rim as it makes contact.



Incorrect  
Pad is angled up too high



Incorrect  
Pad is angled down too low



## Rotor Brakes

Rotor brakes have an inherently different configuration from previous brake systems discussed. Rotor brakes give the rider unique abilities over conventional braking systems because they are designed to allow the rider to spin the handlebars 360 degrees without tangling the brake cables. This style of brake is used with freestyle model bikes.

### How They Work

When the rear brake lever is pulled on a bike with rotor brakes, the upper cable section pulls a bearing plate that in return pulls the lower section of cable that is anchored in place. Through this operation, a bike's handlebar assembly can spin freely, while the lower part remains in place. For the front brake, the cable is simply routed directly through the stem and fork. As always, refer to the manufacturer's owner's manual for specific setup instructions.

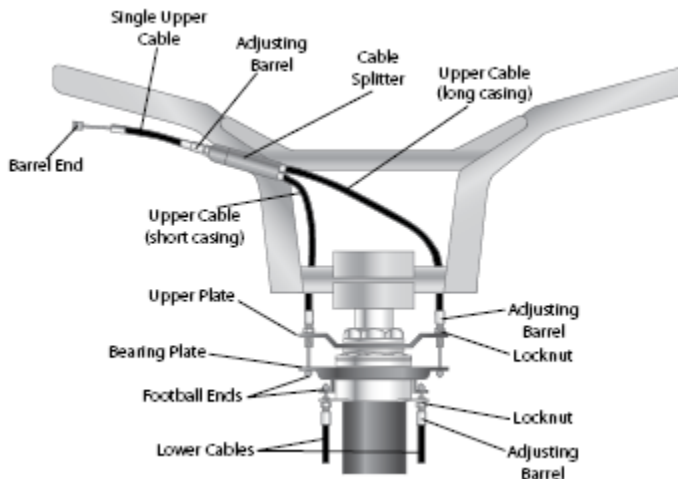
### Front Rotor Brake Assembly

For the front brake, feed the cable down through the hollow stem bolt, retrieve it at the bottom of the steer tube and route it to the brake.

Adjust the brake as normal.

### Rear Rotor Brake Assembly

1. Connect the barrel end of the upper cable to the rear brake lever. Make sure that the longer cable casing is on top of the short casing; otherwise the upper cable will have a twist in it.
2. Route the upper cable through the handlebars (under the crossbar) with the shorter casing on the same side as the rear brake lever.
3. Pass the rounded "football" ends of the upper cable through the threaded holes in the upper plate and screw the adjusting barrels into the upper plate. Do not tighten the locknuts at this time.
4. Connect the football ends by sliding them into the slots in the bearing. Note: At this time make sure all cables are correctly seated in their adjusting barrels.
5. Adjust the rotor by turning the adjusting barrels in and out, making sure that the upper and lower bearing plates are parallel and that the plates don't "flop" up and down as the handlebars are turned.
6. At this time, the system should be set up properly. Rotate the handlebars back and forth to check for proper function. If it is functioning properly, tighten all locknuts and finish adjusting rear brakes as if it were a standard caliper brake.



## Disc Brakes

In most cases, bikes that include disc brakes will arrive from the manufacturer with the assembly attached. The brake mechanism will be mounted to the fork and the disc part of the brake mechanism will be mounted to the wheel.

The disc brake assembly includes two brake pads, a moveable pad and a stationary pad. The disc rides between these two pads. When the brake lever is activated, the cable pulls the action arm and the moveable pad presses inward against the disc, sandwiching it between both pads until the disc stops. Typically, an adjustment screw can be found on the brake that will allow you to adjust the stationary pad.



View From Left Side of Bike



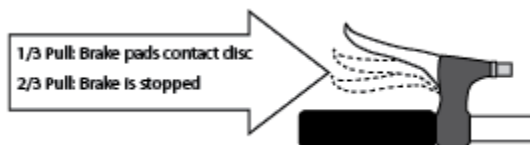
View From Right Side of Bike

## Disc Brake Installation and Assembly

Not all disc brake systems are exactly the same as pictured above. Always refer to the manufacturer's instructions for the specific model you are assembling for setup and adjustment instructions.

1. Install the wheel so the disc fits between the brake pads.
2. Connect the brake cable, if necessary. The cable is connected using the same type of anchor bolt or nut as standard caliper brakes.
3. Spin the wheel and make sure the disc does not rub the brake pads.
4. Adjust brakes as necessary.
  - Loosen the locking screw to turn the adjusting screw.
  - Look down the disc so you can see the disc and both pads.
  - Turn the adjusting screw left or right as necessary to move the pad in or out.

**NOTE:** Some brake drag can be expected on a new bike's disc. A well adjusted brake is one that has minimal brake drag and stops the disc fully after the lever is pulled approximately 2/3 of the way.



**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**



## Adjusting Derailleurs

The derailleur is a bike mechanism for moving the chain from one sprocket to another sprocket to change gears on a multi-speed bike. Proper adjustment of the derailleur is required on all bike assemblies.

### Stretching Derailleur Cables

Before adjusting the derailleur, you will need to stretch the cable so the derailleur will hold adjustment. To stretch a derailleur cable, follow the steps below.

1. Set the chain in the smallest sprocket.
2. Without pedaling, turn the shifter as far as it will go.
3. Repeat three or four times to stretch the cable.
4. Adjust the derailleur as normal after stretching.

### Adjusting the Rear Derailleur

Adjust the rear derailleur using the following steps:

1. Make sure the chain is in the smallest sprocket in the front and the rear.
2. If the derailleur is not in line with the smallest sprocket, adjust the limiting screw marked “H” either in or out as needed to line it up. Turn the screw in to move the derailleur in, and out to move it out.
3. While pedaling with your hands shift the derailleur to the largest sprocket and adjust it in the same way as indicated in the last step, but with the screw marked “L”. The only difference is that when you turn the screw in, the derailleur will actually move out, and vice versa.
4. Once you set the inner and outer ranges, shift the derailleur back down to the smallest sprocket so you can adjust the indexing. This is done by adjusting the amount of tension on the derailleur cable.
5. While pedaling, shift up through the gears one at a time, making sure that with each click of the shifter the chain moves smoothly into each sprocket.
6. If the chain does not shift into a larger gear, or shifts but seemed reluctant to climb into that gear and makes a lot of noise, increase cable tension by slightly unscrewing the adjusting barrel on the derailleur. Adjust, until the chain runs smoothly and quietly.
7. If the chain jumps over a sprocket and climbs to the next one, decrease cable tension by screwing the adjusting barrel in until the chain drops into the correct gear and runs smoothly.
8. After you have adjusted the indexing and shifted clear up to the largest sprocket, shift back down to the smallest sprocket and check that the chain settles into each sprocket correctly.



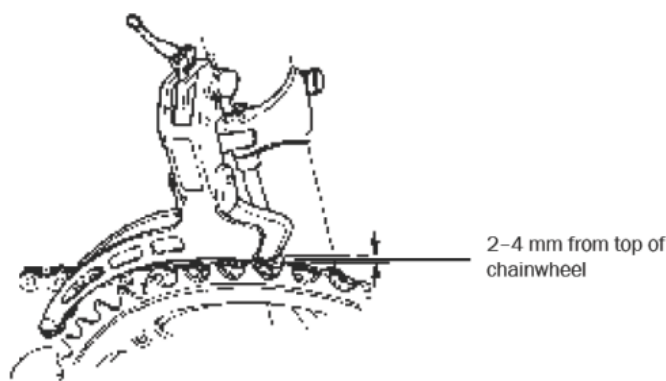
## Adjusting the Front Derailleur

The front derailleur is adjusted in the same way as the rear, but first, you will need to check and possibly adjust the derailleur's position.

The derailleur cage should be parallel to the chain wheels and, when shifted into the largest sprocket, the lowest point of the derailleur's cage bottom should be within 3 mm of the tips of the sprocket teeth without touching the sprocket.

If the position of the derailleur does not meet these criteria, loosen the derailleur clamp bolt and move the derailleur into the correct position. Now you are ready to adjust the derailleur.

1. Make sure the chain is in the smallest sprocket in the front and the rear.
2. If the derailleur is not in line with the smallest sprocket, adjust the inner limiting screw either in or out as needed to line it up. Screw it in to move the derailleur out, and in to let it move in.
3. While pedaling, shift the derailleur to the largest chain wheel, and adjust the derailleur range in the same way with the outer screw. The only difference is that when you turn the screw in the derailleur will move in, and vice versa.
4. Once the inner and outer ranges of the front derailleur are set. Shift it to the smallest chain wheel and adjust the indexing in the same manner as the rear derailleur. The only difference is that there usually isn't an adjusting barrel on the front derailleur. Primary cable tension adjustments are done by loosening or tightening the cable manually. Fine-tuning can be done with the adjusting barrel on the shifter.



**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**

## Wheel Trueing

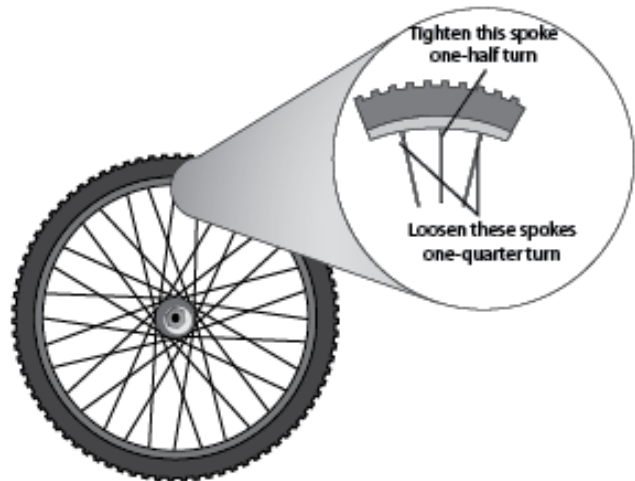
The wheels on every bike you assemble must be checked for trueness and adjusted as needed. Rotate the wheel through the centered brake to check for any sections of the rim which move from side to side. Any side to side movement indicates the rim is “out of true”. Once you have located these spots, you will need to “true” the rim.

### Trueing a Wheel

1. Wherever the rim is out of true, tighten the spoke on the opposite side of the rim at the point nearest to the center of the out of true section.
2. Next, slightly loosen the two spokes adjacent to the first spoke one-quarter turn each.
3. Continue in this fashion around the rim until it is straight and passes through the brakes without touching the brake pads.

*Assembly Note:* As a general rule, always remember that whatever you do to one side needs to be done equally to the opposite side of the rim.

*For instance:* if you tighten a left spoke one full turn, you will need to loosen the two adjacent spokes one half turn each. Never over tighten or over loosen any spoke. All spokes should have approximately the same tension around the rim. Throughout the trueing process, tighten and loosen spokes in quarter-turn increments



**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**



## Section Four: Bike Assembly Sequence

The bike assembly sequence described and illustrated in this section, if followed, will help you assemble bikes in the safest, most efficient manner possible. After a short period, you will develop assembly steps that are the most comfortable and natural to you. The important thing to remember is that you want to eliminate repetitive steps that add time to your assembly process and you want to eliminate any time and distance spent traveling around to the opposite side of the bike.



### Important Note About the Bike Assembly Sequence

Because there are many different bikes that Apollo Assemblers support, the assembly procedure presented only includes the basic steps. Some bikes have more complicated parts that must be put together, while others are even less involved and arrive from the manufacturer having parts pre-assembled. Your trainer will explain more about this during your hands-on instruction. In addition, you should refer to the bike's owner's manual if you have any questions.

### STEP ONE: UNPACKING



1. Place the box in front of your bike stand with the front of the bike to your right
2. Using your safety knife cut open the top of the box. Remember, ALWAYS CUT AWAY FROM YOURSELF.
3. Remove the parts bag/box and place all loose parts on your workbench.
4. Using your safety knife, open all parts bags and boxes. Organize all loose parts on your workbench.
  - a. If the bike's reflectors are not factory pre-assembled, assemble them at this time.



**Productivity Tip**  
When you are unpacking, hang the pedals on your tool belt as shown in the picture on the left. This will save you time by eliminating an extra turn to the workbench

## STEP ONE: UNPACKING (cont.)



5. Grasping the bike by the fork, stand the bike up on its rear wheel, and snip any/all tie wraps. Remove the front wheel and hang it on the hook below your tool caddy.
6. Using BOTH HANDS lift the bike straight up into the stand and clamp it in place.  
**NOTE:** *In some cases, the clamp will not fit on the bike frame. In those instances, assemble the seat to the seat post, install, and then clamp on the seat post.*
7. Strip all packing material away from the frame and throw it away.

## STEP TWO: INSTALL



1. Before beginning installation, you must inspect the pedals.
  - Before installing pedals, confirm that you have both a Left and Right pedal.
  - Inspect threads for damage or burs left over from the manufacturing process.
    - If there is any damage to the threads, new pedals must be ordered and the bike must be tagged as an “Out of Box” repair (see Section 5: Step 3 for various repair descriptions and details on how to complete the repair).

2. Install the right pedal.

- Uses a regular or right hand thread (tightens clockwise) & threads into the right crank arm.
- The right pedal will be labeled by an “R” sticker or marked with an “R” stamped into the end of the spindle.
- Starting on the drive side or right side (side with chain & gears), hand tighten the right pedal as far as you can with fingers. **Note:** *Finger tighten no less than 1.5 to 2 full revolutions by hand.*
- Once the pedal is tightened as far as it will go by hand, finish tightening by turning the pedal wrench clockwise until the pedal has drawn snug to the crank arm.
- Once pedal is snug against crank arm, apply proper torque with pedal wrench.

3. Install the left pedal.

- Uses a reverse or left hand thread (tightens counter-clockwise) & threads into the left crank arm.
- The left pedal will be labeled with an “L” sticker or marked with an “L” stamped into the end of the spindle.
- Starting on the non-drive side or left side (side opposite chain & gears), hand tighten the left pedal as far as you can with fingers. **Note:** *Finger tighten no less than 1.5 to 2 full revolutions by hand.*
- Once the pedal is tightened as far as it will go by hand, finish tightening by turning the pedal wrench counter-clockwise until the pedal has drawn snug to the crank arm.
- Once pedal is snug against crank arm, apply proper torque with pedal wrench.

**NOTE:** *If required by the owner’s manual, the pedal threads may need to be greased before installing the pedals into the crank arms. This may be required on alloy crank arms, which are a softer material than the steel cranks. You may need to read the owner’s manual to determine how the manufacturer wants the pedals to be assembled. Always use your pedal wrench to tighten the pedals so that the pedal shoulder is firmly seated to the crank arm.*

4. Install the seat reflector on the seat post and tighten. Insert the seat post into the seat tube. Leave seat bolt finger tight at this time

5. Install the front wheel. Leave axle nuts finger tight at this time.

**TIP:** *if the bike is equipped with V-Brakes, unhook the brake to allow easier access for the front wheel.*

## STEP TWO: INSTALL (cont.)

### 6. Install the handlebars.

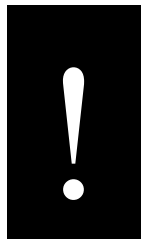
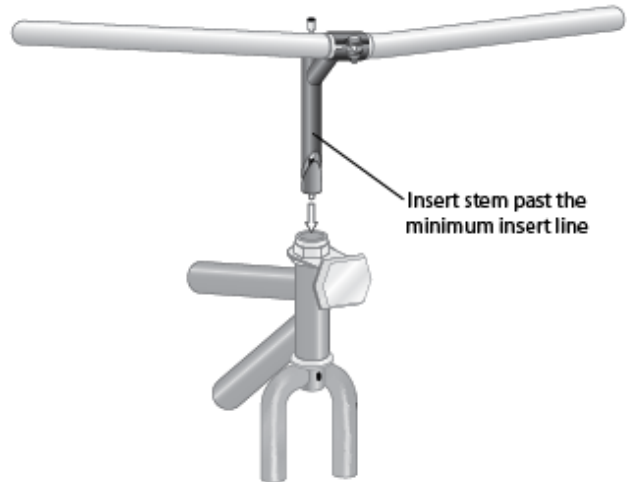
- a. Insert the handlebar assembly into the steer tube so the minimum insert line engraved on the stem is below the top of the steer tube opening.
- b. Align the stem so the handlebar is perpendicular to the front wheel
- c. Finger tightens the stem bolt.

**NOTE:** *When you tighten the stem bolt, the wedge will be pulled up inside the stem causing it to expand within the steer tube.*

- d. Check all pre-installed components for correct position and angle. Adjust as necessary (see Bike Assembly Standards).

#### Check:

- Handlebar Angle
- Brake Lever Angle
- Shifter Position
- Bar End Angle



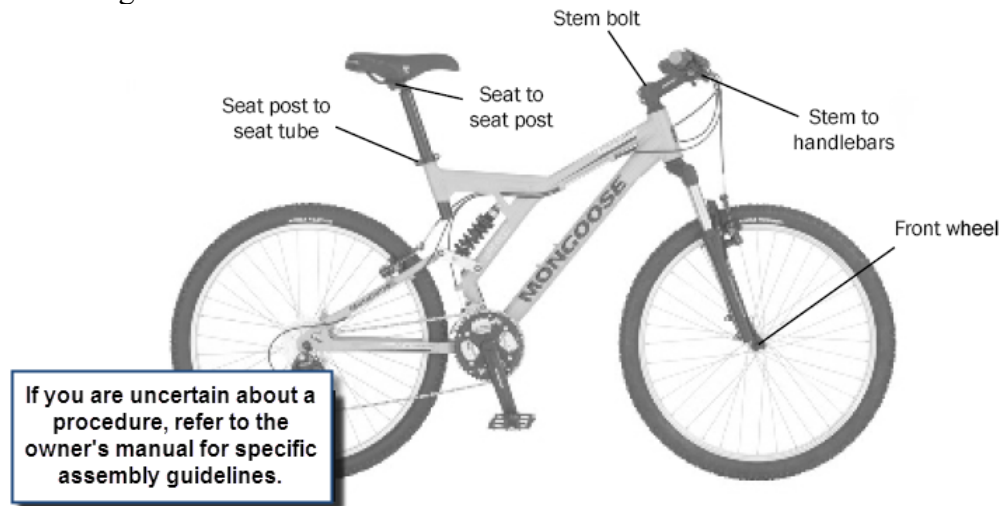
### **Important Note About Handlebar Assembly**

Most of the time, handlebars will come assembled with all components pre-installed at the factory. In those cases, all you need to do is check/adjust the position and angle of the components. However, occasionally this pre-assembly is not done. In those cases you will need to install the handlebar components yourself. Refer to the owner's manual for specific installation instructions.



## STEP THREE: TIGHTEN

Using your impact wrench, tighten the following parts in order of like-sized nuts, picking up the impact only once, and impacting all the same sized nuts at a time will save you time picking up tools and switching sockets.



## STEP FOUR: ADJUST

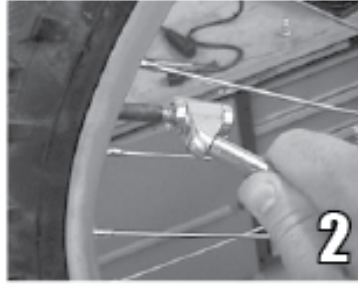


1. Adjust the brakes (both front and rear)
2. Adjust the derailleurs (both front and rear)
3. True the wheels (both front and rear)

Refer to the *Bike Standards and Adjustments* section of this certification module for adjustment procedures. For specific adjustment requirements, refer to the manufacturer's instructions.

If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.

## STEP FIVE: FINISHING



1. Install all accessories (water bottles, bags, pads, etc.)
2. Inflate the tires to manufacturer's specifications.
3. Initial and date an Apollo ID sticker and place it at the bottom rear of the seat tube.

## STEP SIX: FINAL CHECK

Upon completing assembly, remove the bike from the bike stand and complete the final check of the bike. If the bike fails any part of the check, adjust appropriately before moving it to the completed bike area in the store.

### Final Check Procedures

- ✓ Pull the front brake lever while trying to roll the bike forward, checking to see that the brake will stop the bike.
- ✓ Pull the rear brake lever while trying to roll the bike backward, checking to see that the brake stops the bike.
- ✓ Push firmly against the seat to make sure it is fully tightened
- ✓ Grip the front wheel between your legs and try to turn the handlebars to make sure they are fully tightened.
- ✓ Push firmly down on the handlebars/bar ends to make sure they are fully tightened.
- ✓ Visually check pedals – Put the pedals to the metal.



## Section Five: Bike Repairs

Bike repairs are a very important part of the service we provide. Completing repairs can be as important to the account. This often creates a sense of priority about the repair, which is our responsibility to address.

This section lists the basic five step process to completing bike repairs.

- Step One: Prioritize
- Step Two : Locate the Repairs
- Step Three: Diagnose the Repair
- Step Four: Order Parts (if necessary)
- Step Five: Repair the Bike

### Step One: Prioritize your Work

When you are scheduled for an assembly/repair visit, it is important to base your decision when to complete repairs (before or after completing assemblies) on the needs of the store. Your store management contact, as well as the time of year, will help dictate what level of priority to give needed repairs.



For example, if the store has five repairs and thirty assemblies, you know that the store will likely want the thirty assemblies all completed, especially in peak sales periods. However, you must also manage your time to complete the repairs. Customer bikes in need of repair should always be your first priority.

Additionally, bikes that are awaiting repair are not available for sale. Meaning they are excess inventory taking up space in the store. Apollo Assemblers should not allow the repair bikes to build up to unmanageable levels.

If, for some reason, the repairs should happen to build to an unmanageable level, contact your District Coordinator to have the store scheduled an extra day so as to concentrate strictly on catching up the repairs.

Although it may not be possible to achieve the sort of rhythm while repairing bikes that you might have during assembly, you should not let that deter you from performing the necessary repairs. The more training and familiarization you acquire, the more comfortable you will feel performing bike repairs. You will continue to increase efficiency and confidence and, in return, increase your earnings.

## Step Two: Locate the Repairs

Often, bikes needing repair are not in a convenient location and have been kept in less than obvious places. Some locations to consider are:

- Additional store leasing space. This may be an area, room, or separate building the store is leasing for storage where repair bikes are kept.
- Storage trailers. Many accounts utilize storage trailers to keep assembled products such as bikes. On occasion, if space is an issue, the store may choose to put bikes needing repair in these areas.
- Ceiling storage hooks. These can be located either in or outside of the building and may be very high and inaccessible.
- Stock rooms and extra space. Many stores designate space for storage, layaways, and additional uses. Bikes may also be kept in these areas if space becomes an issue.

When bikes in need of repair are kept in these locations, they can easily become neglected and forgotten. It is an important part of your communication and partnership with the store that you ask where these locations are and familiarize yourself with their layout.

If the present location is not convenient, work with your store contact to discuss and consider alternative locations for the storage of bikes awaiting parts and repair. If you show an interest in performing any needed repairs, the stores will likely be open to any suggestions you may offer to improve the process. If the store is not willing to cooperate or is experiencing difficulty in maintaining accessibility to repair products, contact your District Coordinator, or your District Manager for assistance.



Remember to always keep your District Coordinator and your District Manager informed of any changes or challenges you encounter in the store. This will help them to keep other technicians aware of any changing conditions.

Communication is the key to keeping on top of the needed repairs. The better the communication with your store contact, the more cooperative they can become in assisting you with identifying and pulling the product. Knowing where the products are located can also allow you to more efficiently address repair issues.



## Step Three: Diagnose the Repair

Perhaps the most important part of correctly performing bike repairs is identifying how the repair requested by the store or customer needs to be performed. Accurate diagnosis of how to complete the repair will save you the time and frustration of having to replace more parts than are necessary, and ordering or re-ordering parts for a misdiagnosed repair. Your trainer will guide you on how to properly diagnose bike repairs.



### Identify the Repair Type

In addition to assembly, one of the most important services we provide to our customers is bike repair. One of the most important aspects of bike repair is to know how to report repairs correctly so the correct parts can be ordered. Identifying the correct repair type during your diagnosis is critical to making sure you identify the repair correctly on your electronic reporting device. Apollo classifies bike repairs into three different types: Out of Box repairs, Tagged repairs, and Reconditions.

- **Out of Box Repairs** - Out of Box (or OB) repairs occur when you discover during the course of assembling a bike that a part needs to be replaced. **IMPORTANT:** All OB repairs require part replacement.
- **Tagged Repairs** - These are repairs that occur after assembly and are typically “tagged” with a note or store repair request. These are bikes that have been damaged while on display, in store stock, or after customer use and require a part to be replaced. All Tagged Repair codes are part replacement codes
- **Reconditions** - Reconditioning a bike involves performing all the necessary checks and adjustments needed to return a bike to a condition where it is safe and can be ridden. Reconditions are “adjustment only” repairs, as reconditions do not include any part replacements.

Reconditions can occur on either store or customer owned bikes. However, recondition reporting is not allowed on new bikes coming out of a box to be assembled.

At retailer may ask you for specific information on a damaged bike needing repair. This information is needed for them to order parts.

- **Locating the model, serial, and date code numbers on a bike**

The serial number is always stamped into the frame of the bike. The sticker containing the model and date code numbers on all models is generally located around the crank housing. It could be on top or the bottom of the crank housing, or, on the seat tube on the bottom down tube on the frame.

**Example of a Serial Number stamped into the bike frame:**



**Example of a model and date code sticker:**



## Step Five: Repair the Bike

You've prioritized, located the bike, diagnosed the repair, and the retailer now has replacement parts to repair the bike. As mentioned previously, Tagged and Out of Box repairs consist of replacing damaged parts. This section will describe the replacements you will complete and the steps you will take to complete each one.

### Cable Replacement

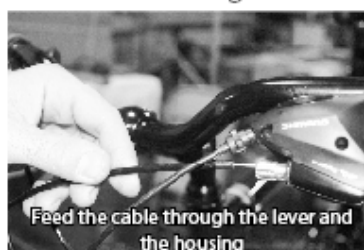
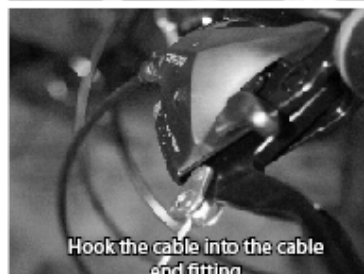
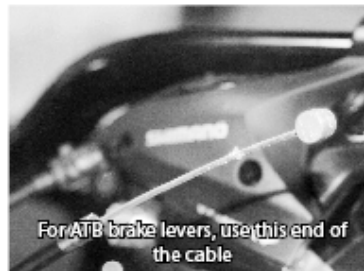
Cable replacement is essentially the same process for both brakes and shifters. If you need to order a cable from the Distribution Center, the brake or shifter cables that you receive will be Universal Cables, meaning the same cable can be used for different types of levers.

#### Remove and Replace Brake Cable

1. Loosen the brake cable anchor nut and remove the old cable and housing.
2. Identify which end of the universal cable you will need and snip off the other end
3. Install the cable end into the brake lever and route the cable and housing through the cable guides on the frame. If the bike has exposed cable with two sections of housing, measure the new housing and cut to fit.

Make sure all cable housing ends are fully seated in the adjusting barrels and/or cable guides.

4. Insert the wire into the anchor on the brake. Adjust the brake.
5. After the brake has been adjusted, cut the wire so that approximately three inches of cable extend past the anchor bolt. Cap the cable with a cable end.



#### Remove and Replace Shifter Cable

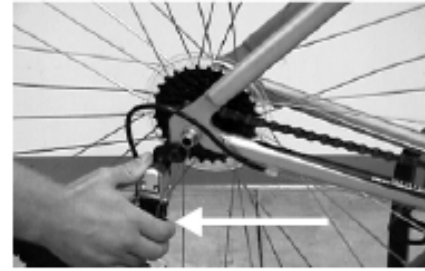
*Note: This procedure is for thumb shifters and stem shifters only. If the bike has grip shifters or rapid-fire shifters, replace the entire shifter, the cable will be included with it.*

1. Make sure the derailleur is set in the smallest sprocket
2. Loosen the derailleur anchor nut and remove the old cable and housing
3. Identify which end of the universal cable you will need and snip off the other end
4. Feed the cable wire through the shift lever and route the cable and housing through the cable guides on the frame. If the bike has exposed cable with two sections of housing, measure the new housing and cut to fit. Make sure all cable housing ends are fully seated in the adjusting barrels and/or cable guides.
5. Insert the wire into the anchor bolt and adjust the derailleur.
6. After the derailleur has been adjusted, cut the wire so that approximately three inches of cable extend past the anchor bolt. Cap the cable with a cable end.

## Replace Rear Wheel

Follow these steps to replace the rear wheel:

1. Ensure the chain is on smallest sprocket in the front and rear.
2. Loosen the rear brake cable if necessary to allow the wheel to pass through the brake pads freely.
3. Loosen both axle nuts.
4. Pull back on the rear derailleur to allow room for the sprocket to pass through and slide the wheel out of the dropouts.
5. To replace, complete the above steps in reverse order.



Pull back on the derailleur body, not the derailleur cage

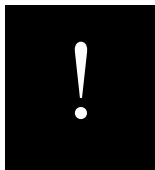


With the derailleur pulled back, space is created for the wheel to be removed

## Replace Front Wheel

Follow these steps to replace the front wheel:

1. If necessary, loosen the front brake cable to allow the tire to pass through the brake pads freely.
2. Loosen both axle nuts.
3. Slide the wheel out of the dropouts.
4. To replace, complete the above steps in reverse order.



### Important Note about Replacing a Bike's Wheel

Whether you loosen the brake or not, you must always adjust a bike's brakes after replacing a wheel.



## Remove and Replace Tube or Tire

The steps for replacing a tube or tire are as follows:

1. Remove the wheel (as described on the previous page)
2. If there is any air remaining in the tube, deflate it completely.
3. At the point on the rim directly opposite the valve stem, insert your tire lever under the edge of the tire and lever it down against the rim. This should pull the tire away from the rim. Run the tire lever around the rim to pull the rest of the tire away from the rim. Do this on one side of the tire only.
4. Push the valve stem up through the rim and, starting at the valve stem, pull the tube out of the tire.
5. Inspect the tire inside and out for damage or foreign objects which may still be sticking through to the interior of the tire. Inspect the rim for burrs or sharp edges.

**TIP:** *If you run a rag or piece of cloth along the interior of the tire, it will snag upon any sharp items that are protruding through the tire. This will help you inspect the tire quickly without running the risk of a sharp object in the tire cutting you.*

6. Inflate the tube just enough for it to hold its shape. Starting at the valve stem put the new tube onto the rim, inside the tire.
7. Starting at the valve stem, press the tire back onto the rim with your hands, taking care not to pinch the tube between the tire and the rim. If the tire is too tight to press on by hand, it can be levered on using your tire lever and reversing the removal process.
8. Inflate the tube slightly and check to make sure the tube is not pinched by squeezing the tire from both sides to ensure that it is seated properly. The sidewall ridge on the tire should be the same distance from the rim around the entire wheel on both sides.
9. Fully inflate the tube to the pressure specified on the side of the tire. Inspect the tire for any bulges that would indicate the tire isn't evenly seated around the rim.
10. Reinstall the wheel and adjust the brakes.

**NOTE:** *To replace a tire, you will follow the same steps listed above, removing both sides of the tire in step 3.*



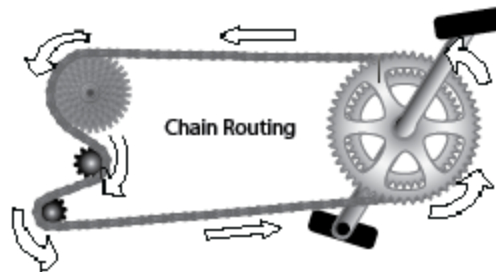
## Replace Chain

Follow these procedures for removing a multi-speed chain:

1. Place the chain in the “neutral position” and on smallest sprocket in the front and rear.
2. Place the chain rivet tool on one rivet between two links with the chain in the slot positioned farthest from the rivet tool handle. Make sure the pin on the rivet tool is lined up with the pin on the chain.
3. Turn the handle of the chain tool clockwise. This will push the rivet through the chain. Take care not to push the rivet completely out.
4. Turn the handle of the chain tool back until the tool can be removed.
5. Try to separate the chain at this point by flexing it sideways. If this does not work, reinsert the tool and give it another turn until the chain separates freely.
6. Make sure the new chain is routed correctly through the derailleur (see below). Reconnect the chain by snapping both halves of the link back together and pushing the rivet back through the hole with the chain tool.



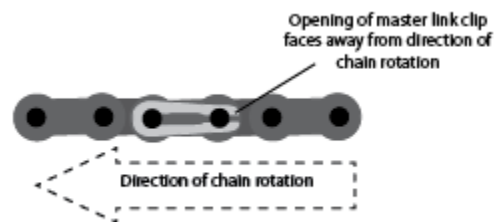
NOTE: It may be necessary to flex the new chain back and forth at the connection point to allow it to move more freely through the derailleur.



## Single Speed Chains

Follow this process for removing a single-speed chain:

1. Locate the Master Link of the chain.
2. Using a flathead screwdriver, pop the Master Link clip off the rivets of the Link.
3. Remove the outer plate of the Link.
4. Remove inner plate of the Link; this will be the same plate the link rivets are attached to.
5. When replacing, reverse the above steps, making sure the Master Link clip is oriented in the correct manner.



## Replace Front Derailleur

Follow these steps to replace a front derailleur:

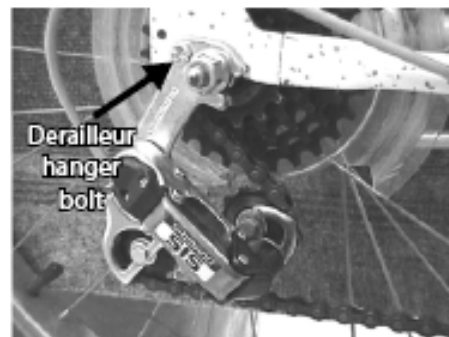
1. Remove chain as outlined on the previous page.
2. Loosen cable anchor bolt and remove the cable from the derailleur.
3. Remove derailleur clamp bolt and carefully remove derailleur.
4. To reinstall the new derailleur, complete the above steps in reverse order.
5. Adjust Derailleur



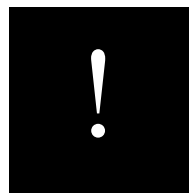
## Replace Rear Derailleur

Follow these steps to replace a rear derailleur:

**NOTE:** *You will first need to identify how the rear derailleur is attached to the left rear dropout. If the derailleur is attached only to the left rear dropout and not the axle then proceed to Step 2 below. If the derailleur is attached to both the left rear dropout and the axle then you will need to start with Step 1 below.*



1. Remove rear wheel as outlined in the Rear Wheel Removal section.
2. Remove chain as outlined in the steps in the Chain Removal section.
3. Loosen cable anchor nut and remove the cable from the derailleur.
4. Loosen derailleur hanger bolt, and remove derailleur.
5. To reinstall the new derailleur, complete the above steps in reverse order.
6. Adjust Derailleur



### Important Note about Replacing Parts

Every time you replace a part, you must also complete any/all adjustments associated with that part replacement. For Example: if you replace a wheel, you must also adjust the brakes and check that the wheel is true.

## Remove and Replace Freewheel Cluster

Follow this procedure for removing a freewheel cluster:

1. Remove the rear wheel from the bike as outlined previously.
2. Remove the axle nut or the quick release skewer.
3. Insert the correct freewheel removal tool into the freewheel cluster with the prongs (or ribs) exactly matched to the notches (or splines) of the freewheel body. Screw the axle nut back onto the axle and against the freewheel tool to prevent the tool from coming loose during removal.
4. Place the freewheel removal wrench over the tool and tighten the adjusting knob to hold the tool securely in place. Holding the wheel as described below, turn the wrench counter clockwise to loosen the freewheel from the hub. This usually takes a lot of force; but, once the freewheel breaks loose, it can easily be unscrewed the rest of the way. Once the cluster has been loosened, remove the axle nut again and completely remove the free wheel.
5. For installation, simply screw the cluster onto the hub and, using the freewheel tool, completely tighten the cluster.



**SAFETY NOTE:** *Be careful when completing this procedure. Take care to avoid raking your knuckles across the spokes when the freewheel breaks loose. Also be aware of any surface such as your work table or the floor in the path of where the wrench will travel so you can avoid accidentally bashing your hand into that surface*



## Bearing Systems

The three different types of bearing systems found on all bikes each function in essentially the same way. Each involves some form of axle: a wheel axle, a crank spindle, or the steer tube of a fork. The axle turns within a tube and its turning is controlled by a bearing system consisting of bearing cups, the ball bearings themselves, and cones that keep the bearings in the proper position. A locknut or locking ring will hold the entire assembly in place. Whenever you have to replace a component in a bearing system, you will need to check and adjust that bearing system.

- **Checking Headset Bearings**

Check the headset adjustment by holding the frame steady and rocking the fork back and forth to see if you can feel a knocking sensation. If a knocking is detected, the bearing will need to be adjusted. The knocking is most likely a symptom of a loose headset bearing.

- **Checking Wheel Bearings**

With the wheel in the fork to hold the axle steady, hold the fork with one hand and try to move the wheel side to side with the other hand. If there is any lateral motion the bearing is too loose and will need to be adjusted.

- **Checking Bottom Bracket Bearings**

Standing opposite the chain wheel and grasping both crank arms, alternately wiggle them both towards and away from you to see if you can detect any lateral motion. If there is lateral motion the bearing will need to be adjusted. NOTE: Don't let yourself be fooled by the crank arms moving rather than the bearings. Make sure that the motion is in the bearings before adjusting.

## Adjusting Bearings

In general the process for adjusting bearings is as follows:

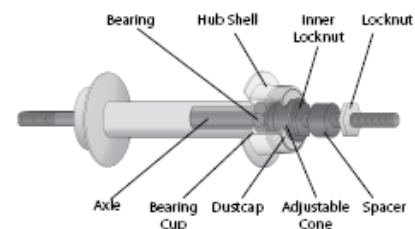
1. Loosen the locknut.
2. Adjust the cone slightly – one-eighth turn – and check to see if the component rotates freely. (If the bearing is loose, adjust the cone by tightening, if the bearing is binding, adjust by loosening).
3. Continue to adjust in small increments until the component is no longer loose, nor does it bind.
4. Retighten the locknut and recheck adjustment

The axle in a bearing system should generally be able to turn freely without binding or any lateral motion. Refer to the manufacturer's instructions for specific bearing adjustment procedures.

## Replace Wheel Axle

This procedure is the same for both front and rear wheels.

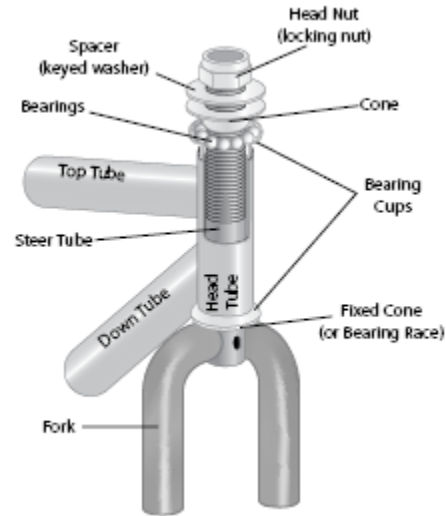
1. Remove the wheel and remove the locking nut.
2. Remove any spacers, the cone nut, and bearings so the axle will pull out of the other side of the hub.
3. Clean the cups in the hub of any dirt and old grease and inspect for damage.
4. Install the locking nut, cone, and bearing onto either side of the new axle.
5. Apply fresh grease to the bearing cups and install the new axle.
6. Install bearing, cone, and locking nut to other side of axle and adjust so that there is an equal amount of exposed threads on both sides of the hub.
7. Adjust bearings and reinstall wheel.



## Replace Fork and/or Fork Bearings

Follow these steps for replacing the fork and/or fork bearings:

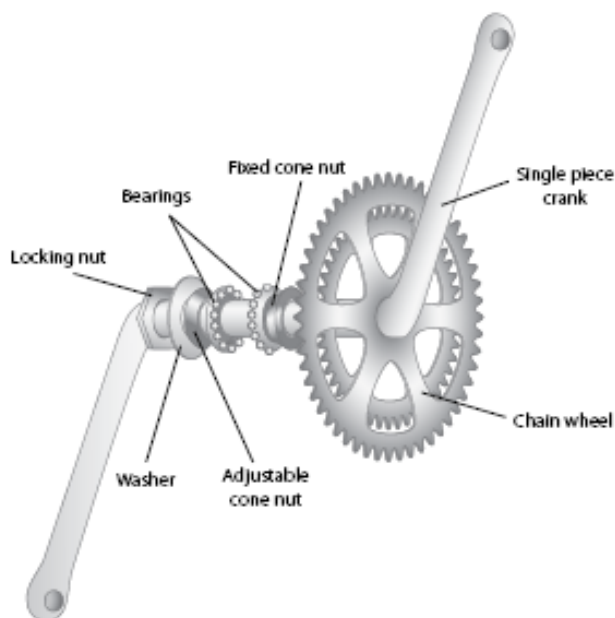
1. Disconnect the front brake from the fork by removing the nut on the back of the brake pivot bolt and pulling the brake assembly out of the hole. If the bike is equipped with cantilever or V-brakes, remove them from the mounting posts on the fork tubes.
2. Remove front wheel.
3. Loosen the stem bolt, remove the stem and handlebar assembly from the head tube, and then remove the head nut and spacers.
4. While holding the fork into the head tube with one hand, remove the cone nut with the other. The fork can now be pulled out of the head tube and the lower bearing removed.
5. Before installing the new fork, first check the bearing cups and cones for damage and pack the cups with grease.
6. Install the lower bearing onto the fork (making sure the ball side the cage will face into the cup) and put the forks into the head tube.
7. Hold the fork in place with one hand and install and adjust the upper bearing and cone.
8. Install the washer and head nut and tighten.
9. Reinstall the front wheel and readjust the front brake.



## Remove and Replace Single Piece Crank or Chainwheel

Follow these steps for replacing a single-piece crank or crank bearings:

1. Remove both pedals, and remove the chain from the chain wheel.
2. NOTE: If you are only replacing the crank bearings, you will only need to remove the non-drive side pedal.
3. Remove the locking nut and washer.
4. Remove the adjustable cone nut and non-drive side bearing.
5. From the drive side of the bike, carefully remove the crank.
6. Remove the drive side bearing and unscrew the fixed cone nut.
7. If the chainwheel needs to be replaced, carefully slide the chainwheel from the crank after removing the fixed cone nut.
8. Clean and inspect all parts for damage; add fresh grease to the bearing cups.
9. To reinstall, complete the above steps in reverse order.



## 3-Piece Cranks/Bottom Brackets

Before replacing 3- piece cranks or Bottom brackets, you must first understand how to remove and replace the crank arms.

### Remove and Replace Cotterless Crank Arms

Follow this procedure for removing/replacing cotterless crank arms:

1. Remove the dust cap by either unscrewing or prying it off with a flathead screwdriver.
2. Remove the crank spindle nut (or bolt) behind the dust cap. This usually requires a 14mm socket.
3. Screw the external part of the crank removal tool into the threaded recess on the crank arm until tight.
4. Holding the crank arm with one hand, turn the handle of the crank puller clockwise. This will press the crank arm off the spindle.
5. Remember to remove the crank puller from the crank arm.
6. To replace the crank arm, push the arm onto the crank spindle and tap it lightly with a rubber mallet. Replace the spindle nut and tighten it completely. Make sure the crank arms are aligned properly (parallel; one points up while the other points down).



**NOTE:** Do not use an impact wrench to tighten aluminum crank arms.

## Remove and Replace Bottom Bracket

### Replace Cartridge Style Bottom Bracket

Follow these procedures for removing a cartridge style bottom bracket:

**NOTE:** *This type of bottom bracket is a sealed cartridge and is not serviceable. If you encounter one that is damaged, replace it. Do not attempt to repair it.*

1. Remove both crank arms.
2. Using the bottom bracket tool (pictured right), remove the cartridge-bearing cup on the non-drive side.
3. Using the same tool, remove the cartridge from the drive side. This is reverse-threaded, so you will have to turn it clockwise to remove it. The bottom bracket cartridge will come out as a single unit.
4. To reinstall, complete the above steps in reverse order



### Remove and Replace Adjustable Bottom Bracket

Follow these procedures for replacing the bottom bracket or bearings on a three-piece crank:

1. Remove both crank arms.
2. Remove the locking ring from the bearing cup on the nondrive side of bike.
3. Remove the adjustable bearing cup on the non-drive side. Sometimes you will need a special crank spanner tool to remove this cup.

**NOTE:** *The bearings should come out with the cup. If there is a bearing cage instead of loose balls, make note of the direction that it is facing, this will be the same direction it will face when replaced.*

4. Remove the crank spindle.
5. Remove the drive side (non-adjustable) bearing cup (if necessary).
6. Clean bearing cups of any dirt and grease and repack with fresh grease.
7. To reinstall, complete the above steps in reverse order.



## Bike Repair Types

Bike repairs fall into three different types: out-of-box repairs, tagged repairs, and reconditions.

**Out-of-Box Repairs** - Out-of-Box (or OB) repairs occur when you discover during the course of assembling a bike that a part needs to be replaced. Important - All OB repairs require part replacement.

**Tagged Repairs** - These are repairs that occur after assembly and are typically “tagged” with a note or store repair request. These are bikes that have been damaged while on display, in store stock, or after customer use and require a part to be replaced. All tagged repair codes are part replacement codes.

**Reconditions** - Reconditioning a bike entails performing all of the necessary checks and adjustments needed to return a bicycle to rideable condition. Reconditions are “adjustment only” repairs. Reconditions do not include part replacement. Reconditions are classified as either “store” or “customer” owned.

## Bike Reconditioning

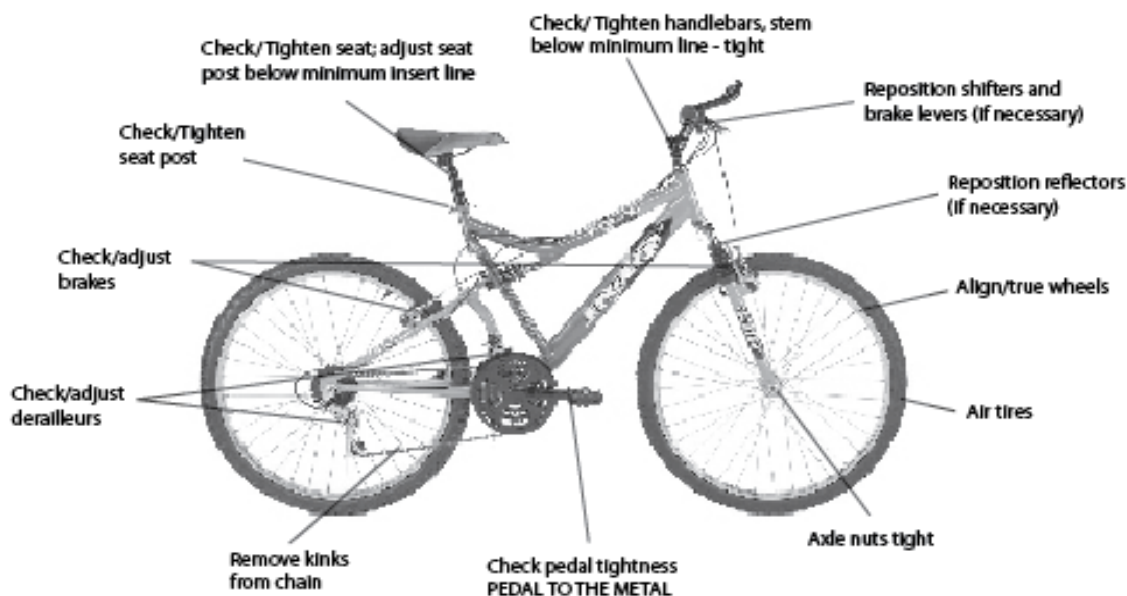
On occasion, you will be brought bikes for repair that do not require part replacement, but do require one or more adjustments to return the bike to rideable condition. In these cases, you would recondition the bike. Reconditions are *adjustment only*.

You may complete a recondition on a bike if:

- a. You receive a specific request to do so  
**or**
- b. During the course of a part replacement, you determine reconditioning is necessary to return the bike to a safe, rideable condition AND you have received approval from the store manager to recondition the bike.

Reconditioning includes a check of all components that would normally be installed during assembly, and making needed adjustments. **When reconditioning a bike, you must check and/or adjust *all* of the items shown in the illustration below.**

## Bike Recondition Procedures



## Bike Repair Guidelines

A few last notes to remember about completing bike repairs:

- **Repair only what you are asked to repair.** ALWAYS get approval from store management before completing repairs. Most of the time they will give you approval to complete the repair, but don't take the chance. Always ask first. Remember, they are the customer and have the right to choose what they will and will not pay for.
- Whenever you replace a part, you must also complete any needed adjustments associated with that repair. (i.e. when replacing a wheel, you must also adjust the brakes). Time to complete any/all necessary adjustments is built into the replacement codes.
- Don't let repairs pile up. Taking care of the account's repairs is one of our primary services. **You are expected to address repairs every service visit.** Check to see if parts have arrived, follow up on parts that are still waiting, and complete as many repairs as possible.
- Identify completed repairs. Often, if a bike has been awaiting parts and you complete the repair, the store will assume it is still awaiting repair unless you identify for them that the repair is completed. When you complete a repair, place a note on the bike so the store knows it has been repaired and is ready to go.





## Section Six: Bike Assembly and Repair Safety

It is always good to review some of the safety procedures and guidelines that are relevant to bike assembly and repair. More safety information is included in the safety section of this document.

### Power Tool Usage



#### Correct

Keep it straight. By keeping his wrist straight, this Assembler is better able to absorb the impact to his joints caused by the power tool.



#### Incorrect

This Assembler is bending his wrist while using his impact wrench. By doing this, all of the force of the wrench recoils directly into his wrist. This Assembler is increasing his chances for an injury.

### Avoid the Line of Fire



#### Correct

The Assembler is using his power tool to quickly tighten the reflector to the bike's seat post and does not have his other hand in front of the power tool, as in the incorrect example to the right.



#### Incorrect

Even though this Assembler is keeping his wrist straight, the hand he's using to hold the bike's reflector is directly in front of his drill. If the drill slips, then he could injure himself. "Line of fire" is any point on the path in front of a power or hand tool that's moving. Never place any part of your body in the line of fire.



## Adjust Your Stand to Your Benefit



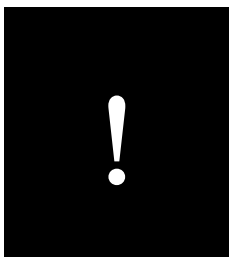
### Correct

The bike stand clamp arm can be set so it will hold the bike steady and can still be rotated easily without having to tighten or loosen the tension handle. During all phases of assembly, rotate the bike in the stand either up or down as necessary to avoid any excessive reaching or bending.



### Correct

The Assembler is using his bike stand to elevate the front of the bike upward so he does not need to bend over to inflate the tire.



### Important Note about Safety and Ergonomics

Be sure to take time and review the safety information in this document whenever you feel the need to familiarize yourself again with any safety guideline or procedure specifics. If you have a question about safety, ask your trainer or contact your District Manager.



## PART TWO: GRILL ASSEMBLY

# Section One: Types of Grills

There are many different grill manufacturers and many different types of grills. Because of this wide variety, it is impossible for us to train you on every single grill that might be encountered in the field. However, in this section, we will provide you with information to give you a basic knowledge of the products you will be assembling.

As with all products assembled by Apollo, you should refer to the owner's manual if you have any questions about the assembly procedures.

## Types of Grills

Shown below are some of the more common types of grills you may be called upon to assemble.

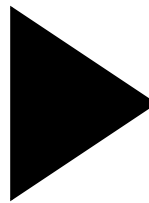


### Gas Grills

Possibly the most common grills you assemble, gas grills typically entail the assembly of a cart, installing the grill head, side shelves, and the lid. In some cases, a side burner will also need to be installed.

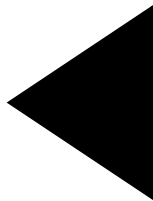
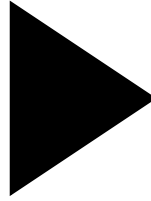
### Stainless Steel Grills

Often called “Commercial” or “Professional” grills, stainless grills have become very popular over the last few years. These grills are often extremely heavy and great care must be taken during assembly. Assembly is usually similar to standard gas grills in that the cart and side shelves must be assembled, and the grill head installed.



### Charcoal Grills

Basic charcoal grills come in a variety of shapes and sizes. Usually your assembly will be limited to the assembly of the stand, and perhaps attaching the lid to the fire bowl.

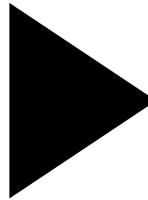


### Smoker Grills

Smoker grills are larger, heavier versions of charcoal grills. Assembly usually entails the installation of the legs, and if equipped, the secondary fire box. Some smokers are very large and will require two people to stand up.

### Cart Style Charcoal Grills

Cart style charcoal grills are hybrids between a standard charcoal grill and a gas grill. Similar to gas grills, a cart and side shelves must be assembled before installing the charcoal fire bowl.



## Section Two: Grill Assembly Safety

### Lifting Hazards

Grill boxes are often very large, heavy, and awkward, and should never be lifted alone. Get assistance lifting grills whenever possible. Use “team lifting” techniques when necessary and available.

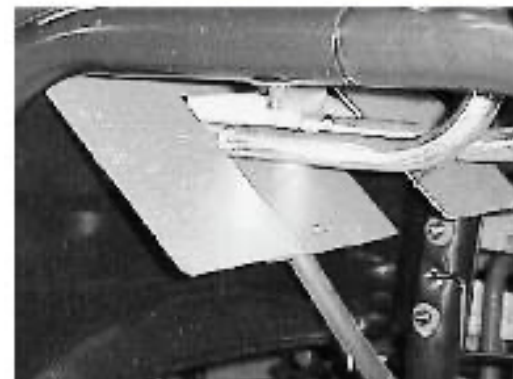
If no assistance is available:

- Use a cart or flatbed whenever possible to move boxed grills
- If a cart isn’t available to move a grill, slide it across the floor. **Push**, don’t pull; do not try to carry it alone.
- When removing grills from a stack, never try to bring one down from a stack above shoulder height without assistance.
- To place a grill on top of your work table, slide it to the work area and lean it against the table, and lever the grill on top.
- When lifting anything, always remember to keep the object close to your body, and don’t reach. Lift with your legs, not with your back.

**It takes less time to go get help lifting than it does to recover from an injury!**

### Laceration Hazards

Many grills have components with very sharp edges. Be aware of potential laceration hazards when assembling grills. Side burners and heat shields are just a couple of examples of grill parts that have sharp edges you need to watch out for.





## Section Three: Basic Grill Assembly

As there are many different accessories on different models of grills, it is not possible to cover assembly instructions for all grill types here. These are only general steps and assembly tips. **Refer to the owner's manual for specific installation instructions if you have any questions about assembly procedures.**

### Basic Assembly Steps

In general, grill assembly will follow these six steps:

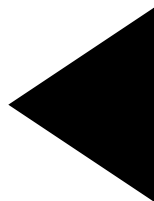
1. Unpack
2. Assemble the base
3. Attach the grill head
4. Attach Side burner (if included)
5. Attach lid, shelves and accessories
6. Final check

### Step One: Unpack

For stainless grills, the easiest method of unpacking is to cut around the bottom of the box (approximately 3 inches from the floor) until the box lifts off from the top. The bottom part of the box remains on the floor containing all components of the grill intact.

For other types of grills, simply cut open the top flaps of the box.

**IMPORTANT:** Remember to use safe cutting techniques. Use a retractable utility knife and always cut away from your body.



Remove all of the parts from the box and organize them on your work table. Carefully cut open all parts bags and boxes.

NOTE: Be aware that parts are often packed in boxes in side and under the grill. Be sure to check these spaces and remove all of these parts before attempting to lift the grill head.



## Step Two: Assemble the Base

Most of the time, the first thing you will do after unpacking a grill will be to assemble the base or frame of the grill. Follow the manufacturer's instructions for assembling the base of the grill you are working on.



**NOTE:** Some grills may have concrete in the base. Do NOT assemble those units on the top of a worktable or box. Not only is it dangerous to do this, but the unit will be too heavy to lift off the worktable or box once the assembly is complete.

## Step Three: Attach the Grill Head

Most gas grills come with a pre-assembled component known as the grill head. This component usually consists of the bottom part of the grilling box, the control panel and the burner tubes. Once you have completed the assembly of the base frame, you should be ready to attach the grill head.



Be careful of pinch points when placing the grill head into position

**TIP:** When unpacking, set the grill head on its back and on top of your work table. Then, when it's time to install, simply roll the grill head forward onto the base frame

**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**

## Step Four: Attach Side burner (if included)

Following the manufacturer's instructions, install the side burner at this time. **IMPORTANT:** When you install the side burner, you will also need to hook up the side burner valve and connect the igniter.

If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.



**NOTE:** Some grills require that the side burner and side shelves be attached before installing the grill head. Check the instructions for specific assembly steps.

## Step Five: Attach Lid, Shelves, Accessories

Install the remaining parts of the grill. Possible parts may include:

- Grill lid
- Knobs
- Gauges
- Condiment racks
- Drip pan
- Rotisserie
- Cooking grates
- Warming racks
- Flavorizing bars



## Step Six: Final Check

Perform a check to ensure all nuts and bolts that you installed are fully tightened. Make sure all shelves are secure and that any moving parts (grill top, warming racks, folding shelves, etc.) are secure, but also move freely as described in the manufacturer's instructions.

Check that any/all burner tubes you installed are aligned properly and any other parts you installed (grease shield, drip pan, etc.) are properly installed. Make sure the tank, if included is placed according to manufacturer's instructions. **Do NOT hook up the gas line to the tank!**

Place any provided any P.O.P. (Point of Purchase) material onto the grill and place the owners manual inside the grill.

After the final check is complete, move the grill to a location designated by the store manager so they can move it to the store floor at their convenience.





## Tips for Assembling Large Smoker Grills

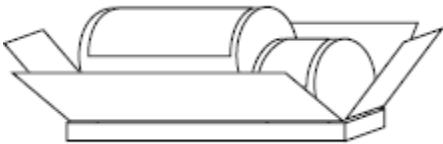
Most barrel type smokers can be handled by one person. However, some accounts carry barrel type smoker grills that are extremely large (over 6' long, 200+ lbs.). These instructions are supplemental to the manufacturer's instructions for grills of this type. For any questions regarding assembly of this grill, refer to the manufacturer's instructions.



### General Guidelines

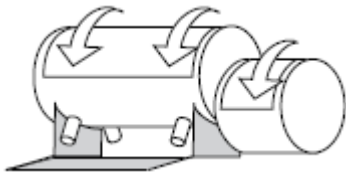
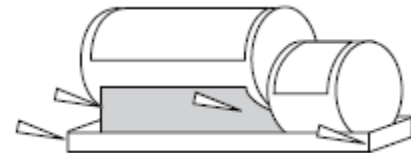
- ALWAYS get help when lifting or moving these grills.
- NEVER try to lift or move these grills alone.
- If the grill is on a pallet, assemble it on the pallet. Do not try to remove it from the pallet.

### Procedure



1. Cut the straps and remove the top of the box. Remove all loose parts (legs, hardware, etc.) from the box and stage nearby on your worktable/box. Cut the sides of the box away and fold them down.

2. Carefully cut the cardboard cradle and box bottom at the corners indicated and fold the cardboard down.



3. Carefully roll the grill off of the cardboard cradle. You may need help for this. If the grill does not roll easily roll off the cradle, do not try to move it alone. **ASK SOMEONE FROM THE STORE TO ASSIST YOU IF NECESSARY**  
**IMPORTANT:** Roll the grill in the direction indicated so the doors stay closed.

4. With the grill resting upside down on the floor, install the legs and the bottom shelf. Refer to the manufacturer's instructions for specific procedures.

With the help of another person, roll the grill onto its feet.



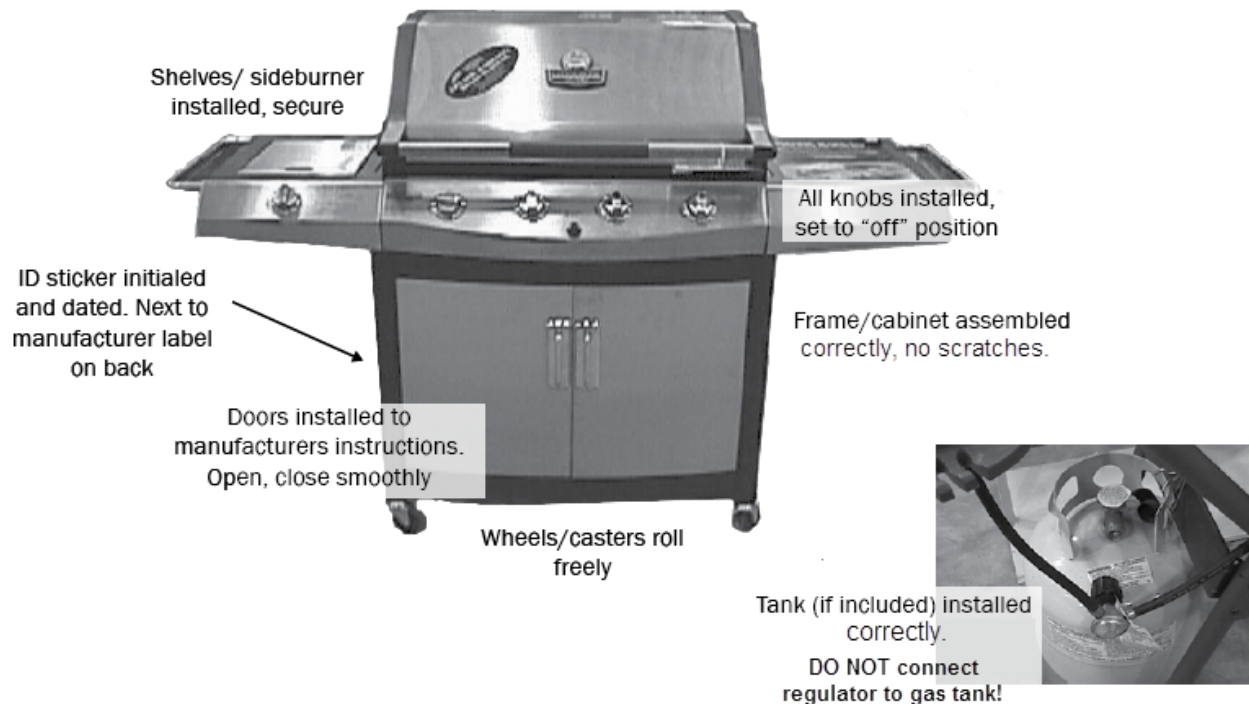
**NEVER TRY TO STAND THESE GRILLS UP ALONE!**



## Section Four: Grill Assembly Standards

DO NOT ALTER OR ADJUST MANUFACTURER'S PRE INSTALLED PARTS.

**All Assembler installed parts must be assembled tightly and correctly.**



### GRILL SAFETY TIPS

#### ALWAYS:

- Watch for sharp edges when handling grill parts
- Use safe lifting practices when moving grills and grill parts
- Get help when lifting more than 50 lbs.
- Use knee pads or cardboard when kneeling
- Use your safety knife and follow safe cutting practices. Stay out of the line of fire.

#### NEVER:

- Attach the regulator hose to the gas tank
- Add gas to an LP tank
- Attempt to reassemble or repair a used grill
- Attempt to light the burner of a gas grill

## Section Five: Grill Inspections and Repairs

Before or during assembly, you will occasionally run across grills that have been damaged during shipping, have defective parts, or are missing parts. Depending upon the account procedures, you may perform repairs on these grills. Most repairs will be minor replacements such as replacing missing or defective parts on new grills.

**It is important to remember that under no circumstances should you work on a grill that has been used, or hooked to a propane tank – NO EXCEPTIONS!**

Prior to every grill assembly, walk around and examine all boxes that have been set out for assembly for that day looking for boxes that have visible damage to them.

- If major damage is found to the box that might have damaged the pieces inside the box, immediately inform the store manager. They may ask you to go ahead and unpack the box to find the damaged piece(s). If they do not, let them handle the situation
- If minor damage is found to the box that might have damaged the pieces inside the box, leave that box until the last for that day and inform the store manager then. They may ask you to go ahead and unpack the box to find the damaged piece(s). If the you do unpack the box and find there are piece(s) that are damaged, it can be determined by the store manager if you should go ahead and assemble the unit to use as a floor model, or if the unit needs to be returned. If you unpack the box and do not assemble the unit, you should still enter the item on your Worksheet for the time spent unpacking.
- If damage is found to a piece inside the box or you discover a piece is missing after the box has been unpacked, proceed to follow the directions as above for minor damages.

The procedure for replacing parts will not differ greatly from the procedures learned in the previous pages regarding grill assembly. Some repairs/parts replacement may require you to disassemble parts of the grill to reach the part in question, and then reassemble the grill after the part has been replaced. Refer to the manufacturer's instructions to complete repairs if you have any questions about a procedure.

### Inspections/Parts Ordering

While we do not actually order grill parts, it is our responsibility to provide the appropriate account personnel with the information from the inspection so that they can order parts.



## **PART THREE: FITNESS EQUIPMENT**

# Section One: Basic Types of Fitness Equipment

There is a wide variety of fitness equipment manufacturers and models, so it is impossible to show them all here. However, there are two basic categories of fitness equipment that you will typically assemble: cardio equipment, and strength training equipment.

## Cardio Equipment

Cardio equipment is designed to be used for aerobic and weight loss exercise. Cardio exercise typically involves running, cycling, or climbing activities. Common types of cardio equipment are:

- **Exercise Bikes** - These are stationary bikes, usually with a computerized monitor that allows the rider to adjust resistance and measure their workout.
- **Treadmills** - Treadmills are machines used for running in place. Much like exercise bikes, most treadmills have monitors that allow the runner to customize their workout.
- **Elliptical Trainers** - Elliptical machines are designed to provide the benefit of running without the impact
- **Steppers and Climbers** - Steppers and climbers provide aerobic exercise while simulating the action of climbing stairs



Exercise Bikes



Treadmills



Elliptical Trainers



Steppers and  
Climbers

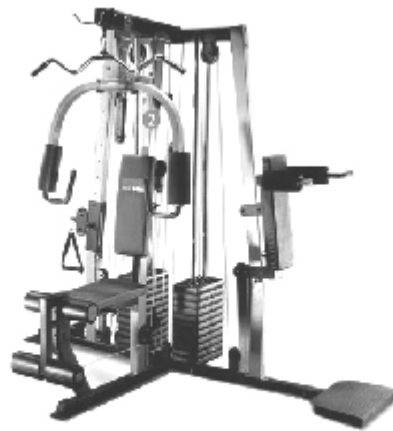
## Strength Training Equipment

Strength training equipment is designed for working out with weights. Common types of strength training equipment are:

- **Weight Benches** - These are typically adjustable benches with only a small number of possible exercises. Weight benches are used with free weights.
- **Multi-Station Weight Systems** - These are larger weight training systems with several stations for exercising. These are usually cable and pulley operated, using one or more stacks of weights.
- **Cage Systems** - Cage systems are similar to multi-position systems in that there are usually several exercise stations, however free weights are used with most cage systems.



Weight Benches



Multi-Station Weight Systems



Cage Systems



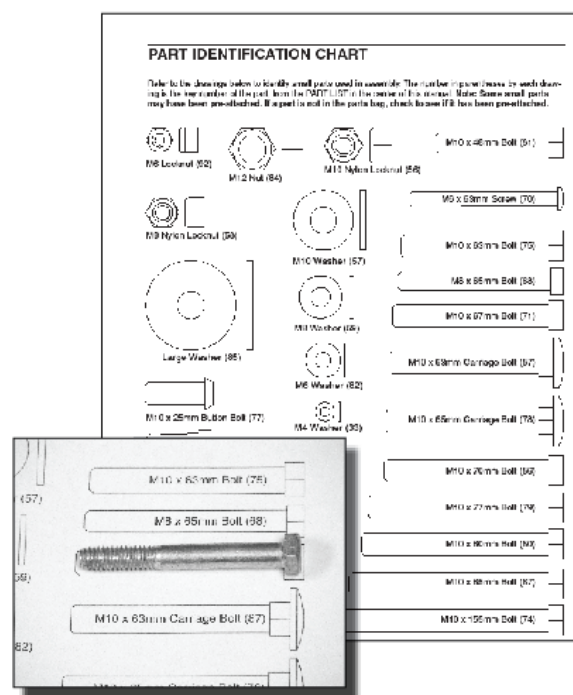
The following are general assembly guidelines. Check the owner's manual for specific fitness equipment assembly steps and standards for any questions about specific procedures.

In general, fitness assembly will follow these six steps:

1. Unpack
2. Assemble the frame
3. Route cables (if necessary)
4. Install pads and accessories
5. Final check

Perhaps the most important thing to remember when unpacking fitness equipment is to organize the parts. Many pieces and hardware items can be very similar in size and look, but have very different installation requirements. If these items are installed in the wrong place, it can cause you to spend extra time dis-assembling the unit to correct an error.

Most physical fitness manufacturers include a parts identification chart to help you organize and sort parts and hardware. Often the hardware diagrams in these charts are to scale so you can actually place the part directly on the diagram to determine the correct size (see picture, right). Organize the parts so that like parts are together; frame parts, pads, cables and pulleys, and hardware should be sorted.



Apollo is not authorized to perform fitness assembly in all In-Store Assembly accounts.

## Step Two: Assemble the Frame

Most fitness assembly begins with the assembly of the frame. Follow the manufacturer's instructions for assembling the frame parts.

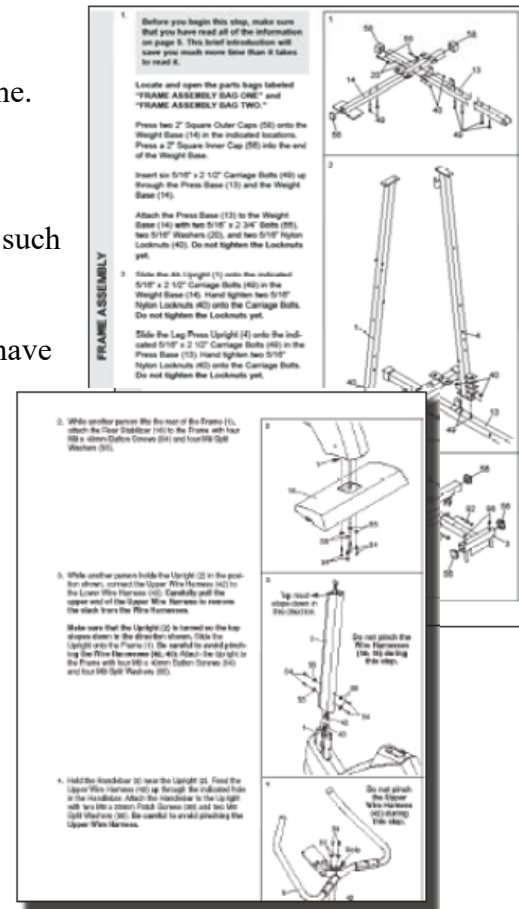
Included in frame assembly will be the installation of the various stations on weight benches and multi-station gyms such as leg lifts or butterfly stations.

**TIP:** Do not fully tighten the frame parts until all of them have been installed. This will make it easier to fit the parts together.

After all frame parts have been installed loosely, make sure the entire frame assembly is squared, and then tighten fully.

For cardio fitness items, such as exercise bikes or treadmills, this step usually entails just the installation of base feet or handles.

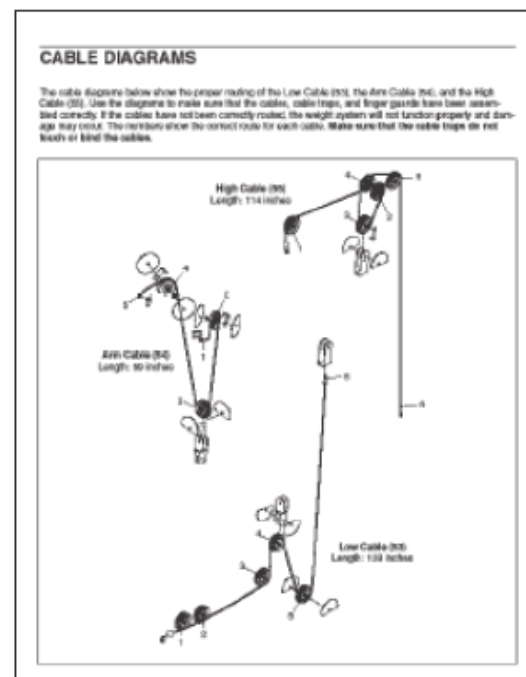
If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.



## Step Three: Route Cables (if necessary)

Most multi-station fitness systems have cables and pulleys that need to be installed and routed. In these cases, the manufacturer's instructions will usually include a cable routing diagram similar to the one shown at right.

Always make sure you follow the manufacturer's instructions for routing the cables and for assembling and installing pulleys. Pulleys must be assembled so that they roll smoothly, yet are not so loose that the cable might come off.



## Step Four: Install Pads and Accessories

After you have completed the major assembly of the unit, you will typically install any pads, seats, and/or accessories that are supplied with the unit.



Install accessory items such as lat bars, curl handles, etc.



Install seats and seat backs



If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.

**TIP:** When installing pads, use a small quantity of soapy water or window cleaner, to lubricate the inside of the pad. This will make it easier to slide the pads over the posts.

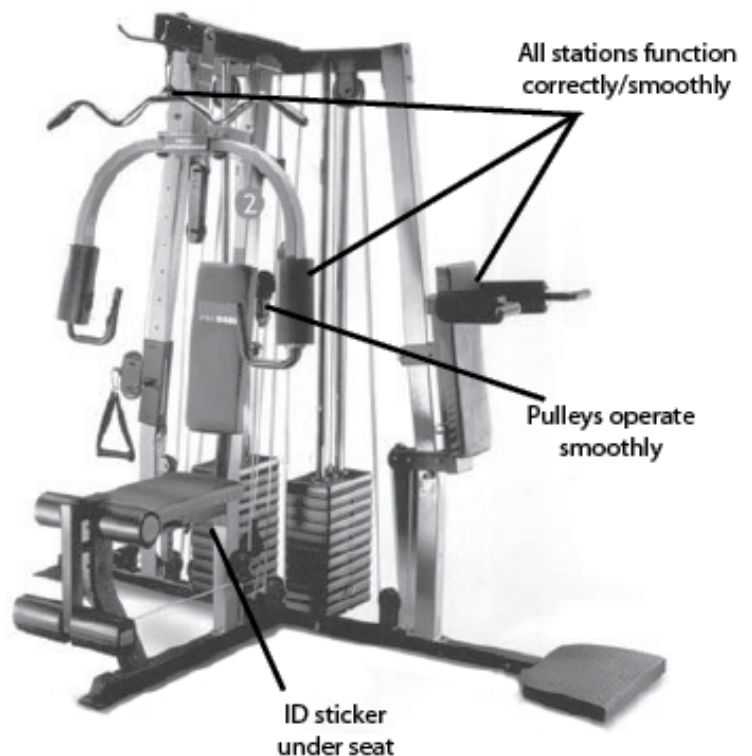


## Step Five: Final Check

Perform a check to ensure all nuts and bolts that you installed are fully tightened. Make sure any moving parts (pulleys, cables) are secure, but also move freely as described in the manufacturer's instructions. Make sure all pedals and foot pads are fully tightened.

After the final check is complete, move the item to the location designated by the store manager so they can move it to the store floor at their convenience.

**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**

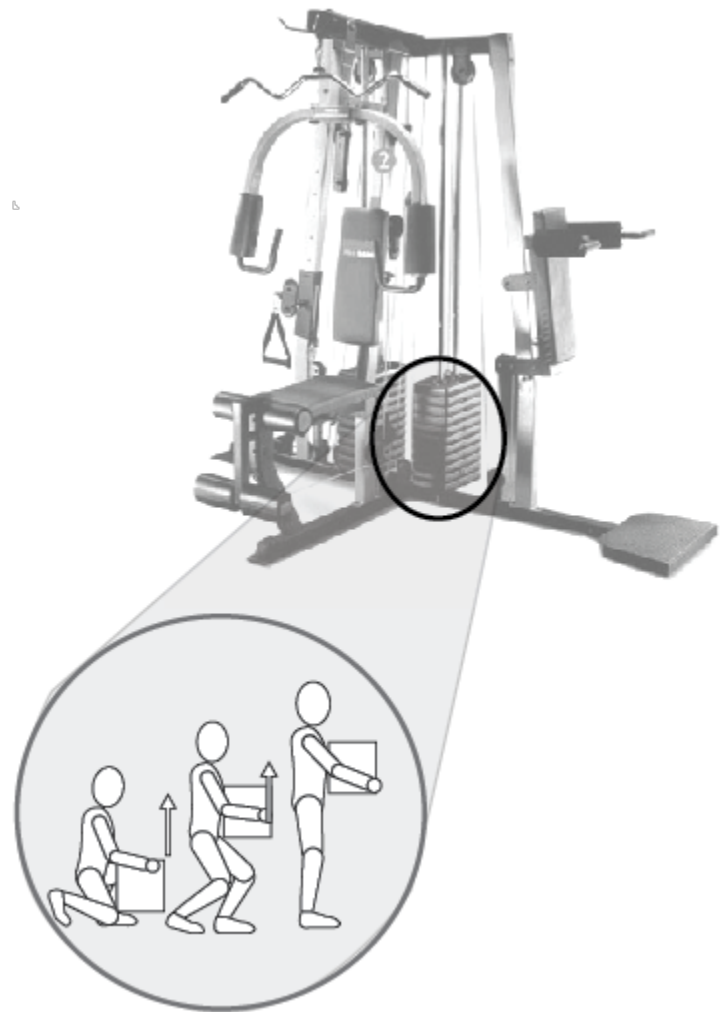


## Section Three: Fitness Assembly Safety

### Lifting Hazards

Fitness equipment often comes in several large, heavy boxes. Get assistance lifting when ever possible. Use “team lifting” techniques for larger boxes.

When lifting anything, always remember to keep the object close to your body, and don’t reach. Lift with your legs, not with your back.



Weights will often be packaged in smaller boxes within the main box. When lifting, always use safe lifting practices.

- Bring the box close to your body
- Keep your back straight when lifting
- Use your legs to lift and stand straight up.





## **PART FOUR: OTHER PRODUCT ASSEMBLIES**



## Section Other: Other Products

Depending upon the In-Store Assembly account you are in, you may be called upon to assemble other products such as patio furniture, lawn and garden equipment, or toys and game tables. These types of products are much less common than bikes, grills or fitness equipment. When you do encounter these product types, the primary thing to keep in mind is to assemble the product according to the manufacturer's instructions.



### Important Note about Assembling Other Products

Apollo is not authorized assemble all products in all accounts.

### Product Types

Shown below are some of the product types you may be asked to assemble.

#### Toys/Game Tables

Some accounts will carry play items such as toys or game tables. If authorized to assemble, follow the manufacturer's instructions for assembly. Some items you may be called upon to assemble are:

- Game tables/Pool tables
- Play houses
- Battery powered vehicles
- Go-carts
- Tricycles



#### Lawn and Garden/ Patio

In some accounts, you may be called upon to assemble lawn and garden equipment such as wheelbarrows and carts. Other items that you may assemble are picnic tables and patio furniture.

**If you are uncertain about a procedure, refer to the owner's manual for specific assembly guidelines.**

