

# **Keiser 300 / Air 300**

## **Parts and** **Maintenance** **Manual**

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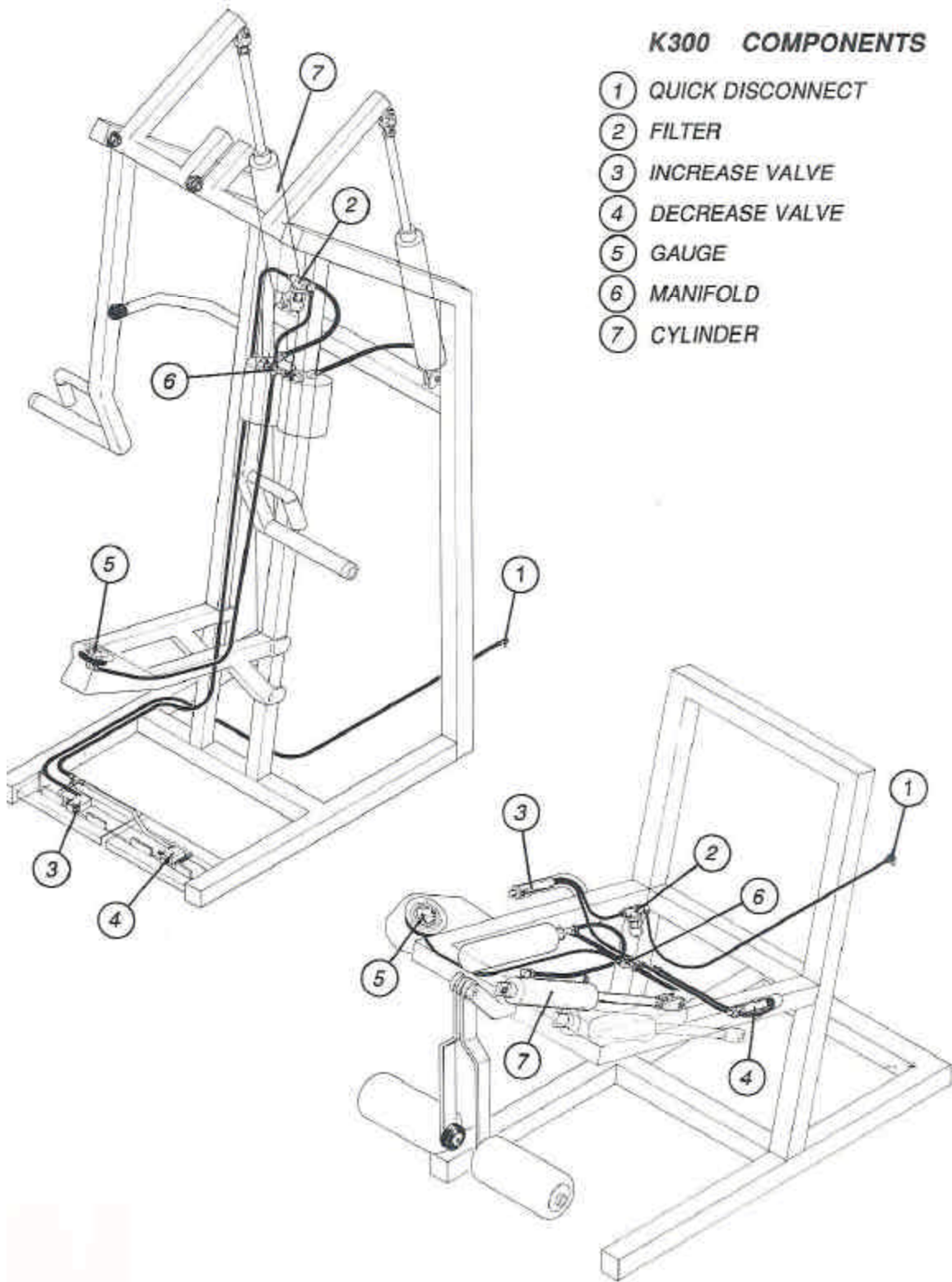
## **SAFETY CAUTIONS:**

We've put a number of safety cautions in this book. We use the word **CAUTION** to tell you about things that could cause bodily injury to persons on or around the equipment if you were to ignore the warning.

## **MACHINE DAMAGE NOTICE:**

Also, in this book you will find the word **NOTICE**. This tells you about things that could hurt the machine if you were to ignore these warnings.

### K300 COMPONENTS



## **K300 – HOW IT WORKS**

Two basic systems are used to operate the KEISER 300 series exercise machines. On machines that exercise the muscle groups of the upper body, the resistance is controlled by means of foot pedals mounted on the base of the machine. Thumb buttons in the handles operates machines for lower body muscle groups.

When the quick-disconnect is plugged into the air system, compressed air flows into the machine. In all but the Seated Chest Press, Lateral Shoulder Raise, Military Press, Tricep, and Seated Butterfly, the air flows through the filter to the increase valve (in the machine above, the filter is in a different location, but its function is identical). The filter removes moisture and particles, which may be harmful to the cylinders.

When the increase valve is depressed, the air flows into the cylinders, tanks, and gauge through one or more manifolds. Moving the exercise arm through its range drives the piston in the cylinder against the air pressure. The air, in effect, pushes back against the piston, creating mechanical resistance. When the increase valve is held down, the resistance becomes greater until the maximum cylinder pressure is reached.

Depressing the decrease valve opens the system to the atmosphere, allowing the cylinder air to escape. The resistance decreases as the pressure is reduced.

The gauge is calibrated to show the maximum amount of resistance developed by the machine. The gauge reading is correct when the exercise arms are against their stops. The gauge needle will move during the exercise motion. This is characteristic of the system and does not indicate a malfunction.

## PREVENTIVE MAINTENANCE SCHEDULE

	DAILY	WEEKLY	MONTHLY	QUARTERLY
1. Clean chrome	X			
2. Wash upholstery	X			
3. Wax chrome		X		
4. Wax upholstery		X		
5. Inspect cable, cable snaps, & mounting tab on Lat Pull Down		X		
6. Check the side play on Leg Ext, Leg Curl, Arm Curl		X		
7. Wash handgrips		X		
8. Inspect filter bowls for cracks and moisture		X		
9. Check nuts & bolts (see repair manual for tightness)			X	
10. Clean & lubricate cylinder rods			X	
11. Lubricate pivot bushings			X	
12. Lubricate & check bushings on Abdominal machine			X	
13. Lubricate & check bushing on center frame on Standing Hip				X
14. Check exhaust mufflers on cylinders for discoloration				X
15. Be sure compressor turns on at 75-85 psi. and off at 95-105 psi.				X

On air systems without dryers, drain filter bowls and compressor tanks monthly.

THIS MAINTENANCE SCHEDULE IS THE RECOMMENDED MINIMUM REQUIREMENT FOR K300 MACHINES. FAILURE TO FOLLOW THESE INSTRUCTIONS AT THE SUGGESTED INTERVALS WILL CONSTITUTE NEGLECT OF NORMAL CARE AS REQUIRED BY THE WARRANTY.

## **TROUBLESHOOTING**

The following section will help you to diagnose any problem that might occur on a K300 machine. Find the problem in the underlined headings and check each part of the system as described in the questions below it. By following this method, the most common problems will be checked first.

PROBLEM: No resistance when increase valve is depressed.

Is the machine's quick-disconnect plugged into the air system?

YES ↓ NO → Plug in the quick-disconnect

Do all other machines work?

YES ↓ NO → Check the compressor

Does the machine work when plugged into another outlet?

NO ↓ YES → Replace that outlet

Are any hoses kinked or damaged?

YES ↓ NO → Check the valves

Repair or replace the hose

PROBLEM: Exercise action is rough, noisy, uneven, or spongy.

Are the cylinder rods clean and lubricated?

YES ↓ NO → Clean and lubricate rods (see pg. 13)

Are any hoses kinked?

NO ↓ YES → Straighten or replace damaged hose (see pg. 6)

Are all pivot bearings lubricated?

YES ↓ NO → Lubricate the bearings (see pg. 20)

Is the exhaust muffler clogged?

NO ↓ YES → Replace muffler (see pg. 16)

Check the cylinder bore for proper lubrication (see pg. 13)

PROBLEM: Pressure changes without valves being actuated.  
Service the Valves (see pg. 9)

## **AIR HOSES AND FITTINGS**

All K300 machines use polyethylene tubing and “Compress-align” fittings to connect the various pneumatic components within the machine.

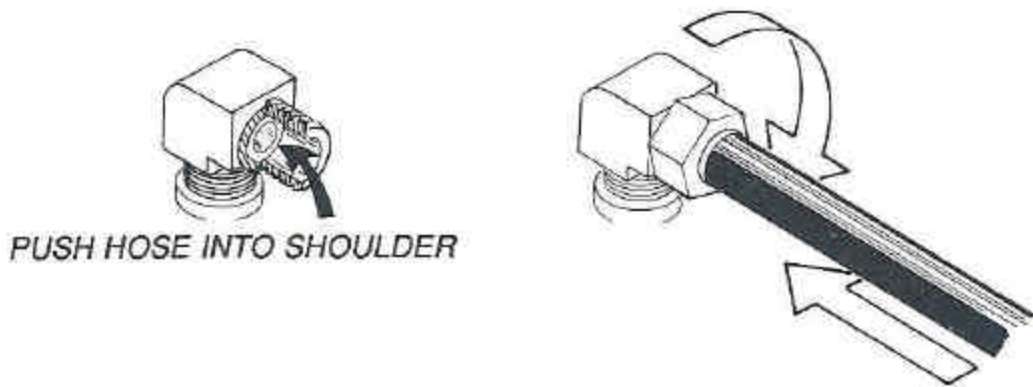
If an air leak is suspected, first listen closely to the air hose connections. Leaks will make a hissing noise. Very slight leaks may not be loud enough to hear. These may be detected by dabbing soapy water on the suspected leak. Escaping air will make bubbles. If the leak is at a fitting, first tighten the nut about one-quarter (1/4) of a turn. Test the connection again. If the fitting still leaks, the nut must be replaced. In most cases the air hose should be long enough to allow this; if not, order a new air hose from KEISER.

To install a new nut:

TOOLS REQUIRED: adjustable wrench and a sharp knife

1. Cut the tubing as close as possible to the nut. The cut must be clean and square.
2. Slip a new nut over the tubing.
3. Insert the tubing into the fitting all the way to the shoulder inside the fitting (see the cutaway illustration).
4. Hold the tubing in the fitting and slide the nut down onto the fitting. Tighten the nut as tight as possible with the fingers, then another one full turn with a wrench.

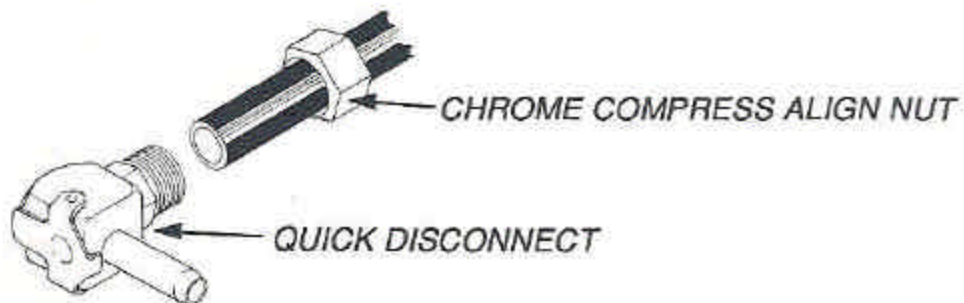
If reinstalling an air hose, tighten the nut finger-tight, plus one-quarter (1/4) turn. This will allow the nut to be used three more times before it must be replaced.



### QUICK – DISCONNECT

The feed hose is connected to the quick-disconnect and the machine with compress-align fittings. If the feed hose must be repaired or replaced, follow this procedure:

1. To replace hose, unscrew the compress-align nuts on both ends and remove the hose (new hoses and compress-align nuts are available from KEISER).
2. To shorten the hose, unscrew chrome compress-align nut from the quick-disconnect and cut the hose to the desired length. Slide a new chrome nut (an extra one is supplied with each machine) onto hose.
3. To tighten the compress-align nuts, slide the hose all the way into the fitting and thread the nut on hand-tight. Tighten the brass nut one full turn more with a ½ in. open-end wrench. The chrome nut may require more turns, due to the chrome on the threads. Make sure the hose is held securely in place at both fittings.





## FILTER

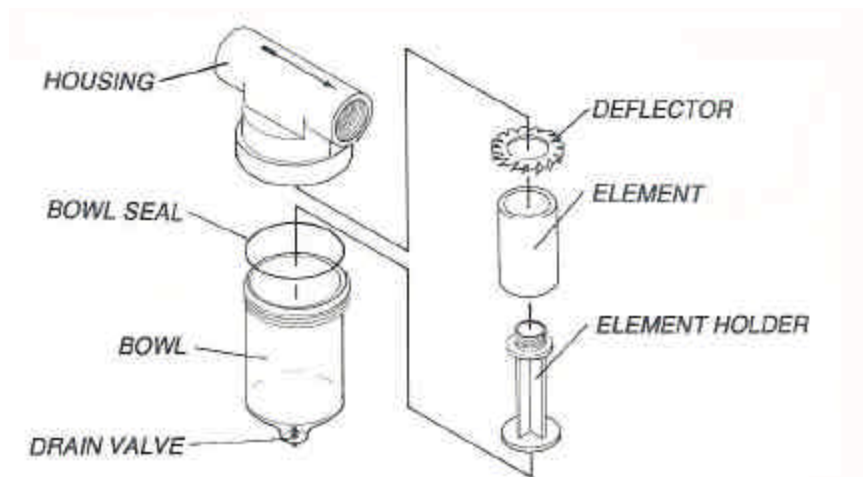
The air filter keeps moisture and dirt out of the cylinders and other components. The filter bowl must be kept free of moisture. Filter bowls that fill quickly with water indicate a problem with the air dryer. If your air system does not include a dryer, the filters on all machines must be checked and/or drained daily.

This is best done by pressing on the drain valve until all moisture blows free. The moisture can be caught in a towel. **CAUTION: IF THE FILTER BOWL IS CRACKED, IT MUST BE REPLACED IMMEDIATELY. NOTICE: IF FILTER BOWL IS CRACKED, AN AIR LEAK COULD RUN THE COMPRESSOR CONTINUOUSLY, PUTTING EXCESSIVE WEAR ON THE COMPRESSOR.**

The internal parts of the filter and the bowl can be cleaned. Always decrease resistance to zero before starting service or repair on any K300 machine.

To service:

Unplug the quick-disconnect and unscrew the bowl and element holder from the housing. Clean all parts with dish soap and water. Do not use solvent or other strong chemicals on any part of the filter. Allow the element to dry thoroughly. Lightly coat the bowl seal with SAE 30 wt. Oil and reassemble. Leaky drain valves can be replaced with a bicycle tire tube valve available at most hardware stores.

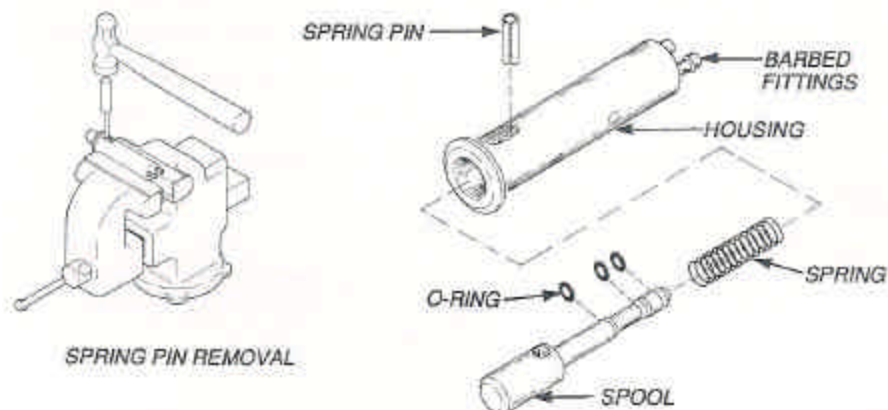


## VALVES

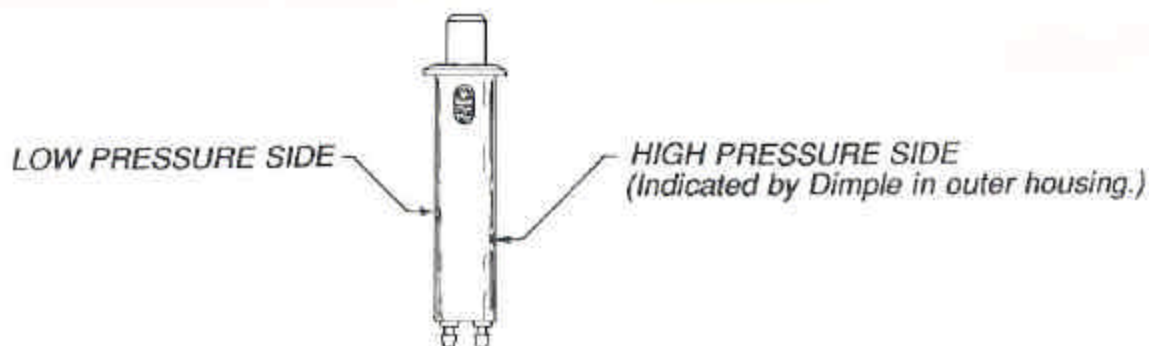
The valves in the pedals or handles can be removed for service or repair. Always unplug the quick-disconnect from the air system and decrease the resistance to zero before working on the valves. The following groups of machines state the type of valve and its maintenance procedures.

LEG EXTENSION, LEG CURL, SQUAT, HIP ABDUCTOR, LEG PRESS, STANDING HIP, ABDOMINAL, LOWER BACK, AND SEATED CALF

1. Trace the hoses on the valves to their connections on the filter or manifold. An increase valve is connected to two hoses, one from the filter and one to the manifold. Decrease valves are connected to one hose from the manifold and one from the exhaust muffler. Mark the hoses with tape so they can be reassembled properly, then disconnect.
2. Decrease the resistance to zero. Remove the grip end cap from the handle and pull the valve out to a point where the hose can be cut about ½ inch from the bottom of the valve housing. Cut the hoses clean and square, and cut the small remaining piece off the barbed fittings. **NOTICE:** DO NOT DAMAGE BARBS. DAMAGED BARBS ARE AREAS FOR POSSIBLE LEAKS.



3. Rest the valve housing on the open jaws of a vise and drive out the spring pin with a hammer and 3/16-drift punch (see illustration below). When the punch is removed, the spool can be removed as shown.
4. Remove the O-rings off the spool. **CAUTION: DO NOT CUT SPOOL! CUTS IN A SPOOL ARE AREAS FOR POSSIBLE AIR LEAKS.** Wipe the spool completely dry with a clean dry cloth and inspect it carefully for signs of wear or deterioration. Lightly coat the narrow part of the spool with silicon lubricant and slip on three new O-rings.
5. Clean the inside passages of the valve housing with solvent and compressed air. Do not use any kind of tool inside the housing. Inspect the bore for scratches or wear of any kind. The housing should be replaced if there are any imperfections in the bore.
6. Assembly is the opposite of disassembly. Tap the spring pin into the spool until it is just flush with the outside of the housing.
7. For increase valves, push the air hose from the filter over the barb on the high-pressure side of the valve (see illustration), and the air hose to the manifold on the low-pressure side. Push the hose all the way up to the flange. For decrease valves, the air hose from the manifold is connected to the high pressure side, and the air hose from the muffler is connected to the low pressure side.



8. Replace the valve in the machine and remount the end cap on the end of the handle (if you have any questions on the preceding steps, please contact our service department).

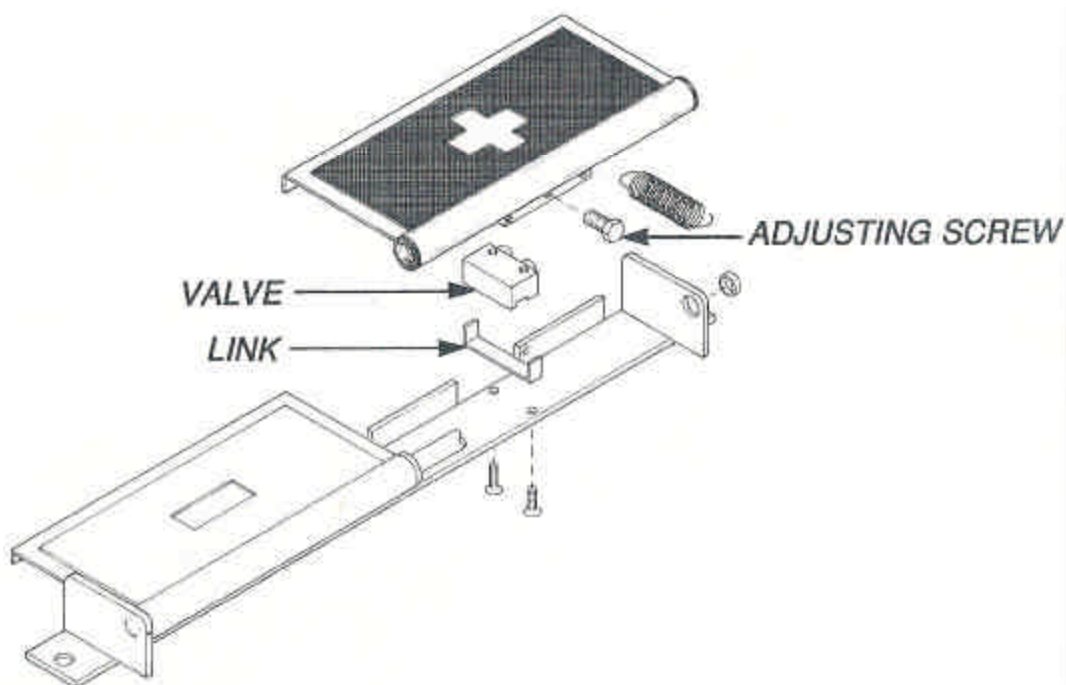
**SEATED CHEST PRESS, LATERAL SHOULDER RAISE, MILITARY PRESS, TRICEP, AND SEATED BUTTERFLY**

**NOTE:** Machines shipped before October, 1985 have nuts and bolts holding the valves in place. Later machines use only flat head screws for easier access to the valves. The procedure described here applies specifically to the older machines but the same general procedure also applies to the new machines.

**TOOLS REQUIRED:** 5/16, 3/8, 7/16 open-end wrenches, screwdriver

1. Tilt the machine back and lay it down so that the pedal assembly is easily accessible.

**NOTICE:** REST THE MACHINE ON FRAME MEMBERS ONLY. TO PROTECT AIR HOSES AND FITTINGS.

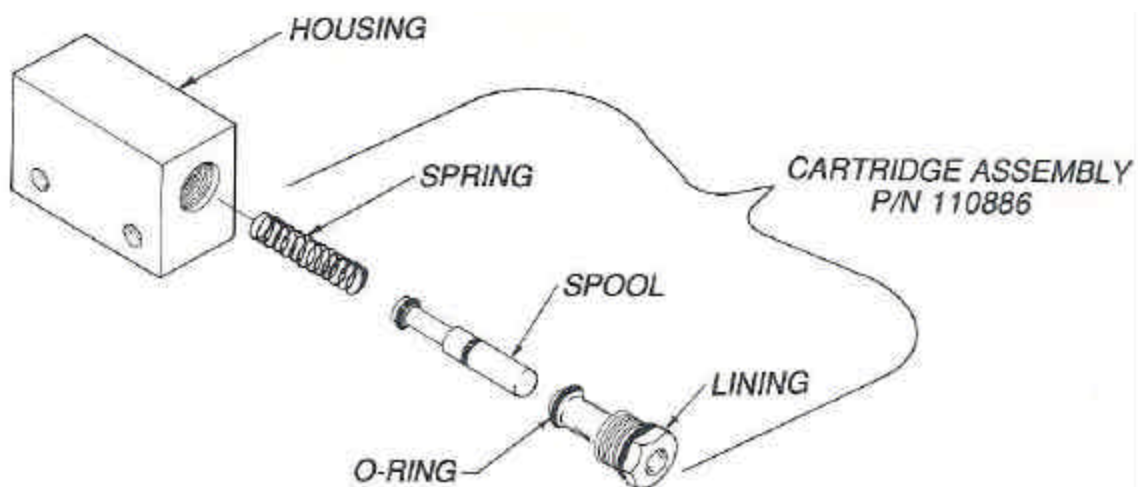


2. Loosen the adjusting screw behind the pedal. Hold the nuts on top of the valve with a 3/8 open-end wrench and remove the screw with a 5/16 wrench or socket. The valve can now be lifted off the link, and the valve cartridge removed for service or replacement. On machines shipped after October, 1985, a standard screwdriver is used to remove the valve mounting screws.
3. Assembly is the opposite of removal. Use the adjusting screw to make the pedal even and parallel to the ground. Lock the adjusting screw in place with "Loctite 292".

### VALVE SERVICING

TOOLS REQUIRED: 1/2 inch wrench or socket, rag, DOW CORNING 111.

1. Remove the brass valve cartridge from the aluminum housing. Make sure that the O-ring indicated does not remain in the housing. If it does, use the spring to remove it.
2. Push the spool out of the lining. Wipe all parts clean with a soft dry, lint-free cloth. Do not use alcohol or petroleum-based cleaning solution. Check all parts for cracks or excessive wear. Replace entire unit if worn or damaged.
3. Wipe a thin film of DOW CORNING 111 compound on the valve and bore.  
Reassemble the valve cartridge.
4. Reinstall the valve cartridge. **NOTICE: DO NOT OVER TIGHTEN.**



## CYLINDERS

Three types of cylinders are used on K300 series machines:

2 ½ " x 7" = Part #:11-5317

2 ½ " x 12" = Part #:13-5316

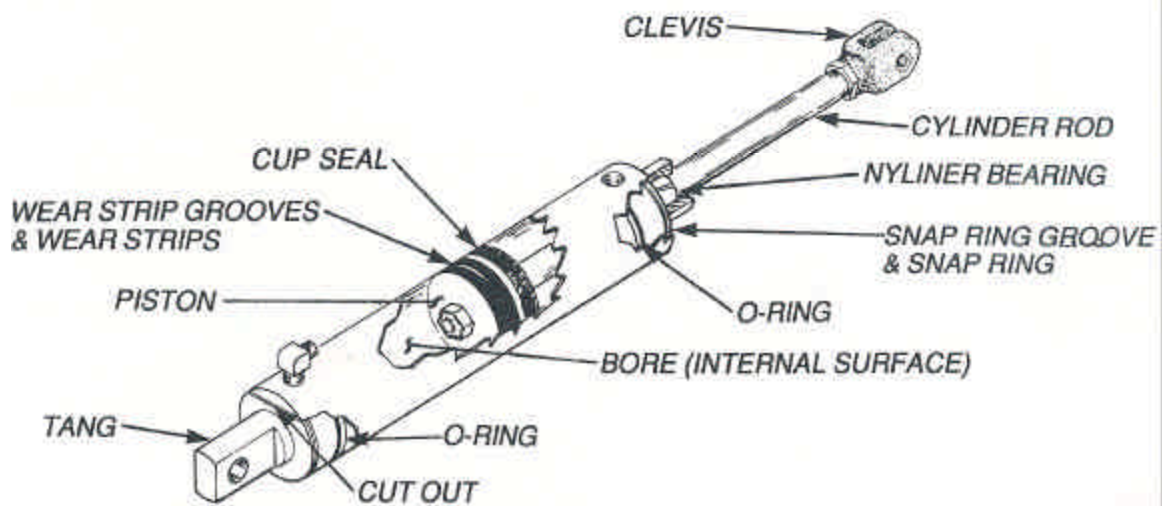
4" x 12" = Part #:15-5314

Maintenance procedures are the same for all three types of cylinders.

TOOLS REQUIRED: adjustable wrench, 5/16 or ¼ inch allen wrench and an oil can.

### REMOVAL:

1. Unplug the quick-disconnect from the air system and reduce the resistance to zero.
2. Remove the air hose from the cylinder. It is best to remove one cylinder at a time. If both cylinders must be removed, mark the cylinders and air lines to avoid mistakes in re-assembly.
3. Remove the nuts and bolts holding the cylinder and clevis. Check the bearings in the tang end of the cylinder and the lever arm. If they are loose or worn, they must be replaced.



## TO REPLACE THE CYLINDER:

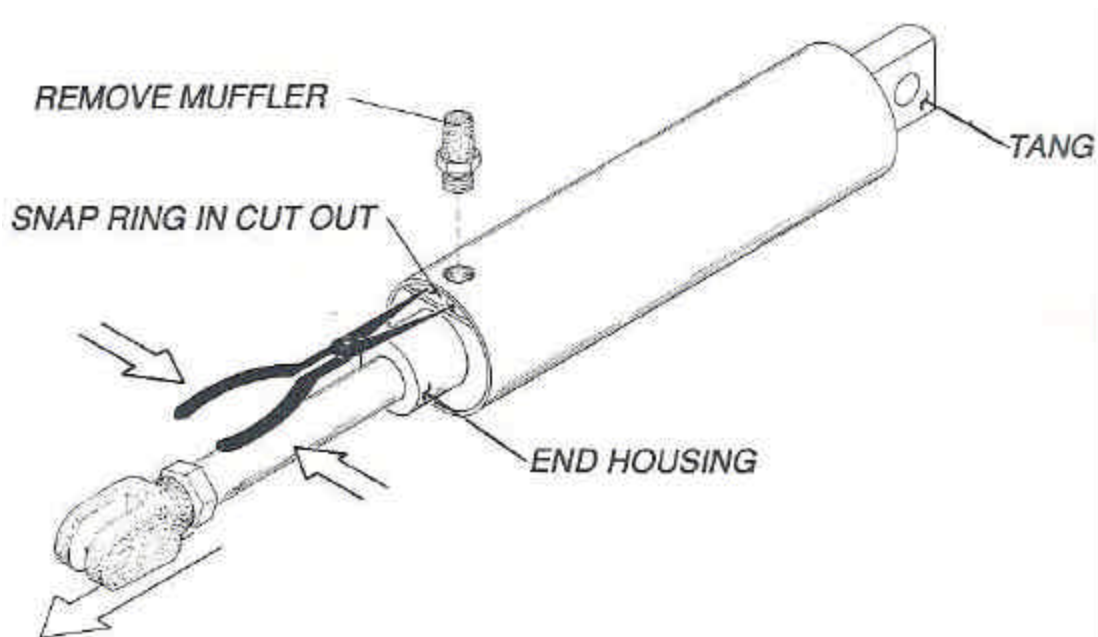
1. Put a drop of oil on the bearings and remount the cylinder. Tighten all nuts securely.
2. Reattach the air hose. Tighten the nut finger-tight, plus ¼ turn. Plug in the quick-disconnect and check for air leaks. If the fitting leaks, tighten the nut another ¼ turn.  
If the leak persists, replace the nut.

## CYLINDER SERVICING

**NOTICE:** IT IS VERY IMPORTANT THAT THE CYLINDER ROD AND BORE ARE NOT SCRATCHED OR DAMAGED IN ANY WAY. DAMAGED CYLINDER RODS AND BORES ARE AREAS FOR POSSIBLE AIR LEAKS.

TOOLS REQUIRED: 11/16 wrench or socket, internal snap ring pliers, rag and Mt-55 light grease

1. Using the 11/16 wrench, carefully remove the muffler from the end housing of the cylinder.
2. Clamp the tang of the cylinder in a vise or have someone hold the cylinder. If the ends of the snap ring are not visible, the end housing must be rotated until both ends are visible through the cut-out.



3. Pull the rod out  $\frac{2}{3}$  to  $\frac{3}{4}$  of the way. Squeeze the snap ring with snap ring pliers and pull on the rod to “tap” the end housing out of the cylinder (see illustration).
4. Wipe out the bore of the cylinder with a lint-free rag and inspect for scratches or uneven wear. If found, contact KEISER for a replacement.
5. Clean the piston and inspect for wear or damage. If any metal particles are found on the piston or inside the cylinder contact KEISER for a replacement.
6. Clean wear the strip grooves and apply a moderate coat of “Hydrotex MT-55” light grease (available from KEISER) to hold wear strips in place during assembly. Lightly coat the bore, cup seal, piston and wear strips with MT-55 light grease.  
**NOTICE: OPEN END OF CUP SEAL MUST FACE AWAY FROM THE CYLINDER ROD.** Carefully re-assemble the cylinder.
7. Apply a very light coat of lube to the muffler threads and reinstall snug, but not tight.
8. Operate piston by hand through its stroke. There should be no stickiness or metal-to-metal contact.
9. Wipe the cylinder rods clean and coat them lightly with clean, SAE 30 wt. Motor oil.

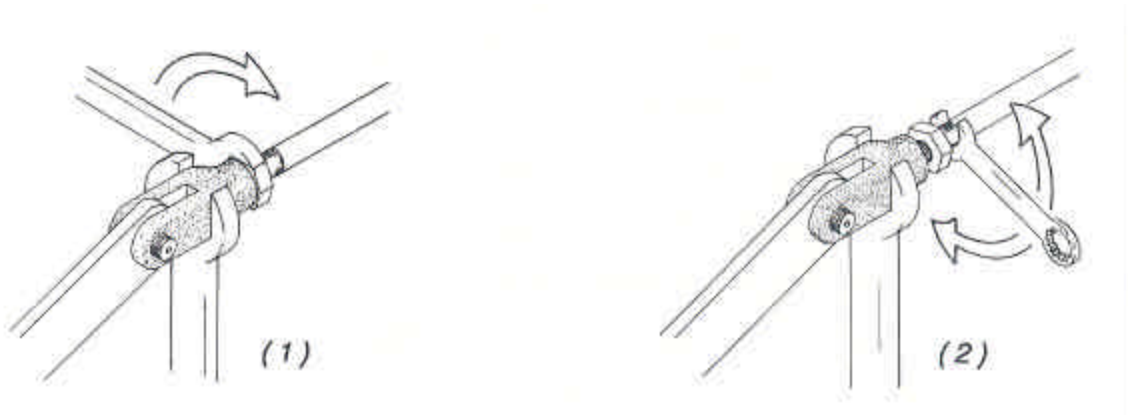
## ADJUSTMENT

Cylinders are factory adjusted and need not be readjusted unless the cylinder or clevis becomes loose or is replaced. While each machine is checked differently, cylinder adjustments are basically the same. **TOOLS REQUIRED:** 2 large adjustable wrenches



1. Hold the clevis in position with a wrench as shown (1) and loosen the lock nut.

**NOTICE:** LOOSENING THE LOCK NUT WITHOUT HOLDING THE CLEVIS CAN DAMAGE THE BUSHINGS, CLEVIS AND THE CYLINDER ROD.



2. Adjust the rod length (2) as required.
3. Hold the clevis and tighten the lock nut. Watch the rod to make sure it does not turn while tightening the nut.

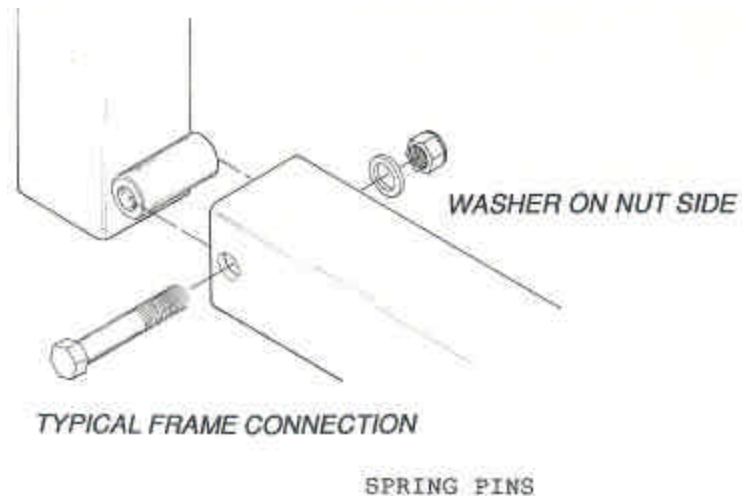
## MUFFLERS

The mufflers on the rod ends of the cylinders should be replaced at any time cylinder problems are suspected. Removing the muffler and moving the exercise arm through its range will determine if the muffler is clogged. A clogged muffler will make the motion spongy or rough. When replacing a muffler, coat the threads with oil, silicon lubricant, or “WD-40”, and reinstall snug but not tight. Mufflers on decrease pedal valves should be checked or replaced if the resistance decreases slowly or incompletely.

## FASTENERS

### NUTS AND BOLTS

Tightness of nuts and bolts should be checked monthly. Main frame bolts are generally held in place through an internal mounting tube (see illustration). These bolts should be tight (35-40 ft.-lbs.). Other bolts should not be tightened any more than necessary to keep them from turning freely. **NOTICE: OVER TIGHTENING BOLTS, WHICH GO THROUGH THE MIDDLE OF TUBES, WILL CRUSH THE TUBE AND DESTROY THE CHROME FINISH.**



TOOLS REQUIRED: drift punch and a hammer

Spring pins are used to hold a shaft in place or to fasten a collar to a shaft. With the exception of the arm lock shafts, spring pins are always shorter than the diameter of the shaft. The procedures for removal and replacement of spring pins are as follows:

#### SPRING PIN REMOVAL:

1. Look at the exploded view of the machine in the parts section and find the size of the pin.
2. Using the proper size drift punch, tap the pin into the shaft until the pin is completely out of the bracket or collar.

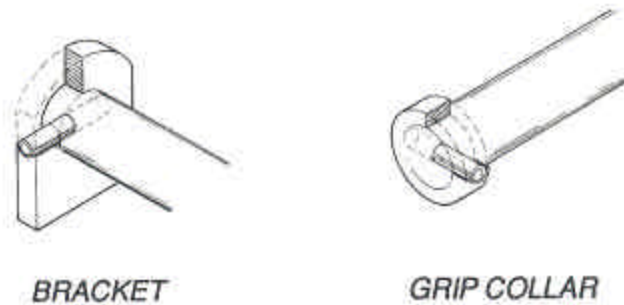
3. Remove the shaft from the bracket or the collar from the shaft, and tap the spring pin through and out of the shaft. **NOTICE:** ALWAYS REMOVE THE PIN FROM THE SHAFT IMMEDIATELY. ACCIDENTAL INSTALLATION OF A SECOND PIN WILL DAMAGE THE MACHINE.

#### SPRING PIN REPLACEMENT:

1. Check the hole in the shaft to make sure the old pin has been removed. Assemble the shaft in the bracket or grip collar on the shaft.
2. Tap the new spring pin into the bracket or collar until the end of the pin is flush with the outside. Be careful not to damage chrome.

**NOTICE:** SEE THE SPECIAL INSTRUCTIONS, ADJACENT TO THE PARTS LIST FOR THE ROLL PIN INSTALLATION ON THE FOLLOWING MACHINES:

SQUAT, MILITARY PRESS, SHOULDER SHRUG, LAT PULL DOWN, AND LEG PRESS.



### **ARM LOCK SHAFTS**

**TOOLS REQUIRED:** large screwdriver, 5/16 drift punch and a hammer

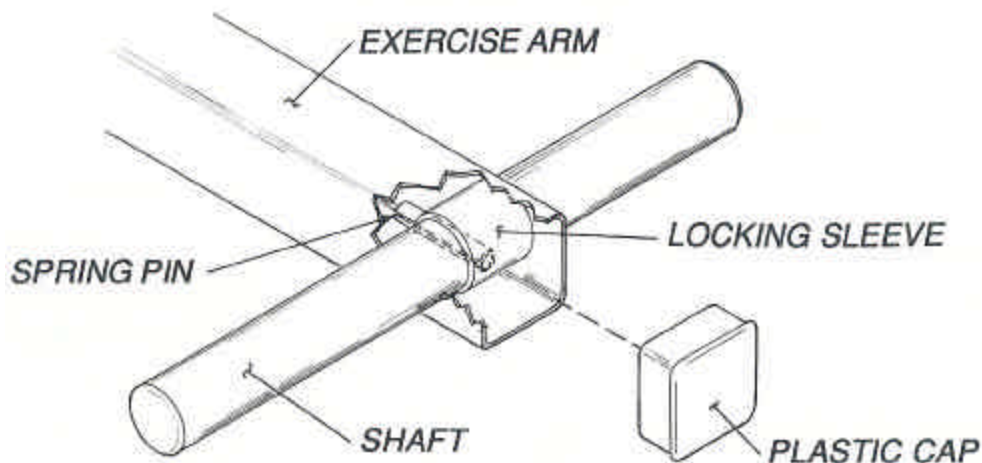
The seated Chest Press, Military Press, Tricep, Upper Back and Leg Press use a steel shaft to lock the exercise arms together for bilateral exercise. If this shaft must be removed for any reason, follow this procedure.

#### REMOVING THE SHAFT:

1. Pry off the plastic cap covering the locking sleeve and spring pin. On the Seated Chest Press and Upper Back, this is the middle of the three square tubes. On the Military Press and Tricep, it is the outside tube. This cap must be replaced with a new part. **NOTICE: BE CAREFUL NOT TO SCRATCH THE CHROME.**
2. Pry off the white plastic locking sleeve with a screwdriver.
3. Using a 5/16 drift punch, drive the spring through and out of the shaft. The shaft and spring pin can now be removed.

#### REPLACING THE SHAFT:

4. Put the shaft back into holes in the exercise arms.
5. Drive the spring pin through the shaft until it is just flush with the side of the shaft facing you.
6. Push the locking sleeve over the shaft.
7. Using a rubber mallet or block of wood and hammer, drive a new plastic cap into the end of the square tube.



## BEARINGS

The ½, 5/8, and 1 inch flange bearings must be lubricated every 3 months. Using SAE 30 wt. Motor oil, put one drop on the exposed portion of each bearing. Move the machine through its range to work the oil in, then wipe the area around it free of exposed oil.

### T-88 REMOVAL AND REPLACEMENT

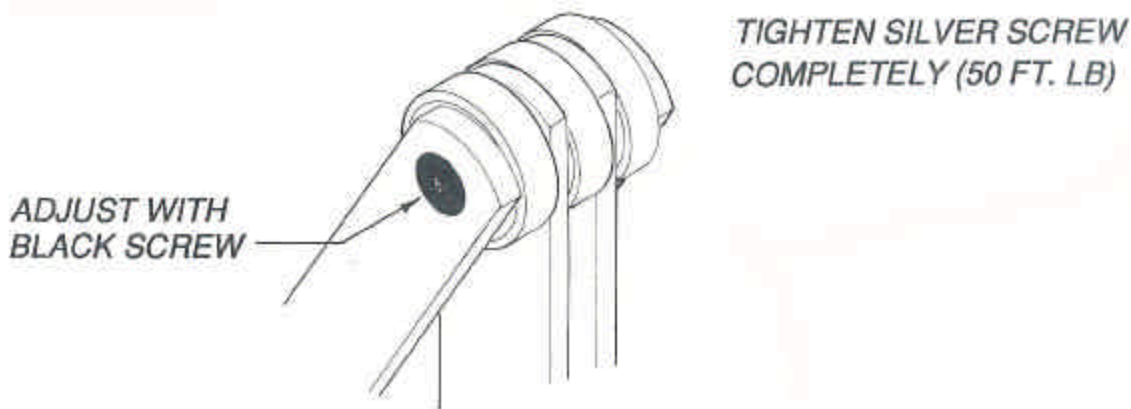
**CAUTION:** THIS PROCEDURE REQUIRES A HIGH QUALITY, HARDENED ¼ INCH ALLEN WRENCH. USE OF INFERIOR TOOLS CAN DAMAGE THE MACHINE AND MAY CAUSE INJURY TO HANDS OR ARMS IF WRENCH STRIPS OUT.

### T-88 BEARING REMOVAL:

1. Disconnect linkages from exercise arms.
2. Loosen silver screw.

**CAUTION:** SILVER SCREW SHOULD BE EXTREMELY TIGHT (50 FT. – LBS.).

3. Lift one exercise arm and apply light, side pressure to keep the pivot shaft from rotating. While holding arm then remove the black screw.
4. Support the bearing assembly and remove the silver screw. Pull the bearing assembly straight out of the bracket.



**NOTICE: Protect the shaft and bearings from damage and foreign matter.**

**T-88 BEARING REPLACEMENT:**

5. Slide the bearing assembly in place and support it with both screws.
6. Tighten the silver screw (hold shaft as in step # 3) to 50 ft.-lbs.
7. Adjust the black screw as described in the adjustment.

**T-88 BEARING ADJUSTMENT**

**TOOLS REQUIRED:** ¼ allen wrench

These bearing assemblies are located between the exercise arms and underneath the bearing cover of the Leg Extension, Leg Curl and Arm Curl, and support the pivot for the main arm assemblies. The assembly consists of three T-88 bearings, which are sandwiched between the two arms and the two brackets. In between these bearings lie a pivot shaft, and one silver and one black flat head hex socket (FHHS) screw. These bearings are permanently lubricated at KEISER and do not need any other lubrication. The T-88 bearing assembly should be checked weekly, and adjusted slightly tighter if the arms have excessive side-play. To adjust the assembly use a ¼ inch allen wrench to make sure that the silver FHHS screw is tight. Lift the arm closest to the black FHHS screw and notice the amount of side-play that exists between the arm and the two T-88 bearings on either side. Using the ¼ inch allen wrench, tighten the black FHHS screw very slowly at the same time you check the side-play of the arm. When there is no visible side-play, the bearing assembly is adjusted properly. Check to make sure both arms move freely to prevent over-tightening. With a clean cloth, wipe any exposed grease from around each T-88 bearing.

## HAND GRIPS

TOOLS REQUIRED: Clean throwaway cloth, rubbing alcohol, 5/64" allen wrench, and LPS cleaner/degreaser (available at auto parts and hardware stores).

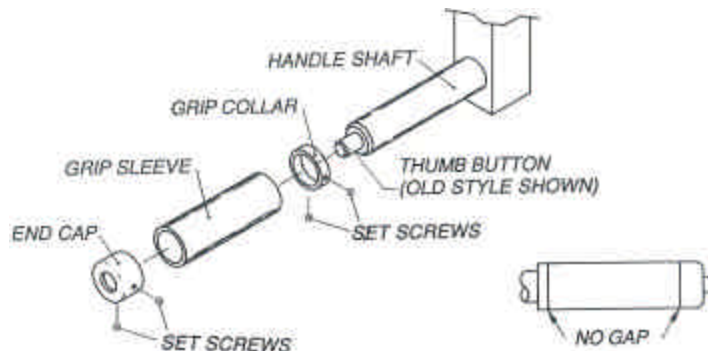
### THUMB BUTTON GRIP

**CAUTION:** USE KEISER GRIPS ON KEISER MACHINES ONLY! USING GRIPS FROM ANY OTHER PRODUCTS MAY CAUSE SERIOUS INJURY.

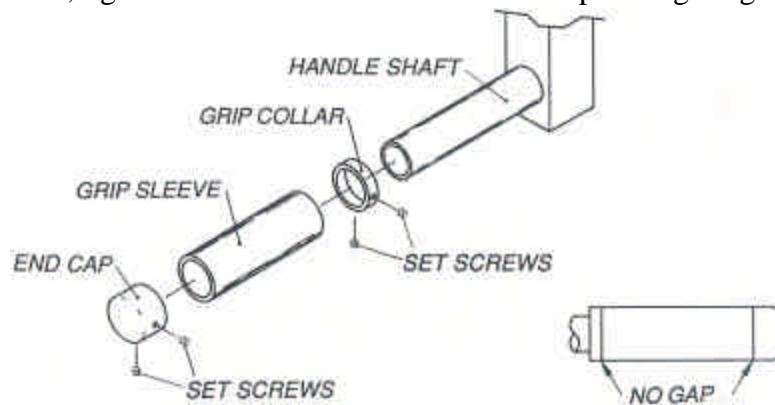
1. Read all the instructions first before beginning any steps.
2. Leaving the thumb button in place, cut the old style grips from the handles. Remove "all" tape and adhesive from the handles using LPS – cleaner/degreaser or rubbing alcohol (alcohol will require extra work to remove all traces of adhesive). **NOTICE:** DO NOT GET ALCOHOL OR DEGREASER IN THE THUMB BUTTON.

**CAUTION:** FAILURE TO REMOVE ALL ADHESIVE FROM THE HANDLES MAY CAUSE THE GRIP SLEEVE TO SLIP, CAUSING BODILY INJURY TO PEROSNS ON OR AROUND THE EQUIPMENT.

3. Apply alcohol inside the grip sleeve until the grip sleeve is completely coated.
4. Slip on the grip collar then slip the grip sleeve over the handle shaft until the grip sleeve is on far enough to install the end cap. **NOTICE:** IF YOU HAVE ANY PROBLEMS SLIDING THE GRIP SLEEVE ONTO THE HANDLE SHAFT, APPLY A SMALL AMOUNT OF ALCOHOL TO THE SHAFT FOR LUBRICATION.



5. Replace the end cap and plastic button on the new thumb button assy, rotate the end cap until the “+” or “-“ indicator is facing towards the user. Using the 5/64” allen wrench, tighten the set crews ¼ to ¾ of a turn past finger tight (Do not over tighten).
6. Twist the grip sleeve back toward the end cap until there is no visible gap between the grip sleeve and the end cap.
7. Now slip the collar back toward the grip sleeve until it is flush with the grip collar, using the 5/64” allen wrench, tighten the set screws ¼ to ¾ of a turn past finger tight (Do not over tighten).



8. This is what the grip sleeve and end cap should look like when you are done.
9. Allow at least 4 hours for the alcohol to dry.

#### NON-THUMB BUTTON GRIP

Follow the same instruction as you would for the thumb button grips. **NOTICE:** If it is necessary to use alcohol or petroleum based solvents to remove old adhesive from grips, care must be taken to prevent these solvents from contacting the upholstery, and the cleaned area must be waxed as soon as possible to prevent corrosion of the chrome.

**NOTICE:** GRIP COLLARS ARE ONLY USED ON CERTAIN MACHINES.

CONTACT SERVICE DEPARTMENT FOR LIST OF CORRESPONDING MACHINES.



## UPHOLSTERY

The upholstery should be wiped down daily with a dry soft cloth. Once a week, wash the upholstery with the warm water and mild dish soap (Joy, Ivory, Dove, etc..), or a cleaner made for Naugahyde. Waxing the upholstery once a month will increase the life of the Naugahyde. Use a hard wax such as “Johnson Glo-Coat” or “Simoniz”. Most cushions can be rotated to allow them to wear evenly. To do this use the following procedure:

**TOOLS REQUIRED:** 5/16 & ½ inch wrenches or sockets

Remove the bolts holding the cushion to the frame and turn it around. If the upholstery is worn or damaged, the cover can be replaced at a lower cost than replacing the whole cushion. Contact KEISER for details.

### DECAL REMOVAL AND REPLACEMENT

Damaged decals can be removed by simply peeling them off the surface. The surface must then be thoroughly cleaned of all dirt, grease, perspiration, and adhesive left from the old decal. Apply the new decal making sure that no air bubbles are under it.

Immediately wax the new decal and the area around it.

**CAUTION:** SOME DECALS MAY HAVE SHARP EDGES. USE CARE WHEN HANDLING THEM.

**NOTICE:** DO NOT USE SHARP INSTRUMENTS THAT WILL SCRATCH THE CHROME. IF IT IS NECESSARY TO USE ALCOHOL OR PETROLEUM BASED SOLVENTS TO REMOVE THE DECALS, CARE MUST BE TAKEN TO PREVENT THESE SOLVENTS FROM COMING IN CONTACT WITH THE UPHOLSTERY. THE CLEANED ARE MUST BE WAXED AS SOON AS POSSIBLE TO PREVENT CORROSION OF THE CHROME.

## **PARTS IDENTIFICATION**

Part numbers shown in this manual are unique to KEISER equipment. Six-digit numbers are KEISER-built parts, and can only be obtained through KEISER SPORTS HEALTH EQUIPMENT. See the back of the maintenance manual or check the website for fax and telephone numbers.

The four digit part numbers are standard fasteners and fittings available through most hardware stores. Bolts and nuts are zinc or nickel plated and are a minimum of grade 5. Pneumatic fittings are PARKER “Compress-align”, or standard pipe fittings. Upholstery part numbers given are for our standard upholstery. Special-order upholstery must be ordered from KEISER by telephone. Bolt-down floor-mounted bottom frames also have different part numbers. Contact KEISER for replacement.

## LEG EXTENSION

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Decrease the resistance to zero.
2. Check the exercise arms for side play as described in the Maintenance Manual (pg. 20).
3. Lift both exercise arms as high as they will go. Both should stop at the same level. If they do not, adjust the cylinder of the higher arm down to the level of the lower as described in the Maintenance Manual (pg. 13).
4. Increase the resistance and do several repetitions, paying particular attention to the feel of the exercise at the very beginning of the stroke. A sticky or hesitant feel at the start could indicate a “bottomed-out” cylinder (when the piston is up against the end housing). In this case, both cylinders should be adjusted to bring the exercise arm down until the exercise action is smooth and steady throughout the stroke.

## LEG CURL

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NOT FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Decrease the resistance to zero.
2. Check the exercise arms for side play as described in the Maintenance Manual (pg. 20).
3. Lift both exercise arms as high as they will go. Both should stop at the same level. If they do not, adjust the cylinder of the higher arm down to the level of the lower as described in the Maintenance Manual (pg. 13).
4. Increase the resistance and do several repetitions, paying particular attention to the feel of the exercise at the very beginning of the stroke. A sticky or hesitant feel at the start could indicate a “bottomed-out” cylinder (when the piston is up against the end housing). In this case, both cylinders should be adjusted to bring the exercise arm down until the exercise action is smooth and steady throughout the stroke.

## SEATED CHEST PRESS

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. With the resistance at zero, disengage the arm lock shaft so the exercise arms can move independently. Remove the crutch tips from the arm stop shafts and loosen the jam nuts on the adjustable arm stop and cylinder shafts.
3. Push the right exercise arm back towards the arm stop shaft. **NOTICE: BE CAREFUL NOT TO SCRATCH OR DENT CHROME.** Turn the right cylinder shaft as needed to bring the arm to a point just touching or slightly away from the stop shaft. Tighten the right cylinder shaft jam nut.
4. Increase the resistance very slightly (just enough to hold the exercise arm in the starting position) and turn the left cylinder shaft to a position where the arm lock shaft engages easily. Turn the adjusting screw in the left stop shaft to the same position as the right (touching or slightly away from the exercise arm). Tighten the jam nut on the stop shaft.
5. Decrease the resistance back to zero and replace the crutch tips. Test the adjustment by doing several repetitions on the machine at different resistance checking for a “bottomed-out” cylinder (which feels hesitant or sticky), then try the arm lock at several resistances. If the arm lock does not work smoothly at all resistances, adjust the arm stop in or out slightly as needed.

## **LATERAL SHOULDER RAISE**

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. Pull up on the rod until the cam follower touches the cam. With no resistance, check the feel of the action. If the rod seems to stick or hesitate at full extension, the piston may be bottomed-out against the end housing. If the piston is bottomed-out, lengthen the rod three full turns down (pg. 13 in the Maintenance Manual).

# SQUAT

## CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. Increase the resistance up and do several repetitions on the machine to assure the cylinder is not “bottomed-out” (indicated by a sticky feeling at the beginning of the exercise).
3. If the cylinder is not bottomed-out, check the number of threads above the jam nut. There should be 3 to 5 threads visible. If more threads are visible, the machine will not have a full stroke and its performance will be affected.

## EXTRA WEIGHTS

1. The base of the Squat machines is provided with extra weights. If the machine must be moved, these weights can be removed. Use an open end 1/2” wrench to remove the 4 bolts which mount the footpad to the bottom frame. The weights can be removed separately. **CAUTION: WEIGHTS ARE HEAVY (OVER 50 LBS.) USE CARE WHEN LIFTING TO AVOID BACK INJURIES.**

## SPRING PINS

1. When installing the new spring pin (item # 62) into the adjusting drag link, bottom (item # 56), line up the hole in the adjusting drag link, top (item # 16) with the hole in

the adjusting drag link, bottom. Drive the pin into the adjusting drag link, bottom, through the hole in the adjusting drag link, top. The spring pin should stick out 1/16" from each side of the adjusting drag link, bottom.

2. To install the spring pin 3/16 X 7/8 (item # 2) in the exercise arm mount (item # 4), line up the hole in the exercise arm mount with the hole in the exercise arm pivot shaft (item # 13). Drive the spring pin in until the end is 1/16" into the exercise arm mount.



## MILITARY PRESS

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. Remove the crutch tips and loosen the jam nuts on the arm stop bolts. Adjust the bolts so the ends are just flush with the bottom of the plate. **NOTICE:** BE CAREFUL NOT TO SCRATCH THE CHROME ON THE BOTTOM OF THE EXERCISE ARMS WHEN RESTING THEM ON THE STOP BOLTS.
3. Loosen the jam nuts on the cylinder rods (pg. 13 maintenance manual). Adjust the right cylinder rod so there is about 1/8 inch between the bottom of the exercise arm and the stop bolt. Tighten the jam nut and replace the crutch tips.
4. Adjust the left cylinder rod so that the arm lock works smoothly and tighten the jam nuts on the cylinder rod and left arm stop bolt.
5. Increase the resistance slightly and work the arm lock. It should work smoothly at all resistances. If not, adjust the right arm stop bolt as needed, then tighten the jam nut.

### SPRING PINS

1. When installing the spring pin 3/16 X 7/8 (item # 12) into the back frame (item # 11), line up the hole in the back frame with the hole in the exercise arm pivot shaft (item # 1). Drive the spring pin in until the end is 1/16" into the back frame.

## ARM CURL

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. Raise the left exercise arm as high as it will go. It should stop about 15 degrees past vertical.
3. Raise the right exercise arm and compare it to the left. Both should stop at the same position. Check by inserting the lock pin. It should easily go through the holes in both arms. If it does not, adjust the right cylinder rod (pg. 13 maintenance manual) as needed.

### HANDLE LUBRICATION

1. The handles should be cleaned and lubricated whenever they appear dry, dirty, or do not slide smoothly. Remove the bolt and washer from the end of the handle and pull the handle out. Clean the handle and arm with a dry cloth. Replace handle, washer, and bolt. Wipe a thin coat of DOW CORNING 111 on the handle and slide it up and down a few times to evenly spread the lube.

## SHOULDER SHRUG

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against.  
These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. With the resistance at zero, check the feel of the movement of the machine. If the rod seems to stick or hesitate at full extension, the piston may be bottomed-out against the end housing. If the piston is bottomed-out, lengthen the rod three full turns down (pg. 13 maintenance manual).

### SPRING PINS

1. When installing the spring pin 3/16 X 7/8 (item # 11) into the front frame (item # 4), line up the hole in the front frame with the hole in the exercise arm pivot shaft (item # 12). Drive the spring pin in until the end is 1/16" into the front frame.

## TRICEP

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. Remove the crutch tips and loosen the cylinder jam nuts. Increase the resistance up a little. **NOTICE:** BE CAREFUL NOT TO DAMAGE THE CHROME. Adjust the right cylinder rod to leave about 1/8 inch clearance between the arm and the stop. Tighten the right cylinder jam nut and replace the crutch tips.
3. Adjust the left cylinder rod so the arm lock works smoothly. Tighten the left cylinder jam nut. Increase the resistance up to about half the maximum capacity and check the arm lock again. If it does not work smoothly, adjust the left arm stop.

## UPPER BACK

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. Make sure the right cylinder is not bottomed-out against the end housing. A bottomed-out cylinder will feel sticky or hesitant at the beginning of the stroke. If the piston is bottomed-out lengthen the rod three full turns (pg. 13 maintenance manual).
3. Increase the resistance slightly (to about 20 lbs. ) and check the action of the arm lock shaft. Adjust the left cylinder to allow the arm lock to work smoothly. Increase the resistance another 80 lbs. And check or adjust the arm lock again. The cylinders are adjusted correctly when the arm lock works smoothly at all resistances.

## **LAT PULL DOWN**

### **CYLINDER ADJUSTMENT**

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

The Lat Pull Down cylinder is properly adjusted when 10 threads are visible on the cylinder rod above the jam nut (pg. 13 maintenance manual).

### **CABLE INSPECTION**

The cable and snap must be checked WEEKLY. Decrease the resistance to zero and remove the handle. Check the snap and the hole in the handle for wear. Visually inspect the cable, paying close attention to those areas that pass over pulleys. Small cracks that go around the outside of the plastic cover indicate wear and the cable should be replaced when these appear. Discoloration of the cable does not affect its performance.

The bearings in the pulleys should also be checked at this time. Pulleys that are rough or noisy should be replaced.

### **SPRING PINS**

1. When installing the spring pin 3/16 X 7/8 (item # 94) into the lever arm (item # 82), line up the hole in the lever arm with the hole in the lever arm pivot shaft (item # 47). Drive the spring pin in until the end is 1/16" into the lever arm.

## **SEATED BUTTERFLY**

### **CYLINDER ADJUSTMENT**

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. Pull one of the exercise arms forward as far as it will go and look straight down past the arm towards the front of the seat. The round tube of the exercise arm should be parallel to the front of the seat cushion. If not, adjust the cylinder rod as needed (pg. 13 maintenance manual). Repeat with the other arm.

## **HIP ABDUCTOR**

### **CYLINDER ADJUSTMENT**

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. If the cylinder is not bottomed-out, check the number of threads above the jam nut. There should be 3 to 5 threads visible. If more threads are visible, the machine will not have a full stroke and performance will be affected (pg. 13 maintenance manual).



## **LEG PRESS**

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. Adjust the left cylinder so that 7-9 threads are visible outside the jam nut (pg. 13 maintenance manual). Decrease the resistance all the way down and push the left exercise arm all the way forward.
3. Push the right exercise arm all the way forward and engage the arm lock. Adjust the right cylinder to make the lock work smoothly.

### SPRING PINS

1. When installing the spring pin 3/16 X 7/8 (item # 23) into the foot pedal (item # 22), line up the hole in the foot pedal with the hole in the foot pedal shaft (item # 25). Drive the spring pin in until the end is 1/16" into the foot pedal.

## **STANDING HIP**

### **CYLINDER ADJUSTMENT**

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Decrease the resistance to zero.
2. Pull up on the rod until the cam follower touches the cam. With no machine resistance, check the feel of the movement of the machine. If the rod seems to stick or hesitate at full extension, the piston may be bottomed-out against the end housing. If the piston is bottomed-out, lengthen the rod three full turns (pg. 13 maintenance manual).

### **EXERCISE ARM BUSHING**

1. Oil the brushings by filling the oiler tube with 10 drops of SAE 30 wt. non-detergent motor oil every 3 months. The oiler tube is located under the top cover directly above the exercise arm.

## **ABDOMINAL**

### **CYLINDER ADJUSTMENT**

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the exercise arms rest against.  
These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. With the resistance at zero, check the feel of the movement of the machine. If the rod seems to stick or hesitate at full extension, the piston may be bottomed-out, lengthen the rod three full turns down (pg. 13 maintenance manual).

## LOWER BACK

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDERS ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Check the condition of the rubber crutch tips that the lever arms rest against. These must not be worn or damaged in any way. If they are worn replace them before attempting to adjust a cylinder.
2. (Step 2 only is done if the lever arm, center frame or crutch tips are replaced). With the resistance at zero, remove the crutch tips and loosen the jam nuts on the arm stop bolts. Adjust the stop bolts so that the ends extend about ¼” through the ear on the center frame. **NOTICE:** BE CAREFUL NOT TO SCRATCH THE CHROME ON THE BACK OF THE LEVER ARM WHEN RESTING IT AGAINST THE STOP BOLTS.
3. Loosen the jam nuts on the cylinder rods. Adjust the cylinder rods so there is about 1/8 inch between the back of the lever arm and the stop bolts when cylinders are fully extended (pg. 13 maintenance manual). Tighten the jam nuts and replace the crutch tips.
4. Increase the resistance slightly and check to see if the lever arm is applying an equal amount of pressure to each of the crutch tips. Adjust the stop bolts if the lever arm doesn't apply equal pressure and make sure the jam nuts are tight before replacing crutch tips.

5. With the resistance slightly greater, do a few repetitions, paying particular attention to the feel of the exercise at the very beginning of the stroke. A sticky or hesitant feel at the start could indicate a “bottomed-out” cylinder (when the piston is up against the end housing). In this case, both of the stop bolts should be adjusted out toward the lever arm until the piston no longer makes contact with the end housing.

## SEATED CALF

### CYLINDER ADJUSTMENT

**NOTICE:** CYLINDER ARE FACTORY-ADJUSTED AND REQUIRE NO FURTHER ADJUSTMENT UNLESS THEY ARE REPLACED. Please contact KEISER if you have any questions concerning adjustments or repairs.

1. Release all of the air from the machine until the exercise arms lowers to the floor.

Remove the crutch tips from the crutch tip bolts at the bottom of the seat frame.

2. With your hands clear off the machine. Push the increase button until both exercise arms raise up completely and the gauge reads about 80 pounds. Now adjust the crutch tip bolts so that there is a gap of 0-1/32" between the bolt and the exercise arm. If one foot pedal is higher than the other, adjust the crutch tip bolt until it is even with the lower pedal. Be sure to retighten the jam nut.
3. Release all of the air from the machine and replace the crutch tips.