

Ragtime Nickelodeon and Band Organ

Trouble Shooting Guide

I. Instrument and lights do not come on.

- A. There are no fuses to replace, check power outlet.
- B. The Switch is off.

II. Instrument lights come on, roll doesn't turn, suction motor is off. (no sound of air).

- A. Check tempo knob (fig. 1 item E). Turn clockwise to increase speed.
- B. Check Volume control knob (Fig. 1, item B) turn clockwise.
- C. Check rewind lever position (Fig. 2, items F1 and F2). With pneumatic (F1) fully open, rewind shaft (F2) should be turned fully clockwise. Roll should now turn. With pneumatic (F1) closed, roll should rewind. If it does not check the power leads (Fig. 2, item Q). If the rewind lever position is set improperly, you must reset it. Simply hold F1 80 to 90% open while forcing F2 fully clockwise. This should reset the switch and it should now be in play when relaxed open and go into rewind when you lift up on F1.

III. while playing with quarters the piano shuts off in the middle of a song.

- A. Check the tracker bar outer markers (Fig. 2, items x), the tracker bar may need adjusting with the adjusting knob (Fig. 2, item D).

IV. Roll doesn't rewind, just pulls off the top spool but will rewind while lifting the rewind pneumatic (Fig. 1, item F).

- A. Check tracker bar alignment.
- B. Check rewind pneumatic supply tubes. Any holes? Are they on correctly?
- C. Check the lock and cancel (Fig. 1, item S). Rewind completely by lifting the rewind pneumatic (Fig. 1, item F). Place both thumbs over the two large holes at either end of the tracker bar (fig. 2, items y and z). Lift the left thumb only then replace it. Is it in rewind? Lift the right thumb only then replace it. Is it in Play? If it did not do either one the lock and cancel (Fig. 1, item S) probably needs replacing. Return it to the factory anytime for immediate replacement. If the spool frame changes directions when you lift your thumb and then changes again when you replace it the lock and cancel needs replacing. Be careful to mark the tubes before removal.

V. Motor drags or binds completely in rewind but plays normally.

- A. Lower spool should turn freely in both directions while the piano is off. If it does not remove the spool frame mounting screws (Fig. 2, items R), tracker bar set nut (fig. 2, item O) and tracker bar (let hang, do not remove any tubes except rewind and play Fig. 2, items y and z), and the power leads (Fig. 2, items Q). You may check to make sure the chains are on the sprockets when you have the spool frame out. If you cannot repair it yourself return the entire spool frame and a copy of your receipt to the factory for repair or replacement.

VI. Roll rewinds and comes off the lower spool

- A. The Volume level is too low
- B. The Rewind switch is out of adjustment (See above, II-C)
- C. The Tracker bar is not adjusted properly (Op. Instr. #5).
- D. Upper or lower brakes need adjusting (Fig. 2, items L and M). With a roll on the piano and playing slowly turn the upper brake adjusting screw (Fig. 2, item L2) clockwise, feeling the paper just above the tracker bar for a slight tension increase. Press into the paper 2 inches repeatedly. A typical adjustment will be only 1/8 of a turn clockwise. You should probably turn the volume control (Fig. 1, Item B) all the way off so you can hear the spool frame motor. If you hear the Spool Frame motor slow down as you turn the upper brake adjusting screw you have probably gone a little too far. Split the difference. The Lower brake is adjusted the same but by feeling the tension in the paper below the tracker bar while it is in rewind. Do not over tighten!
- E. The lock and Cancel is Faulty (Fig. 1, item S) check as outlined above in IV C.

VII. Quarters bounce out of the coin mechanism, and the unit does not always come on.

- A. This happens occasionally
- B. If this happens too often, remove the coin mechanism and return it to the factory for replacement.

VIII. Roll rewinds but won't go forward

- A. Check the tempo knob (fig. 1, item E).
 - B. Check the rewind lever adjustment (See Above II-C)
 - C. Check the chains and the power leads as described above
 - D. The Voltage regulator circuit could be out. Remove the spool frame then return it to the factory for repair or replacement.
- Call Ragtime Service Dept. The phone numbers are listed on the inside front cover of our catalog.

IX. Piano plays but won't come on with quarters

A. Check coin-op power leads (Fig. 1, item U) they should be attached to the switch.

B. The coin trip wire (Brass) may have been bent or broken while removing the coin box. Readjust or replace the switch. The brass wire should be adjusted so the piano comes on when the wire is gently lifted and off when it comes within 1/8 inch from the wires resting place. You may find a replacement switch at any electronics supply house or return it to the factory for repair.

X. The Spool Frame turns but the vacuum motor (Fig. 1, item J) won't come on.

A. Check the volume control dimmer switch. (Fig. 1, item B) it may need to be replaced.

B. Check the vacuum motor. Does it smell obviously burnt? If it does, it may need replacing. Return it to the factory for repair or pry it apart and replace the motor from any vacuum cleaner repair center.

XI. Instruments not working

A. Any pneumatic will not work if a tube is pinched or plugged. If a pneumatic does not function check the 1/2" supply tube first. Then remove the small signal tube and the pneumatic should close immediately. There should not be a noticeable hissing sound when you remove the tube. If there is, the pouch in the pneumatic is probably bad. Return for replacement. If the pneumatic seems good, check the tube for obstructions or kinks.

B. If a supply tube is off the hissing sound should be obvious. Simply replace to the first available nipple.

C. Sometimes in shipping the large (3/4" PVC) pipes will come loose. Just press them back together. They will not come apart again because the vacuum holds them together.

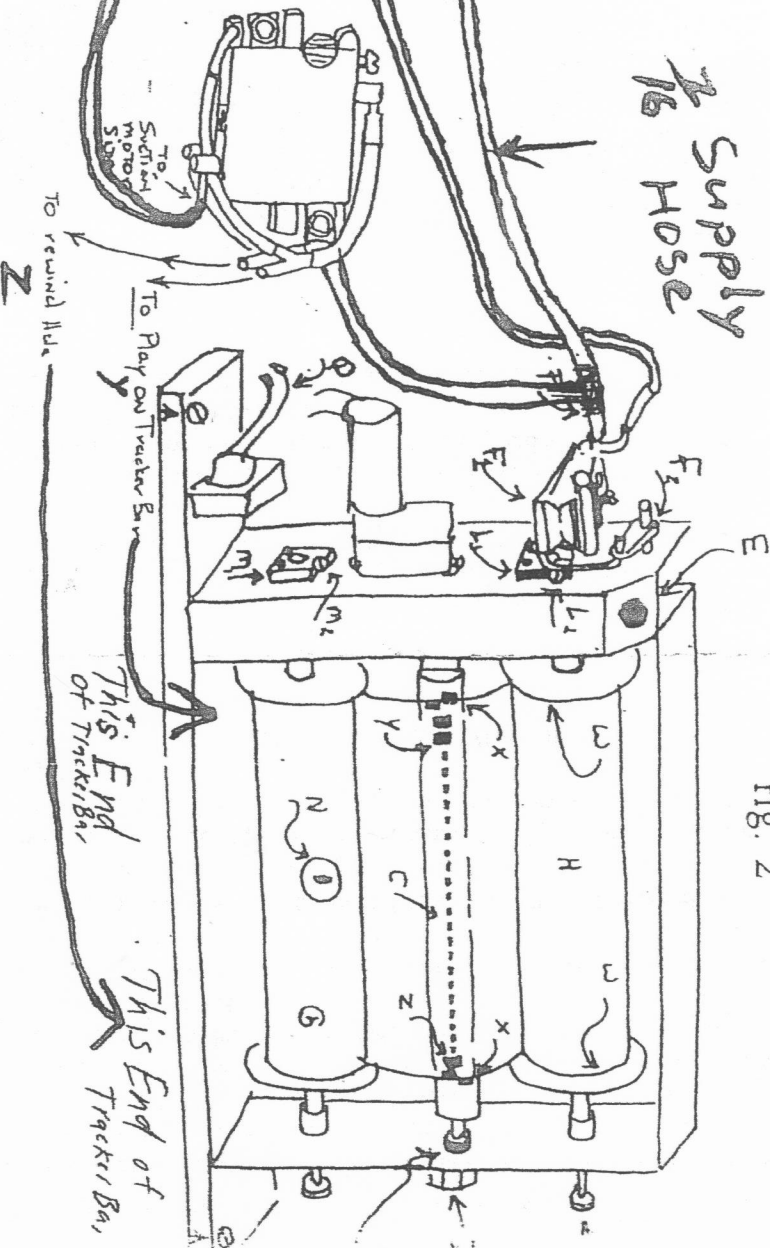
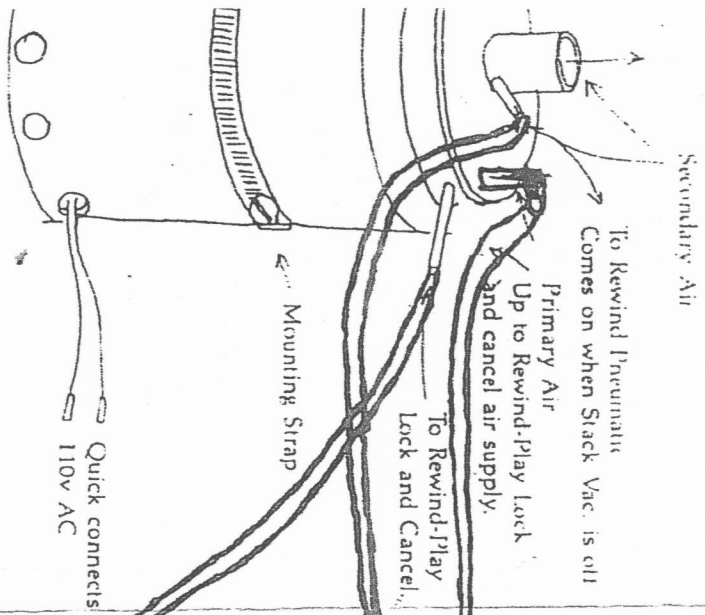
D. If you have any questions feel free to call the appropriate phone number on the inside front cover of our Catalog.

XII. Piano maintenance and repair

A. Tuning is not required for the pianos sake, but for yours. Most player pianos will sound fine for 5 or even 10 years. Do not have the piano tuned unless it sounds bad to you. All pianos have a limited number of times that they can be tuned before the pin block wears out since it is just wood and the pins are steel. When this happens the piano tuner will advise you to replace the strings and install over sized pins.

B. A piano technician that is specializing in players should be able to make any necessary adjustments and repairs. However he should contact the factory for training videos and manuals before beginning.

ction Motor



Roll Frame Assembly

Fig. 2

Ragtime Orchestrion and Band Organ Operating Instructions

1. After uncrating and placing the instrument in it's new home check to make sure it is off before plugging it in. (Fig. 1, item A)
2. Locate the roll you wish to hear and remove it from the box. Locate the spoolframe (Fig. 1, item K). Notice the black roll ends on the roll. Only rolls from Ragtime will have these ends. The left roll end will have a hex shaped hole and the right will have a round hole. Place the roll in the upper part of the roll frame (Fig. 1, item K). You now must pull the right hand carrier (Fig. 1, item I) to the left to make room for the roll to snap in. Take care that the right hand carrier goes all the way in to the round hole on the left side of the roll (Fig. 1 Item W) and that the hex side is all the way to the left.
3. Pull the paper with both hands to the floor. If it seems tight just turn the piano on and pull down. Put the leader over one of the two little tabs in the center of the bottom take up spool after placing the paper over the tracker bar (Fig. 2, item C) and behind the bottom take up spool (Fig. 1, item G). The paper runs off the back of the top roll and onto the back of the bottom roll.
4. Turn the instrument on (Fig. 1, item A on a piano, in the bottom of a band organ).
5. Check to see that the paper roll is running between the outer markers like so: (fig. 2, items x). The holes in the paper go directly over the holes in the tracker bar. If the tracker bar has vibrated loose during shipping replace it into the slot on the left and adjust it with the tracker bar adjusting knob on the right (Fig 1, item D).
6. Adjust the volume to the desired level (fig. 1, item B) and adjust the tempo (fig. 1 item E). The tempo should be the same on every roll, but you may want to vary it.
7. To change rolls simply turn the volume off and hold the rewind lever (fig. 1, item F) up with your forefinger. This will wind the roll back onto the upper spool.
8. To play the piano continuously just leave the on/off switch on. To play with quarters just leave it off. You may turn it off during a song without damage. When you turn it off during rewind it will go into play when you turn it on again. When the coin box is full just lift it off the screw which it hangs on just behind the coin plate. If you knock off any tubes just replace them, they should only reach the correct fitting.
9. If there has been any damage in shipping call the freight company immediately to file a claim. You must file at your end. If you have any questions call the service Dept. # listed on the inside cover of our Catalog and your message will be returned as soon as possible.
10. When removing the bottom panel to change a roll simply push up on the spring clip under the keybed. When replacing the bottom panel take care to place the holes in the brackets over the pins in the pedal rail.

Fig. 1

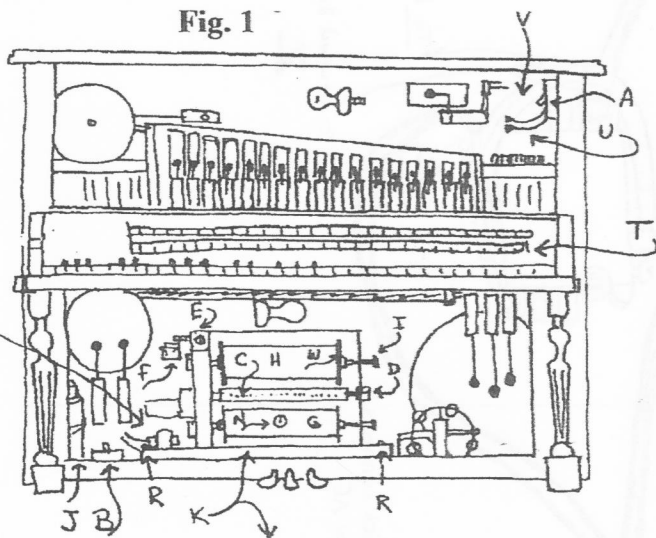
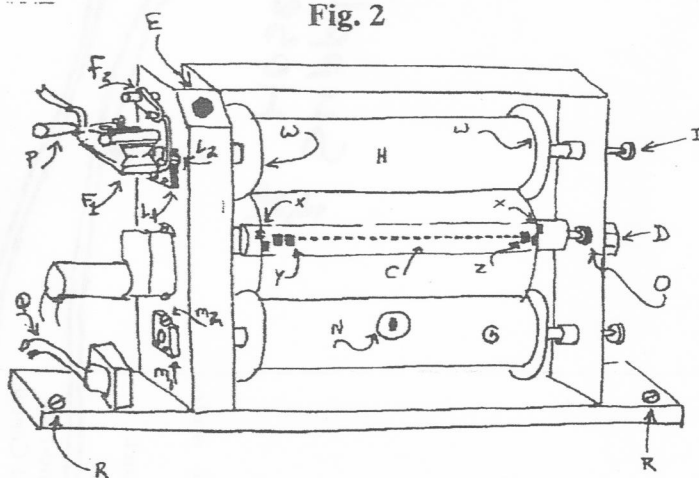
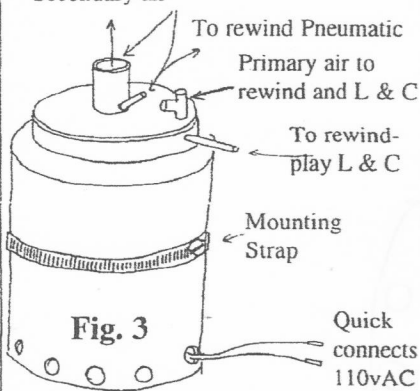


Fig. 2



Secondary air

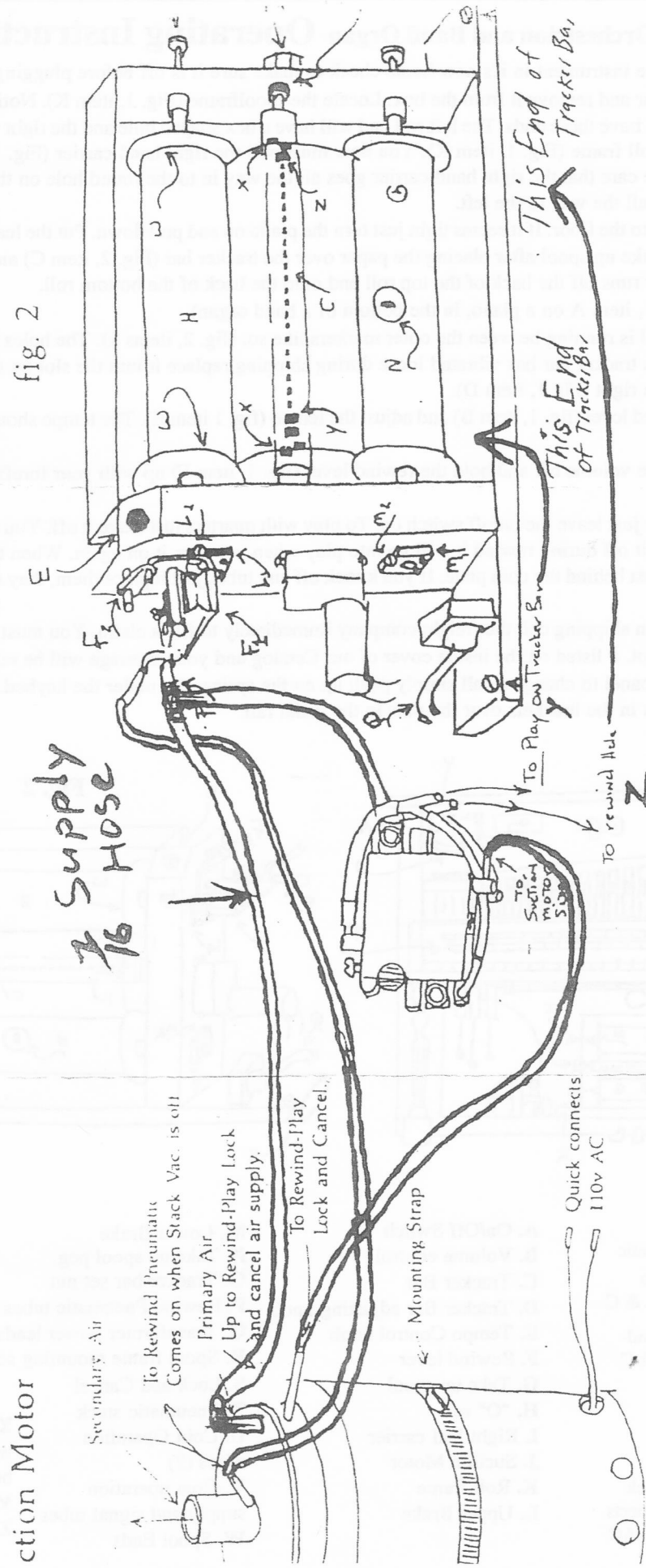


- A. On/Off Switch
- B. Volume control
- C. Tracker Bar
- D. Tracker Bar adjusting knob
- E. Tempo Control knob
- F. Rewind lever
- G. Take up spool
- H. "O" roll
- I. Right had carrier
- J. Suction Motor
- K. Roll frame
- L. Upper Brake

- M. Lower Brake
- N. Take up spool peg
- O. Tracker bar set nut
- P. Rewind Pneumatic tubes (2)
- Q. Transformer power leads quick connect
- R. Spool frame mounting screws
- S. Lock and Cancel
- T. Pneumatic stack
- U. Coin Operation wires (2)
- X. Outer marker (Marks where edge of paper roll belongs)
- Y. Play hole
- Z. Rewind Hole

Roll Frame Assembly

fig. 2



OPERATING INSTRUCTIONS FOR A RAM "O" ROLL PIANO

1. To change the roll - With the piano plugged in, turn the switch in the upper right hand corner on. Turn the volume control switch (in the lower left corner of the bottom) off by turning counter-clockwise. Rewind the roll off the bottom spool by depressing the rewind control lever on the control plate of the spool frame.
2. Turn the piano off at the switch. Remove the top roll by pulling the spool support rod on the right side of the spool frame out, and sliding the upper roll to the right.
3. Remove the ends of the roll and replace them in the new roll making sure the slotted spool end is in place on the side with the wooden peg, and that end goes back in to the left. Pull the spool support rod at the upper right side out again to replace the roll and release. Make sure the roll slides all the way to the left, and the bearing on the spool support is in place.
4. Unroll the paper so that it touches the floor, coming off the back of the top roll and slipping it behind the bottom roll.
5. Turn the piano on. Turn the tempo knob up and hook the D ring onto the peg on the bottom roll as it comes around.
6. After the roll has wound once around turn the volume up to the desired level. Adjust the tempo knob to the desired speed.

Tracker bar adjustment screw

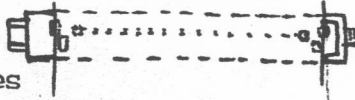
7. Keep a watch on the tracker bar to make sure that the holes in the roll line up with the holes on the brass tracker bar.
8. Also make sure that the paper travels directly between the two slots on the tracker bar.
9. If the holes are not lined up the symptoms will be very displeasing as the piano attempts to play in two keys at the same time. This can sometimes occur because the rolls are not always cut the same way.
10. To adjust this there is a tracker bar adjusting screw on the right hand side of the spool frame. It is the knob in the center. Simply turn this knob until the paper is between the two vertical slots on the tracker bar and the holes on the paper go directly over the holes in the brass tracker bar.
11. To put the piano on coin-op simply turn the switch in the upper right corner off and deposit a quarter.
12. To put the piano in free play simply turn the switch in the upper right corner on.

Coin-Op Adjustment

13. Make sure the brass wire clicks on return about 1/8" from it's resting point. If it doesn't click, bend it very carefully outward until it does. Then adjust it. If the piano won't come on when a quarter is inserted you may have to bend the wire in closer until it clicks 1/16" from it's resting point. If it stays on when there is no quarter, then it needs to have the wire bent outward.

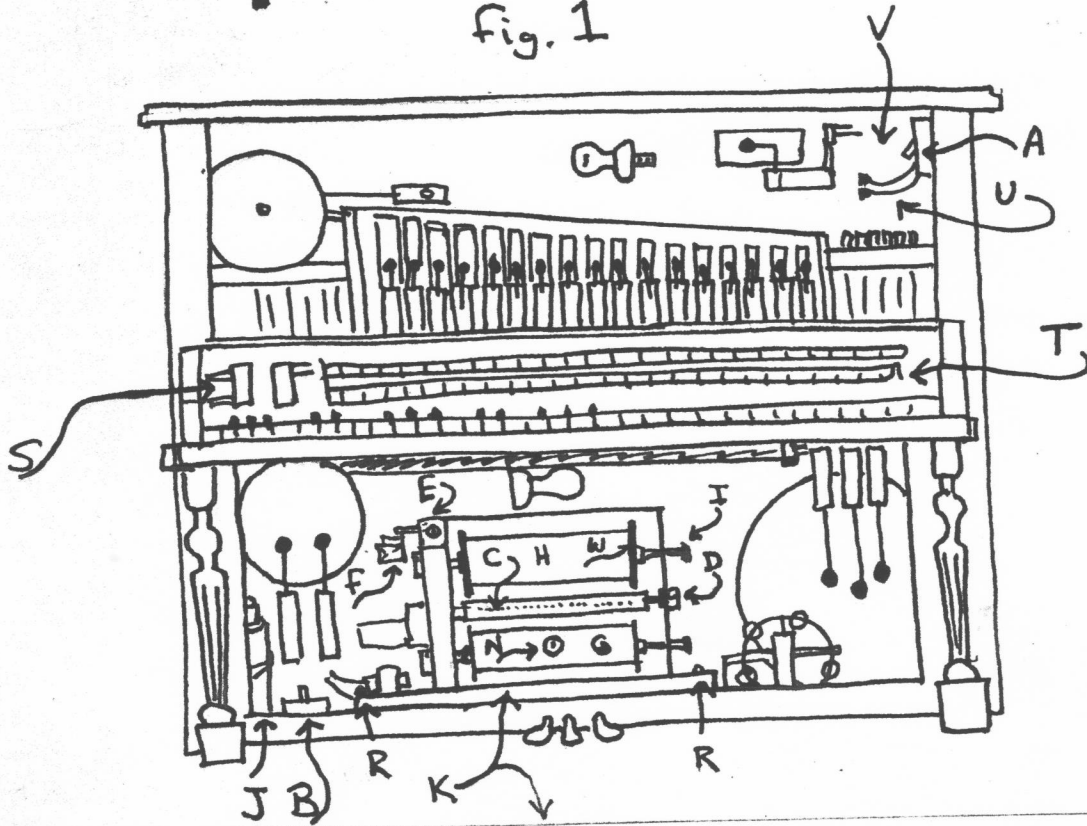
READ AND SAVE THESE INSTRUCTIONS

RAM piano Style SI 'O' roll player piano operating instructions

1. After uncrating and placing the piano in its new home check to make sure it is off before plugging it in. (Fig. 1 item A)
2. Locate the roll you wish to hear and remove it from the box. Locate the spoolframe (Fig. 1 item K). Notice the black roll ends on each roll. Only rolls from Ragtime Automated Music will have these ends. One roll end has a Hex shape in the center and the other end has a round shape. Place the roll in the upper part of the roll frame (Fig. 1 item K), making sure that the hex side is at the left. You may have to pull the right hand carrier (Fig. 1 item I) out to make room for the roll. Take care that the right hand carrier goes into the round hole on the right roll end (Fig. 1 item W), and that the hex side is all the way to the left.
3. Pull the paper with both hands to the floor. Thread the leader of the roll over the back of the takeup spool (Fig. 1 item G), and around to hook on the pin (Fig. 1 item N).
4. Turn the piano on (Fig. 1 item A).
5. Check to see that the paper roll is running between the outer markers like so:  and that the holes in the paper go directly over the holes in the tracker bar (Fig. 1 item C). If the tracker bar has vibrated loose in shipping replace it into the slot on left and adjust with the tracker bar adjusting knob (Fig. 1 item D).
6. Adjust volume to desired level (Fig. 1 item B) and tempo (Fig. 1 item E).
7. To change rolls simply turn volume off and hold rewind lever up with your forefinger (Fig. 1 item F). This will wind the roll back onto the upper spool and you can change it following steps 2 through 6.
8. To play the piano continuously just leave the on/off switch on. To play with quarters just leave it off. When the coin box is full (Behind the coin plate) just lift it off the screw it hangs on. Take care not to knock off any tubes. If you do just replace them, they shouldn't reach an improper location.
9. If there has been any damage in shipping call the freight company immediately. If you have any questions Call our emergency 24 hr. message center and your call will be returned promptly. Call (209)538-2330
10. When removing the bottom panel to change a roll simply push up on the spring clip under the keybed. If you have any problems pulling the paper down as instructed in # 3, just turn the piano on first and turn the volume off (Fig. 1 items A & B). When changing volume levels, turn the knob very slowly.

Style SI Orchestrion

fig. 1



Roll Frame Assembly

fig. 2

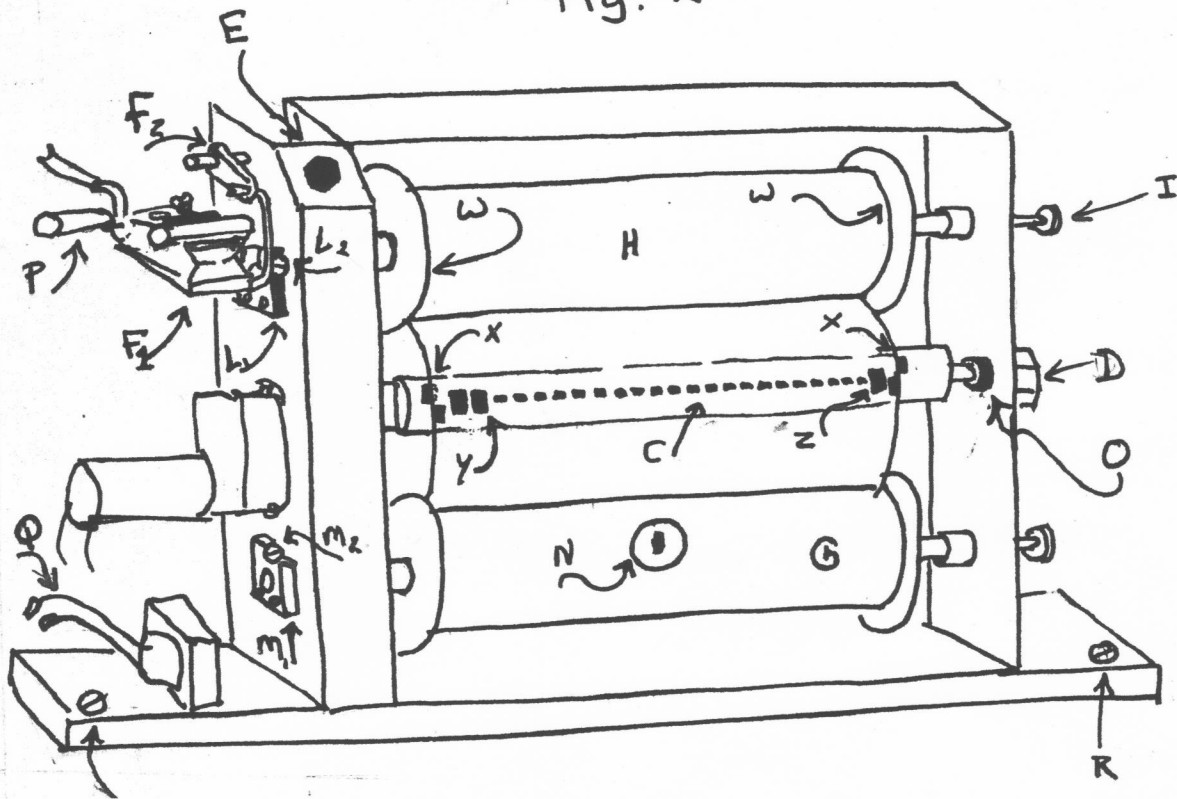
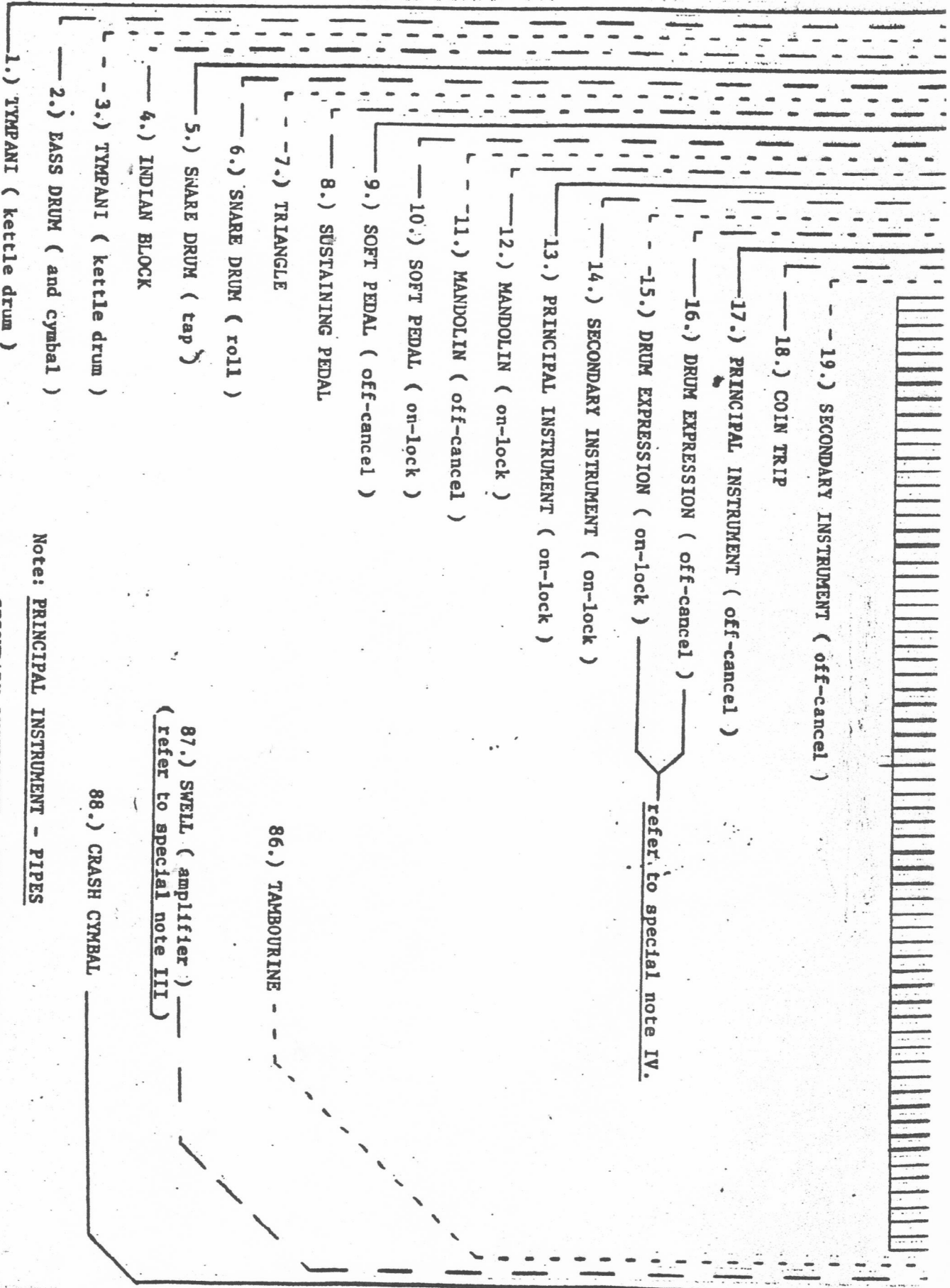


Fig. 1 and 2, Item description

- A. On/Off switch
- B. Volume control
- C. Tracker Bar
- D. Tracker Bar adjusting knob
- E. Tempo control knob
- F. Rewind lever (rewind pneumatic)
- G. Take up spool (Lower spool)
- H. "O" Roll
- I. Right hand spool carrier
- J. Suction motor assembly
- K. Roll frame (Spool frame)
- L. Upper brake
- M. Lower brake
- N. Take up spool pin
- O. Tracker Bar set collar
- P. Rewind pneumatic supply tubes (2)
- Q. Transformer power leads quick connect
- R. Spool frame mounting screws (2 or 3)
- S. Lock and cancel pneumatics (Rewind on left,
mandolin rail L&C on right)
- T. Pneumatic stack of piano (66 pneumatics)
- U. Coin operation wires (2)
- V. Coin operation supply and signal tubes (2)
- W. Spool end (Roll end)
- X. Outer markers (Edge of roll marks, left and right
sides of tracker bar, #C)
- Y. Play hole
- Z. Rewind hole



NOTE: #4 INDIAN BLOCK, #6 SNARE DRUM roll, #86 TAMBOURINE and XYLOPHONE or BELLS must have self - repeating pneumatics.

Note: PRINCIPAL INSTRUMENT - PIPES

SECONDARY INSTRUMENT - BELLS or XYLOPHONE.

87.) SWELL (amplifier)
(refer to special note III)

86.) TAMBOURINE - - -

88.) CRASH CYMBAL

REWIND

RAM piano Style SI, H, and Gr trouble shooting guide *(tsg)

- I. Piano and lights do not come on.
 - A. There are no fuses to replace in the piano, check power to outlet
 - B. Switch is off (Fig. 1-A)
- II. Piano lights come on, roll doesn't turn, suction motor is off
 - A. Check tempo knob (Fig. 1-E) turn clockwise to increase speed
 - B. Check volume control knob (Fig. 1-B) turn clockwise to increase
 - C. Check rewind lever position (Fig. 2-F₁ & F₂). With pneumatic (F₁) fully open, rewind shaft F₂ should be turned fully clockwise. Roll should now turn. With pneumatic F₁ closed roll should rewind. If does not check power leads (Fig.2-Q)
- III. While Playing with quarters piano shuts off in the middle of a song.
 - A. Check tracker bar outer markers as outlined in operating instructions #5
- IV. Roll doesn't rewind, just pulls off but will rewind by lifting F₁ Fig.2
 - A. Check tracker bar and hole alignment O.I.#5
 - B. Check rewind pneumatic supply tubes (Fig. 2-P)
 - C. Check lock and cancel pneumatic (Fig. 1-S) by removing both upper and lower spools carefully (Fig.2-H & G). With piano on place left thumb over play hole (Fig.2-y) and right thumb over rewind hole (Fig.2-Z). With both holes covered lift left thumb momentarily and replace. At this time the piano should be in play. This will be indicated by the sound of vacuum and the spool frame Motor going slowly. Now with your left thumb still in place, remove your right thumb momentarily. Remember to replace your thumb immediately after removing! The spool frame should now be in rewind, indicated by the fast whirring of the spoolframe motor and loss of vacuum noise. If the spool frame changes with the thumb up but goes back immediately after replacing it the lock and cancel (Fig.1-S) for the rewind must be replaced. If there is a hurry you can simply exchange it with the mandolin rail lock and cancel immediately to the right of it. Be careful to mark the tubes before removing for proper reinstallation. Seal off the supply tube to the mandolin rail lock and cancel and return the lock and cancel to the factory for repair or replacement.
- V. Motor drags or binds completely in rewind but plays normally
 - A. Lower spool should turn freely in both directions while piano is off. If it does not remove spool frame screws (Fig.2-R), Tracker bar set collar (Fig.2-O) rewind supply and signal tubes (Only 2, Fig. 2-P) and power leads (Fig. 2-Q) Do not remove any tubes from tracker bar, it simply slips out and stays in piano. Remove roll frame and check chains. If chains are on return entire roll frame to the factory for repair or replacement. If you wish to repair it yourself the problem is most likely in the lower clutch assembly, bottom sprocket.

VI. Roll rewinds and comes off lower spool

A. Volume level is too low

B. Rewind switch is out of adjustment (tsg #2-C)

C. Tracker bar is not adjusted properly (Op. Instr. #5)

D. Upper or lower brakes need adjusting (Fig. 2 L & M). With roll on and piano playing, slowly turn upper brake adjusting screw (Fig. 2-L₂) clockwise feeling paper just above the tracker bar for a slight tension increase. An average adjustment will be 1/8th of a turn clockwise. If you increase the tension too much you will hear the motor slow down and the roll will not track properly later. The lower brake is adjusted the same but by feeling just below the tracker bar while the piano is in rewind. Do not over tighten!

E. Lock and cancel (Fig. 1-S) is faulty, check as outlined (tsg #4-C)

VII. Quarters bounce out, piano doesn't always come on when a quarter is inserted

A. This may happen occasionally

B. If this happens too often, remove the coin mechanism and return to the factory for repair or replacement.

VIII. Roll rewinds but won't go forward

A. Check tempo knob (Fig. 1-E)

B. Check rewind lever adjustment (tsg #2-C)

C. Check chains (tsg #5-A)

D. Voltage regulator circuit is shorted out, repair or return spool frame to the factory for repair or replacement. If you choose to repair, try replacing the voltage regulator that is attached to the motor casing. It is an LM 317 T and will cost around \$2.00 at any radio shack store. Be sure to use heat sink compound when installing it, and heat sink pliers while soldering the leads.

IX. Piano plays but won't come on with quarters

A. Check coin-op power leads (Fig. 1-U) they should be attached to switch

B. The coin trip wire (Brass) may have been bent while removing coin box. readjust so that piano comes on when it is lifted and goes off when it is 1/8th" from its resting place. If the wire has been broken off, replace with epoxy or return the coin op to the factory for repair.

X. Spool frame turns but vacuum motor (Fig. 1-J) won't come on

A. Check lock and cancel for rewind, and small tube to it. (tsg IV-C)

B. Check volume control dimmer switch. (Fig. 1-B)

C. Vacuum motor smells burnt, and won't come on. Return to factory for repair or reinstall a new motor available at any vacuum cleaner supply house. Use silicone glue to reinstall, and let dry over night. Use a knife to disassemble motor.

IX. Instruments not working

A. Any pneumatic will be rendered not working when a tube is pinched or plugged. Check each tube, both supply and signal for obstructions on any pneumatic not functioning. Remove the signal tube (small one) at the nipple to the pneumatic while the piano is playing. The pneumatic should function at this time. If it does not you may check the nipple for dirt clogging the passage way into the pneumatic by removing the nipple and placing a sticky toothpick (with glue) in the hole. This should remove the lint. Replace the nipple and test again. If this does not repair it, remove and return to the factory for repair or replacement.

B. Lock and cancels will occasionally have a pinched tube, or a supply tube may come off. This should always be checked first since it is easy to spot. Simply remove the small tube one at a time to check for functioning at the pneumatic. If it works, there is probably a pinched or plugged tube below.

C. Any hissing sound will usually indicate a supply tube off. Simply find the location of the hiss and the tube will be close by.

D. Sometimes in shipping the large (1") supply pipes will vibrate loose. Just press them back together. This will be indicated by low volume, and a large hiss.

E. If you have any questions, do not call the store where you bought this piano, call the factory 24 hour message center (209)538-2330 and your call will be returned the following day if not sooner.

X. Piano maintenance and repair

A. Tuning is not required for the pianos sake, but for yours. Most player pianos will sound good enough for 5 or even 10 years. Do not have the piano tuned unless absolutely necessary since a piano tuner could damage the player.

B. A piano technician that is specializing in players should be able to make any necessary adjustments and repairs.

RAGTIME
1320-C Angie Ave.
Modesto, CA 95351

Suction Motor

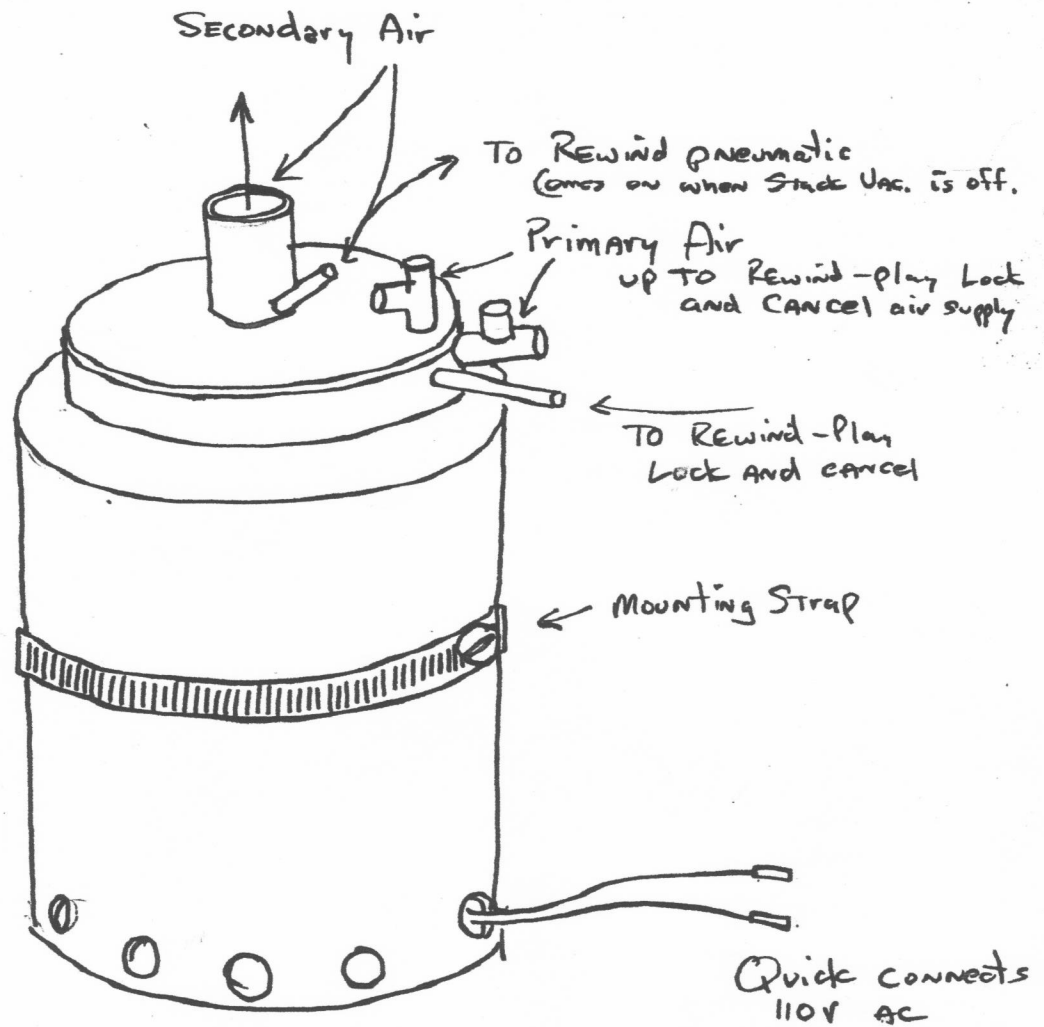


fig. 3
(fig 1. Item J)

INSTALLATION INSTRUCTIONS

Player conversion kits

I. Stack installation

1. The piano action must be regulated and preferably tuned before beginning. See "Rebuilding the Piano" by Art Reblitz.

2. Two basic types of upright piano actions are common, they are:

A. Basic wooden sticker. Recognizable by the $\frac{1}{4}$ " square wooden rod running from the back of the piano key up to the whippen. This sticker is usually 5 to 9 inches long. This is the most common action linkage, and is the one we supply parts for.

B. Wire actions. These actions have a $\frac{3}{8}$ " wooden dowel 3" long attached to a wire running up from the back of the piano keys. This type of action is difficult to convert and is not common. If your piano does not have either of these actions it is probably made outside of the U.S. and will require your ingenuity to function as a player. If you have a wire action you will need to request from us a wire action kit free of charge. These actions are possible to convert with our kit but the results are not quite as responsive as the wooden sticker.

3. With the piano open, the keys and the action left in, locate the wooden stickers as shown in fig. 1. Notice the little numbers on the piano keys just behind the Ivories. They should be numbered left to right 1 to 88. If they are not, do so. Now draw a pencil line with a straight edge from key #20 to #85. Make this first line about $\frac{3}{8}$ " below the bottom flange (hinge). In some pianos this line will have to be made $\frac{3}{8}$ " above the bottom flange. In order to tell which is for yours, measure the distance from the bottom flange pin to the top of the piano key. If this distance is less than $1\frac{5}{8}$ " you must make the line above the bottom flange. This will allow room for the pneumatic to not interfere with the piano action. If your piano is extremely small and you do not have room to move the bottom line above the flange you must modify the key back to fit. See fig. 1. Now that you have the first row marked simply draw another line $2\frac{1}{4}$ " above. This will mark the location of the top row of contact pins for the pneumatics. When the pins are finally installed they will alternate top bottom, top bottom. Be careful not to depress the piano keys while you are doing this. A straight

edge can be clamped to the action to do this. The action must be in the piano to be marked. After it is marked you will probably need to remove it to pin the action. Simply remove the four action bolts at the top of the action. Before removing the action, the bridle straps (usually little green straps) must be tight. Bend the wires they are attached to to accomplish this. Now with the nail spinner in your drill, install the 1" nails as shown in fig.1. Start with the left nail at the bottom. Don't forget to alternate (#20 bottom, #21 top, #22 bottom Ect.).

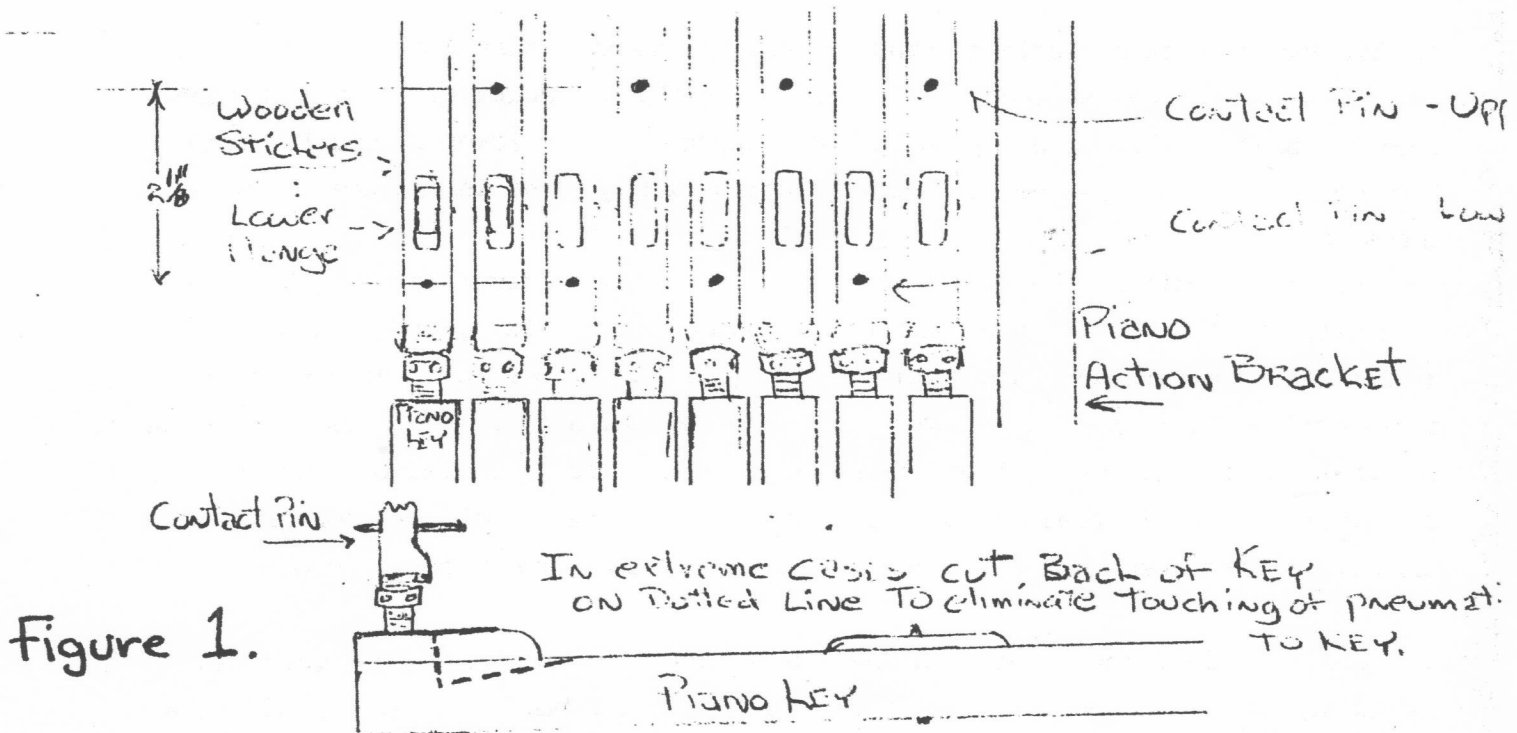


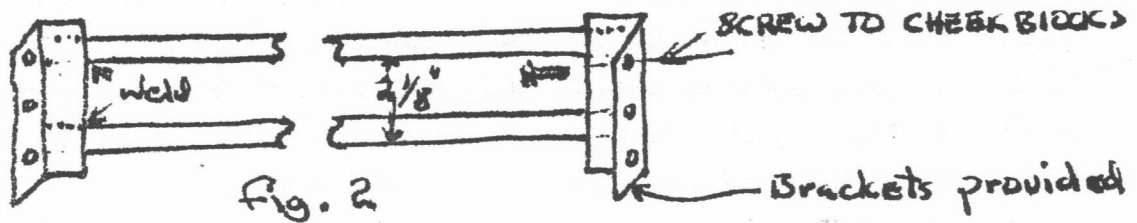
Figure 1.

4. Installing the pneumatic action bracket.

a. From the wooden sticker, measure $3\frac{1}{4}$ " out to the edge of the cheek block. This will be the approximate location of the stack bar bracket. At this point measure the distance between cheek blocks. This is usually around 50 to 55 inches. Cut two pieces of $\frac{1}{2}$ " cold roll steel (available at your local hardware store for a few dollars) the exact same size. Fasten these bars to the brackets provided as shown in fig. 2. by welding or drilling and bolting. Make sure that these two bars are $2\frac{1}{8}$ " apart, and the end brackets are parallel. **Center to Center.**

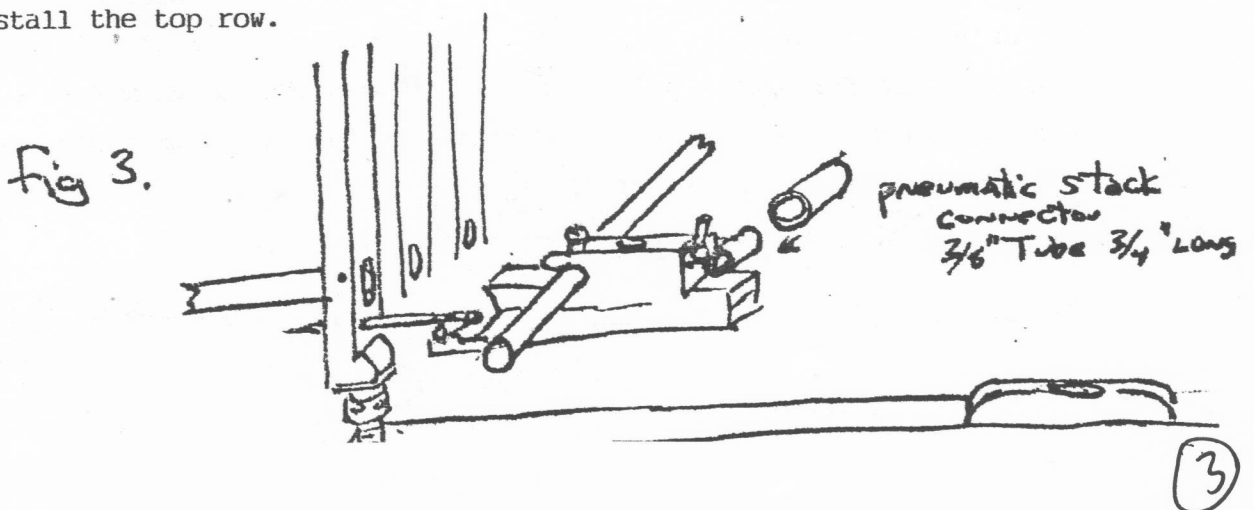
5. Place 4 guide pneumatics across both bars, perpendicular to the brackets. With the guide pneumatics parallel to the keybed, place action bars in piano using the guide

pneumatics to keep the bar in its proper place. Before putting the woodscrews in the brackets, make sure the guide pneumatics are in the position shown in fig. 3. Mount the brackets checking to see if the bottom pneumatics touch the keys when they are depressed. And making sure that they make contact on the outside $\frac{1}{4}$ " of the nails. While adjusting the position of the stack bar brackets, nails help as a temporary hold, replacing them one at a time with wood screws.



6. Placing stack of pneumatics on stack bars.

a. Remove the guide pneumatics. Start by placing the first pneumatic at the left on the bottom row. Tighten the set screw, making sure the pneumatic has little lost motion. It is also a good idea to start with the contact close to the right side of the pneumatic. This will help give you more room when you need it. You will notice that they will start to need more room as you move across the keyboard. Having placed the first pneumatic, you are now ready to use the $\frac{3}{8}$ " rubber tube. Place it on the pneumatic nipple and cut it off with scissors about $\frac{3}{4}$ " long. This will connect to the next pneumatic. As you install the rest of the bottom row pay attention that they are as close to each other as they can be without rubbing or hanging up on each other. Make sure that the pneumatic connecting tubes are all the way on. There should be very little lost motion, and the piano key should not be lifted, at all. The pneumatic must not touch the sticker when squeezed closed. And the Piano key must not touch the pneumatic when depressed. After the bottom row is installed double check it. Press the piano keys down to check clearance. Now you are ready to install the top row.



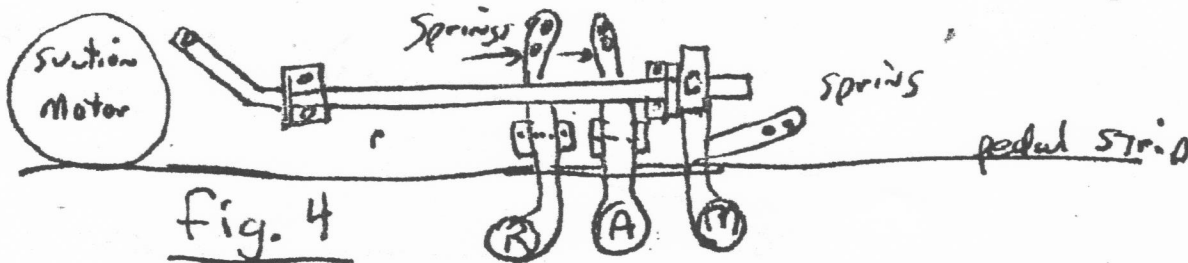
II. Below the keyed installation

A. Installing the pedals.

1. Remove original pedal hardware, and discard unless you have a style D kit.
2. Measure distance from Rt. pedal hole to left rear corner and add 2". This will be the length of your sustaining pedal rod. Cut 7/16" hot roll steel same. The rod should bend about 5" from the left end as shown in Fig. 4. A 3/16" hole at the end perpendicular to the bend will serve to guide the sustaining pedal lifting rod, which you will make from a wooden dowel.
3. Install pedal springs, pedals, and pedal rod with brackets provided as shown in Fig. 4. Right pedal will have a 1/4" -20 bolt to secure it on the rod. Pedal brackets are simply mounted to the bottom of the piano.
4. These pedals and brackets are provided with style ST and GR kits only. They will allow the installation of instruments in the bottom by taking up less room than the original hardware. If you purchased a style D kit, you will not need to remove your original pedals. The spool frame will be mounted above them.

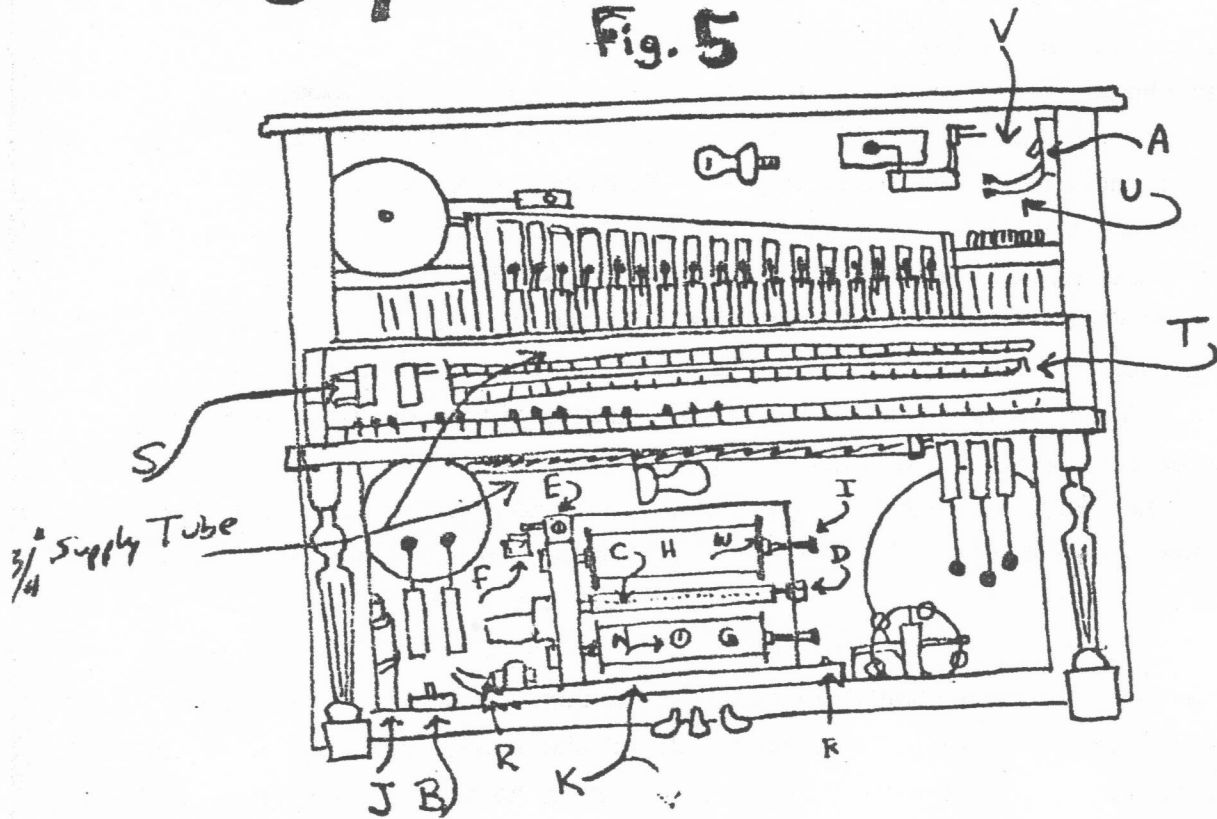
B. Installing the spoolframe

1. Mount the spool frame as far back as possible to allow room for the bottom panel to close. If it will not go back far enough, you can modify the bottom panel catch position and make brackets to hold the bottom panel out sufficiently. A good place to put the spool frame is with the bottom flush to the edge of the pedal strip. The bass drum should be set in place on the right with the beaters up, and bracket down. Make sure you have room to work the knobs before mounting but keep it as far to the right as you can. Mount the bass drum as far back as you can to allow room for the Tambourine to be mounted in front of it.
2. Place the suction motor in the far left corner with the tubes pointed left. Place rubber weather stripping under mounting clamp and under motor to reduce noise. See Fig. 5. for instrument location. Screw large hose clamp provided to left inside of piano. This is your suction motor mount.
3. Bring 3/4" PVC pipe out of suction motor top. T off under keyed over to bass drum. Drill 3/4" cap for 3/8" nipple (Nipple, T or Elbow) provided.
4. When tubing for 3/8" supply line run from cap to bass drum from other side of bass drum down to tambourine and then over to snare drum behind spool frame.



Style SI Orchestration

Fig. 5



5. Mount snare drum as close to the front to allow room for the supply tubes to go behind. Pay attention not to bring drum out past the spool frame. Or it may touch the bottom panel.
6. install the bottom light and wire it with the short cord of the wiring harness that reaches it. The style D kit does not come with lights.
7. Install the wiring harness. It may be easier to do this before the snare drum. Hook the nipples going to the left to the suction motor nipples, and the nipples to the right to the spool frame. The metal box of the wiring harness mounts with two woodscrews to the inside of the pedal strip. See B Fig. 5. The long wire goes across to the right side and up to the light switch box A Fig. 5. See fig. 6. Wiring diagram. for hook up inside switch box A Fig. 6.

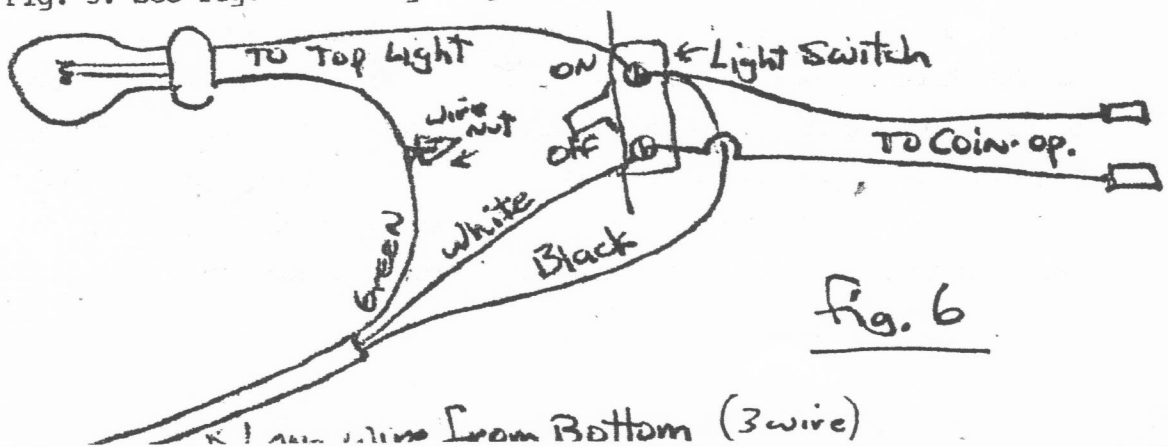


Fig. 6

III. Above the keybed installation

A. Lock and cancel installation

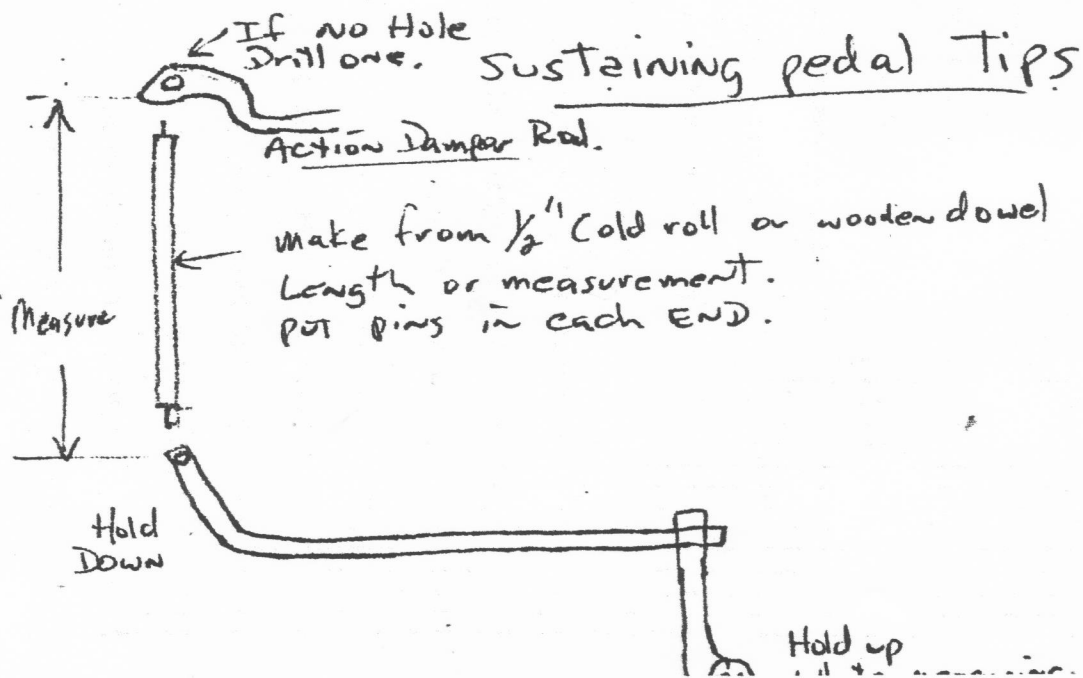
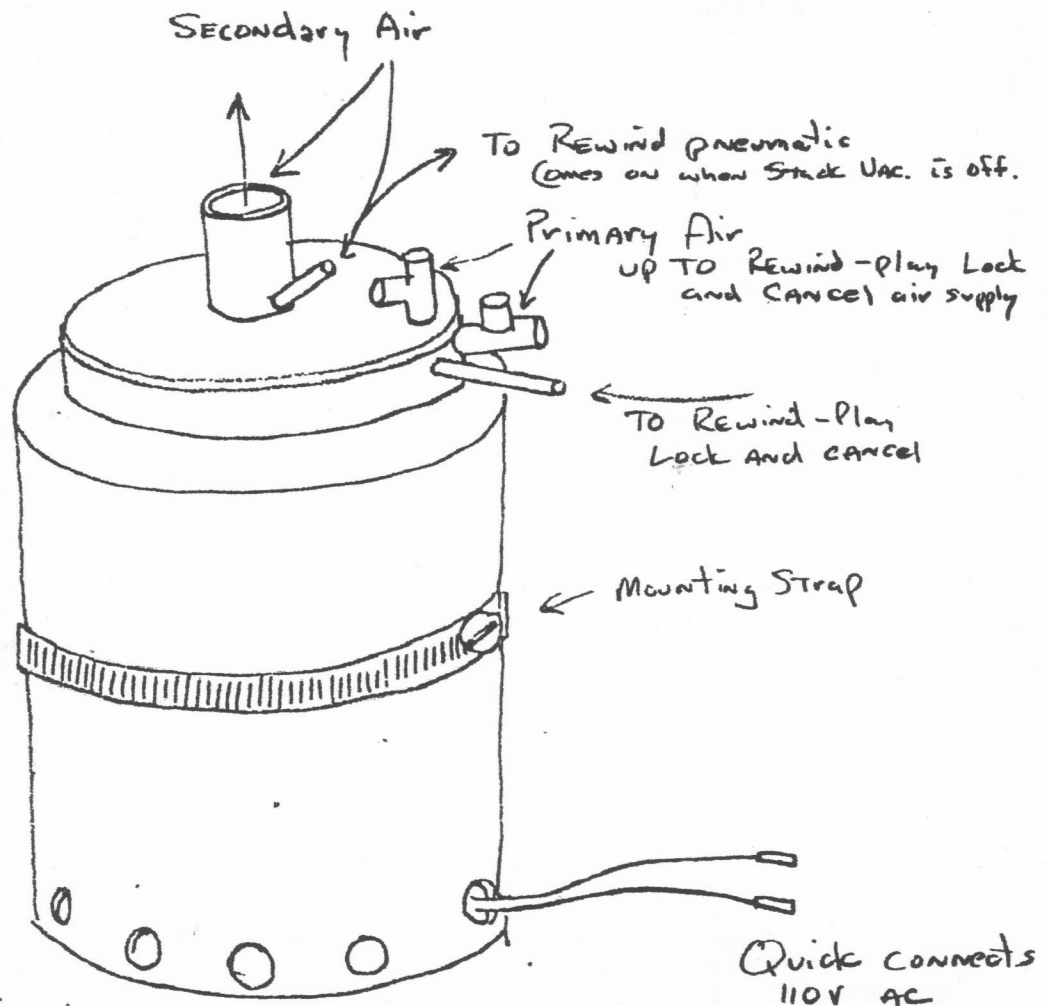
1. Mount the Rewind play lock and cancel as shown Fig. 5 S. Tube the two plastic Y tubes to the rewind play tubes on the tracker bar. See Fig. 7. If you tube them backwards just reverse them. You can check it later when everything is working. The other open tube is a nipple. it goes to the suction motor see Fig. 8. This nipple must be on the bottom. Tube the supply nipples (3/8") to the suction motor. Both nipples on the lock and cancel must be supplied with vacuum from the suction motor nipple. You can do this by constructing a bypass with 2 3/8" T's and two caps with some short pieces of 3/8" tube. Cap the othe side of the Lock and cancel supply nipple.

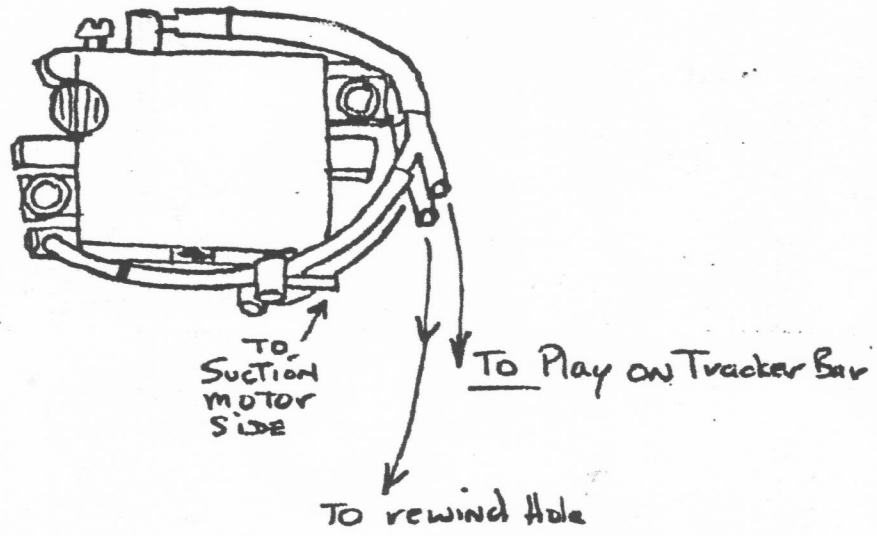
2. Tubing the stack is next. If your piano does not have enough room for all the tubes to go on the left and right of the action, and it most likely wont, you must drill several one inch holes between the breaks in the keybed. Use a one inch spade bit available at any hardware store. This procedure makes a real mess, so you should do it first, before installing the bottom. also you should remove two keys on each side of the break, marking their position first. There are two breaks in most pianos. Drill holes on the right side too. Pay attention not to drill these tube passage holes past where the bottom board. Also you don't need to drill these holes behind the action either.

3. Begin tubing by placing a 3/16" tube on the first pneumatic nipple on the left. It helps to place all the nipples on the back of all the pneumatics first. When you are through tubing and all the tubes are neat and straight you will superglue the nipples on. Also you should feed the tube up through the holes in the first break, hook in up, and cut it off at the corresponding nipple on the tracker bar. Which will be the #20 tube of the middle section or bulk of the tubes. Counting from the left. See fig. 9. Theoretically you should be able to hold this Fig. 9 tubing chart up to the tracker bar to see which tube goes where. But the copy machine distorts the size so take this into consideration when referring to it. The far right tubes that are staggered are not used, neither ar the far left. The hole immediately next to each of these are not used either. So the three holes on each end of the tracker bar are to be ignored for the purposes of tubing. Continue tubing the stack until you reach the last pneumatic at which point you should have three nipples left over on the right side of the tracker bar. It helps things to remove the tracker bar from the spool frame and turn it over. This will make the nipples accessible while tubing.

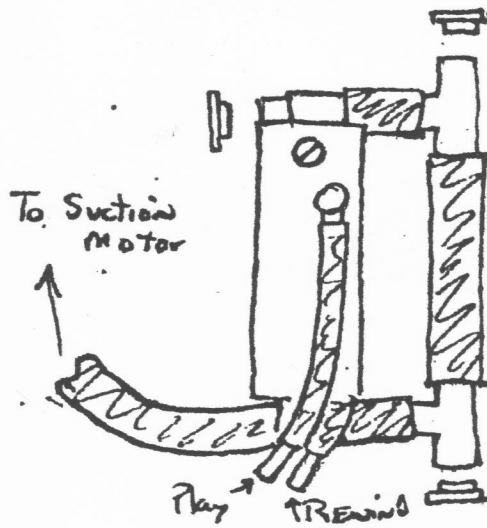
Suction Motor

Fig 8





LEFT SIDE VIEW

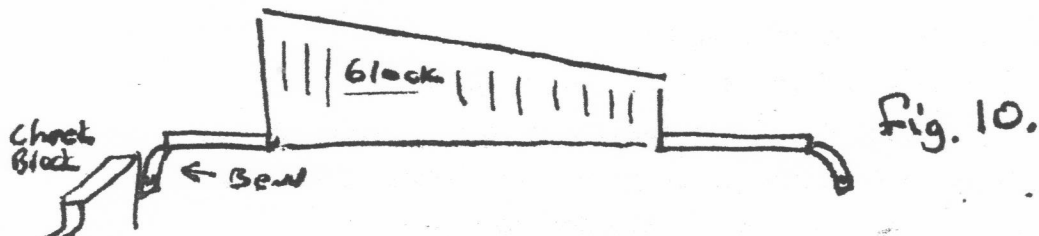


Lock and Cancel Valve
Tubing

Top View

If you have a piano tilter, tilt the piano back 45 degrees to make it easier. Follow Fig. 8 to tube the other instruments.

4. Mount the glockenspiel on a piece of 1" x 1" x 1/8" angle iron. Cut it to fit on the ledge formed by the cheek blocks. You may have to cut the Pillars later to put them back so keep the bracket behind the edge of the side of the piano. If this won't work cut one side of the angle iron off 5" on each end and bend the ends down to form a bracket with screw holes at the ends. See Fig. 10.



5. Bring the PVC pipe up behind the action, and across the stack bars to the other side. Drill and glue nipples in Cap and PVC to provide suction for each row of pneumatics at each end. Use T's and caps to form Elbows. And tubing to form supply lines.

6. Put Y tubes in the last 24 pneumatic signal lines. (3/16" tubes) on the right. Have one end of Y tube pointing toward Glockenspiel. Now tube glock starting on the right. Last note on glock tubes with last note on piano. (Last is on right) Tubing the Y tubes while tubing the stack is recommended.

7. Tube the glock supply from both ends putting nipples on each end of glock in PVC.

8. Run a tube up from a nipple on the right for the coin op and Woodblock at this time.

9. Mount the wood block Position W Fig. 5. Mount the cymbal on the left side of glock as shown fig. 5. Tube supply line to PVC. Tube cymbal signal tube to Y tube of center bass drum beater line.

10. Place two 1/2 x 1/8" brackets at top of glock to support it. You may have to drill and tap piano plate with 8-32. Use a 9/64" drill bit to start tap.

Install coin op in front of piano.

IV. Coin op installation

A. The coin Mechanism hole

1. Making sure that you have enough room for the coin op pneumatic when the lid is closed. Mount the coin op in the upper right hand corner. Use the coin plate to locate the best spot. Make a mark through the slot where the hole will be. Use the appropriate drill bit and drill a row of holes for the coin op to fit through. Run the drill back and forth or file to fit. Mount coin plate and coin box accordingly. Keep the coin op as high as possible to clear the action.

Materials you will need to purchase

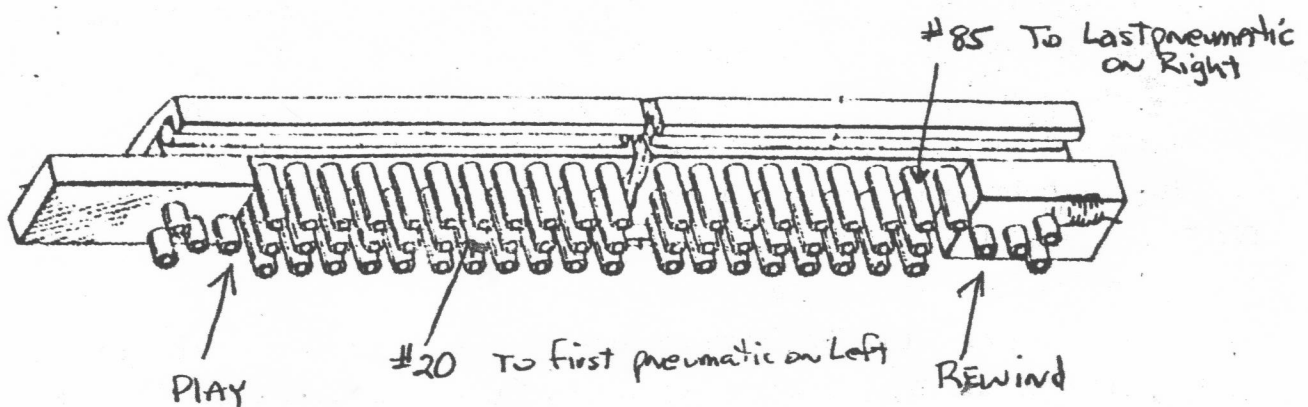
- 4. 3/4" PVC 90 degree elbows
- 2. 3/4" PVC Ts ? ~
- 2. 3/4" PVC caps ? -
- 2. 3/4" PVC caps ? ~
- 10 feet of 1/2" cold roll mild steel
- 48 inches of 7/16 hot roll mildsteel
- 20 feet of 3/4" schedule 125 PVC spinkler pipe
- 5 feet of 1/2" wooden dowel for sustaining pedal (Right Pedal)?
- 48" of 3/4" x 3/16" weather stripping with adhesive back -
- 1 light switch with screws on side for hookup -
- 1 plastic box for switch and cover -
- 5 feet 1" x 1" x 1/8" angle iron to mount glock
- 1 1" spade bit
- 1 thin super glue
- misc. screws, two dozen 8 by 1/2" round head woodscrews, 8 x 3/4" RHWS
- 3 feet #18 two wire zip cord
- some wood scraps for building spool frame mount. Use Angle iron here too.
- 2 25WATT Light Bulbs for GR or ST

U.S. Patent

Mar. 29, 1988

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4,733,592



Tracker Bar
fig. 9