



## **PRE-DELIVERY RECORD** **FOR KENT HYDRAULIC BREAKERS**

As with most other machines, KENT hydraulic tools need to have clean oil, and should start with clean filters. Oil breaks down with time and hard service so the newer the oil and the cleaner the filters you start with the longer the tool will last. Hammers in particular are built with extremely tight tolerances. Impurities in the oil and/or filters at less than peak efficiency can shorten seal life, and in the worst cases, scratch or scar the piston and cylinder.

KENT requires that a “Warranty Registration Form” be filled for every new hammer. The form has a place to specify the make, model, and serial number of the machine on which your new tool is being mounted. If you are using a KENT installation kit, specify that kit number on the line provided. If you have designed your own installation, or use a third-party kit, or have had the work performed outside your organization, that information needs to be stated with the brand and parts or kit numbers used. Since customers often call for parts involved in the plumbing as if it were part of the tool itself, the better you identify the specific installation the easier it will be for you later.

CARRIER INFORMATION (LOADER, BACKHOE, OR EXCAVATOR, ETC.)

Manufacturer Brand Name: \_\_\_\_\_ Model Year or Series: \_\_\_\_\_  
Carrier Model: \_\_\_\_\_ Carrier Serial Number: \_\_\_\_\_  
Hydraulic Kit Number: \_\_\_\_\_ Kit Manufacturer: \_\_\_\_\_

The Hydraulic Kit was installed by: MANUFACTURER  DEALER  CUSTOMER  OTHER \_\_\_\_\_

The next section on the form should be filled out immediately after the plumbing kit is installed. Since the tool is going to be used in a variety of conditions, flow and pressure tests need to be taken over a range of temperatures, and over a range of engine rpm's.

<u>RECORDED READINGS FROM HYDRAULIC FLOW &amp; PRESSURE TEST</u>				
Hydraulic flow and pressure should be checked after the Hydraulic Kit has been installed, and tested at the end of the boom hoses.				
<u>Oil Temperature</u>	<u>Oil Flow</u> GPM	<u>Working Pressure</u> PSI	<u>Engine Speed</u> RPM	<u>System Return</u> PSI
COLD free flow tested at: 70°F				
HOT free flow tested at: 130°F				

System relief is set at: \_\_\_\_\_ PSI. Tests recorded by: \_\_\_\_\_ Date: \_\_\_\_\_

A “Warranty Registration Form” is required for each KENT hammer, and should be filled in completely. The installation details described above are required for proper registration. Be sure to save your setup and test data for every hammer.



## **MOUNTING PROCEDURE** **FOR KENT HYDRAULIC BREAKERS** **WITH KENT UNIVERSAL TOP CAP**

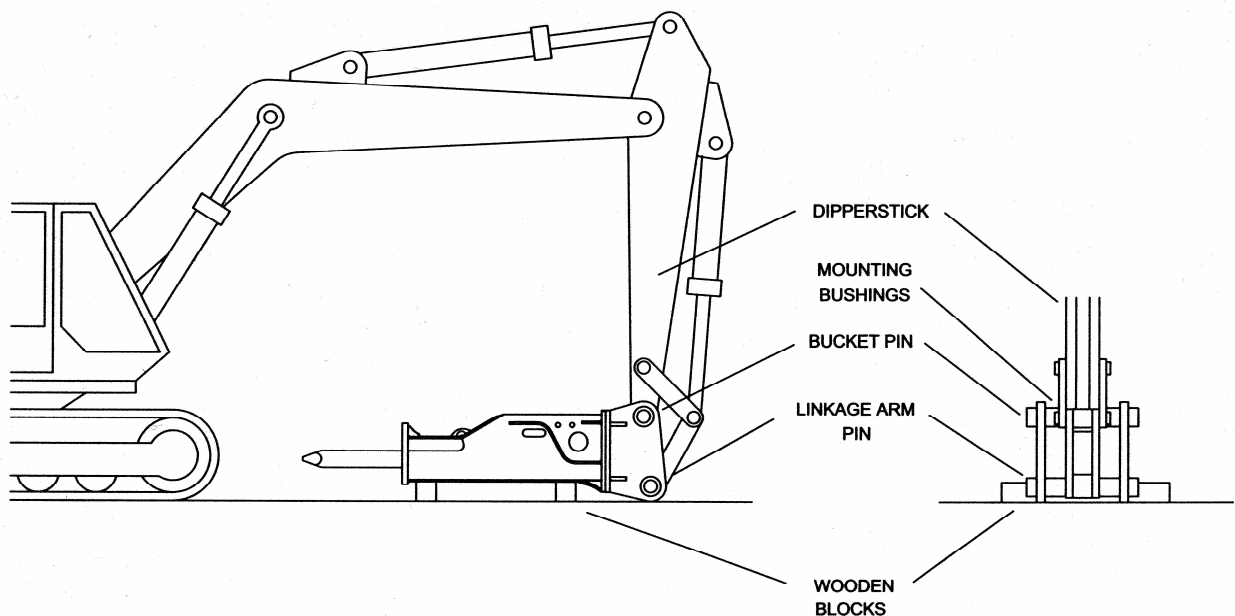
The following is the basic procedure for mounting and dismounting a hydraulic breaker. This procedure is specific to KENT's universal mounting system which uses pins and spacer bushings that can be sized to accommodate a variety of OEM carrier configurations. It is not possible to cover the many variations on these procedures needed for every manufacturer's attachment system. For any system other than KENT's pin-on universal top cap, please refer to your base machine's operations manual for bucket and attachment procedures, or that for your specific mounting system.

### **MOUNTING**

1. Remove the bucket and bucket pins from the base machine.
2. The breaker should be set on wooden blocks or the shipping skid, with the hoses pointing upward and the working steel toward the base machine.  
*(Refer to the illustration.)*
3. Remove the retainer bolts and the breaker mounting pins. Do not remove the mounting bushings from the bosses in the side plates of the breaker.
4. Carefully move the dipperstick into position between the mounting bushings until the bucket mounting hole is aligned with the breaker mounting pin hole.
5. Install the breaker mounting pin for the dipper stick ("bucket pin") and secure it in place with the retainer bolt and locknut.
6. Adjust the bucket cylinder until the linkage arm hole is aligned with the other breaker mounting pin hole.
7. Install the other breaker mounting pin ("linkage arm pin") and secure it in place with the retainer bolt and locknut.
8. Connect the hose whips coming from the breaker to the appropriate hydraulic lines on the base machine's accessory kit.
9. Slowly cycle the bucket cylinder to ensure the hose whips are not pinched or drawn too tight.

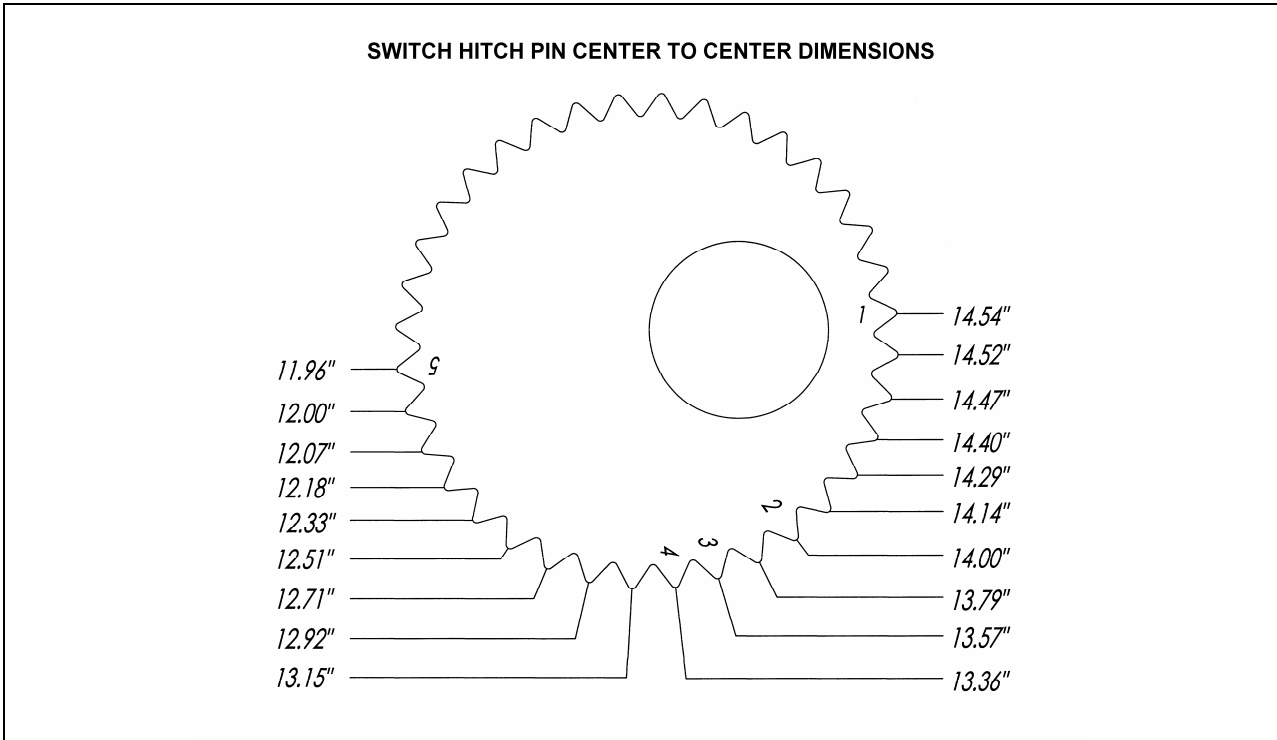
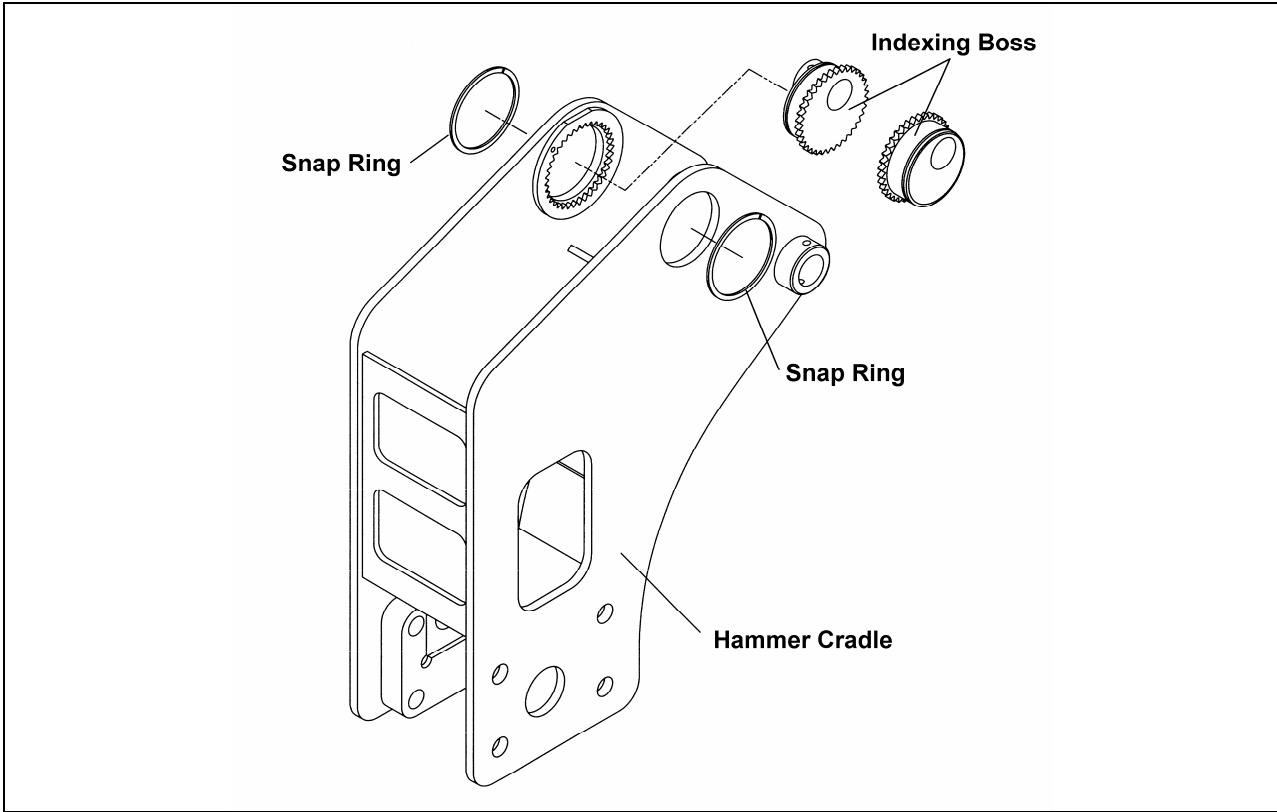
## **DISMOUNTING**

1. Rotate the breaker so that the side away from the operator is parallel to the ground. Place wooden blocks on the ground and lay the breaker on them.  
*(Refer to the illustration.)*
2. Disconnect the hose whips. Couple the hose whips together, this prevents contamination from entering the hoses.
3. Remove the retaining bolts from both of the breaker mounting pins.
4. Remove the breaker mounting pin from the linkage arm.
5. Remove the breaker mounting pin from the bucket mount.
6. Carefully move the dipperstick from between the mounting bushings.
7. Replace the breaker mounting pins into the mounting bushings and secure in place with the retaining bolts.



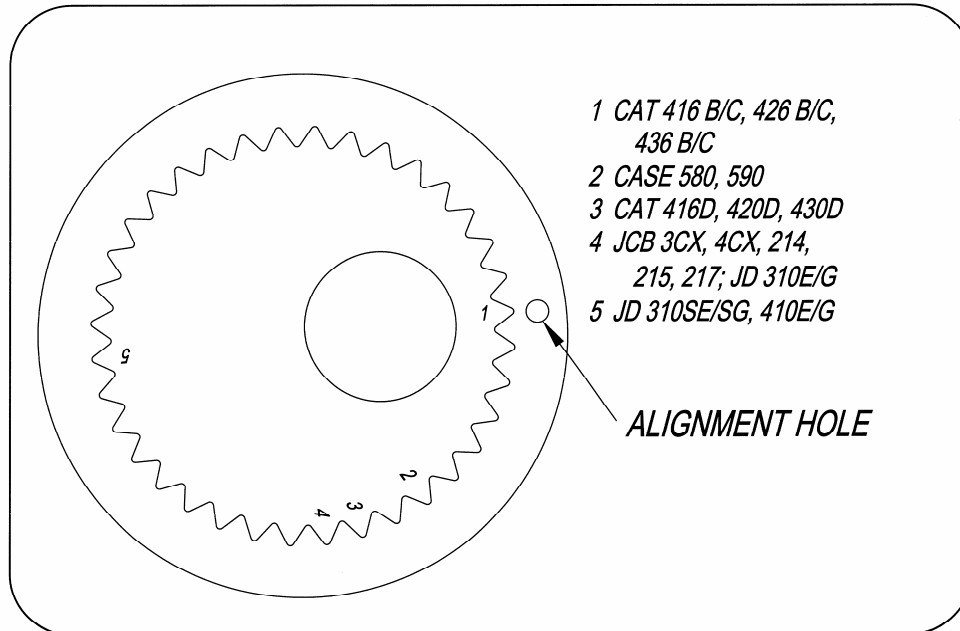


# **TLB BREAKER SWITCH HITCH™ ADJUSTMENT**





## **BREAKER SWITCH HITCH™ ADJUSTMENT** **KF6TLB, KF9TLB AND KF12TLB HAMMERS**



- STEP 1** Remove the large snap ring from the outer edge of the rotating boss.  
*(Refer to the illustration.)*
- STEP 2** Press on the outside of the boss so that the indexing teeth disengage from the toothed ring on the side plate.
- STEP 3** Rotate the boss and align the appropriate index number with the alignment hole in the plate, and press the boss into position so that its teeth engage fully with those in the outer ring.
- STEP 4** Reinstall the snap ring in the outer groove of the rotating boss, and repeat Steps 1 through 4 on the other side plate boss.

Please note that only the RIGHT hand rotating boss has the weldment for the keeper bolt. Although both bosses are otherwise similar, they must not be exchanged for one another if the index points are to be correct.

Although there are only five positions marked on the indexing boss, any one of the nineteen positions between index mark "1" and mark "5" can be used. Refer to the chart on the facing page to determine which index location is needed to set the pin center-to-center needed. Unless otherwise requested, Kent will ship all SWITCH HITCH™ hammers at position "2" for the 14" center-to-center distance.



## **SETUP PROCEDURE** **FOR KENT HYDRAULIC BREAKERS** **KF12 AND LARGER**

### **Recommended Test Equipment:**

- Mechanical Flow Meter with variable flow control valve and fluid filled pressure gauge.  
(Be sure your meter has the proper flow and pressure range for the circuit being tested.)



Kent recommends against the use of Electronic Flow Meters and or gauges. These types of meters and gauges have been known to provide inaccurate readings when installed in line with hydraulic breakers.

### **Before proceeding, the following information must be determined:**

1. The flow and pressure output of the auxiliary circuit on the base machine (excavator, backhoe, etc.) as specified by the manufacturer.
2. If the base machine is equipped with a computer control hydraulic system consult the Manufacturer's Operators Manual for the proper mode settings when using a breaker.
3. The auxiliary circuit's Pressure and Flow adjustment procedures. (Refer to the instructions supplied with Hydraulic Installation Kit or, if factory plumbed, refer to the Operators Manual)
4. The flow and pressure requirements of the breaker.
  - **The required pressure ranges and flow requirements for each F Series Hammer are different and are listed in the chart on the last page of this document.**

### **STEP ONE:**

Determine the amount of oil flow (GPM) available from auxiliary circuit of the base machine at the desired pressure.

*This step will determine if the auxiliary circuit is supplying enough flow to operate your breaker efficiently. This will also insure that the correct mode setting is being used and that the hydraulic pumps are in good working condition.*

### **All tests are to be performed with the base machine operating within its normal temperature range**

1. Turn the flow valve on the flow meter assembly to the fully open position.
2. Connect the flow meter assembly between the pressure and return lines of the auxiliary circuit at the end of the dipper arm.
3. Run base machine at full throttle.
4. Activate the auxiliary circuit.



5. Slowly close the flow control valve on the flow meter until the desired pressure has been achieved. **(See chart)**.
  - If the desired pressure can not be achieved, or the flow drops off excessively, it will be necessary to increase the pressure in the auxiliary circuit.  
  
(Refer to the Installation Kit Instructions or Operators Manual for adjustment procedures)
6. Compare the flow reading to the required flow of the breaker **(See chart)**. Your actual reading is required in order to determine the proper method to use in the next step.

#### **STEP TWO:**

Set the maximum pressure on the auxiliary circuit.

- Some Excavators have systems that let the operator dial in the pressure setting. Refer to your base machine's Operators Manual for instructions.

There are two different methods used to set the maximum pressure setting on most of the auxiliary circuits. Which method you use will be determined by the flow requirements of the Breaker being installed.

#### **METHOD ONE:**

Use this method if the breaker's maximum flow requirement is **less** than what the auxiliary circuit is providing.

- If your base machine is equipped with a flow stop on the auxiliary valve, set the flow stop to provide the proper flow at the required pressure. Once the flow stop has been set, use METHOD TWO to set the circuit relief valve.
  1. With the flow meter assembly installed, activate the auxiliary circuit as before.
  2. Slowly close the flow control valve until the maximum flow rate **(See chart)** for your breaker is achieved.
  3. Locate and adjust the circuit relief valve until the pressure approaches but does not exceed the maximum pressure required for your breaker **(See chart)**.

(Refer to the instructions supplied with the Hydraulic Installation Kit or your Operators Manual for valve location and adjustment procedures)

- It may be necessary to repeat these steps.



#### **METHOD TWO:**

Use this method if the breaker's maximum flow requirement is **more** than what the auxiliary circuit is providing.

1. Locate the pressure relief valve for the auxiliary circuit on the base machine and back out the adjustment screw.

(Refer to the instructions supplied with the Hydraulic Installation Kit or your Operators Manual for valve location and adjustment procedures)

2. With the flow meter assembly installed, close the flow control valve completely.
3. Activate the auxiliary circuit as before.
4. Set the auxiliary circuit relief valve to 3000 psi.

#### **STEP THREE:**

Setting up the Breaker (**See chart for specifications.**)

1. Install the working steel if not already installed.
2. Thoroughly grease the breaker before operating.  
(Refer to the greasing instructions in Section IV of this manual.)
3. Check both gas charges.  
(Refer to the charging procedures in Section IV of this manual.)
4. Locate the valve adjuster on your breaker.  
(Refer to the F Series Hammer Valve Block illustration.)
5. Loosen the lock nut on the valve adjuster and turn the valve adjuster screw **clockwise** until seated. **Do not over-tighten the adjuster screw!**
6. Turn the valve adjuster **counter-clockwise** to the maximum flow setting for your breaker. (**See chart for the maximum turns for each model.**)
7. Tighten the lock nut on the valve adjuster.
8. Turn the flow valve on the flow meter to the full open position.
9. Attach the breaker to the base machine if it has not already been mounted.
10. Connect the flow meter between the pressure supply line and the pressure hose whip on the breaker.
11. Connect the return hose whip from the breaker to the return line on the base machine.
12. Run base machine at full throttle. (at normal operating temperature)
13. Position the breaker on solid surface. (Use a steel plate, a large boulder, etc.)
14. Apply moderate down force and activate the auxiliary circuit.
15. Observe the flow and pressure readings. It may be necessary to adjust the **valve adjuster** if the pressure reading is not within the operating specifications.

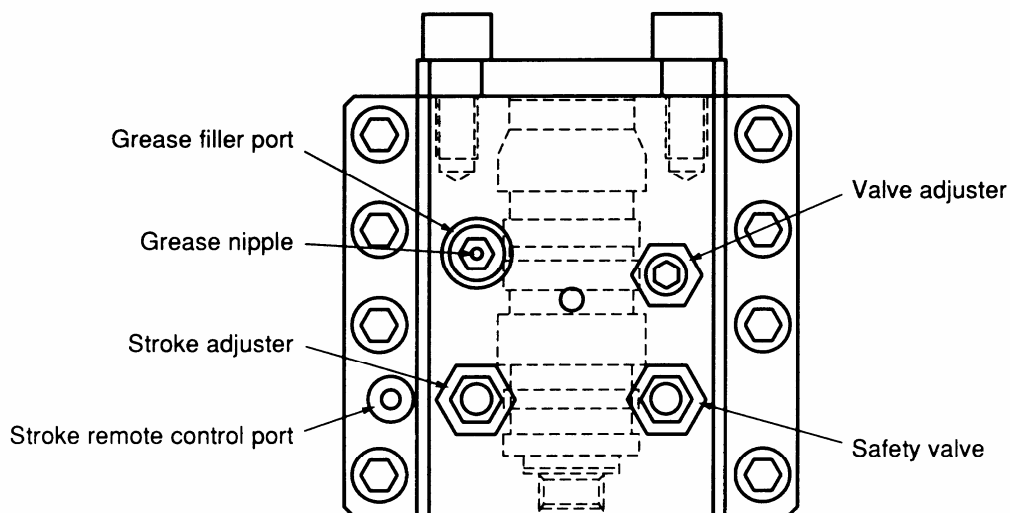
### VALVE ADJUSTER (KF12 and up):

The Valve Adjuster is located on the upper right-hand side of the Valve Block.  
(Refer to the F Series Hammer Valve Block illustration.)



**DO NOT TURN THE KF12 ~ KF19 VALVE ADJUSTER MORE THAN FIVE (5) FULL TURNS, OR THE KF22 ~ KF70 VALVE ADJUSTER MORE THAN SEVEN (7) FULL TURNS FROM ITS SEATED POSITION OR IT MAY BLOW OUT OF THE BREAKER CAUSING INJURY OR DEATH TO ANYONE IN THE VICINITY! AVOID USING EXCESSIVE FORCE WHEN TIGHTENING THE ADJUSTER.**

1. If the operating pressure is **lower** than required (**See chart**), turn the valve **clockwise ½ turn**, lock it with the jam nut and retest the pressure.  
(Repeat this step until the breaker is operating in the specified pressure range)
  
  2. If the operating pressure is **higher** than required, turn the valve **counter-clockwise ½ turn**, lock it with the jam nut and retest the pressure.  
(Repeat this step until the breaker is operating in the specified pressure range to a **MAXIMUM of 5 turns for KF12 ~ KF19**, and **7 turns for the KF22 and up**.)
- Refer to the Specification Chart for the Normal Adjustment for each model.**



F SERIES HAMMER VALVE BLOCK  
ADJUSTMENT LOCATIONS



### **STROKE ADJUSTER (KF12 and up):**

The large KENT HYDRAULIC BREAKERS are equipped with a stroke adjuster.

This stroke adjuster changes the stroke length of the piston, which in turn changes the breaker's impact force and the number of blows per minute. The breaker is sent from the factory with the stroke adjuster (closed) set for maximum stroke. At this setting the Breaker will hit with the maximum impact force and the slowest blows per minute.

Depending on the type or thickness of the material being broken, it may be necessary to change the stroke adjuster setting. Thinner or softer materials require less force in order to break through. Having the stroke adjuster set incorrectly will make the breaker less efficient and could cause damage to the rod pins and/or other components of the breaker.

The stroke adjuster is located on the lower left-hand side of the valve block. (Refer to the F Series Hammer Valve Block illustration.)

- The stroke adjuster may be used by the operator to adjust the hammer to changing work requirements. Please refer to the MAINTENANCE section (Section IV) of this manual for additional instructions on its use and operation.

The full range of adjustment of the blows per minute takes place between **4 to 6** turns out from the closed (fully seated) position. When the stroke adjuster is **fully closed**, and the hammer is at maximum flow rate (**See chart**), the breaker operates at approximately **MINIMUM** blows per minute. When the stroke adjuster is set at **6 turns out** from the closed position, using the same flow rate, the breaker will operate at approximately **MAXIMUM** blows per minute.



**DO NOT TURN THE STROKE ADJUSTER MORE THAN SIX (6) FULL TURNS FROM ITS SEATED POSITION OR IT MAY BLOW OUT OF THE BREAKER CAUSING INJURY OR DEATH TO ANYONE IN THE VICINITY! AVOID USING EXCESSIVE FORCE WHEN TIGHTENING THE ADJUSTER.**

**THIS COMPLETES THE INSTALLATION**



## HAMMER SETUP AND INSTALLATION SPECIFICATION CHART

Hammer Model	Flow Rates (GPM)	Pressure Range (PSI)	Normal Valve Adjuster Turns	Impact Frequency (BPM)
KF1	3 ~ 5	1450 ~ 2030	--	900 ~ 1250
KF2	4 ~ 8	1450 ~ 2030	--	900 ~ 1200
KF3	6½ ~ 10½	1450 ~ 2030	--	700 ~ 900
KF4	8½ ~ 13	1450 ~ 2030	--	750 ~ 1000
KF5	11 ~ 16	1450 ~ 2030	--	700 ~ 900
KF6	13 ~ 40	1450 ~ 2320	--	650 ~ 1500
KF9	17 ~ 30	1700 ~ 2150	--	450 ~ 900
KF12	26 ~ 35	2,320 ~ 2,610	4 ½	450 ~ 900
KF19	26½ ~ 41	2,320 ~ 2,610	4 ½	400 ~ 750
KF22	37 ~ 48	2,320 ~ 2,610	6 ½	360 ~ 700
KF27	41 ~ 50	2,320 ~ 2,610	6 ½	340 ~ 440
KF35	46 ~ 58	2,320 ~ 2,610	6 ½	320 ~ 600
KF45	50 ~ 66	2,320 ~ 2,610	6 ½	300 ~ 500
KF70	66 ~ 90	2,320 ~ 2,610	6 ½	250 ~ 320



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