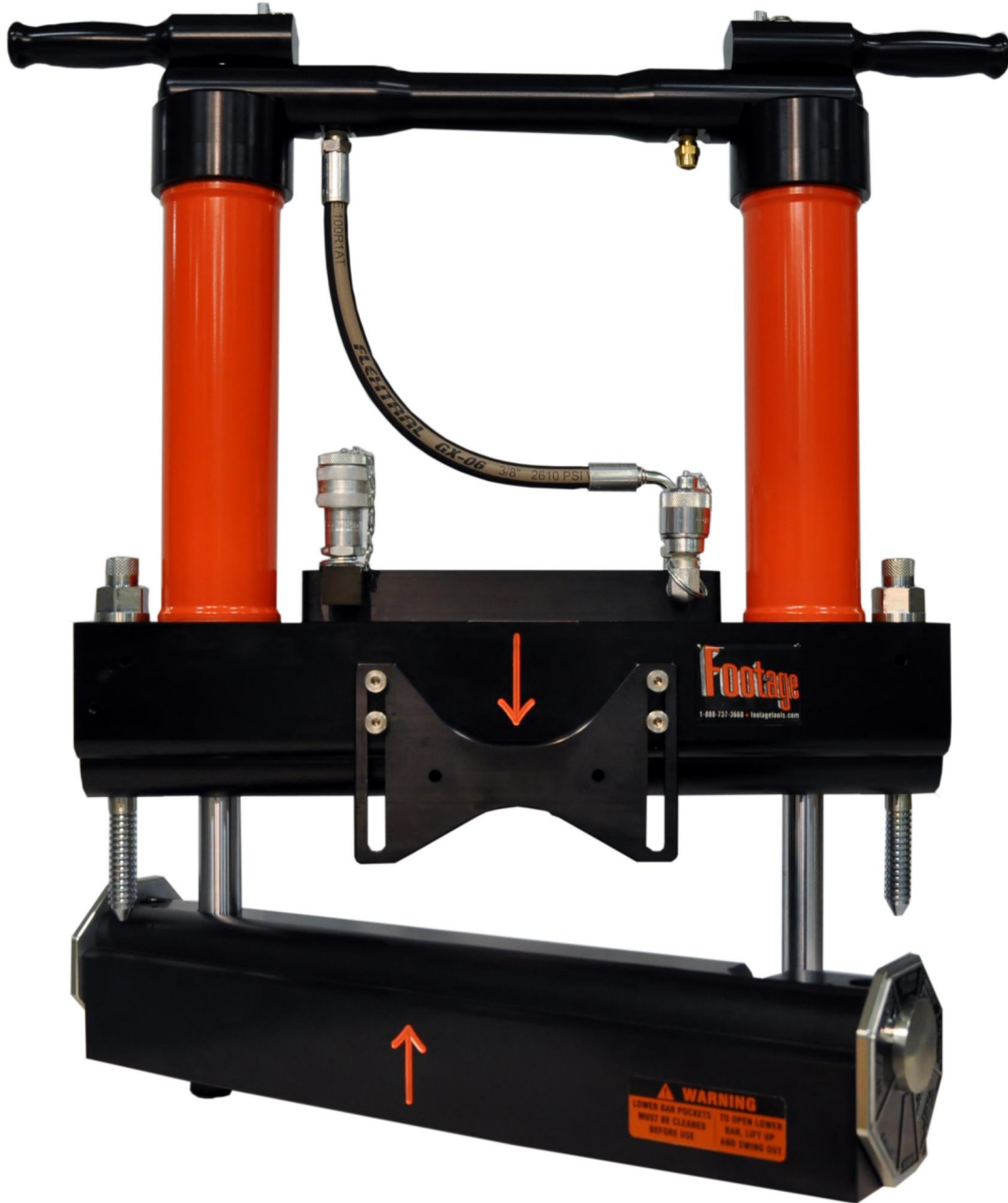


# OWNER'S MANUAL

# Footage

## IMPORTANT

DO NOT OPERATE THIS TOOL UNLESS THESE INSTRUCTIONS HAVE BEEN CAREFULLY READ AND UNDERSTOOD.



## **C850** Hydraulic Squeeze Off Tool

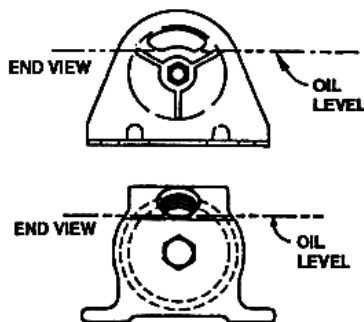
**DO NOT OPERATE THIS TOOL UNLESS THESE INSTRUCTIONS HAVE BEEN CAREFULLY READ AND UNDERSTOOD**

All Footage Tools' Hydraulic Squeeze-Off Tools are sold in one basic configuration; fine controlled release which has a needle valve with built-in orifice in the high-pressure pump line.

The hand pump contains a 3-position control valve. Placing the control valve lever in the squeeze position will allow oil to be pumped through the lower hose, through the needle valve and to the squeeze operation of the tool. Similarly, moving the control valve lever to the release position will allow oil to be pumped through the upper hose and to the release (open) operation of the tool. The neutral position (centered) will not hold any pressure that is in the tool.

The hand pump is a 2-stage pump that provides high oil volume at low pressure for rapid cylinder advancement. At approximately 1400 PSI, the pump will automatically switch to low volume flow for high-pressure application. A bypass valve, set at 10,000 PSI, is built into the pump to prevent over-pressurization.

**PRELIMINARY ASSEMBLY:**



1) Ensure the hand pump is filled with good quality, ISO 32 weight, hydraulic oil. To check or refill, connect the pump to the tool, retract the cylinder, and release system pressure. (Failure to follow this instruction may result in overfilling the reservoir – this could result in reservoir failure due to excessive pressure and possible injury.) Remove cap and fill to the indicated level with the pump level and resting horizontally on the base and recap. **Cleanliness is critical while checking and refilling. Use a funnel with a filter. Do not allow any dirt to enter the reservoir.**

2) If motion of the tool seems jerky, bleeding air from the system may be necessary. To accomplish this, join the two hoses together, eliminating the tool as shown in the photo. Ensure the reservoir is topped up. Place the pump control valve to "squeeze" and pump for 2 minutes. Place the pump control valve to "Release" and pump for 1 minute. Return the valve to the "Neutral" position.

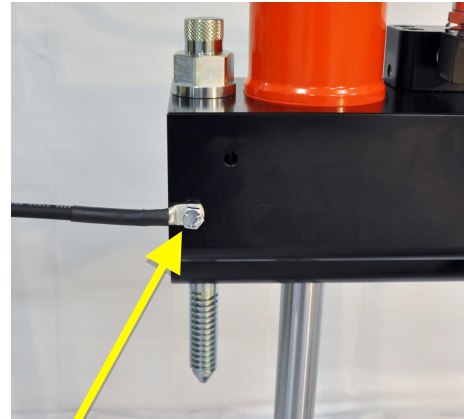


**BLEEDING OF THE HYDRAULIC SYSTEM**

Disconnect the hoses and assemble them to the tool. Pressurize the tool in the "squeeze" mode for 5 minutes. Cycle the tool fully open, to fully closed, a few times. Ensure that the needle valve is fully open. Repeat if necessary.

Then ensure the reservoir is topped up again.

3) To connect the C615-A105 or C615-A110 static grounding kits, mount the grounding tool lead to the squeeze off tool using the supplied 1/4" hardware in the 1/4" X 20 drilled and tapped hole in the body of the tool. This hole is located in the top bar, below and to the left of the "Footage Tools" name plate as shown in photo at right.



**LOCATION OF GROUND SPIKE HOLE**



**LOCATION OF HANDLE LOCK PIN**

4) The C850 is equipped with folding handles to allow use of the tool in a trench as narrow as 24" wide. To stow or re-deploy the handles pull the ring on each handle lock pin upwards while rotating the handle to the desired position. Ensure the lock pins enter the provided detents thereby locking the handles in the selected position.

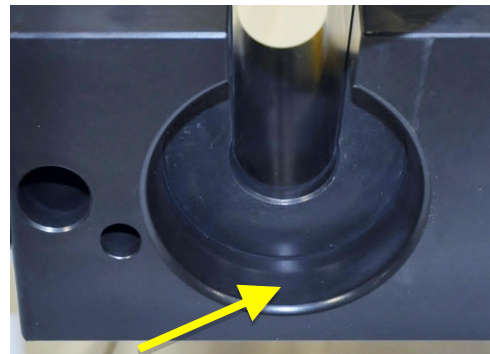
**OPERATING INSTRUCTIONS:  
INSTALLATION ON PIPE**

1) Fully install the grounding spike in firm soil near the tool and work area. Moist soil is required to ensure good contact to ground. Soak the area if necessary where the spike will be inserted. This is critical as this grounding system should remove any static electric charge that is created when the flow of gas is cut-off during the squeeze operation, thereby reducing the chances of sparks being created.



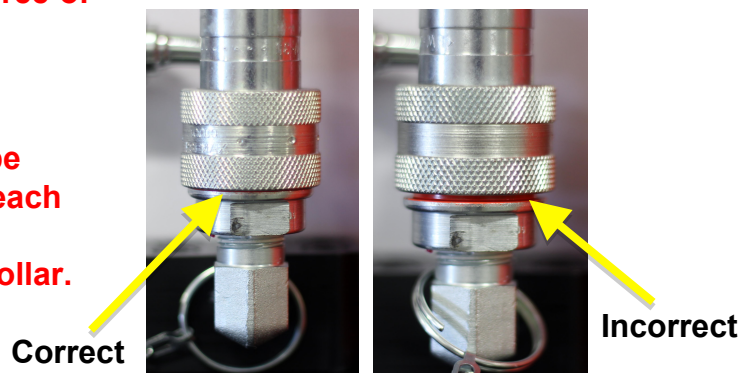
**WARNING:**

2) Inspect the tool to ensure that it is clean and free from any dirt that may hinder proper operation. Pay particular attention to the two lower bar pockets where the rod nuts on the side shafts engage. It is critical that these pockets are clean and free of debris. Clean if necessary.

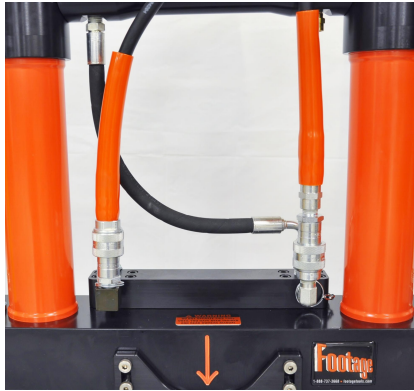


**LOWER BAR POCKET**

To Eliminate any possibility of accidental disconnection, the threaded collar must be fully threaded on, to enable pressure to reach the tool - tighten fittings until you can no longer see ORANGE paint on the inside collar.







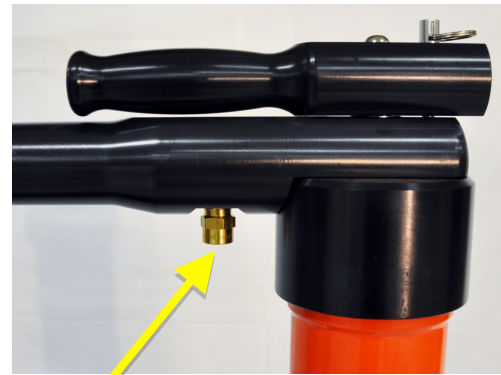
**ATTACHMENT OF HYDRAULIC COUPLINGS**

3) Carefully inspect the hydraulic hoses to ensure there are no cuts or leaks. Ensure the hydraulic couplings are clean and connect the two hoses from the hand pump to the squeeze off tool. Notice the hoses have a male and female half of the couplings attached to them that go to the mating parts on the squeeze off tool so the hoses cannot be hooked up backwards. To eliminate any possibility of accidental disconnection, the threaded collar must be fully threaded on, to enable pressure to reach the tool.

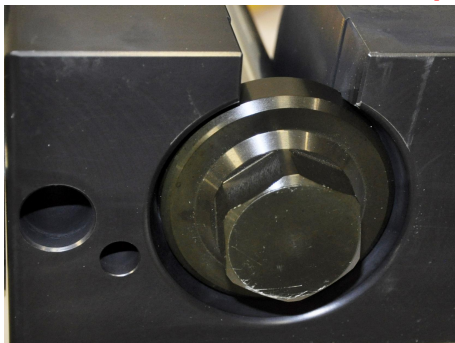


**WARNING:**

4) **Open the tool by placing the pump control valve into the release position. Caution: Ensure the needle valve is fully open counter-clockwise. Pump until the squeeze bars are sufficiently open to allow the pipe to be inserted. Once the tool is fully open, do not continue to pump, as the pressure relief valve in the handle will dump oil to protect the tool from damage.**



**PRESSURE RELIEF VALVE**



**ROD NUT INSIDE BOTTOM BAR POCKET**

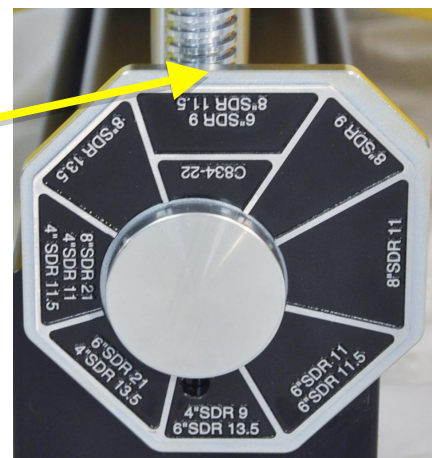
5) Lift and swing the bottom bar out and place the squeeze off tool over the pipe. Swing back the bottom bar and lock into position over the end nuts of the side shafts. Full engagement is critical or tool damage may result. The operator should visually check to see that the cut out in the bottom bar has fully rested against the side shaft to ensure the bar has swung fully shut. It should look closed. The operator should

then feel along the underside of the bottom bar to confirm that the bottoms of the rod nuts are beneath the bottom face of the bottom bar about 1/8" and are fully seated in the pockets on the underside of the bottom bar. This is important so the tool cannot open accidentally and also ensure there is equal load on both sides. Failure to comply with this step may result in tool damage.

*\*Selected gauge stops must face top bar*

**SQUEEZING THE PIPE**

1) Set the gauge plate stops on either side of the unit to the proper pipe size and SDR setting. Ensure both sides are identical or tool damage may result. Position the selected flat on both gauge plates such that they face the top squeeze bar. **NOTE: TOOL MAY NOT GIVE ADEQUATE FLOW CONTROL, ON 8" SDR 9 HIGH DENSITY PIPE, IN COLD CONDITIONS.**

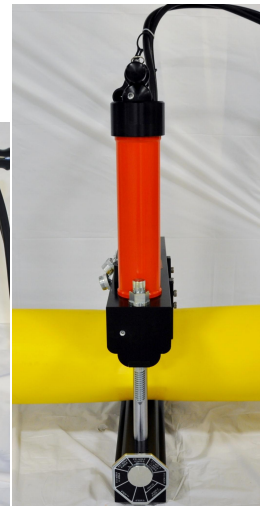
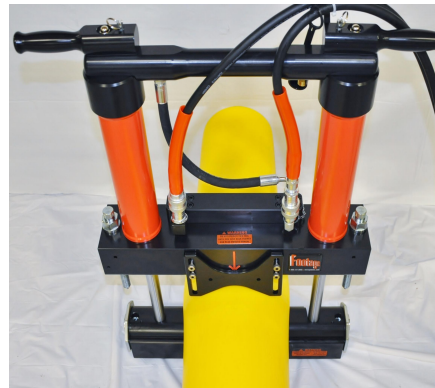


**GAUGE PLATE**

2) Close the needle valve clockwise and move the control lever on the hand pump to the squeeze position.

3) Close the tool with the pump until the bars start to touch the pipe. Position the tool centrally on the pipe with the assistance of the provided centering device. The squeeze bars must be at right angles to the pipe. The arrow on the top bar indicates the central position. If this is not done, satisfactory flow control may not be achieved.

4) The rate of squeeze is very important in preventing pipe damage. Do not exceed 2" per minute squeeze rate. Advance the squeeze bars until 50% of the pipe's original diameter has been squeezed. At this time, it is important to wait a few minutes so that the pipe material has a chance to relax (5 minutes is recommended). Increase this time in colder weather, below 32°F. Consult your local utility for their specific recommendations regarding the prescribed squeeze rate.



**PLACE TOOL CENTRALLY ON PIPE & AT 90° TO PIPE**

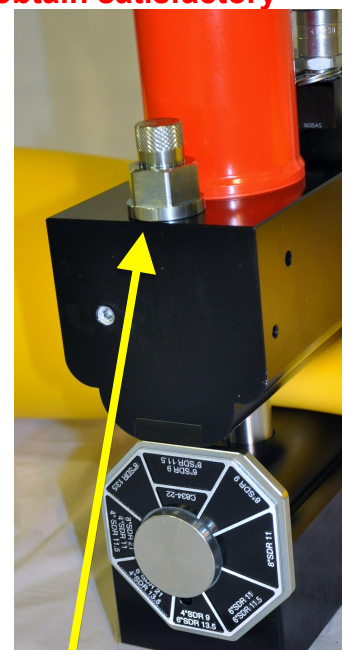
5) Continue squeezing the pipe slowly until a further 25% of the pipe's diameter has been squeezed. Again, pause to let the pipe have time to relax. (5 minutes).

6) Continue slowly squeezing until the gauge plate stops just come in contact with the bottom bar. Slower rates should be used below 32°F. **Keep in mind, it may not be necessary to squeeze the pipe all the way to the gauge stops to obtain satisfactory flow control.**



**WARNING: SAFETY LOCKS**

These hydraulic squeeze off tools feature a steel lock down bolt on each end of the top bar to allow the tool to be locked on a squeeze and the hydraulics detached or in the event the hydraulics lose pressure. To engage, screw the rods into the bottom bar. The rods need only be tightened by hand, not with a wrench. They are not intended to assist in squeezing the pipe. The squeeze off tool has more than enough power available to satisfactorily squeeze the pipe. Start threading the bolts into the bottom bars as the squeeze nears completion (approx. 1" before reaching the stops) to assist with alignment with the steel barrel nuts in the bottom bar. Thread the bolts as the tool continues to squeeze the pipe. Once the tool has reached the stops on both sides, the lock-down bolts should be completely threaded until the hex end is flush with the top bar.



**ENGAGEMENT OF LOCK-DOWN BOLTS**

### PUMP DISCONNECTION WHILE TOOL IS IN SQUEEZED POSITION ON A PIPE

After engaging the lock down bolts, move the control lever on the hand pump to the "release" position and open the needle valve. **Hose disconnection while under residual pressure may result in connector seal failure.** Unscrew the locking collar on both hydraulic connectors to allow disconnection.

### RELEASING THE PIPE

1) Unscrew the safety locks located on each end of the clamping bars. It will be necessary to place the pump control valve into the "squeeze" mode and apply more pressure to the tool to relieve the upward strain on the bolts created by the pipe trying to bounce back. If necessary, use a wrench to help loosen the safety bolts.



#### WARNING:

2) To avoid any damage to the plastic pipe, it is critical that a slow release rate be achieved. A release rate of 1/2 inches per minute is recommended. This time allows for the plastic to "flow" minimizing the chances of pipe damage. Below 32°F., the release rate should be slower. Consult your local utility for their specific recommendations regarding their prescribed release rate.

3) Determine the type of release mechanism supplied on the tool: manually controlled release or fine control release.

#### Manual release (no needle valve in line)

Move the pump lever quickly from the squeeze position to the neutral position. Allow approximately 5 seconds for the pressure in the hydraulic lines to relax. Now, gently move the pump lever from the neutral position to the release position, while carefully watching for movement of the squeeze bars. Once the bars have opened to the desired release (1/2" per minute), quickly return pump lever to the neutral position to stop. Repeat this procedure until the pipe is sufficiently relaxed. Once the bars are no longer able to move with lever in reverse position, you can begin to pump the handle keeping the lever in the reverse position. The 1/2" per minute release rate should be followed until the bars are no longer compressing the pipe. Once the bars are free of the pipe, you can pump the handle more rapidly, while leaving the pump lever in reverse position to prepare for removal of squeeze tool from pipe.

#### Optional controlled release (needle valve with orifice in line)

**Ensure the needle valve is fully closed.** Move the pump control valve handle from "squeeze" to "neutral". Slowly move the valve handle to the "release" position. As this is done, immediately the tool will start to open. Should the operator want to stop the release, return the pump control valve handle to the neutral position. The orifice in the needle valve controls the release rate. A release rate of 1/2 inches per minute should be followed, slowing this release rate down in temperatures below 32°F. As the pipe opens, the pressure in the tool will decrease and the release rate will slow down.

**WARNING:**

**Pumping too quickly will cause the oil to eject out of the relief port in the handle. This is a safety feature which prevents the operator from releasing the pipe too quickly.**

Once the pipe is sufficiently relaxed, the operator can then open the needle valve **fully** to raise the bars more rapidly for a complete release. Continue to open the tool until it can be removed from the pipe.

4) To remove the tool from the pipe, let the tool rest by the upper squeeze bar on the pipe. Slide the bottom bar upwards, (towards the pipe) about 1 inch, then rotate the bottom bar clear of the pipe. The tool may now be lifted clear of the pipe.

5) If re-rounding of pipe is not to be performed, the grounding spike may now be removed, and the tool repacked in it's shipping container.

**RE-ROUNDING THE PIPE IF REQUIRED**

Once the tool is fully open, reposition the tool 90° from the original squeeze, on top of the peaks of the squeeze. Squeeze the pipe back to its original shape as outlined in "Installation on Pipe" and "Squeezing the Pipe" detailed above. Consult your local utility for their specific recommendations regarding this procedure. The grounding spike may now be removed, and the tool repacked in it's shipping container.

**SAFETY PRECAUTIONS****WARNING:**

Do not exceed the 2" per minute squeeze and the ½" per minute release rates. Temperatures below 32°F. require slower squeezes and releases. Releases are more critical than squeezes; thus slower rates are required. Consult your local utility regarding their specific recommendations for this procedure.

**WARNING:**

When performing a squeeze, stay a minimum of 12" or 3 times pipe diameter, whichever is greater from fittings, fusions or previously squeezed pipe.

**WARNING:**

Ensure the grounding system is properly planted in the soil to reduce the chances of sparking.

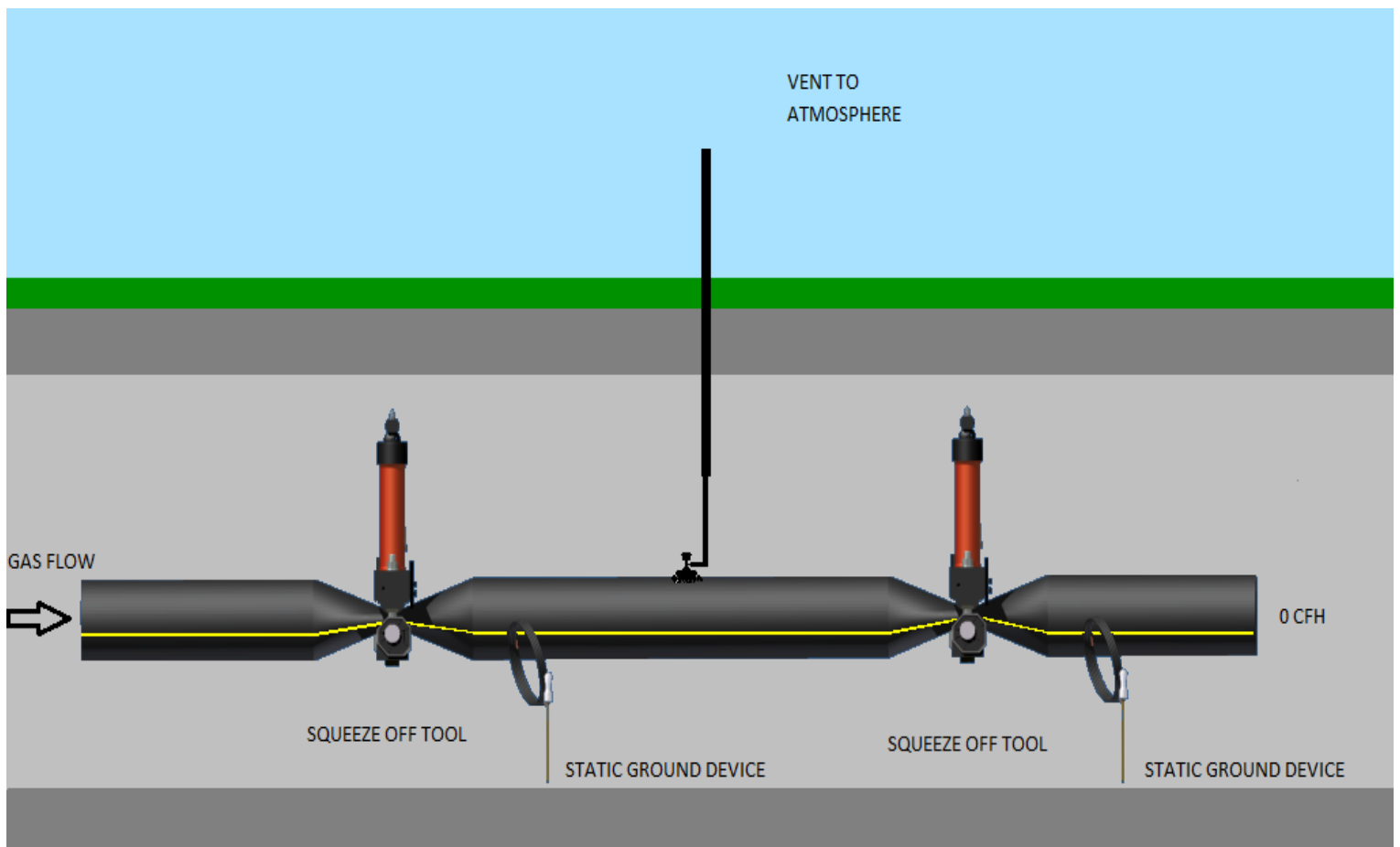
**WARNING:**

Keep away from any high-pressure hydraulic leaks. A high-pressure jet of oil can cause serious injury. Repair immediately.

# Important Notice

If you experience difficulty obtaining flow control when squeezing HDPE pipe, we recommend you perform a double squeeze and vent to atmosphere.

Please consult your local Utility for their specific operating procedure.





## MAINTENANCE

This section contains maintenance instructions for the tool. Do not attempt any maintenance which you do not fully understand, nor that you cannot do accurately and safely with the tools and equipment available to you. If you encounter a problem that you do not understand or cannot solve, contact your Footage Tools dealer.

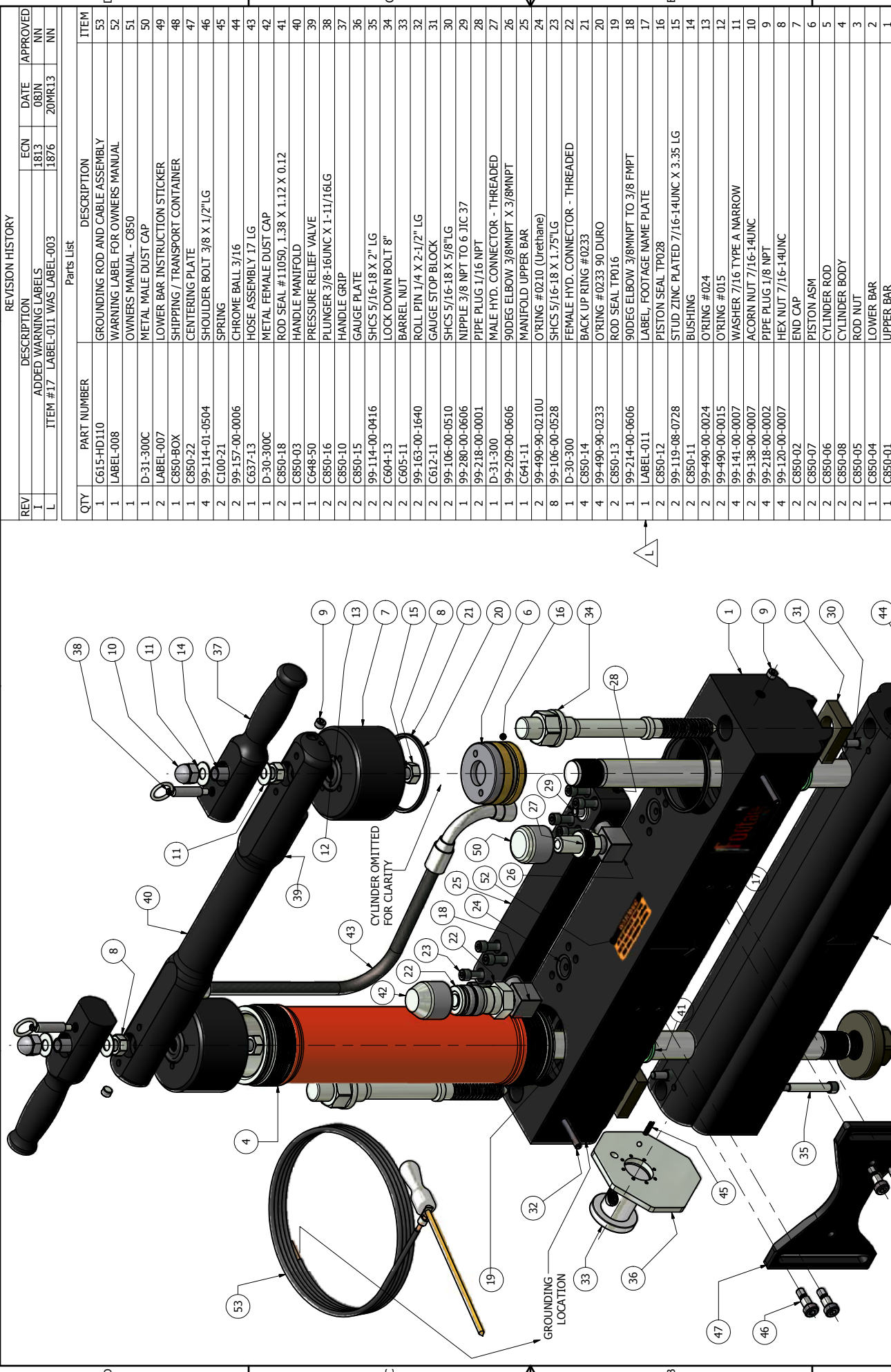
Ensure the tool is in good operating order by routinely:

Inspect pump fluid level (See Preliminary Assembly)	Top up as needed
Lubricate pump pivot and rubbing points	Use #10 motor oil or grease. Do not use dry lubricants.
Bleed air from hydraulic system.	Position tool lower than the pump. Without squeezing a pipe, open and close the tool several times to release any air into the reservoir. Top up the pump fluid level.
Drain, flush and fill pump reservoir.	Remove filler cap, drain fluid. Remove tie rod nut and separate reservoir from pump body. Clean reservoir and filter in place. (Removing filter will result in breakage.) Reassemble, re-fill and re-cap.
Inspect cylinder rod for damage.	Replace hydraulic ram if needed
Inspect tool, pump, valves and hoses for oil leakage.	Tighten, repair or replace as required
Inspect squeeze bars for damage.	Replace if needed
Inspect lock down bolts for damage.	Replace if needed
Inspect side shafts for damage.	Replace if needed
Inspect the bottom squeeze bar pockets (2) for debris.	Clean before each use.
Inspect cylinder rods for dirt.	Clean as needed.

## SPECIFICATIONS

<b>GENERAL</b>	<b>C850</b>
Max Pipe Diameter:	8"
Weight:	125 lbs.
Operating Pressure (max):	10,000 psig
<b>OPTIONAL ACCESSORIES</b>	
Grounding Spike Kit (5 or 10 foot)	C615-A105/C615-A110
Pump, 8' Hose, with Needle Valve (c/w 0.009" orifice)	C148-352
Pump, 8' Hose, with Needle Valve & Gauge	C148-355

1 2 3 4



REV	DESCRIPTION	ECN	DATE	APPROVED
I	ADDED WARNING LABELS	1813	08/11	NN
L	ITEM #17 LABEL-011 WAS LABEL-003	1876	20MR13	NN

QTY	PART NUMBER	DESCRIPTION	ITEM
1	C615-HD110	GROUNDING ROD AND CABLE ASSEMBLY	53
1	LABEL-008	WARNING LABEL FOR OWNERS MANUAL	52
1		OWNERS MANUAL - C850	51
1	D-31-300C	METAL MALE DUST CAP	50
2	LABEL-007	LOWER BAR INSTRUCTION STICKER	49
1	C850-BOX	SHIPPING / TRANSPORT CONTAINER	48
1	C850-22	CENTERING PLATE	47
4	99-114-01-0504	SHOULDER BOLT 3/8 X 1/2" LG	46
2	C100-21	SPRING	45
2	99-157-00-0006	CHROME BALL 3/16	44
1	C637-13	HOSE ASSEMBLY 17 LG	43
1	D-30-300C	METAL FEMALE DUST CAP	42
2	C850-18	ROD SEAL # 11050, 1.38 X 1.12 X 0.12	41
1	C850-03	HANDLE MANIFOLD	40
1	C648-50	PRESSURE RELIEF VALVE	39
2	C850-16	PLUNGER 3/8-16UNC X 1-11/16LG	38
2	C850-10	HANDLE GRIP	37
2	C850-15	GAUGE PLATE	36
2	99-114-00-0416	SHCS 5/16-18 X 2" LG	35
2	C604-13	LOCK DOWN BOLT 8"	34
2	C605-11	BARREL NUT	33
2	99-163-00-1640	ROLL PIN 1/4 X 2-1/2" LG	32
2	C612-11	GAUGE STOP BLOCK	31
2	99-106-00-0510	SHCS 5/16-18 X 5/8" LG	30
1	99-280-00-0606	NIPPLE 3/8 NPT TO 6 JIC 37	29
2	99-218-00-0001	PIPE PLUG 1/16 NPT	28
1	D-31-300	MALE HYD. CONNECTOR - THREADED	27
1	99-209-00-0606	90DEG ELBOW 3/8MNPT X 3/8MNPT	26
1	C641-11	MANIFOLD UPPER BAR	25
2	99-490-90-0210U	ORING #0210 (Urethane)	24
8	99-106-00-0528	SHCS 5/16-18 X 1.75" LG	23
1	D-30-300	FEMALE HYD. CONNECTOR - THREADED	22
4	C850-14	BACK UP RING #0233	21
4	99-490-90-0233	ORING #0233 90 DURO	20
2	C850-13	ROD SEAL TP016	19
1	99-214-00-0606	90DEG ELBOW 3/8MNPT TO 3/8 FMPT	18
1	LABEL-011	LABEL, FOOTAGE NAME PLATE	17
2	C850-12	PISTON SEAL TP028	16
2	99-119-08-0728	STUD ZINC PLATED 7/16-14UNC X 3.35 LG	15
2	C850-11	BUSHING	14
2	99-490-00-0024	ORING #024	13
2	99-490-00-0015	ORING #015	12
4	99-141-00-0007	WASHER 7/16 TYPE A NARROW	11
2	99-138-00-0007	ACORN NUT 7/16-14UNC	10
4	99-218-00-0002	PIPE PLUG 1/8 NPT	9
4	99-120-00-0007	HEX NUT 7/16-14UNC	8
2	C850-02	END CAP	7
2	C850-07	PISTON ASM	6
2	C850-06	CYLINDER ROD	5
2	C850-08	CYLINDER BODY	4
2	C850-05	ROD NUT	3
1	C850-04	LOWER BAR	2
1	C850-01	UPPER BAR	1

DRAWN	6/23/2009
(signature)	
CHECKED	
QA	
MFG	
APPROVED	
(signature)	

REMOVE ALL SHARP CORNERS UNLESS SPECIFIED OTHERWISE

SCALE NTS

DWG NO C850-A1 REV L

REV L

**FOOTAGE TOOLS INC.**

**C850-A1 ASSEMBLY DWG**

**8" HYD. SQUEEZE OFF TOOL**

1 2 3 4

### FOOTAGE TOOLS WARRANTY

FOOTAGE TOOLS INC, hereinafter sometimes referred to as "Manufacturer" warrants each new PE Pipe Squeeze Off Tool of its own manufacture to be free from defects in material and workmanship, under normal use and service for the life of the tool after delivery to the end user. **Warranty is void unless warranty registration card is completed in full and returned to FOOTAGE TOOLS INC within thirty days from the date of purchase.** This warranty and any possible liability of FOOTAGE TOOLS INC hereunder is in lieu of all other warranties, expressed, implied, or statutory, including, but not limited to, any warranties of merchantability or fitness for a particular purpose.

The parties agree that the Buyers SOLE AND EXCLUSIVE REMEDY against Manufacturer, whether in contract or arising out of warranties, representations, instructions, or defects shall be for the replacement or repair of defective parts as provided herein. In no event shall Manufacturers liability exceed the purchase price of the product. The Buyer agrees that no other remedy (including, but not limited to, incidental or consequential loss) shall be available to him. If, during the warranty period, any product becomes defective by reason of material or workmanship and Buyer immediately notifies Manufacturer of such defect, Manufacturer shall, at its option, supply a replacement part or request return of the product to its plant in Toronto, Canada. No parts shall be returned without prior written authorization and a return goods authorization number from Manufacturer, and this Warranty does not obligate the Manufacturer to bear any transportation charges in connection with the repair or replacement of defective parts. The Manufacturer will not accept any charges for labor and/or parts incidental to the removal or remounting of parts repaired or replaced under this Warranty.

This Warranty shall not apply to any part or product which shall have been installed or operated in a manner not recommended by FOOTAGE TOOLS INC, nor to any part or product which shall have been neglected, or used in any way which, in the manufacturers opinion, adversely affects its performance; nor negligence of proper maintenance or other negligence, fire, or other accident: nor if the unit has been altered or repaired outside of a FOOTAGE TOOLS INC authorized dealership in a manner of which, in the sole judgement of FOOTAGE TOOLS INC affects its performance, stability or reliability: nor to any product in which parts not manufactured or approved by FOOTAGE TOOLS INC have been used, nor to normal maintenance services or replacement of normal service items. Equipment and accessories not of our manufacture are warranted only to the extent of the original Manufacturers Warranty and subject to their allowance to us, if found to be defective by them.

The original purchaser, user is responsible for "downtime" expenses and all business costs and losses resulting from a warrantable failure. FOOTAGE TOOLS INC specifically disclaims any responsibility for any damages of any kind or description, whether to property or person, in any way connected with or arising out of the use of FOOTAGE TOOLS INC products.

FOOTAGE TOOLS INC reserves the right to modify, alter, and improve any product or parts without incurring any obligation to replace any product or parts previously sold with such modified, altered, or improved product or part.

No person is authorized to give any other Warranty, or to assume any additional obligation on the Manufacturers behalf unless made in writing, and signed by an officer of the Manufacturer.



## IMPORTANT NOTICE

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*Warranty registration  
now available online.*

Please visit  
**[www.footagetools.com](http://www.footagetools.com)**  
and click on  
*'warranty registration'*.

54 Audia Crt. Unit #1  
Vaughan, Ontario  
Toll Free: 1-888-737-3668  
[www.footagetools.com](http://www.footagetools.com)



Model: \_\_\_\_\_

S/N: \_\_\_\_\_