

INSTRUCTION MANUAL



BRUTE 2 HYDRAULIC HOSE EXPANDER

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SPECIFICATIONS

22" wide X 22" deep X 16" high

Weight 400 lbs.

Tank capacity- 9.5 gal.

Motor – 1.5hp; single phase; 230v 50/60hz

Pump 3000 psi, (set to 2500 psi max)

Cylinder – 6" Stroke, 4" Bore, 38000 lbs. force

Foot pedal control

Oil level and temperature gauge

1" – 6" trade size fire hose couplings

INSTALLATION

1. Uncrate and place your Brute in a location and height that will be convenient for your operation.
2. Your Brute does not need to be bolted down, but if desired, four 5/8" holes are provided in the base flange.
3. Provide adequate ventilation for the cooling fan.

ELECTRICAL

NOTE: A qualified electrician should complete all electrical work

1. 220v single phase, 20amp 50/60 hz service
2. Motor starter overload protection
3. 1 amp control fuse
4. Motor rated 1½ hp, 1745 rpm, 230v single phase, 7.48 amp

MAINTENANCE

1. Check oil level

- a. The Brute 2 has an oil level & temperature gauge on the front of the machine and an oil fill cap in the rear of the machine.

2. Please Note: use only tractor hydraulic fluid of a good brand as listed below:

- a. Citco – 33-310-0241
- b. Arco – 30072 5MR2
- c. Shell – Donax 53004

3. Inspect power cord for cracks and exposed wires, note any leaks before each use. Do not operate machine until repairs have been made.

4. Ensure drawbar is lubricated before and during each use.

5. Do not overfill oil reservoir, an unsafe condition could exist.



CAUTION

! THIS MACHINE IS CAPABLE OF CREATING EXTREME FORCES AND COULD CAUSE BODILY INJURY! USE EXTREME CARE WHEN OPERATING EQUIPMENT.

Before starting your Brute2 expander, read the instruction manual thoroughly.

Before attempting to couple hose on your Brute, familiarize yourself with the functions of the machine without installing a drawbar.

MAXIMUM PRESSURE OF DRAWBARS

If pressure set knob is turned completely counterclockwise (0 psi), cycling will not take place.

Internal pressure relief valve has been preset at the factory to 2500 psi.

1.5" Drawbar – at more than 1250 psi may result in breakage.

1.75" Drawbar – at more than 1250 psi may result in breakage.

2.5" Drawbar – at more than 1800 psi may result in breakage.

ALWAYS - test/set pressure with the retract pedal (cylinder out toward you)

NEVER - test pressure by expanding drawbar into segment holder.

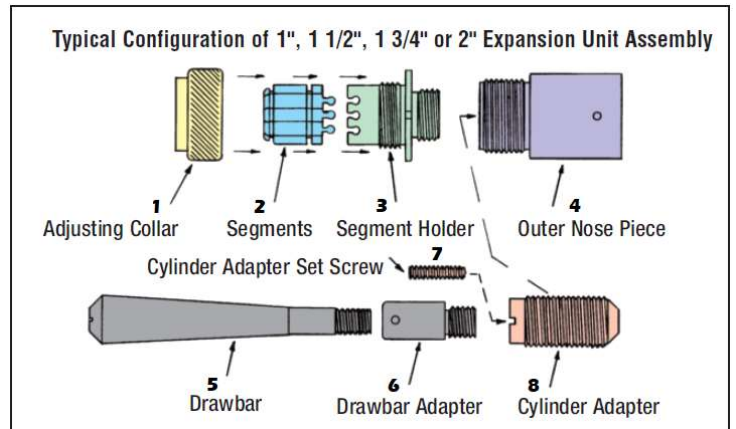
CAUTION: Never expand the segments completely without an expansion ring and hose/coupling mounted. This may result in the breakage of drawbars, segment holders, or may break couplings and could damage threaded parts of the machine.

EXPANSION UNITS

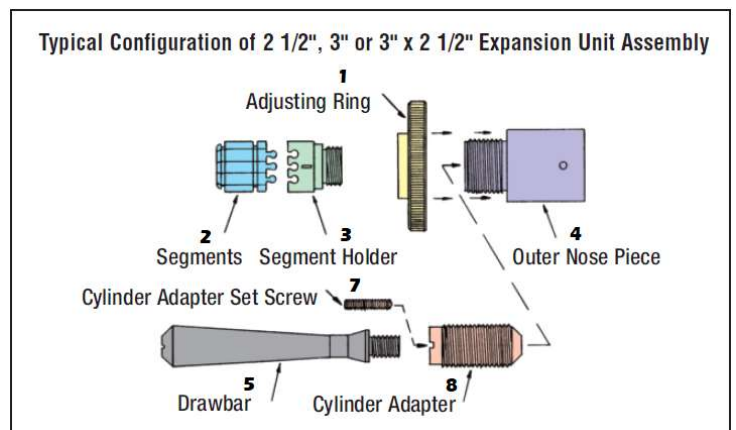
Complete assemblies for attaching 1" through 6" couplings.

Segments, segment holder, drawbar, adjusting ring, segment springs, drawbar adapter, adapter set screw

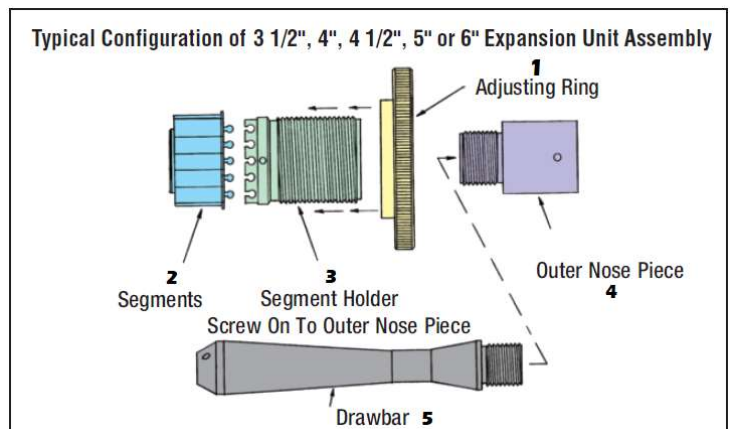
RED HEAD BRASS 1" THRU 2" EXPANSION UNIT ASSEMBLY



RED HEAD BRASS 2-1/2" THRU 3" EXPANSION UNIT ASSEMBLY

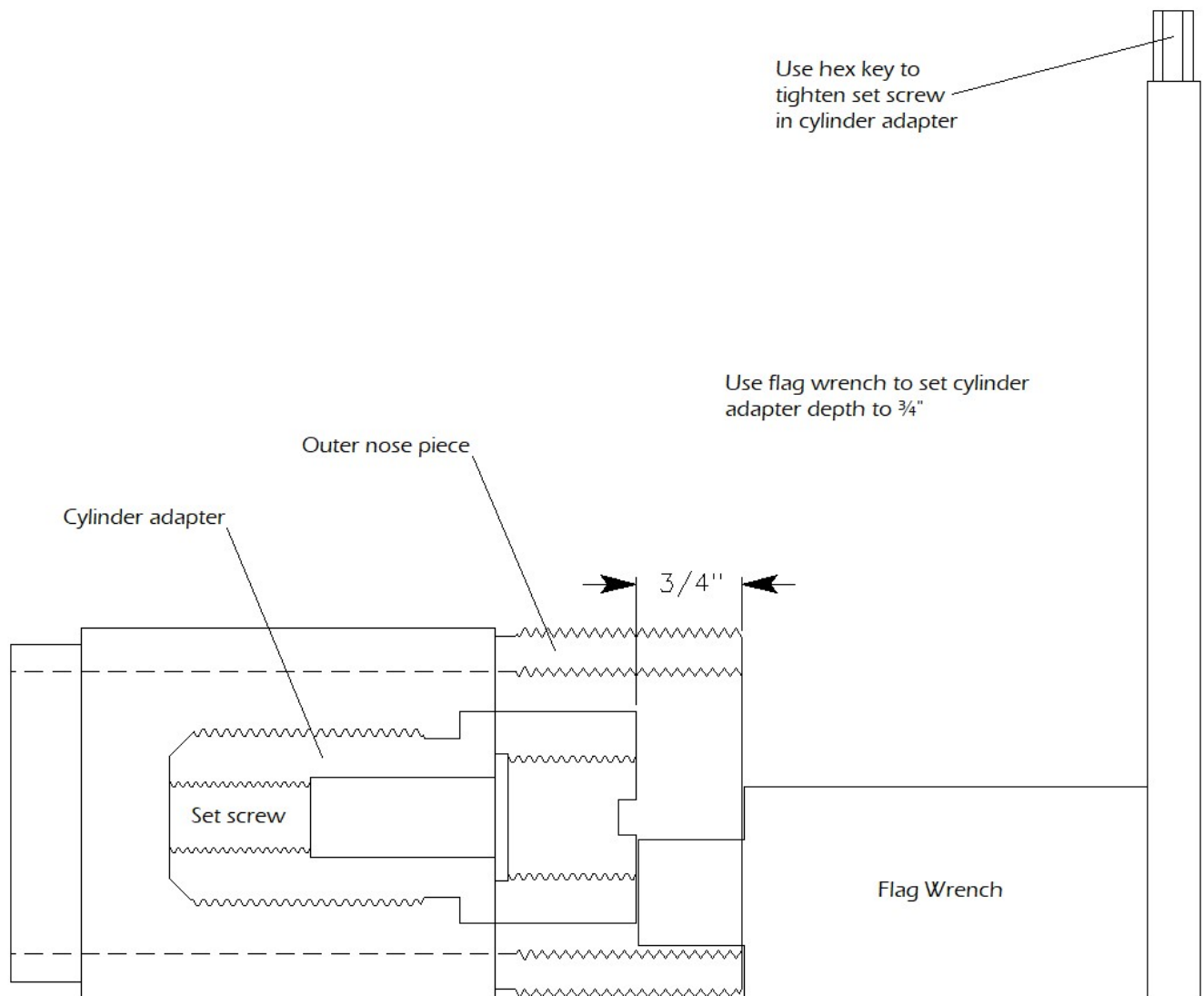
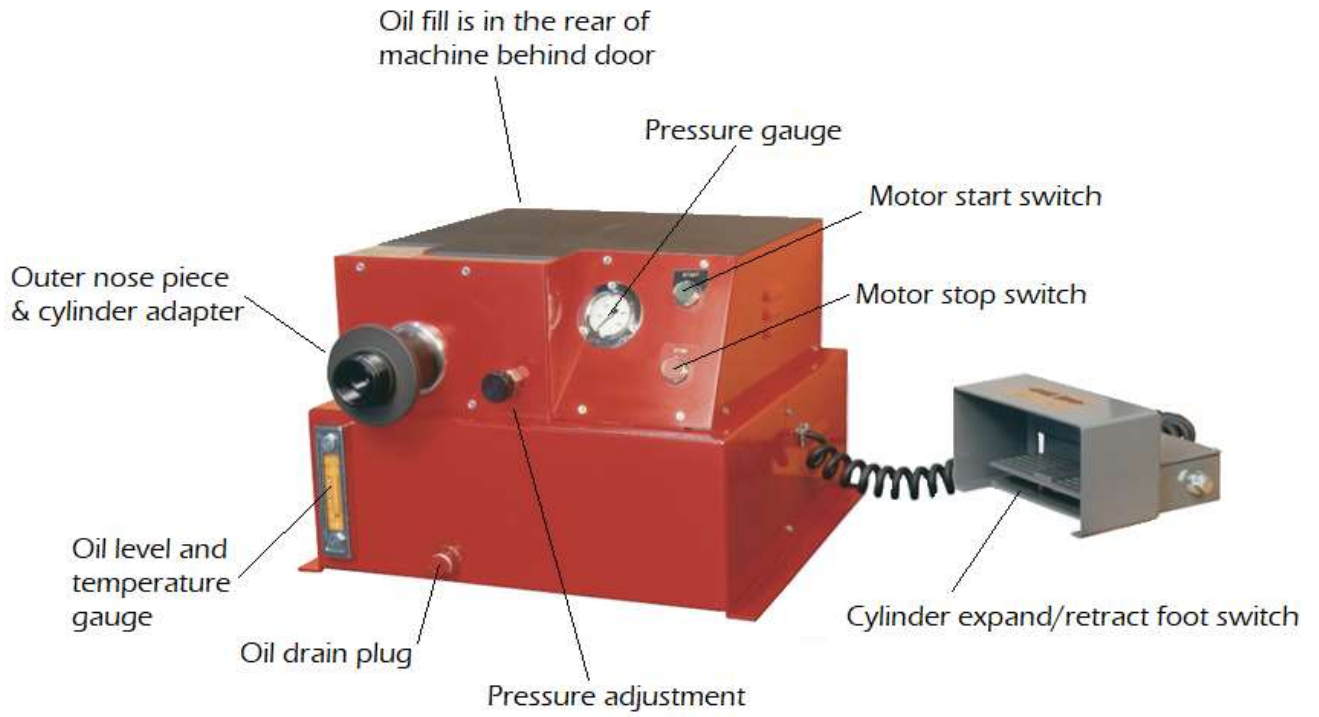


RED HEAD BRASS 3-1/2" THRU 6" EXPANSION UNIT ASSEMBLY

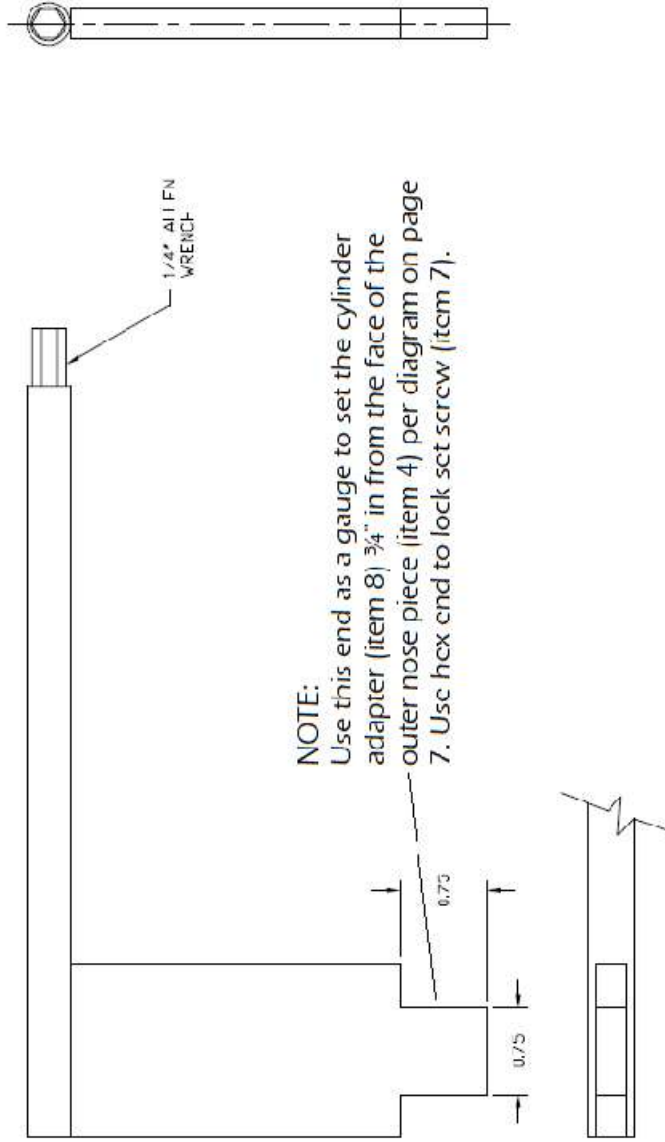


SET UP OF YOUR BRUTE II HYDRAULIC EXPANDER

1. Sizes 1" through 3" must have the double threaded cylinder adapter (item 8) attached to the cylinder shaft inside the outer nose piece. Run the expander through the retract cycle until the shaft is all the way out towards you. Assemble the cylinder adapter clockwise until it is in $\frac{3}{4}$ " from the front face of the outer nose piece (item 4). Use your flag wrench that came with the machine as a gage (drawing # 10218, pg. 8). Tighten the cylinder adapter set screw (item 7) with the hex end of your flag wrench.
2. Sizes 3½" thru 6" do not require the cylinder adapter (item 8) as the drawbar threads directly into the cylinder shaft. Loosen the cylinder adapter set screw (item 7) and remove the cylinder adapter with your flag wrench. Remove the adjusting collar (item 1) for 2½ and 3" couplings on the male thread of outer nose piece. Note: 3½" thru 6" the adjusting collar is on the expansion unit segment holder (item3).
3. The RX couplings require special short segments.
4. 1" expansion unit – requires special long drawbar adapter (item 6).



NOTES: 1-MUST BE FREE OF BURRS, SHARP CORNERS - EDGES
 BREAK = 0.015 R. DR 0.015 X 45° CHAMFER.



NOTE:
 Use this end as a gauge to set the cylinder
 adapter (item 8) $\frac{3}{4}$ " in from the face of the
 outer nose piece (item 4) per diagram on page
 7. Use hex end to lock set screw (item 7).

TITLE		WRENCH, EXPANDER BRUTF 2 & BRUTF 3	
UNLESS OTHERWISE SPECIFIED TOLERANCES TO BE		RBD HEAD BRASS INC. SHKLVL - LH	
FRACTIONAL	DECIMAL	SCALE	DRAWN DATE
$\frac{1}{16}$ XXX ± 0.01	± 0.01	$\frac{1}{16}$ = 0.0625	L. HEETON
DRAWING UNITS = INCHES		DATE	
AND CD = 1/16"		3/17/91	
125° ON ALL MACHINE SURFACES		REV	
DO NOT SCALE DRAWING		A 10218	
		10335	
		3	

REV	DESCRIPTION OF REVISION	CHG. BY	DATE
1	STEEL CRS & 4140 CF-HTD	BLACK PATN	①
<small>THIS DRAWING IS THE PROPERTY OF RBD HEAD BRASS INC. AND THE CONTENTS OF THIS DRAWING MAY NOT BE REPRODUCED OR USED BY ANYONE WITHOUT PRIOR WRITTEN CONSENT OF THE MANAGEMENT OF RBD HEAD BRASS INC. IT MAY NOT BE USED FOR MANUFACTURING UNLESS FULLY SIGNED.</small>			

SET UP PROCEDURE FOR THE EXPANSION UNITS

1. Select the proper expansion unit for the size and type of couplings to be installed. Each size and type of coupling requires different expansion units.

Note: When this procedure calls to expand, we mean that the drawbar (item 5) is drawn inward away from you. This expands the segments (item 2), which increases the diameter of the copper ring into the hose. Retract refers to the drawbar extending outward toward you, which collapses the segments.

2. Firmly screw the selected expansion unit clockwise into the outer nose piece (item 4) and the drawbar adapter (item 6) into the cylinder adapter (item 8). Use the expand pedal if needed to screw the segment holder all the way in.

Special setup procedure for 1" expansion units: The 1" expansion unit requires a special long drawbar adapter (item 6) that should be 5½" long. Assemble your 1" unit with this adapter into the cylinder adapter of your machine about 3-4 turns. With your expand pedal at a low pressure, run your machine until you can screw the segment holder (item 3) into the outer nose piece, then complete the cycle as far as it will go. You will then use a screwdriver in the slot on the drawbar and adapter to turn clockwise as far as it will go, then back off 1 turn, and you will be ready to expand without damaging your 1" unit.

Please note: if you have the old drawbar adapter that is 5" long you will have to do the following. Loosen ¼-20 set screw, back out drawbar so 3-4 threads show from the adapter and retighten the ¼-20 set screw, then follow above procedure.

3. Set the pressure for the size and type of couplings to be assembled. Refer to the suggested pressure chart on **page 10** for the pressures required.

Always set pressure on the increase. Depress the retract pedal on the foot pedal assembly. If the pressure on the gauge is higher than the desired pressure for the coupling, turn the pressure setting knob in a counterclockwise direction until the pressure gauge shows that it is below desired pressure. Slowly turn the pressure set in a clockwise direction until the desired pressure shows on the pressure gauge. This pressure will hold until you manually adjust it again.

SUGGESTED EXPANSION PRESSURE FOR BRUTE MODEL II

1" Forestry	450 psi
1 ½" Forestry	500 psi
1 ½" Rack (Linen)	450 psi
1 ½", 1¾", 2", 2½" SJ Aluminum	800 psi
1 ½", 1¾", 2", 2½" DJ Aluminum	1000 psi
1 ½", 1¾", 2", 2½" SJ Brass	750 psi
1 ½", 1¾", 2", 2½" DJ Brass	800 psi
3" Aluminum	1200 psi
3" Brass	750 psi
3½" DJ Aluminum	1200 psi
3½" Brass	900 psi
4" SJ Aluminum	900-1400 psi
4" DJ Aluminum	1200-1400 psi
4" Brass	900 psi
4½" DJ Aluminum	1200-1400 psi
5" DJ Aluminum	1200-1400 psi
6" DJ Aluminum	1200-1400 psi

These are suggested pressures only. Different types of new or used hoses or couplings may require adjustments.

SETUP PROCEDURE FOR THE ADJUSTING COLLAR

1. Screw the adjusting collar (item 1) clockwise as far as it will go.
2. Remove the tail gasket from the hose bowl of the coupling and position the coupling over the segments (threads first on male and female) until the face of the coupling touches the adjusting collar. You will note the adjusting collar is designed to allow for the different length of the male and female to “hookout” or gasket recess.
3. Using the expand pedal, jog the machine until the segments are larger than the waterway, but not touching the serrations in the coupling (hose bowl).
4. Pull the coupling toward you until the tail gasket wall or recess touches the expanded segments and hold firmly by hand.
5. Turn the adjusting collar counterclockwise until it touches the face of the coupling, then turn clockwise about half of the thickness of the tail gasket.
6. Press the retract pedal to return your unit to the start position and put the tail gasket back into the coupling.
7. Be sure to **lubricate** the drawbar occasionally. The expander will not operate properly if the drawbar is not lubricated.

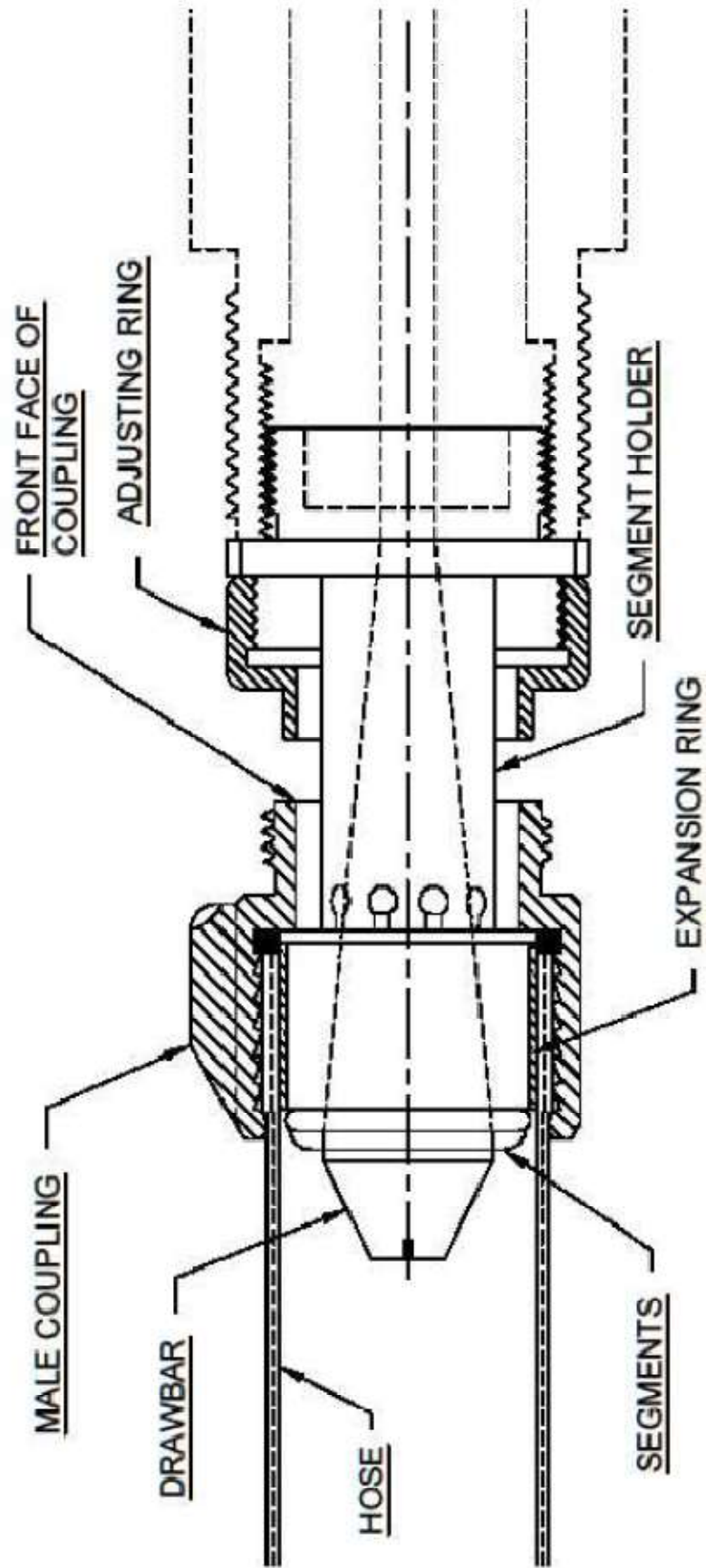
EXPANDING RING AND HOSE INTO THE COUPLING

1. Cut the hose square.
2. Always use new tail gaskets and check if the thickness of the gasket (ID to OD) is approximately the same as the thickness of the hose (see example 1, pg. 13).
3. Insert tail gasket into recess and place copper ring over segments.
Option: Press expand pedal to expand the segments just enough to hold ring in place. Be careful not to expand the ring.
4. Insert the hose into the hose bowl until it is flush against the tail gasket. Then place coupling/hose assembly over segments and push firmly against the adjusting collar (item 1). Press the expand pedal, expand segments until the coupling cannot be turned. Press retract pedal to release pressure. Remove hose assembly and check for proper positioning of the ring.
5. If the ring position is correct, put assembly in place and hold firm. Press expand to the preset pressure. Press retract pedal enough to release the part, turn the part $\frac{1}{2}$ the width of a segment and press expand again to expand the ring to the preset pressure. That will ensure the ring has been expanded a full 360°.

NOTE: When installing reducing couplings, 1 $\frac{3}{4}$ " x 1 $\frac{1}{2}$ ", 2" x 1 $\frac{1}{2}$ ", 3" x 2 $\frac{1}{2}$ ", the ring must be placed in the hose instead of over the segments. Insert the hose with the ring into the hose bowl of the coupling and pull the ring into place with your finger or a hooked tool or wire. The ring should be against the back wall of the bowl and inside the tail gasket.

CORRECT ASSEMBLY:
EXPANSION RING SHOULD COVER
 $\frac{1}{2}$ OR MORE OF TAIL GASKET.
(HOSE AND TAIL GASKET APPROX.
SAME THICKNESS)

Example 1



INSTRUCTIONS FOR ATTACHING 3½" - 6" EXPANSION RING COUPLINGS

1. To attach the larger suction hose couplings, the cylinder adapter (item 8) must be removed as explained in section 2, page 6, set up of your Brute II.
2. You will note these units will assemble on the outside or male thread on the outer nose piece (item 4). Because of the excess weight we suggest you assemble clockwise, segments (item 2), segment holder (item 3), and adjusting collar (item 1) as a unit. The large drawbar (item 5) fits all expansion units 3½" thru 6". Assemble clockwise as far as it goes, then back it off until expansion ring fits over segments.
3. Follow the same procedure for expansion unit, adjusting collar and expanding ring and hose into coupling.
4. You must be careful when attaching large double jacket hose so that the inside liner does not slip or move. We suggest you staple or glue several places before expanding.

CAUTION DO'S & DON'T'S

Cautions:

1. Before starting your Brute II expander, read the instruction manual thoroughly.
2. Never go through the expand cycle without a coupling and expansion ring mounted.
3. When the machine is off, the gauge should go back to "0" psi, if not, the gauge is defective, or there is a machine malfunction.
4. Each size hose and type coupling require a different expansion unit, which Red Head Brass stocks.
5. When expanding double jacket hose, be sure inner jacket does not move.

Do's:

1. Always check pressure before expanding, must be set on "increase."
2. **Lubricate drawbar often!** The expander will not work properly if the drawbar is not lubricated.
3. Check size and diameter of hose and use couplings of same bowl size. Hose must be snug in coupling.
4. The tail gasket must be "new" and the same thickness as the hose.
(See example 1, pg. 13)
5. Cut hose square!
6. If the expansion ring does not go over the segments, check segments for burrs or debris between segments. Deburr by sanding both flat sides of each segment with flat side of file. Clean debris from the segments. Check copper ring ID for burrs.
7. Check if cylinder adapter is $\frac{3}{4}$ " back from the face of the outer nosepiece and drawbar is assembled correctly and setscrew tightened firmly.

Don'ts:

1. Use only tractor hydraulic fluid in your Brute II expansion machine. Do not use transmission fluid or brake fluids.
2. Do not over tighten expansion units on nosepiece.
3. Do not lubricate hose.

BRUTE II HYDRAULIC HOSE EXPANDER

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