

RED HEAD BRASS, LLC.

THE BRUTE
HYDRAULIC HOSE EXPANDER

BENCH MODEL II

INSTRUCTION MANUAL

MANUFACTURED BY:

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SPECIFICATIONS

BRUTE MODEL # 2

1. 22" WIDE X 22" DEEP X 16" HIGH
2. WEIGHT 400#
3. OIL RESERVOIR – 9.5 GALLONS
4. MOTOR – 1.5 H.P.; SINGLE PHASE; 220 V
5. PUMP – 3000# (PRE SET TO RELIEVE @ 2500#)
6. CYLINDER – 6" STROKE; 4" BORE; 38,000 # THRUST
7. FOOT PEDAL CONTROL
8. OIL LEVEL GAUGE

INSTALLATION

1. UNCRATE AND PLACE YOUR BRUTE IN A LOCATION AND HEIGHT THAT WILL BE CONVENIENT FOR OPERATION.
2. YOUR BRUTE DOES NOT NEED TO BE BOLTED DOWN, BUT IF DESIRED, FOUR 5/8" HOLES ARE PROVIDED IN THE BASE FLANGE.

ELECTRICAL

NOTE: A QUALIFIED ELECTRICIAN SHOULD COMPLETE ALL ELECTRICAL WORK

1. BRUTE 220V; SINGLE PHASE MOTOR YOU WILL NEED TO HOOKUP A BUSS DROP WIRE OR ITS EQUIVALENT OF A 2-12 WIRE WITH GROUND TO L-1, L-2 CLOCKWISE.
2. AMPERAGE REQUIREMENT
 - 110 - 20 AMP
 - 220 - 20 AMP

MAINTENANCE

1. CHECK OIL LEVELS

- THE BRUTE BENCH MODEL # 2 HAS AN OIL LEVEL GAUGE ON THE FRONT OF THE MACHINE AND THE FILL PLUG IN THE REAR LEFT DOOR.

2. PLEASE NOTE: USE ONLY TRACTOR HYDRAULIC FLUID OF A GOOD BRAND AS LISTED BELOW:

- CITCO - 33-310-0241
- ARCO - 30072 5MR2
- SHELL - DONAX 53004

CAUTION

BEFORE STARTING YOUR BRUTE EXPANDER, READ THE INSTRUCTION MANUAL THOROUGHLY.

BEFORE ATTEMPTING TO COUPLE HOSE ON YOUR BRUTE, FAMILIARIZE YOURSELF WITH THE FUNCTIONS WITHOUT MOUNTING A DRAWBAR.

NEVER EXPAND THE SEGMENTS COMPLETELY OUT WITHOUT AN EXPANSION RING AND/OR HOSE COUPLING MOUNTED. THIS MAY RESULT IN THE BREAKAGE OF DRAWBARS, SEGMENT HOLDERS OR MAY BREAK DOWN COUPLINGS OR COULD DAMAGE THREADED PARTS OF THE MACHINE.

MAXIMUM PRESSURES OF DRAWBARS

IF PRESSURE SET KNOB IS TOTALLY UNSCREWED, CYCLING WILL NOT TAKE PLACE, (INTERNAL PRESSURE RELIEF VALVE HAS BEEN PRE-SET AT THE FACTORY AT 2500#).

1.5" DRAWBAR – AT MORE THAN 1250# PRESSURE MAY RESULT IN BREAKAGE.

1.75" DRAWBAR – AT MORE THAN 1250# PRESSURE MAY RESULT IN BREAKAGE.

2.5" DRAWBAR – AT MORE THAN 1800# PRESSURE MAY RESULT IN BREAKAGE.

ALWAYS TEST PRESSURE WITH *RETRACT PEDAL*; **NEVER** TEST PRESSURE BY EXPANDING DRAWBAR INTO SEGMENT HOLDER.

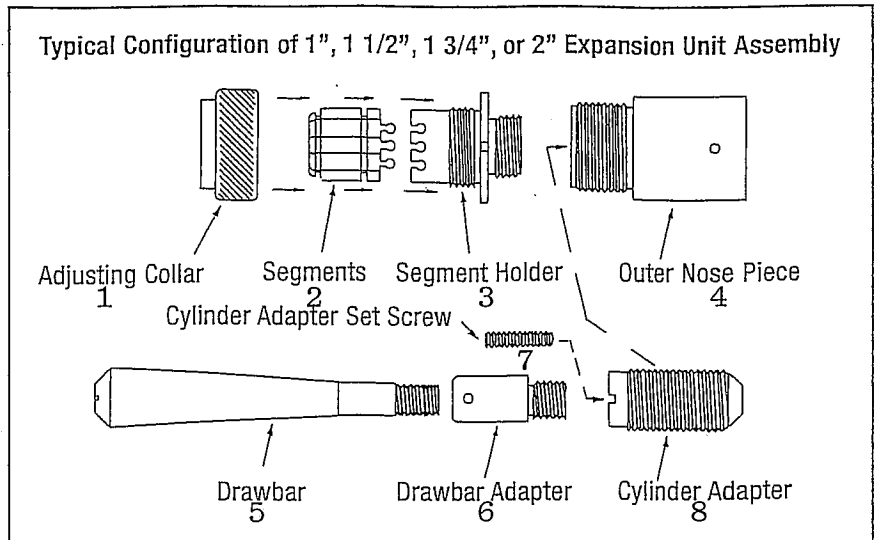
CAUTION – OPERATING EXPANDER WITHOUT COUPLING HOSE WILL EXPAND SEGMENT HOLDER WHEN DRAWBAR BOTTOMS OUT AND WILL BREAK DRAWBAR OR DAMAGE THREADS ON MACHINE PARTS OR DRAWBARS.

EXPANSION UNITS

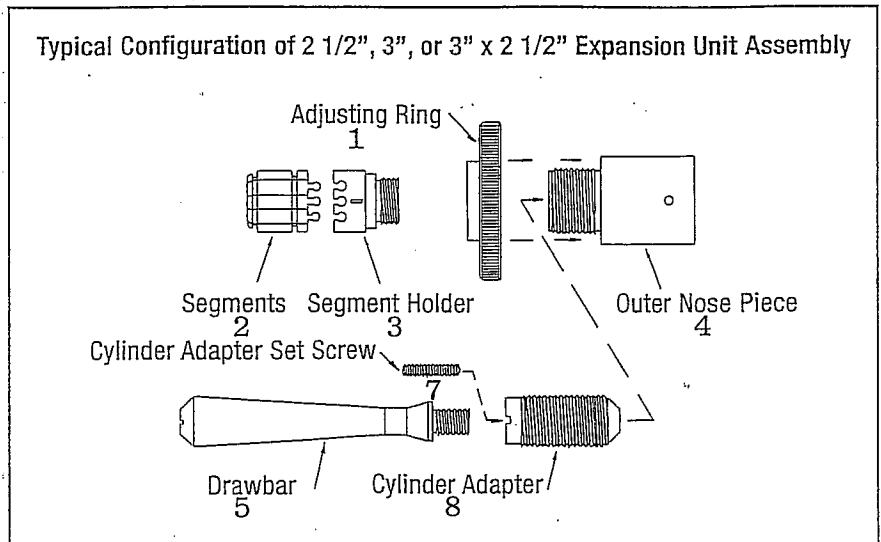
Complete assembly for attaching 1" thru 6" couplings.

SEGMENTS ONLY SEGMENT HOLDER DRAWBAR ADJUSTING RING SEGMENT SPRINGS DRAWBAR ADAPTER

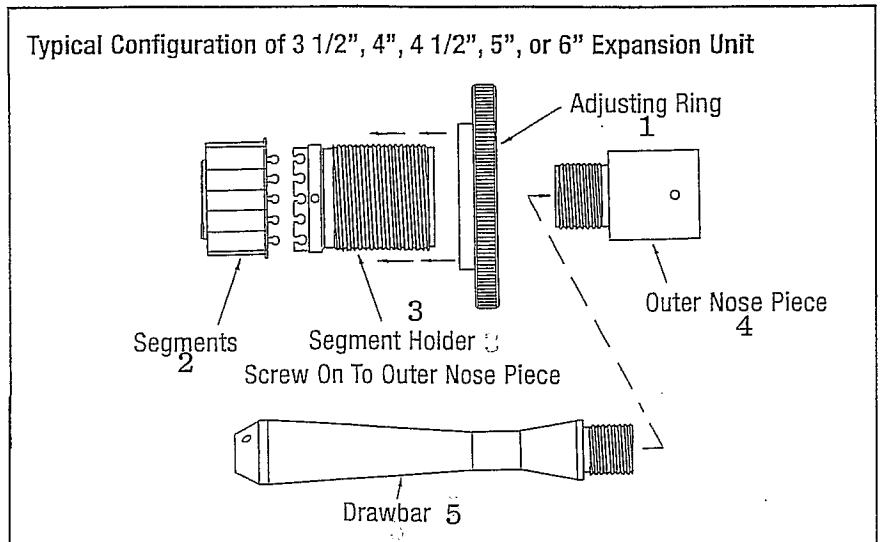
RED HEAD BRASS
1" THRU 2"
EXPANSION
UNIT ASSEMBLY



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



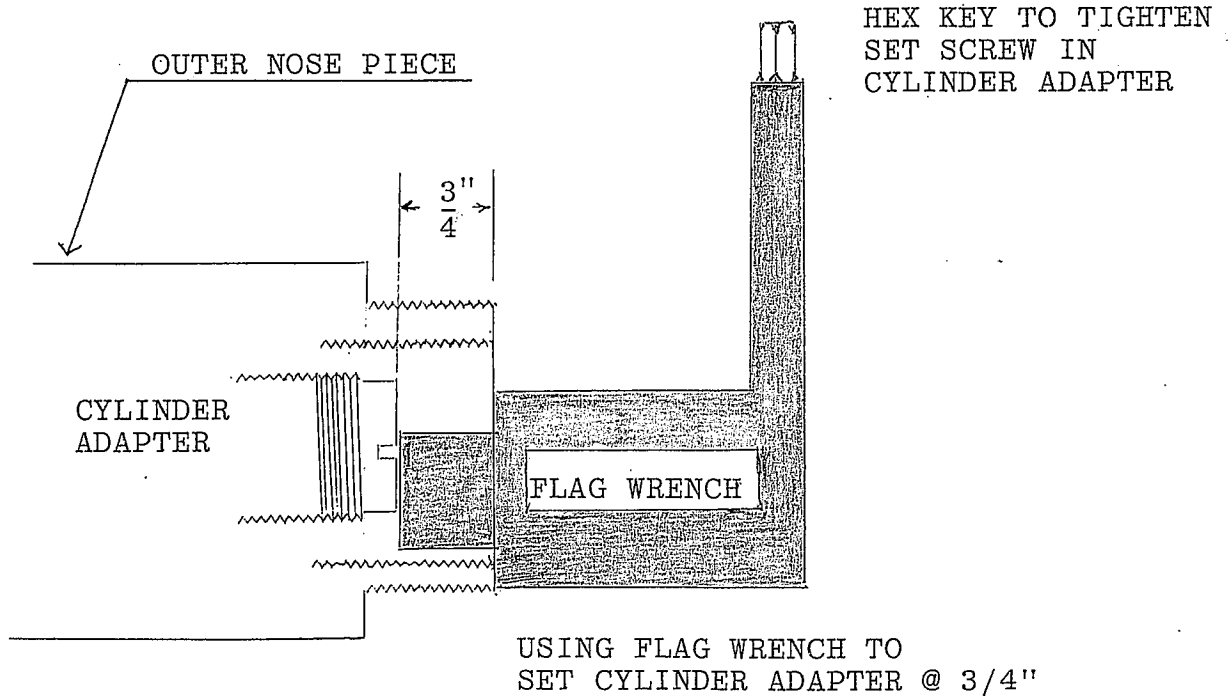
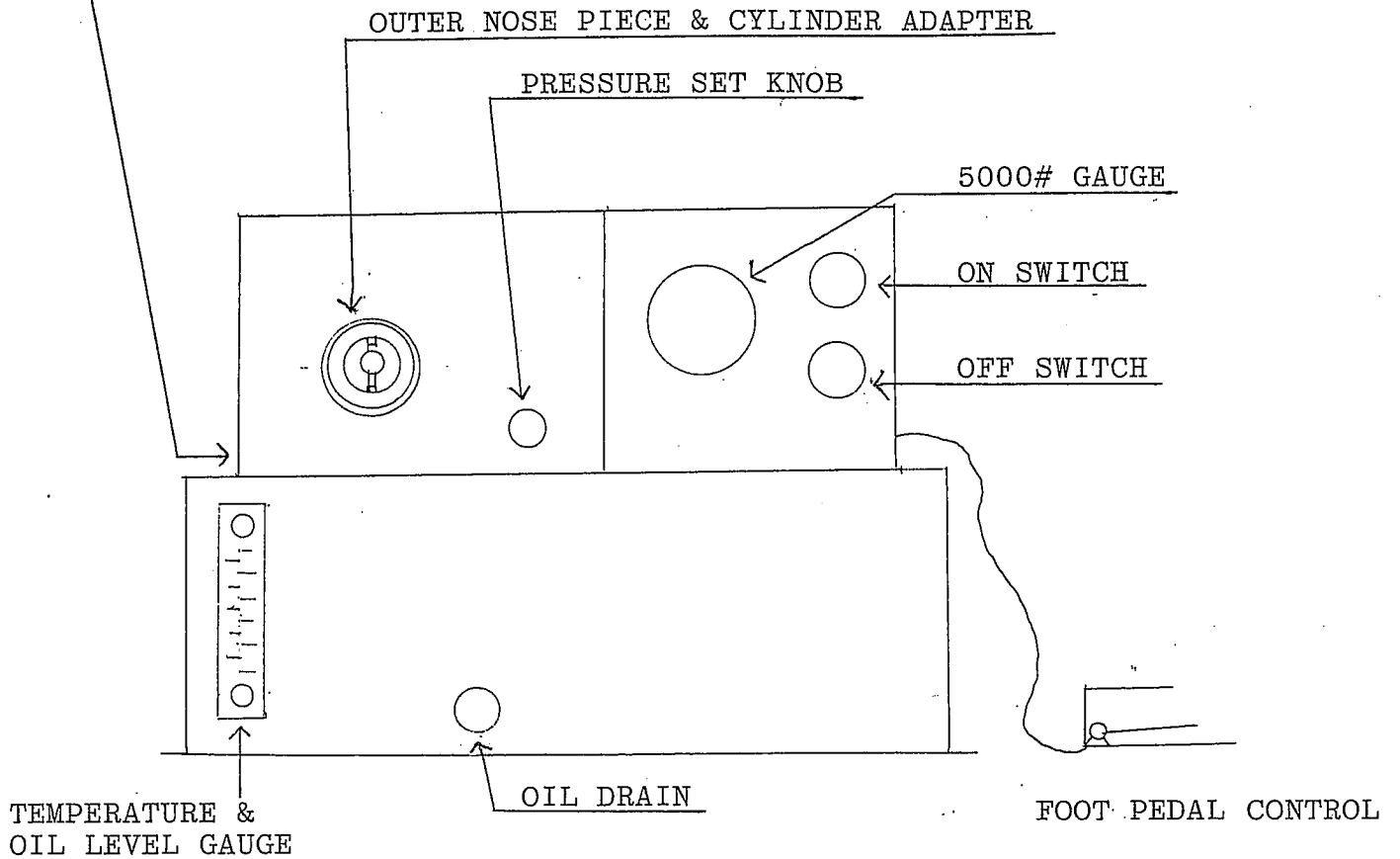
RED HEAD BRASS
3 1/2" THRU 6"
EXPANSION
UNIT ASSEMBLY



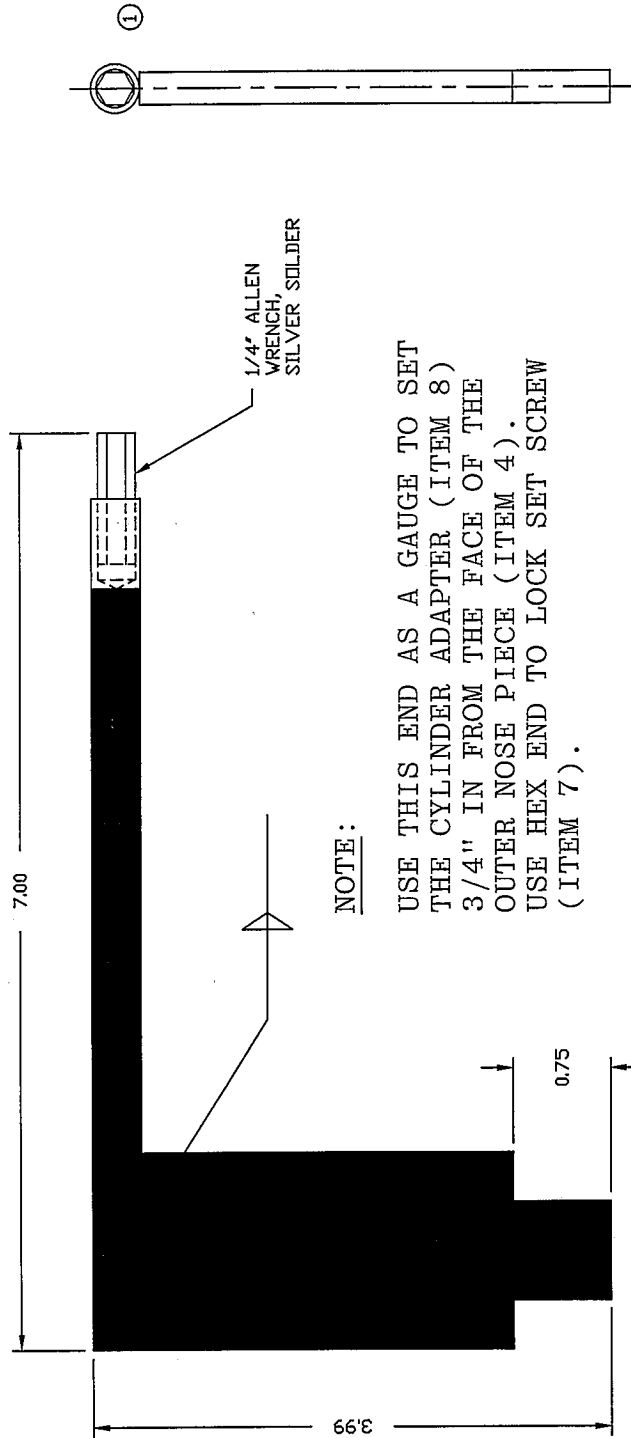
SET UP OF YOUR BRUTE II HYDRAULIC EXPANDER

1. SIZES 1" THRU 3" MUST HAVE THE DOUBLE THREADED CYLINDER ADAPTER (ITEM 8) ATTACHED TO THE CYLINDER SHAFT INSIDE THE OUTER NOSE PIECE. RUN THE EXPANDER THRU THE RETRACT CYCLE UNTIL THE SHAFT IS ALL THE WAY OUT TOWARDS YOU. THEN 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). THEN TIGHTEN THE CYLINDER ADAPTER SET SCREW (ITEM 7) WITH THE HEX END OF YOUR FLAG WRENCH.
2. SIZES 3.5" 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 2.5" AND 3" COUPLINGS ON THE MALE THREAD OF OUTER NOSE PIECE. NOTE: 3.5" THRU 6" THE ADJUSTING COLLAR IS ON THE EXPANSION UNIT SEGMENT HOLDER (ITEM 3).
3. THE RX COUPLINGS REQUIRE SPECIAL SHORT SEGMENTS.
4. 1" EXPANSION UNIT – REQUIRED SPECIAL LONG DRAWBAR ADAPTER (ITEM 6).

NOTE: OIL FILL IS IN REAR DOOR OF MACHINE



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



NOTE:

USE THIS END AS A GAUGE TO SET THE CYLINDER ADAPTER (ITEM 8) 3/4" IN FROM THE FACE OF THE OUTER NOSE PIECE (ITEM 4). USE HEX END TO LOCK SET SCREW (ITEM 7).

FLAG WRENCH

TITLE WRENCH, EXPANDER BRUTE 2 & BRUTE 3

RED HEAD
SCALE: .75 & AS NOTED

UNLESS OTHERWISE SPECIFIED TOLERANCES TO BE:
DECIMAL .XXX ± 0.005
FRACTIONS ± 1/64
DRAWING UNITS = INCHES
ANGLES = ± 1/2° ON ALL MACHINE SURFACES

DRAWN DATE 3/17/91
L. KEETON

APPD DATE
SHREVE, OH.

A 10218

DO NOT SCALE DRAWING

REV. 2

2	REMOVED IRRELEVANT DIMENSIONING	JEH	05/22/00
1	UPDATED BORDER, ADDED FLAG WRENCH NOTE	L.K	10/31/95
1	ADDED SURFACE FINISH, 0.375 MAX DIA. MAX	CHG'D BY	DATE
REV	DESCRIPTION OF REVISION	FINISH	DATE
STYL	MATL	STEEL	BLACK PAINT

THIS DRAWING IS THE PROPERTY OF RED HEAD BRASS INC. AND THE CONTENTS HEREIN ARE PROPRIETARY AND CONFIDENTIAL. THE CONTENTS OF THIS DRAWING MAY NOT BE DISCLOSED OR USED BY ANYONE WITHOUT PRIOR WRITTEN CONSENT OF THE MANAGEMENT OF RED HEAD BRASS INC. IT MAY NOT BE USED FOR MANUFACTURING UNLESS FULLY SIGNED.

SET-UP PROCEDURE FOR EXPANSION UNIT

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 FOR EXPAND, WE MEAN THAT THE DRAWBAR (ITEM 5) IS DRAWN INWARD OR 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 TOWARDS 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 COMPLETELY ASSEMBLE.

SPECIAL SET UP PROCEDURE FOR 1" EXPANSION UNITS: THE 1" EXPANSION UNIT REQUIRES A SPECIAL LONG DRAWBAR ADAPTER (ITEM 6) THAT SHOULD BE 5.5" 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 SCREW DRIVER 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 BREAKING YOUR 1" UNIT.

PLEASE NOTE: IF YOU HAVE THE OLD DRAWBAR ADAPTER THAT IS 5" LONG YOU WILL HAVE TO DO THE FOLLOWING. LOOSEN 1/4-20 SET SCREW, BACK OUT DRAWBAR SO 3-4 THREADS SHOW FROM THE ADAPTER AND RETIGHTEN THE 1/4-20 SET SCREW, THEN FOLLOW ABOVE PROCEDURE.

3. NOW IS THE TIME TO SET THE PRESSURE FOR THE SIZE AND TYPE OF COUPLINGS TO BE ASSEMBLED. REFER TO SUGGESTED PRESSURE CHART PAGE 10 FOR THE PRESSURES TO BE USED.

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 COUNTER-CLOCKWISE DIRECTION UNTIL PRESSURE TEST SHOWS THAT IT IS BELOW DESIRED PRESSURE. SLOWLY TURN THE PRESSURE SET KNOB IN A CLOCKWISE DIRECTION UNTIL THE DESIRED PRESSURE SHOWS ON THE TEST GAUGE. THIS PRESSURE WILL HOLD UNTIL YOU MANUALLY ADJUST IT AGAIN.

SUGGESTED EXPANSION PRESSURE FOR BRUTE MODEL II

1" FORESTRY	450 LBS.
1.5" FORESTRY	500 LBS.
1.5" RACK (LINEN)	450 LBS.
1.5", 1.75", 2", 2.5" SJ ALUMINUM	800 LBS.
1.5", 1.75", 2", 2.5 DJ ALUMINUM	1,000 LBS.
1.5", 1.75", 2", 2.5" SJ BRASS	750 LBS.
1.5", 1.75", 2", 2.5" DJ BRASS	800 LBS.
3" ALUMINUM	1,200 LBS.
3" BRASS	750 LBS.
3.5" DJ ALUMINUM	1,200 LBS.
3.5" BRASS	900 LBS.
4" SJ ALUMINUM	900 - 1,400 LBS.
4" DJ ALUMINUM	1,200 - 1,400 LBS.
4" BRASS	900 LBS.
4.5" DJ ALUMINUM	1,200 - 1,400 LBS.
5" DJ ALUMINUM	1,200 - 1,400 LBS.
6" DJ ALUMINUM	1,200 - 1,400 LBS.

THESE ARE SUGGESTED PRESSURES ONLY. DIFFERENT TYPES OF NEW OR USED HOSES OR COUPLINGS MAY REQUIRE ADJUSTMENTS.

SET-UP 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.
4. PULL THE COUPLING BACK TO YOU UNTIL THE TAIL GASKET WALL OR RECESS TOUCHES THE EXPANDED SEGMENTS AND HOLD FIRM.
5. TURN THE ADJUSTING COLLAR COUNTER-CLOCKWISE UNTIL IT TOUCHES THE FACE OF THE COUPLING, THEN TURN CLOCKWISE ABOUT HALF OF THE THICKNESS OF THE TAIL GASKET.
6. PUSH THE RETRACT PEDAL TO RETURN YOUR UNIT TO START POSITION AND PUT THE TAIL GASKET BACK INTO THE COUPLING.
7. BE SURE TO LUBRICATE THE DRAWBAR OCCASIONALLY.

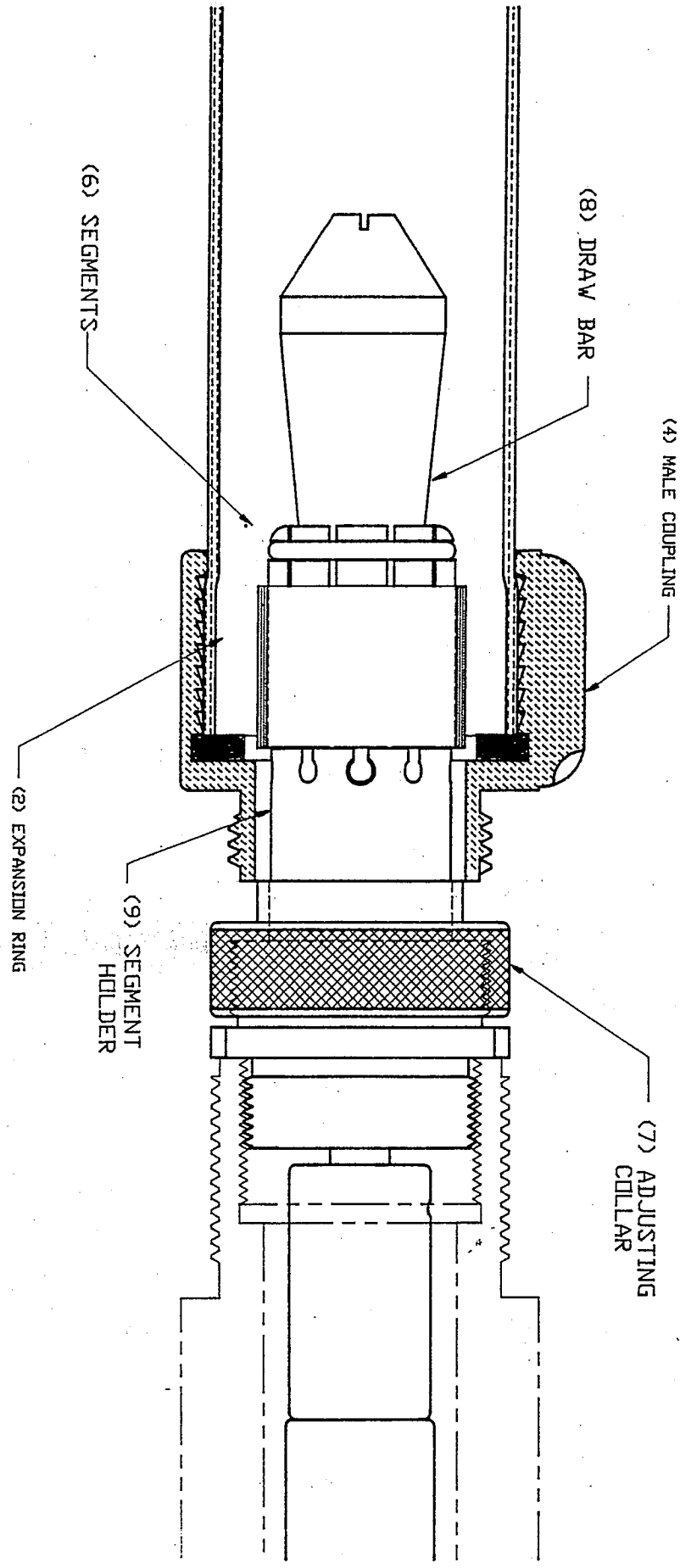
EXPANDING HOSE AND RING INTO COUPLING

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 & 2).
3. INSERT TAIL GASKET INTO RECESS AND PLACE COPPER RING OVER SEGMENTS. OPTION: WITH EXPAND PEDAL; EXPAND SEGMENTS JUST ENOUGH TO HOLD RING IN PLACE. BE CAREFUL NOT TO EXPAND RING.
4. INSERT HOSE INTO THE HOSE BOWL UNTIL IT IS FLUSH AGAINST THE TAIL GASKET. THEN PLACE COUPLING/HOSE ASSEMBLY OVER SEGMENTS AND PLACE FIRMLY AGAINST THE ADJUSTING COLLAR (ITEM 1). WITH THE EXPAND PEDAL; EXPAND SEGMENTS UNTIL THE COUPLING CANNOT BE TURNED. USE RETRACT PEDAL TO RELEASE PRESSURE. REMOVE HOSE ASSEMBLY AND CHECK FOR PROPER POSITIONING OF RING.
5. IF THE RING POSITION IS CORRECT, PUT ASSEMBLY IN PLACE AND HOLD FIRM. THEN EXPAND TO PRE-SET PRESSURE, TOUCH RETRACT PEDAL AND TURN ASSEMBLY WIDTH OF ONE SEGMENT AND EXPAND AGAIN TO INSURE 360 DEGREE EXPANSION.

NOTE: WHEN INSTALLING REDUCING COUPLINGS, 1.75" X 1.5", 2" X 1.5", 3" X 2.5", THE RING MUST BE PLACED IN THE HOSE INSTEAD OF OVER THE SEGMENTS. INSERT THE HOSE WITH RING INTO 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 BACKWALL AND INSIDE THE TAIL GASKET.

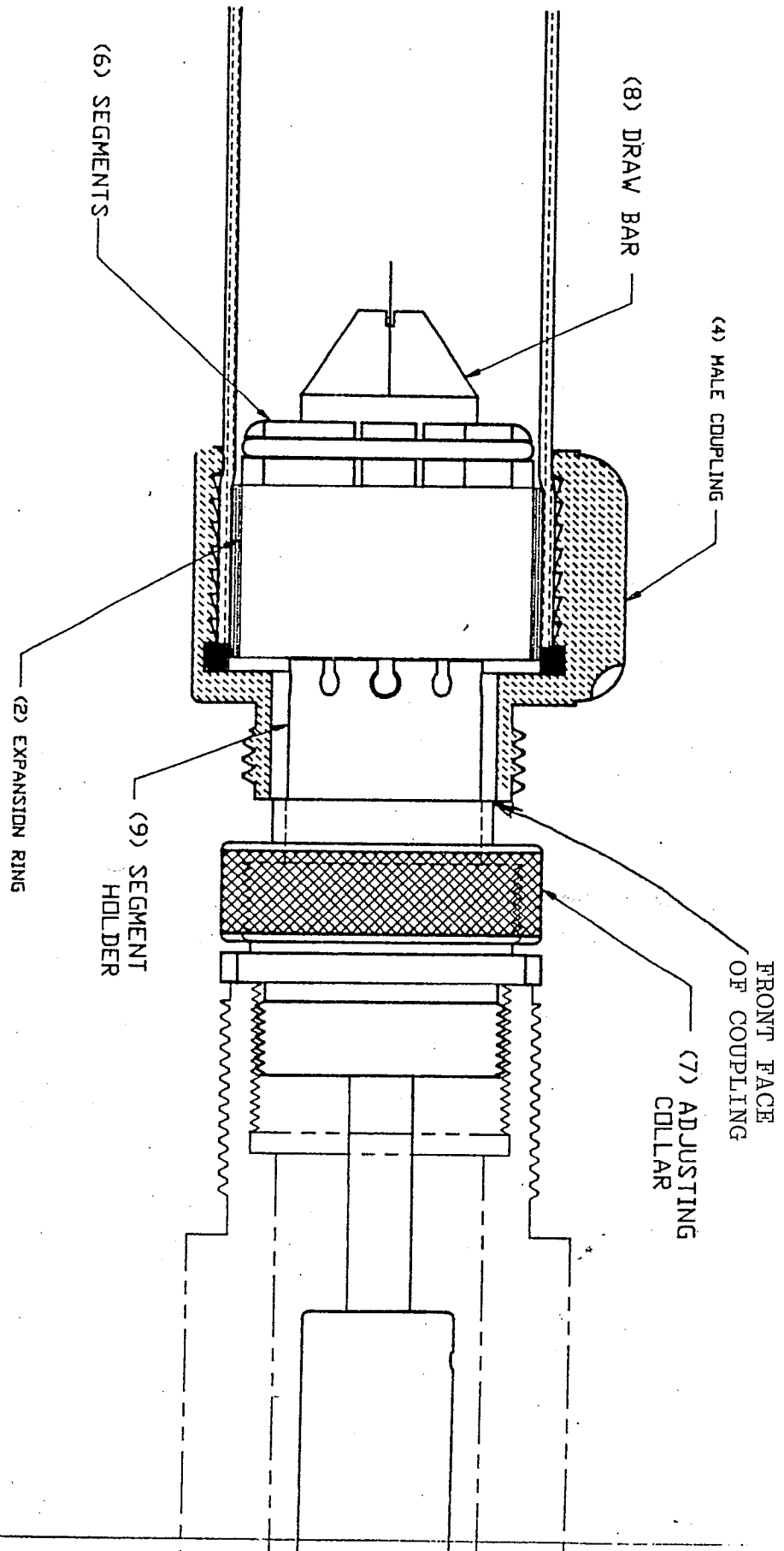
WRONG: TAIL GASKET TO THICK FOR HOSE
THE EXPANDER WILL APPLY
PRESET PRESSURE ON GASKET
AND VERY LITTLE ON THE RING
COUPLING WILL COME OFF

ENCLOSURE
WALL



EXAMPLE #1

CORRECT: HOSE & TAIL GASKET
 APPROX SAME THICKNESS
 EXPANSION RING SHOULD COVER
 ABOUT HALF OR MORE OF TAIL GASKET



EXAMPLE #2

INSTRUCTIONS FOR ATTACHING 3.5" THRU 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), SEGEMENT HOLDER (ITEM 3), AND ADJUSTING COLLAR (ITEM 1) AS A UNIT. THE LARGE DRAWBAR (ITEM 5) FITS ALL EXPANSION UNITS 3.5" THRU 6". ASSEMBLE CLOCKWISE AS FAR AS IT GOES, THEN BACK IT OFF UNTIL EXPANSION RING FITS OVER SEGMENTS.
3. THEN FOLLOW THE SAME PROCEDURE FOR EXPANSION UNIT, ADJUSTING COLLAR AND EXPANDING HOSE AND RING INTO COUPLING.
4. YOU MUST BE CAREFUL WHEN ATTACHING LARGE DOUBLE JACKET HOSE THAT THE INSIDE LINER DOES NOT SLIP OR MOVE. WE SUGGEST YOU STAPLE OR GLUE A FEW PLACES BEFORE EXPANDING.

CAUTION, DO'S & DON'TS RECAP

CAUTIONS:

1. BEFORE STARTING YOUR BRUTE II EXPANDER, READ THE INSTRUCTION MANUAL THOROUGHLY.
2. NEVER GO THRU THE EXPAND CYCLE WITHOUT A COUPLING OR EXPANSION RING MOUNTED.
3. WHEN MACHINE IS SHUT OFF, GAUGE SHOULD GO BACK TO "0" (ZERO), IF NOT, SOMETHING IS WRONG.
4. EACH SIZE HOSE AND TYPE COUPLING REQUIRE A DIFFERENT EXPANSION UNIT, WHICH RED HEAD STOCKS.
5. WHEN EXPANDING DOUBLE JACKET HOSE, BE SURE INTER JACKET DOES NOT MOVE.

DO'S:

1. ALWAYS CHECK PRESSURE BEFORE EXPANDING, MUST BE SET ON INCREASE.
2. LUBRICATE DRAWBAR OFTEN.
3. CHECK SIZE AND DIAMTER 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 & 2).
5. CUT HOSE SQUARE.
6. IF THE EXPANSION RING DOES NOT GO OVER SEGMENTS, CHECK SEGMENTS FOR BURRS. DEBURR BY SANDING BOTH FLAT SIDES OF EACH SEGMENT WITH FLAT SIDE OF FILE. ALSO, CHECK COPPER RING OF I.D. BURRS.
7. CHECK IF CYLINDER ADATER IS $\frac{1}{4}$ " IN FROM FACE OF OUTER NOSEPIECE AND DRAWBAR ASSEMBLED CORRECT AND SETSCREW FIRM.

DON'TS:

1. DO NOT USE ANYTHING BUT TRACTOR HYDRAULIC FLUID IN YOUR BRUTE II EXPANSION MACHINE (NO TRANSMISSION FLUID OR BRAKE FLUIDS).
2. DO NOT OVER TIGHTEN EXPANSION UNITS ON NOSEPIECE.
3. DO NOT USE LUBRICATION OF HOSE.