
CST-25 COLLAR SIZING MACHINE
OPERATION INSTRUCTIONS

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TABLE OF CONTENTS

Part	Description	Page
1	Introduction	1
1a	Specifications	2
2	Safety	3
3	Installation	4
4a	Operation: Enlarging Collar Neck Opening	5
4b	Operation: Lowering Collar Height	7
4c	Operation: Raising Collar Height	9
5	Maintenance	10

ILLUSTRATIONS

Fig.	Description	Page
1	CST-25 Collar Sizing Tool	2
2	Enlarging Collar Necks with the CST-25	5
3	Lowering Collar Height with the CST-25	7
4	Raising Collar Height	9

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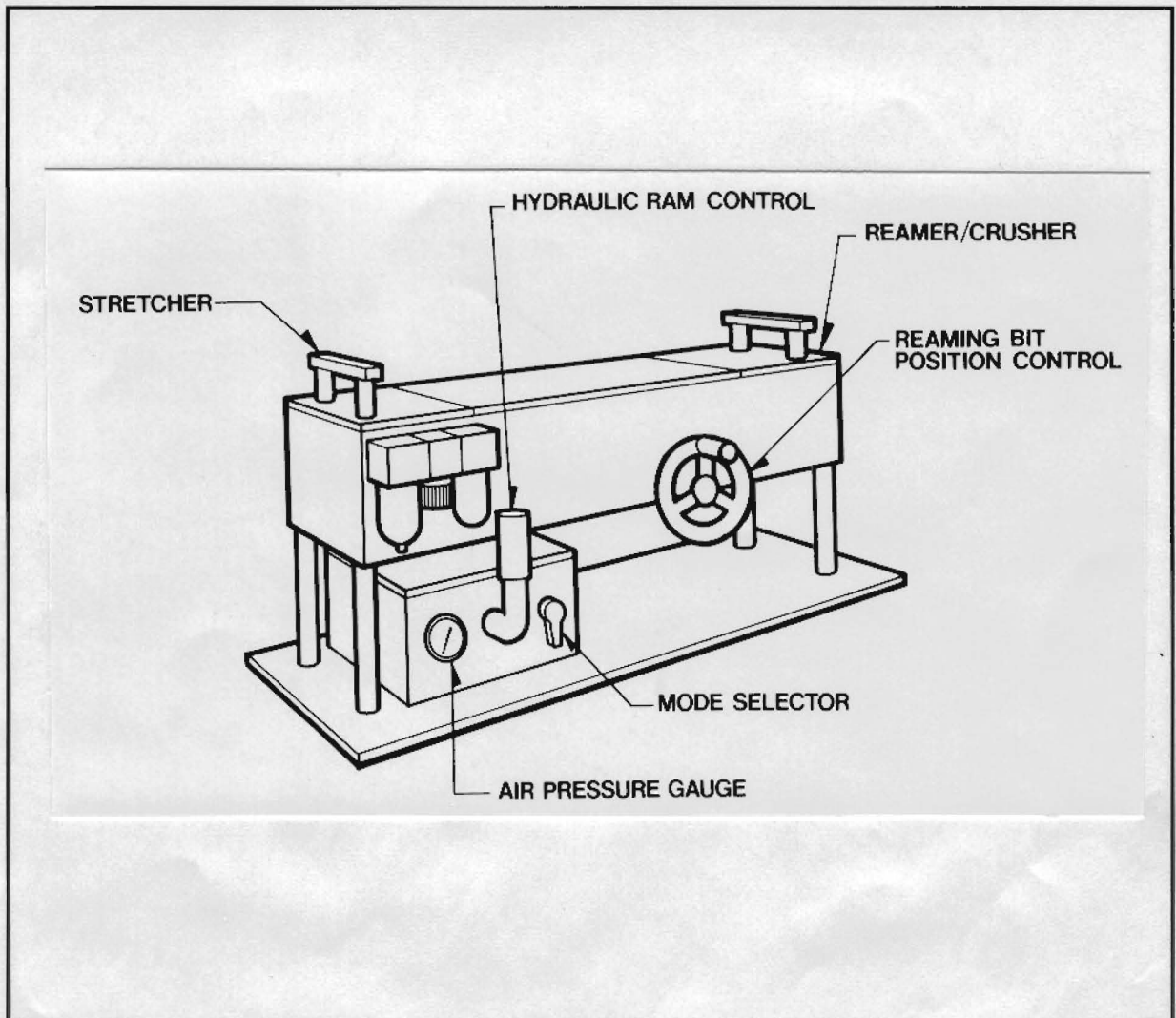
PART 1) INTRODUCTION

The CST-25 Collar Sizing Machine provides a fast, efficient method for adapting the height and inside of the cylinder collar to fit the cylinder neck.

In order to attach the collar to the cylinder neck, the height of the collar should allow the neck to protrude 1/8" to 3/32" above the top of the collar. The edge of the cylinder neck is then hammered over the collar with the NPT-1010 Collar Attachment Tool, locking the collar in place. Cylinder Collars are generally available in only one standard height and two standard diameters, whereas cylinders come with a wide variety of different neck heights and diameters.

The CST-25 quickly widens the collar neck opening up to 2.20 inches with an air driven reaming bit, which is equipped with a scale to indicate the size of the opening. The cutting action of the reaming bit provides an additional benefit in that it creates a chamfer for the metal of the cylinder neck to flow into when the collar is attached.

The CST-25 uses a hydraulic ram to stretch or crush cylinder collars from 1.79 inches tall to 2.10 inches tall without damaging the collar threads. The Hydraulic Ram is driven by the Hydraulic Pump which is located at the underside of the top portion of the CST-25.

PART 1a) SPECIFICATIONS**FIGURE 1) CST-25 COLLAR SIZING TOOL****SPECIFICATIONS:****Maximum Collar Opening Adjustment:** 2.20" Diameter**Collar Height Adjustment Range:** Minimum 1.79" to Maximum 2.10" Height**Length:** 40^{3/8}" **Width:** 13" **Height:** 19^{1/4}" **Weight:** 300 lbs.**Air Requirements:** Max. 125 psi clean, filtered, and lubricated required for full warranty**Warranty:** One year

PART 2) SAFETY

1. Read all instructions before attempting to install or operate this machine. GALISO INC. CANNOT BE RESPONSIBLE FOR DAMAGE OR INJURY CAUSED BY UNSAFE USE, MAINTENANCE, OR APPLICATION OF THIS MACHINE. Please contact Galiso for guidance when you are in doubt as to proper safety precautions to be taken when installing or operating this machine.
2. The CST-25 is capable of producing very powerful twisting and clamping forces. All powered, moving parts are painted "Safety Orange". The operator must keep hands, fingers, clothing, jewelry and etc. clear of ALL orange painted part while machine is in operation. Contact with pinch points or entanglement with rotating parts can caused severe bodily injury.
3. Under NO circumstances should the unit be operated unless the Reamer/Crusher Block, the Stretcher Block and the Spacer Block are in their proper positions.
!! CAUTION !!: To prevent possible bodily injury or damage to the equipment, the collar support plate must be installed during all operations.
4. DO NOT operate the CST-25 without the safety covers in place. DO NOT make any modifications or alterations on the CST-25 without prior approval from Galiso, as this would VOID your warranty.
5. **CAUTION !!:** The CST-25 weighs in excess of 300 lbs., proper lifting techniques must be observed when lifting the machine. Provide a sturdy table or workbench on which to place the CST-25. The table may be equipped with Heavy Duty Locking Casters to allow the CST-25 to be moved from one area of your shop to another.
6. Operator must wear eye protection and leather gloves while CST-25 is in operation.

PART 3) INSTALLATION

1. Carefully uncrate the CST-25 and remove all banding and packing materials.
2. Read all instructions before attempting to install or operate the CST-25.
3. Carefully lift the CST-25 onto a sturdy work table. **!! CAUTION !!:** Make certain that the work table will support the weight before lifting the CST-25, as it weighs approximately 300 lbs. To allow the CST-25 to be moved from one work station to another, the table may be equipped with Heavy Duty Locking Casters.
4. Connect an air supply line of at least 3/8" i.d. to the air inlet located on the air line filter on the left side of the CST-25. The air supply should provide 30 cfm at 120 psig in order to achieve best performance.
5. The Hydraulic Ram, which stretches and crushes the cylinder collar, is driven by the Hydraulic Pump, which is located on the underside of the top portion of the CST-25.

PART 4a) OPERATION: ENLARGING COLLAR NECK OPENING

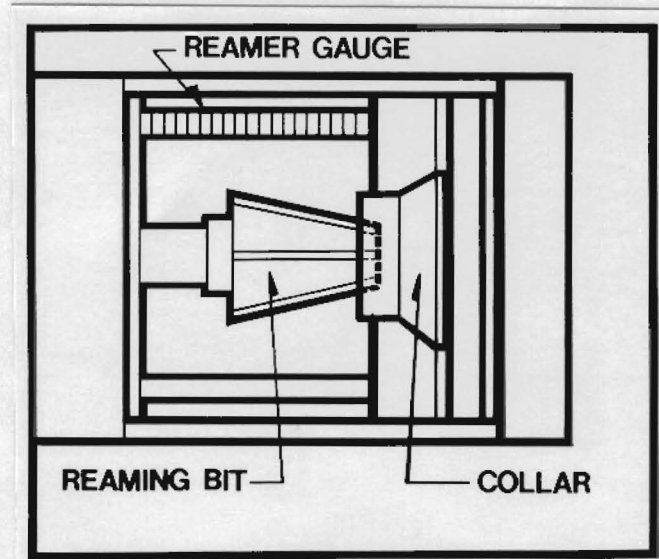
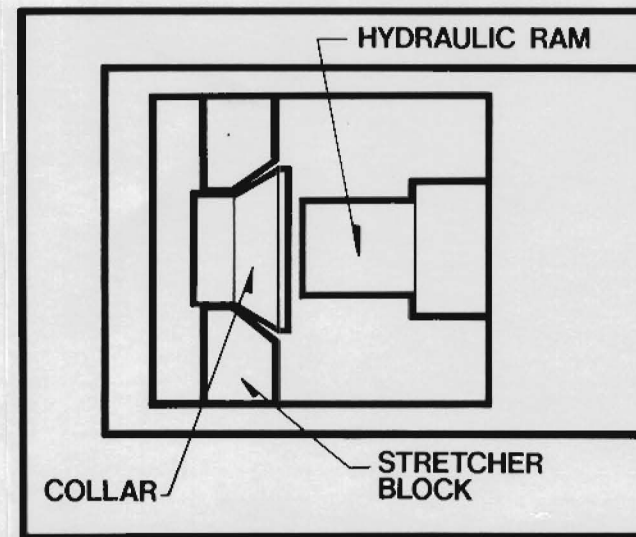


FIGURE 2) ENLARGING THE COLLAR NECK OPENING

1. Place the Stretcher Block and the Spacer Block in the proper position for enlarging the cylinder neck opening. Align the Stretcher Block and the Spacer Block so that the Numbers "1" and the Letters "A" lineup as shown in Figure 2.
2. Push the Reamer/Crusher Block as far to the left as possible. Rotate the Reamer Handle counterclockwise until it stops. The Reaming Bit should withdraw from the opening in the Reamer/Crusher Block.
3. Pull up on the Reamer/Crusher Block handle and lift the Reamer/Crusher Block out of the CST-25.
4. Insert the cylinder collar into the opening in the Reamer/Crusher Block as shown in Figure 2 and lower the Reamer/Crusher Block back into position. Turn the Reamer Handle clockwise to bring the Reaming Bit forward until it contacts the cylinder collar and holds it against the end plate of the Reamer/Crusher.
5. Adjust the regulator on the Hydraulic Pump Air Supply line so that the Air To Pump Pressure Gauge reads 25 psi.

PART 4a) OPERATION: ENLARGING COLLAR NECK OPENING, (Con't.)

6. Turn the Hydraulic Pump Lever to the right to activate the clamping device. Allow the Hydraulic Ram to clamp down on the cylinder collar until the Hydraulic Pump "stalls out". Leave the Hydraulic Pump Control Lever in the **ON** position. Turn the Reamer Handle counterclockwise to retract the Reaming Bit from the cylinder collar.
7. Turn the Air Motor Control Valve to the **ON** position, this will cause the air motor to rotate the Reaming Bit. The air supply to the air motor should not exceed 90 psi.
8. Slowly turn the Reamer Handle clockwise until the reamer makes contact with the opening in the center of the collar. **NOTE:** The groove marks on the top guide rod. Advancing one (1) mark will cause the Reaming Bit to enlarge the cylinder collar neck opening by an 1/8". If the Reaming Bit is advanced too rapidly, the Reaming Bit Drive Motor will stall. If the motor stalls, back off the Reaming Bit and then continue the operation at a slower pace.
9. When the collar opening has been enlarged to the desired size, rotate the Reamer Handle counterclockwise until it stops. This will withdraw the Reaming Bit from the cylinder collar. Turn the Air Motor Control Valve to the **OFF** position.
10. To remove the cylinder collar from the CST-25 turn the Hydraulic Pump Lever to the left to release the Hydraulic Ram. Push the Reamer/Crusher Block to the left to relax any residual clamping force. Lift the Reamer/Crusher Block from the CST-25 and remove the collar.

PART 4b) OPERATION: LOWERING COLLAR HEIGHT**FIGURE 3) CST-25 LOWERING COLLAR HEIGHT**

1. Place the Stretcher Block and the Spacer Block in the proper position for lowering the collar height. Align Stretcher Block and Spacer Block so that the Numbers "1" and Letters "A" line up as shown in Figure 3.
2. Determine how much the cylinder collar needs to be reduced.
3. Push the Reamer/Crusher Block as far to left as possible. Rotate the Reamer Handle counterclockwise until it stops. The Reaming Bit should withdraw from the opening in the Reamer/Crusher Block.
4. Pull up on the Reamer/Crusher Block handle and lift the Reamer/Crusher Block out of the CST-25.
5. Insert the cylinder collar into the opening in the Reamer/Crusher Block as shown in Figure 3 and lower the Reamer/Crusher Block back into position. Turn the Reamer handle clockwise to bring the Reaming Bit forward until it contacts the cylinder collar neck opening. Use the Reaming Bit to center the cylinder collar and also hold it against the end plate of the Reamer/Crusher.
6. Adjust the regulator on the Hydraulic Pump Air Supply Line so the Air To Pump Pressure Gauge reads 100 psi.

PART 4b) OPERATION: LOWERING COLLAR HEIGHT (con't.)

7. Turn the Hydraulic Pump Lever to the right to activate the Hydraulic Ram. The Hydraulic Ram will shorten the collar by flaring it out at the base. This will allow the collar to fit further down on the cylinder neck so that the necessary 1/8" to 3/32" of the cylinder neck protrudes above the collar. Observe the measurement marks on the CST-25 Frame to gauge the amount that the collar has been shortened.
8. When the cylinder collar has been reduced to the desired height, turn the Hydraulic Pump Lever to the left to release the Hydraulic Ram.
9. Rotate the Reamer Handle counterclockwise until it stops, this will withdraw the Reaming Bit from the cylinder collar.
10. To remove the cylinder collar from the CST-25, push the Reamer/Crusher Block to the left to relax any residual clamping force. Lift the Reamer/Crusher Block from the CST-25 and remove the collar.

PART 4c) OPERATION: RAISING COLLAR HEIGHT

1. Determine how much the collar height needs to be raised.
2. Move the Stretcher Block and the Spacer Block from the stored position to the stretching position. Lift the Stretcher Block and the Spacer Block out of the CST-25, turn both items 180° and reinsert them into the CST-25 so that the Numbers "2" and the Letters "A" line up as shown in Figure 4.

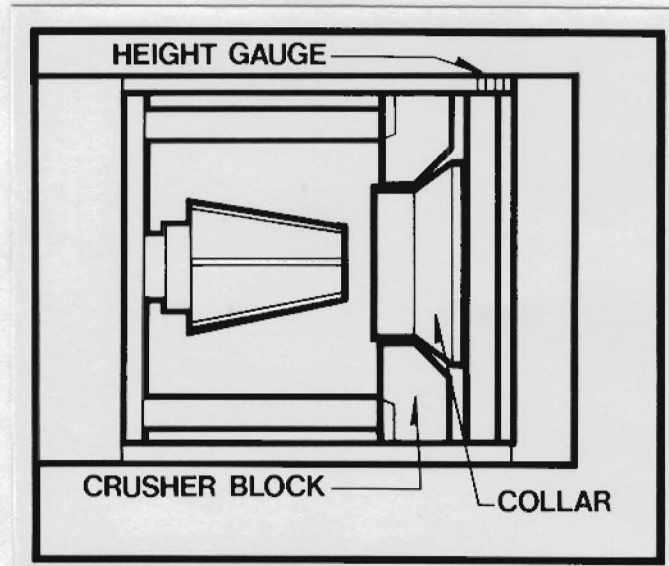


FIGURE 4) CST-25 RAISING COLLAR HEIGHT

3. Lift the Stretcher Block out of the CST-25, insert the cylinder collar into the Stretcher Block, and lower the Stretcher block with back into the CST-25.
4. Adjust the regulator on the Hydraulic Pump Air Supply line so the Air To Pump Pressure Gauge reads 100 psi.
5. Turn the Hydraulic Pump Lever to the right to activate the Hydraulic Ram. Observe the top of the collar as force is applied, to determine how much the collar is to be stretched. As stated previously, the height of the collar should allow 1/8" to 3/32" of the cylinder neck to protrude through the top of the collar.
6. When the cylinder collar has been stretched to the desired height, turn the Hydraulic Pump Lever to the left to release the Hydraulic Ram and allow it to withdraw.
7. Lift the Stretcher Block out of the CST-25 and remove the collar from the Stretcher Block.

PART 5) MAINTENANCE

1. Any accumulation of debris in the Air Line Filter Bowl should be drained off through the valve in the bottom of the bowl. The Filter Bowl should never be more than half full.
2. Check the oil level in the lubricator and add #10 weight NONDETERGENT oil as needed.
3. To check the oil flow setting, proceed as follows:
 - A. Turn the Reamer Handle counterclockwise as far as it will go, then turn the Air Motor Control Valve to the ON position.
 - B. With the Reamer spinning freely, check and adjust the oil flow rate to one (1) or two (2) drops per minute.
 - C. When oil flow setting is properly adjusted, turn the Air Motor Control Valve to the OFF position.
4. To check operation of the Hydraulic Pump, set up the CST-25 for collar stretching as described in "OPERATION: RAISING COLLAR HEIGHT".
 - A. Lift out the Stretcher Block and the Spacer Block at the left end of the CST-25. Turn both blocks 180° and reinsert them into the CST-25 so that the Numbers "2" and the Letters "A" lineup.
 - B. DO NOT insert a cylinder collar into the Stretcher Block, this will allow the Hydraulic Ram to extend fully.
 - C. Turn the Hydraulic Pump Lever to the right to activate the Hydraulic Pump. The Hydraulic Ram extends fully and the Hydraulic Pump stalls. If the Hydraulic Pump is operating correctly the Hydraulic Ram will extend very smoothly and the pump should slow gradually as it approaches the stall point.
 - D. Turn the Hydraulic Pump Lever to the left to release the Hydraulic Ram. The Hydraulic Ram should retract smoothly.
 - E. Reposition the Collar Stretching Assembly.