



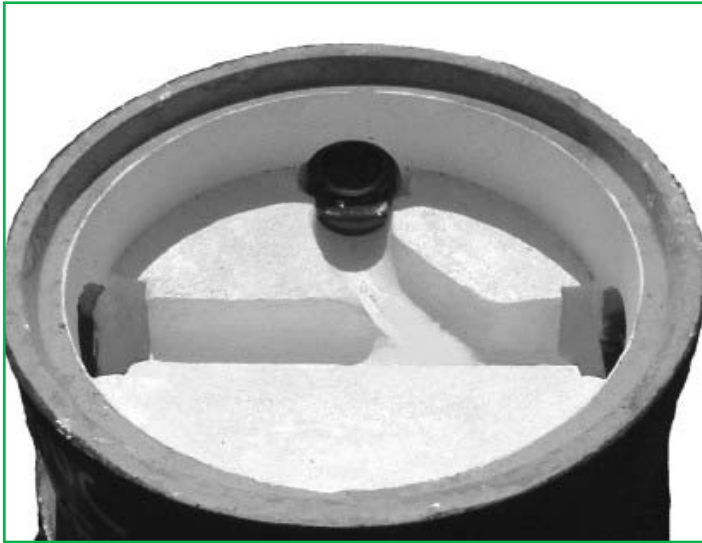
The Company With Connections®



**SECONDARY INVERT FORMING SYSTEM**

**TRU-CONTOUR**

**TRU-CONTOUR**



A-LOK Products, Inc. and Tru-Contour have joined forces to bring together the best in secondary precast inverts available today. The Tru-Contour Invert Forming System offers the manhole producer a very durable, systematic and versatile method of forming all invert configurations from 4" through 48" diameter.

**KEY ADVANTAGES**

Two, three, and four way configurations including dead end combinations with a standard .2 ft. of elevation difference (fall) can be made easy and rapidly without the need for skilled labor.

Greater fall can be obtained based on the operators' ability to experiment. The system's versatility is due to an unlimited combination of four basic wedges. With the combination of one or more of these wedges, any angle can be obtained within 1.5 degrees. This allows enough flexibility to effectively form an invert which aligns perfectly with the entering pipeline.

System also available in Single Piece construction.

The Tru-Contour system cuts costly labor both in set-up and concrete finishing time. A basic three way can be set up in approximately fifteen minutes and depending on pouring procedures, can allow an average of four inverts per day to be formed from a single system. Finishing time is kept to a minimum due to the accuracy of flows the forms create. Each invert in regard to channel width, depth and radial turn is form finished.

The Tru-Contour standard system allows for 2/3 invert depth and is compatible with a variety of flexible pipe to manhole connectors. Full depth systems are also available.

The Tru-Contour assembly consists of:

- 1) A hole adapter which is designed to align the invert assembly with the flexible pipe to manhole connector. This insures pipe to invert compatibility.
- 2) A series of 4 wedges and straight sections which when combined provides an unlimited selection of angles to create enough flexibility to form an in invert within 1.5 degrees.
- 3) A stabilizing jack which prevents from floatation during casting operations. This insures that correct fall is maintained across the manhole base.

**AVAILABILITY CHART**

| SIZE (IN/DIA.) | 2-WAY | 3-WAY | 4-WAY |
|----------------|-------|-------|-------|
| 4"             | •     | •     | •     |
| 6"             | •     | •     | •     |
| 8"             | •     | •     | •     |
| 10"            | •     | •     | •     |
| 12"            | •     | •     | •     |
| 15"            | •     | •     | •     |
| 18"            | •     | •     | •     |
| 21"            | •     |       |       |
| 24"            | •     |       |       |
| 27"            | •     |       |       |
| 30"            | •     |       |       |
| 36"            | •     |       |       |
| 42"            | •     |       |       |
| 48"            | •     |       |       |

## ● INSTALLATION INSTRUCTIONS



**#1 ASSEMBLY STARTS WITH CENTERING TRIANGLE IN LOW HOLE**



**#4 POSITION ANTI FLOTATION BAR AND ADDITIONAL CHANNEL**



**#2 ASSEMBLE SMALLEST ANGLE WITH CENTERING ADAPTOR**



**#5 POSITION HUBS**



**#3 SMALLEST ANGLE ASSEMBLY IN LOW HOLE AND UPSTREAM SIDE.**



**#6 COMPLETED THREE-WAY ASSEMBLY READY TO POUR**

**ANY QUESTIONS REGARDING TRU-CONTOUR INSTALLATION, PLEASE CALL 1-800-822-2565**

## Tru-Contour Secondary Invert Forming System

Guide to Convert 48" Systems to a Larger System

| <u>System Size</u> | <u>Type</u> | <u>To Fit 48" MH</u> | <u>To Fit 60" MH</u> | <u>To Fit 72" MH</u>  |
|--------------------|-------------|----------------------|----------------------|-----------------------|
| 4"-18"             | 2 way       | (2) 6" Straight      | (2) 6" Straight      | (2) 12" Straight      |
| 4"-18"             | 4 way       | (4) 6" Straight      | (4) 6" Straight      | (4) 12" Straight      |
| 21"-24"            | 2 way       | No parts needed      | No Parts Needed      | (2) 6" Short Straight |
| 27"-48"            | 2 way       | Yes                  | Yes                  | (2) 6" Short Straight |

### Extra Parts Needed to convert a 2 way into a 3 way

This is only applicable with systems 4" to 12" with 3/4 or full height.

- (1) Long Straight
- (1) Medium Straight
- (1) Short Straight
- (1) 45 Degree Wedge
- (1) 22 Degree Wedge
- (1) 11 Degree Wedge
- (1) 6 Degree Wedge
- (1) Left Angle
- (1) Right angle

Note: One extra hole adapter or centering triangle will be needed depending on customer preference with hub, per customer choice.

### Formulas to Create Angles using Tru-Contour Wedges

|                                       |  |
|---------------------------------------|--|
| If angle is greater than 180 degrees: | Subtract 180 from higher number.                       |
| Example: 250 Degrees<br>250-180=70    | Wedges needed:<br>(1) 45 Degree and (1) 22 Degree = 67 |
| Example: 210 Degrees<br>210-180=30    | Wedges needed:<br>(1) 22 Degree and (1) 6 Degree = 28  |
| If angle is less than 180 Degrees:    | Subtract from 180.                                     |
| Example: 153 Degrees<br>180-153=27    | Wedges needed:<br>(1) 22 Degree and (1) 6 Degree = 28  |
| Example: 135 Degrees<br>180-135=45    | Wedges needed:<br>(1) 45 degree wedge                  |

## Tru-Contour Secondary Invert Forming System

Systems are available from 4 to 48 inches.

When ordering full height systems, or systems 15 inch and above for boots, half height forms must be ordered (one for each hole).

When ordering Tru-Contour accessories for boots, please always give the type of pipe used.

In some cases, 3 way and/or 4 way prices are not listed, but available upon request.

For diameters 24 inches and above, the anti-flotation device takes the place of the manhole jack.

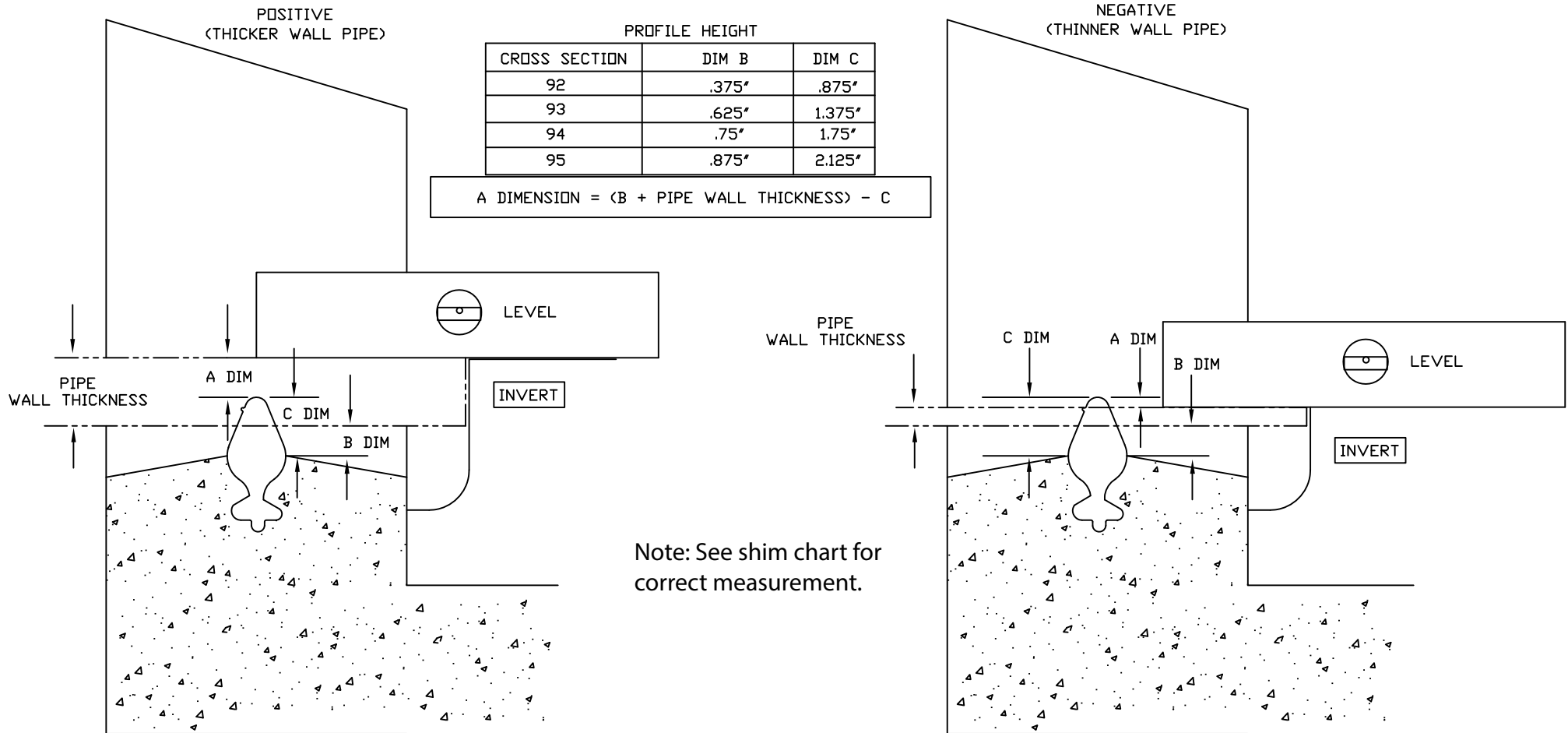
**All prices are for 48 inch diameter manholes only.**

For full height systems add 15% to the base price, including hole adapters and hubs.

Custom length straight pieces and wedges are available by special order for the price of the next largest standard size. Standard straight lengths and wedges are as follows:

|                     |         |       |            |
|---------------------|---------|-------|------------|
| 4" to 12" Diameter  | Long    | 20.5" | 45 Degrees |
|                     | Medium  | 12 "  |            |
|                     | Short   | 4.25" | 22 Degrees |
| 15" to 18" Diameter | Long    | 18"   |            |
|                     | Medium  | 9"    | 11 Degrees |
|                     | Short   | 4.25" |            |
| 21" to 24" Diameter | Long    | 15.5" | 6 Degrees  |
|                     | Medium  | 9"    |            |
|                     | Short   | 4"    |            |
| 27" and up Diameter | No long |       |            |
|                     | Medium  | 10"   |            |
|                     | Short   | 5"    |            |

# Invert Elevation Detail



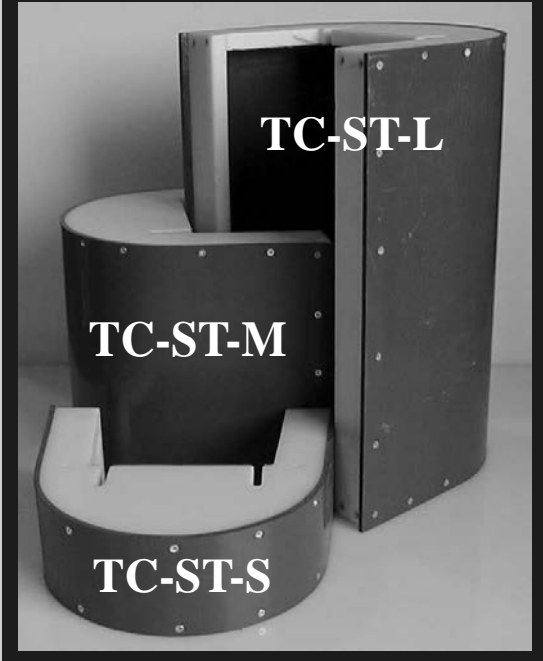
Note: See shim chart for correct measurement.

## Quality Control Steps

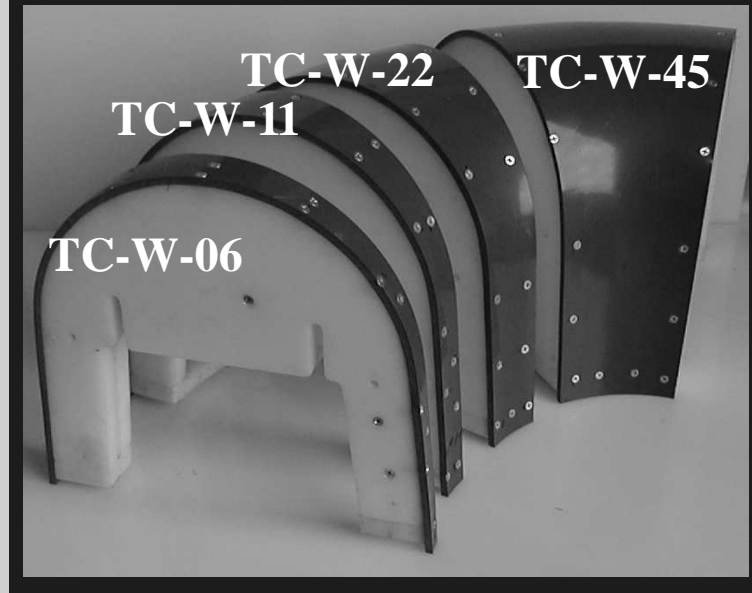
1. Identify the pipe wall thickness and run the invert calculation to determine if the QC check will be a positive or negative set-up
2. Check the nose and hole dimensions of the connector to confirm it has been cast in properly with respect to dimensions and orientation
3. Place a level on the concrete invert as shown in the drawing and assure it is level with respect to the centerline of the invert and connector
4. Use a suitable measuring device such as a tape measure or ruler to accurately document the "A" dimension from the calculation

# TRU-CONTOUR PARTS GALLERY

## STRAIGHTS



## WEDGES



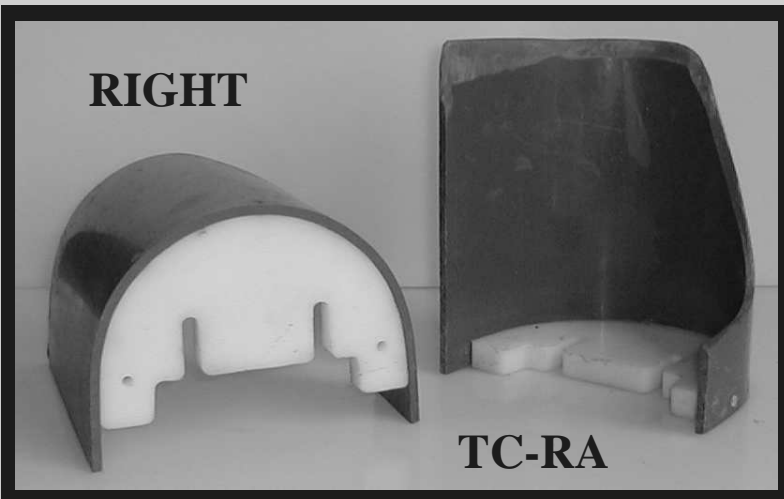
## CENTERING TRIANGLE A-LOK



## PIPE CORE HUB



## ANGLES



## LEFT



CENTERING PIN TC-CP



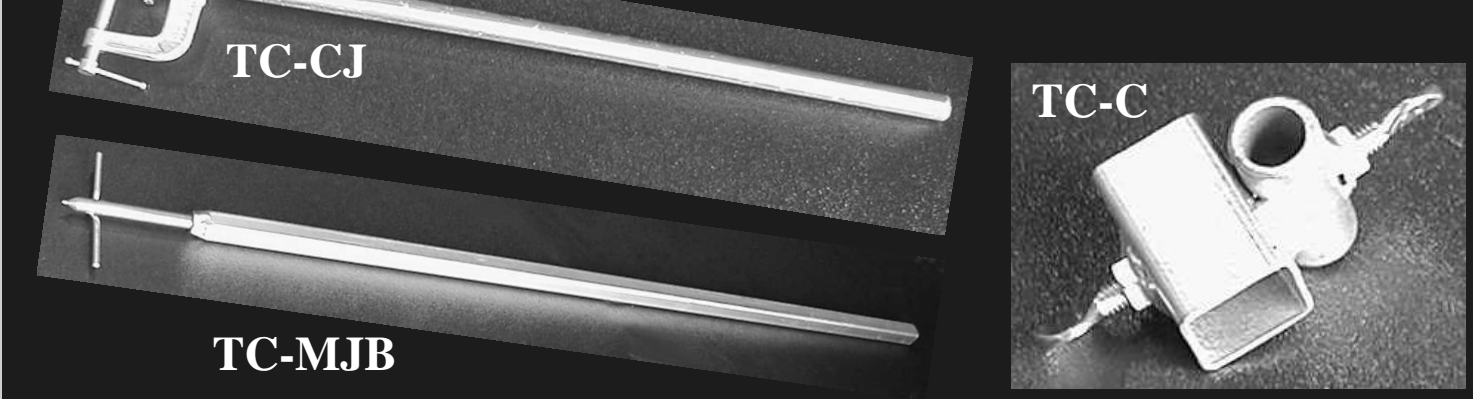
RING HUB

TC-RH



TROWEL TC-TF

## MANHOLE JACK COMPLETE TC-MJC



CENTERING PIN TOOL

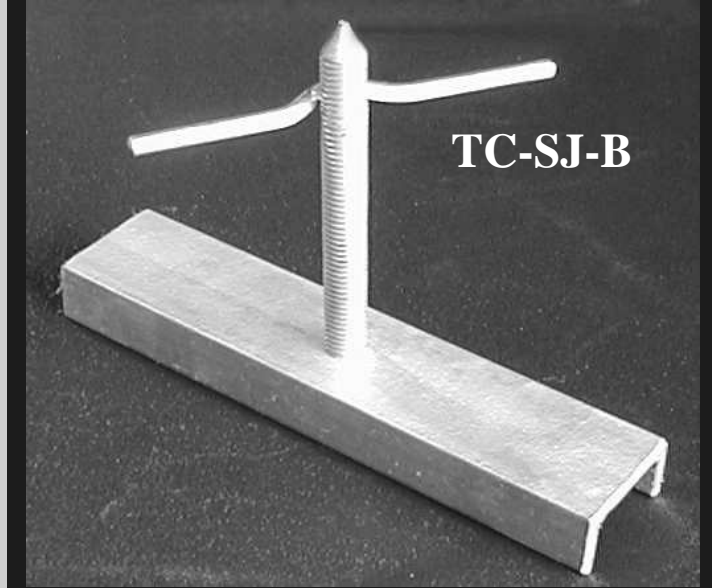
TC-CPT

## ANTI-FLOATATION DEVICE



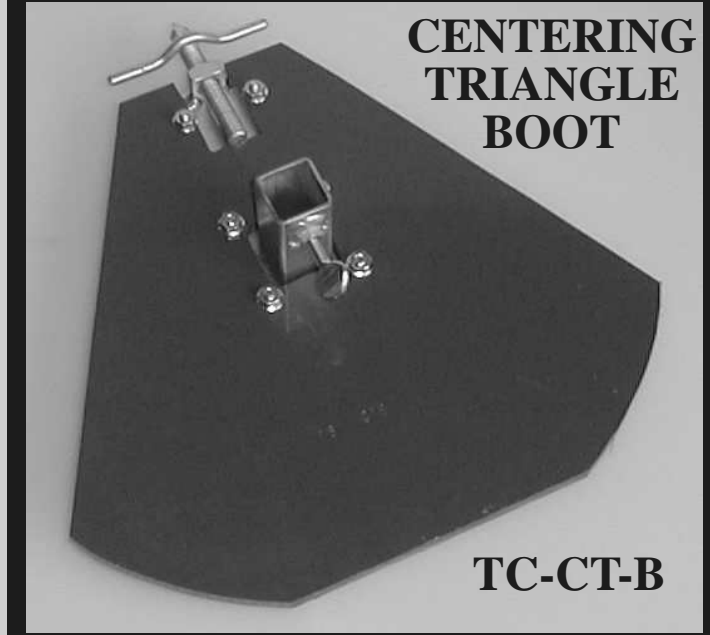
TC-AD

## STABILIZATION JACK BOOT



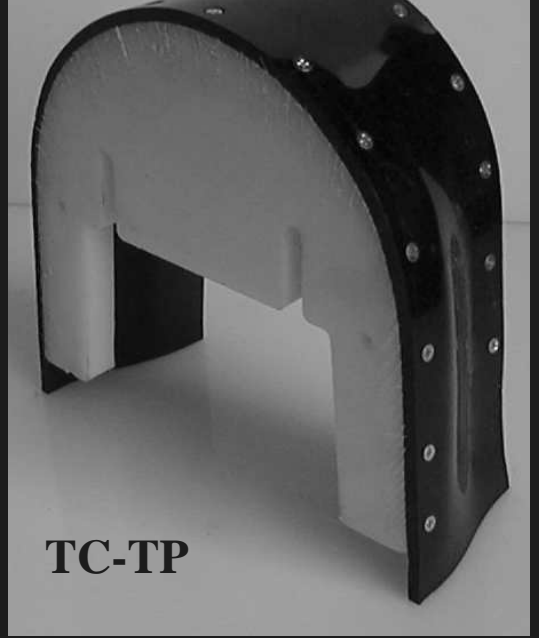
TC-SJ-B

## CENTERING TRIANGLE BOOT



TC-CT-B

## TRANSITION



TC-TP

## DROP TRANSITION



TC-DT

## CENTERING ADAPTOR



TC-CA

## HOLE ADAPTOR



TC-HA

## STABILIZATION JACK A-LOK

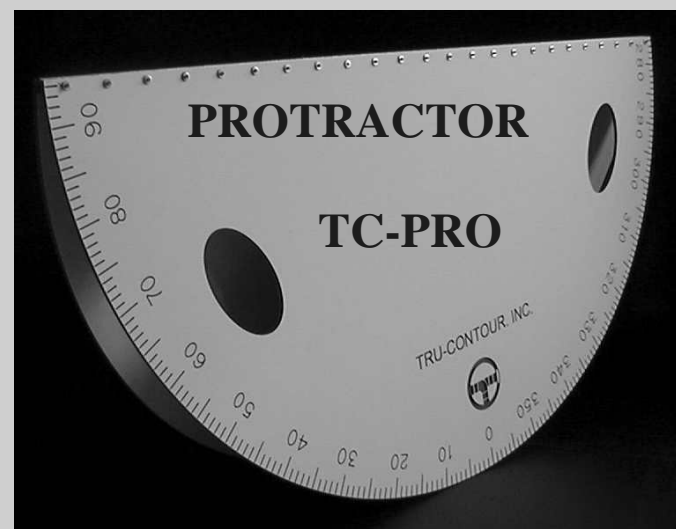


TC-SJ-A

## TC-HA

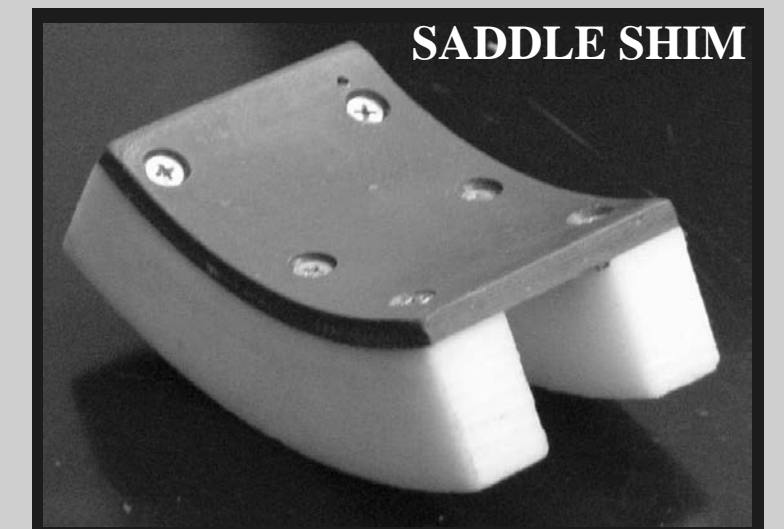


HOLE ADAPTOR



PROTRACTOR

TC-PRO



SADDLE SHIM

To order any of the above parts please call A-LOK Products the distributor of Tru-Contour Secondary Invert Systems. Please refer to name or code letters. Call 800-822-2565.



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