Alignment Kit

Operation Manual

65-233-102

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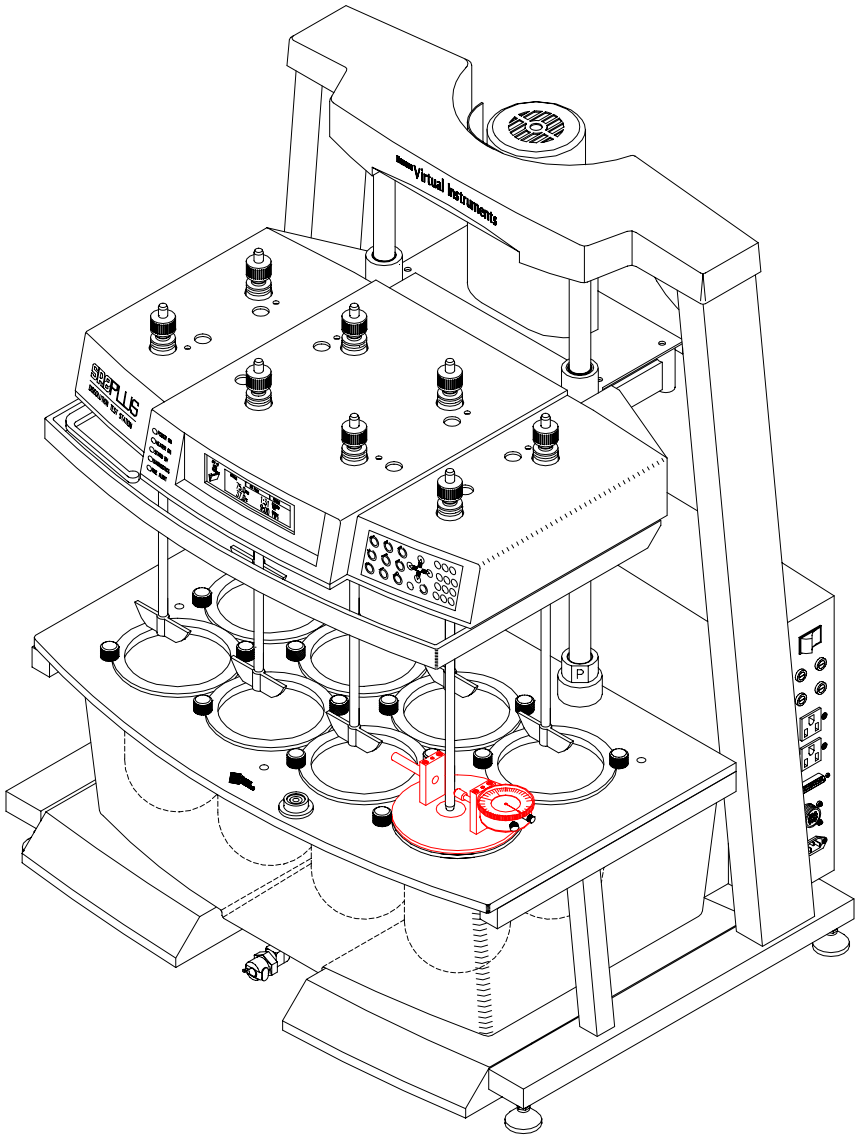

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Introduction

The Hanson Dissolution Alignment Kit (see fig 2) includes all tooling and precision gages required to (1) adjust system level, (2) check spindle and vessel axis alignment, (3) check spindle axis squareness, (4) check paddle / basket shaft straightness and (5) adjust paddle / basket height. The complete kit comes packaged in a convenient case designed to protect the precision components during storage. Also included in this manual is a Suitability Data Record page which may be copied and used to record actual measurements. The Kit was designed for use on Hanson Dissolution Test Stations (models SR-2, SR-6, SR-8 and SR8-Plus).

Adjusting System Level

Place the circular level (item 4) on the flask locating base plate at approximately the front center position. Adjust the height of the four mounting feet as necessary to obtain level. The unit is considered adequately leveled when the center of the bubble does not exceed the outer ring on the circular level (1.0 degree). The mounting feet are adjusted and secured by lock nuts using the 13 mm wrench (item 7). After alignment is achieved, check off this requirement on the Suitability Data Record sheet.

Measurements using the dial indicator

Total indicated reading (T.I.R.) is defined as the difference between the two extreme indicator readings. Needle displacement clockwise from zero is considered positive and displacement counterclockwise is considered negative. The following measurements are total indicated readings with the exception of spindle and flask axis alignment which is maximum displacement from zero without regard to direction.

Checking spindle and vessel axis alignment Raise the system drive head to it's upper most position and lock in place. Remove vessels and paddle / basket shafts from the unit. Install the plug gage (item 3) into the calibration adapter assembly (item 2). The indicator preload should be at least one revolution, but less than two. Loosen the dial indicator lock nut and adjust the indicator dial to zero and tighten the lock nut (see fig 1). Remove the gage plug and return it to the storage case (item 1). Install the calibration adapter assembly (item 2) into the right front vessel mounting hole. Install the alignment shaft (item 5) into the corresponding spindle drive and tighten the spindle collet. Temporarily retract the dial indicator shaft while lowering the system drive head to a position where the alignment shaft engages the dial indicator just below the spindle collet. Rotate the calibration adapter assembly one full revolution while observing the dial indicator reading. Record the actual maximum displacement from zero on the Suitability Data Record sheet. The maximum displacement should not exceed 1.00 mm (.04 in). Repeat this procedure for the left front vessel position.

Checking spindle axis squareness

With the calibration adapter assembly (item 2) and the alignment shaft (item 5) installed at the right front vessel position, temporarily retract the dial indicator shaft and move the drive head to a position where the alignment shaft engages the dial indicator just above the alignment shaft chamfer. slowly lower the drive head approximately 140 mm (5.50 in) while observing the dial indicator reading. Rotate the calibration adapter 90 degrees and repeat test. The maximum runout should not exceed 1.00 mm (.04 in) T.I.R. Record the maximum observed runout (T.I.R.) on the Suitability Data Record sheet. Repeat this procedure for the left front vessel position.

Checking paddle/basket shaft straightness (wobble)

With the calibration adapter (item 2) installed at any convenient vessel mounting location. Raise the drive head to its upper most position and lock in place. Install a paddle or basket shaft in the corresponding spindle drive such that the chamfered end of the shaft slightly extends above the spindle assembly. Retract the dial indicator shaft and lower the drive head to a position where the indicator point will contact the shaft at it's lowest point. Make sure the paddle or basket end of the shaft has an unobstructed rotational path. Set the spindle drive speed control to 50 rpm and start rotation. Carefully observe the dial indicator reading during one full revolution. The maximum runout should not exceed 1.0 mm (.040 in) T.I.R. Record the shafts T.I.R. and corresponding serial number on the Suitability Data Record sheet. Repeat this procedure for each paddle / basket shaft.

Adjusting paddle / basket height

Raise the drive head to it's upper most position and lock in place. Install all flasks in the support plate. Install paddle / basket shafts in the drive spindles but do not tighten the collet chucks. Record serial numbers of shafts and vessels in the position assignment block on the Suitability Data Record sheet. Raise shafts so that ends protrude approximately 3 inches above the spindle assembly. Place the depth gage (item 6) in flask number 1 with the ball end centered in the bottom of the flask curvature. Lower the drive head to the preferred operating position and lock in place. Raise the lower drive head stops as high as possible (flush with slide castings) and lock in place using 5/32 hex key (item 9). Slide the shaft in position 1 to it's lowest position (paddle or basket resting on gage). Tighten the collet chuck and Raise the drive head to it's upper most position and lock in place. Repeat the procedure for each spindle position and check off this requirement on the Suitability Data Record sheet. An alternately acceptable method for setting paddle height uses the adjustable stops and designated spacers. This method is described in detail in the SR6 / SR8-Plus operation manuals.

What to do when the Dissolution instrument exceeds specified limits

The Instrument has been precision aligned at the factory and realignment should only be attempted by factory trained and authorized personnel.

Please contact Hanson Research Corporation at (800) 821-8165 for service.

Calibration of Kit

The Alignment kit is supplied in a protective case designed to maintain the accuracy of all it's precision components. After each use the components should be immediately returned to the protective case for storage. It is recommended that the complete kit be returned to Hanson Research Corporation every twelve months for re-calibration and certification. The instrument case has a calibration tag on the outside which indicates the last calibration date and the next required calibration date.

Please contact Hanson Research Corporation at (800) 821-8165 to make arrangements to return the instrument for calibration.

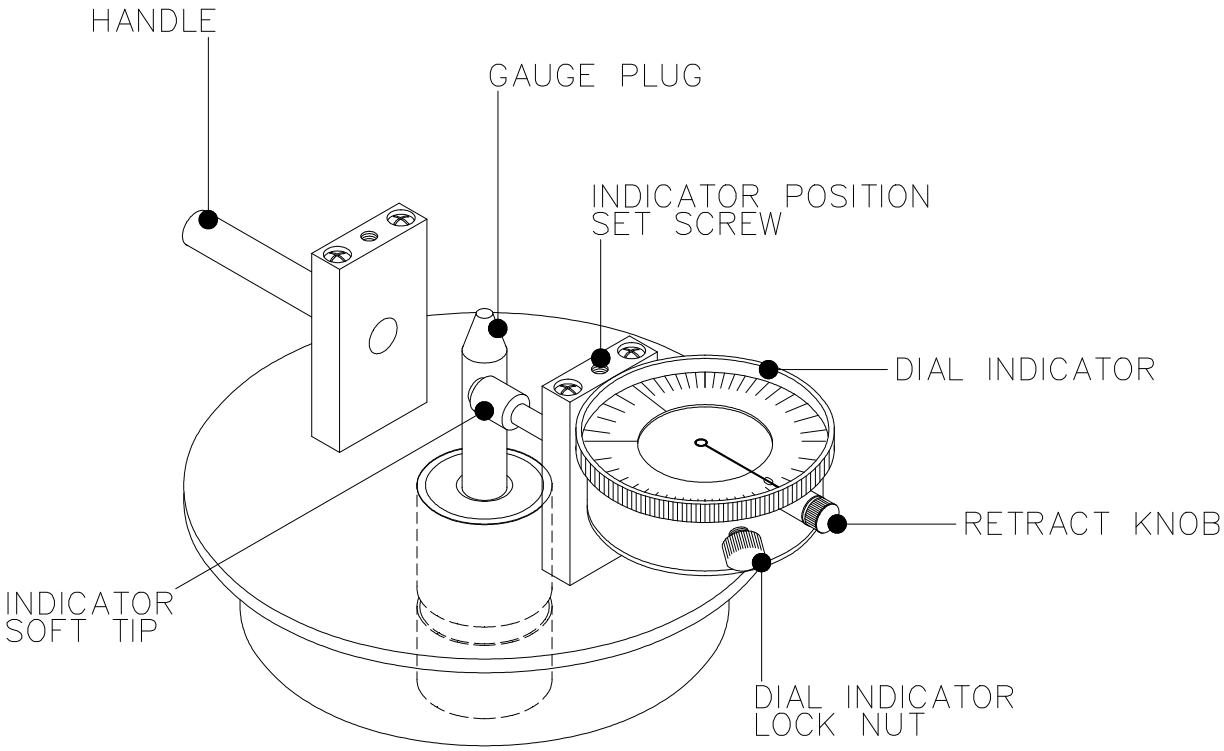

Figure 1

PARTS LIST

1. Case Assembly
2. Calibration Adapter Assembly
3. Plug Gage
4. Circular level
5. Alignment Shaft
6. Depth Gage
7. 12 mm x 13 mm Wrench
8. 1/16 in Hex Key
9. 5/32 in Hex Key

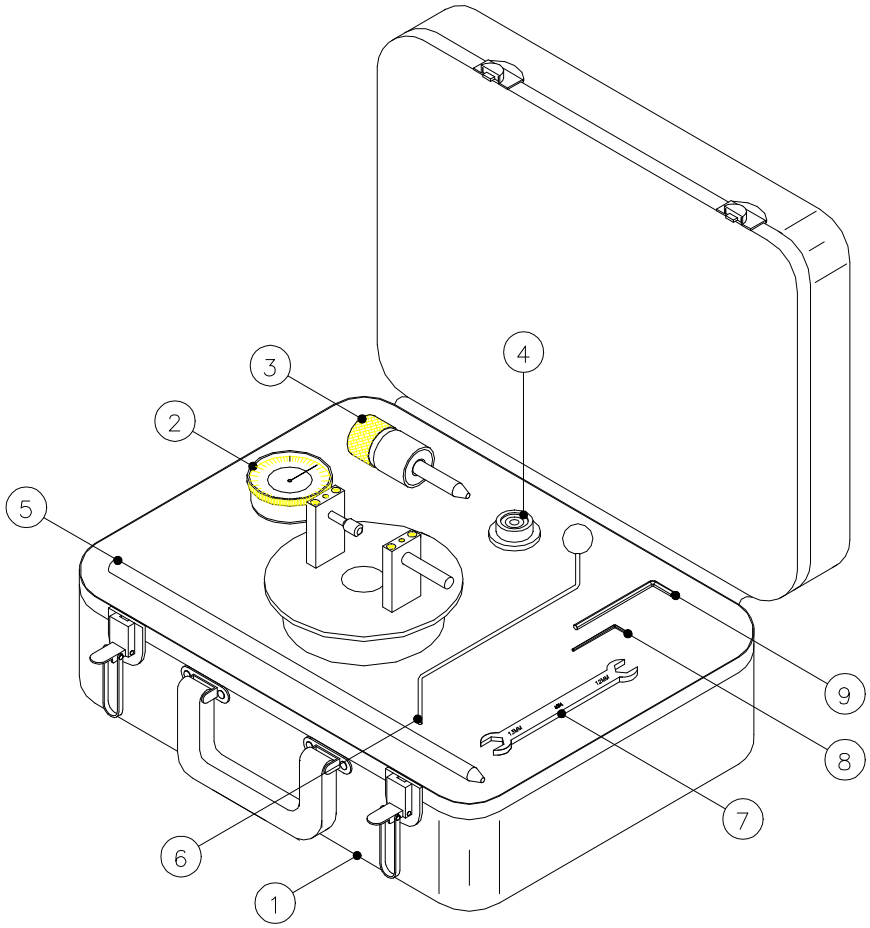

Figure 2

Suitability Data Record

Dissolution Test Station Model No:_____

Dissolution Test Station Serial No:_____

Alignment Kit, 65-233-101 Serial No:_____

Verify System Level----------☐

Alignment Characteristics:

Flask Position	Axis Alignment 1.00 mm Max.	Squareness T.I.R. (both axis) 1.00 mm Max.
1		
2		
3		
4		
5		
6		
7		
8		

Shaft Straightness (Wobble)

Paddle/Basket Shaft S/N	Straightness T.I.R. 1.00 mm Max.

Position Assignment

Vessel Position	Vessel Serial No.	Shaft Serial No.
1		
2		
3		
4		
5		
6		
7		
8		

Verify Paddle / Basket Height----------☐

Inspected By:_____Date:_____