

Havlicek, Maynard

From: Havlicek, Maynard
Sent: Friday, January 04, 2008 3:39 PM
To: 'mh@tsi.com'
Subject: FW: 1035539R Neph motor replacement and Installation instructions.

Jan. 4, 2008

1035539R Neph motor replacement and Installation instructions for Backscatter Shutter or Chopper Blade for all Neph's manufactured in 2005 and newer.

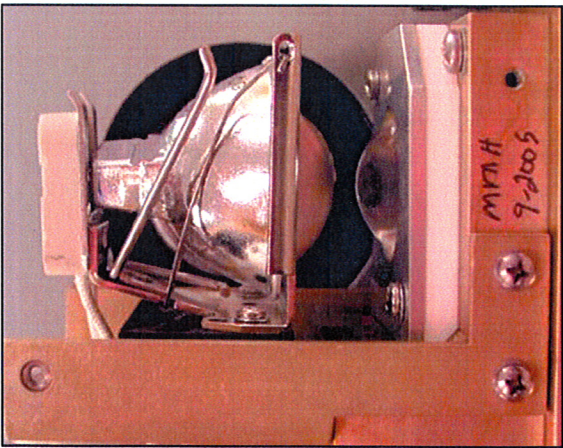
1. Replacement motor 1035539R can be used in either location.
2. Procedure in document 10000002625 should be used for Backscatter Shutter motor replacement located in Lamp assembly.
 - a. Start by using the 3563 Neph Manual 1933563 section "Cleaning the Light Pipe Outlet and the Backscatter Shutter" on page 8-27.
 - b. With the Lamp assembly removed proceed to use Document for Backscatter Shutter motor replacement 10000002625.
 - c. Start by marking the location of the Backscatter motor plate before removing the 4 Phillips screws, page 4 or 12. The location of the plate is what determines the K4 values when calibrating with Filtered air and CO2.
 - d. Remove the 4 Phillips screws from the PC board J15, also mark the position of the PC board to the lamp assembly this will make it easier to reassemble.
 - e. Follow page 3 of 12 marking the motor cable as the PC board and motor is removed from Lamp assembly.
 - f. Install new motor using page 2 of 12 and 3 and 4 of 12 to reinstall motor into Lamp assembly.
- G. NOTICE ***THE MOUNTING OF THE BACKSCATTER SHUTTER NEEDS TO BE LOCATED AWAY FROM THE LAMP WHEN THE BACKSCATTER IS IN THE PARKED POSITION*** Using the Neph software set the software to Total Scatter only, this will park the backscatter shutter. Connect the Backscatter cable from the Neph to the Lamp assembly, this will take the place of the battery test fixture. You can use the Black mark on the shaft of the motor to locate the correct position of the backscatter shutter to the motor. You will find a black line on the side and the top of the motor this line on the side will be away from the Lamp light pipe and will help to align the backscatter shutter to the motor shaft.
- H. Follow left side of page 7 or 12 and page 9 or 12 to align backscatter shutter and use Allen wrench to retighten set screw.
- J. Verify Backscatter Shutter is clear of Lamp Assembly by looking at the gap between the backscatter shutter and motor mount.
- K. check to make sure backscatter shutter is away from Lamp when Neph is in total scatter mode only.

Maynard Havlicek
Manufacturing Product Specialist
Particle Instrument Group
TSI Incorporated
500 Cardigan Road
Shoreview MN 55126 USA
Phone: 651-490-4075 Fax: 651-490-3824
Toll Free: 800-874-2811
Personal Cell: 651-230-9950
Email: mh@tsi.com
Web: <http://www.tsi.com>
TSI = TRUST. SCIENCE. INNOVATION

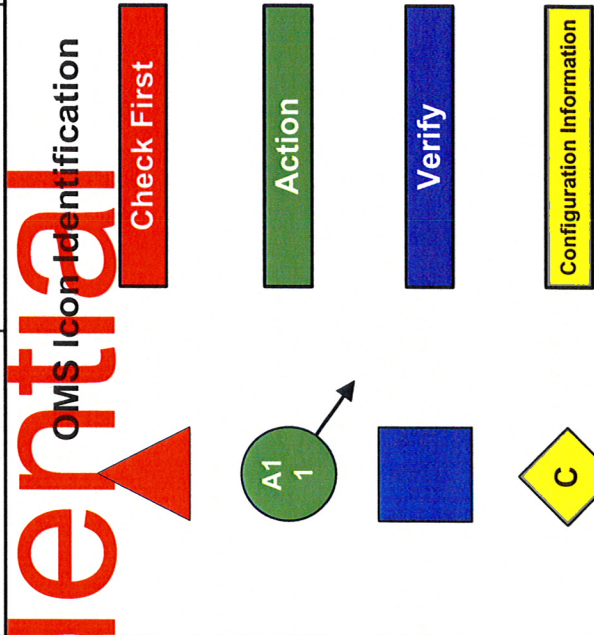
1/4/2008

Training Record

Trainee Name	Trainer Name	Date



TSI Confidential



Sequence: 1000	Part Number: 10000002625
Filename: 10000002625A.vsd	Description: Backscatter Neph 3563
TSI Incorporated, St Paul MN 55126	Page 1 of 12

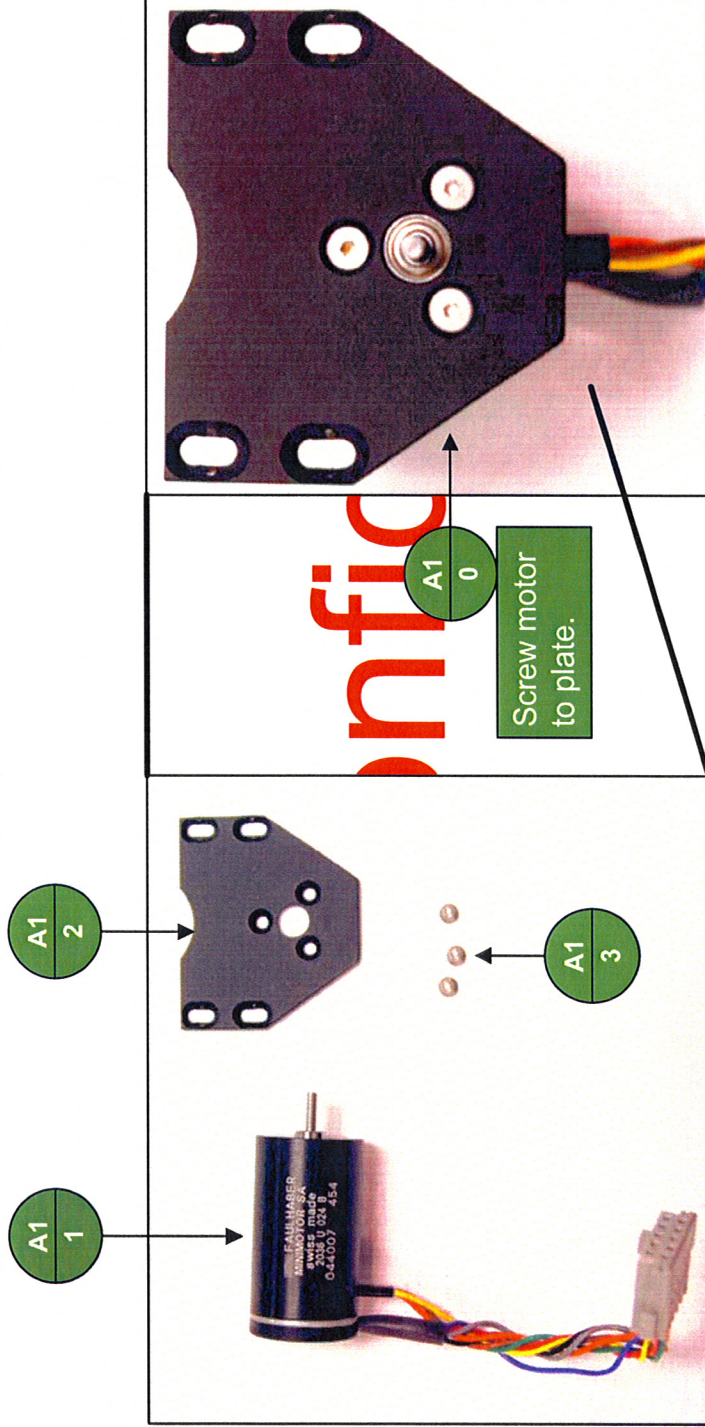
A	500000011802	New Drawing Backscatter Neph	7-Sep-2005	EMJ 5005	DA 1714
Rev	ECO #	Description	Date	Drawn By	Approve By

1035479

Operational Method Sheet

Proprietary and Confidential Information

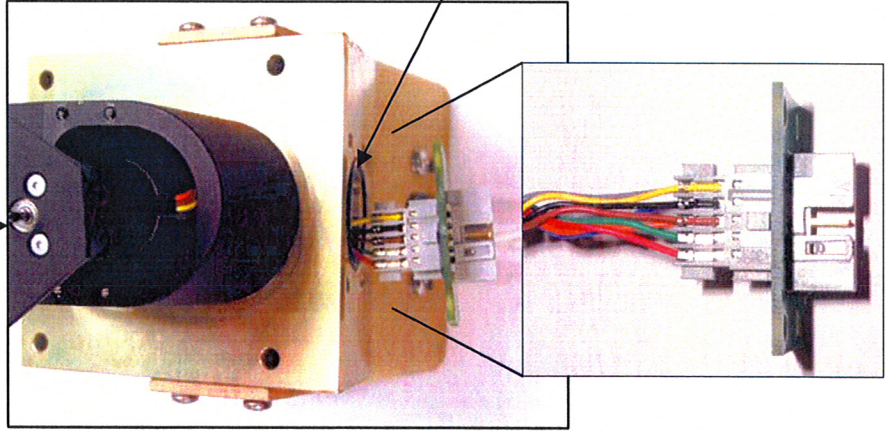
Ref	Qty	Part Number	Description
1	1	1035539	S/A MOTOR BRUSHLESS DC NEPH
2	1	1503809	MOUNT MOTOR BS SHUTTER 355X6X
3	3	5000121	SCR M2 X 4 FLAT HD SKT SS



Ref	Qty	Part Number	Description
1	1	2501019	RING BUNA 1-019 DUR 70 \$
2	AS NEEDED	1502249	GREASE VACUUM
3	1	1035531	S/A PC BOARD FEEDTHRU J15 NEPH

A2
0

Insert motor connector
and wires through hole
in light pipe mount.

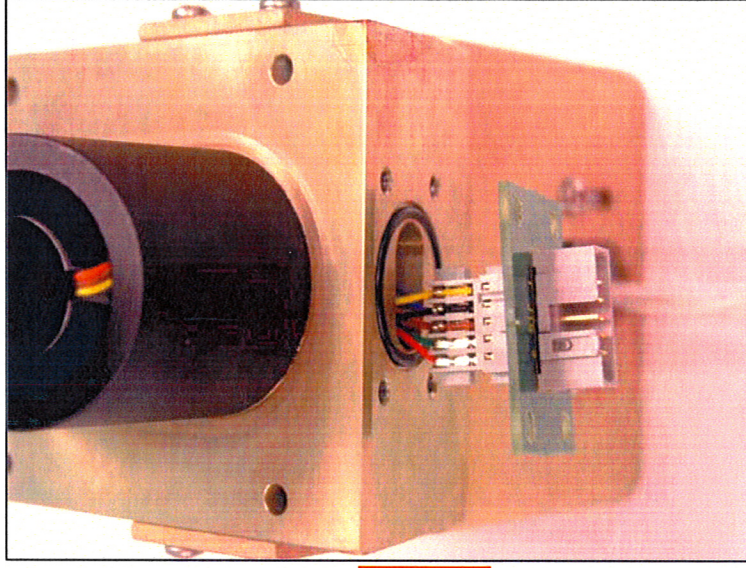


A1
2

A1
1

Apply a thin coat of
grease on o-ring.
Insert o-ring.

Confid

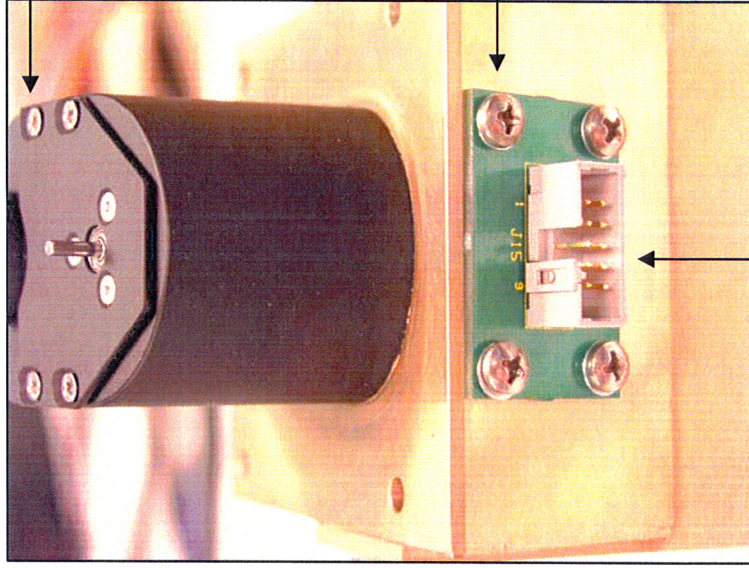


A3
3

Note polarity of
connectors.

Plug pc board
into connector.

Ref	Qty	Part Number	Description
1	4	5069090	SCR 6-32X 5/16 PAN HD PHH SS \$
2	4	5013100	SCR 2-56X 3/16 FLT HD PHH SS
3	4	5328031	WSHR #6X9/32LOCK INTTOOTH ZN \$



A3
2
Screw plate
in place.

A2
1
Screw pc board
to mount.

A2
3

A1
0
Verify
polarity.

TSI

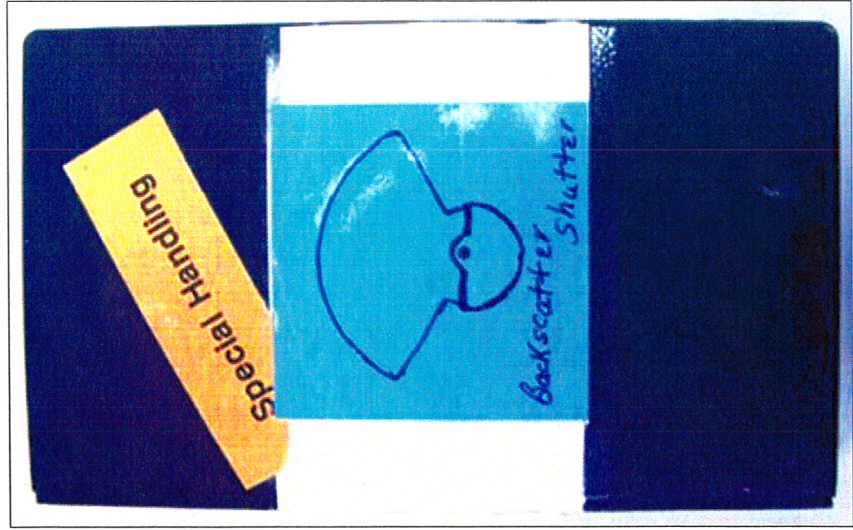
Confidential

Proprietary and Confidential Information	Filename: 1000002625A.vsd	Part Number: 1000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 1040	TSI Incorporated, St Paul MN 55126	

Ref	Qty	Part Number	Description
-----	-----	-------------	-------------

A1
0

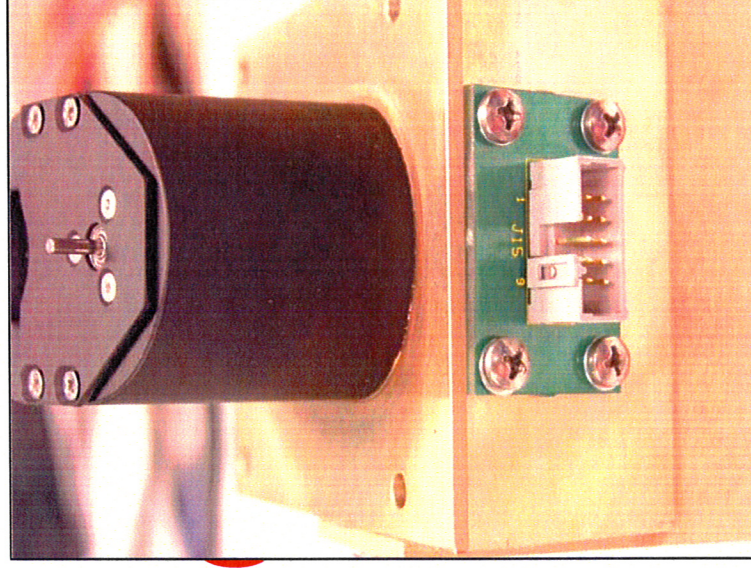
Store in special handling container.



Confidential

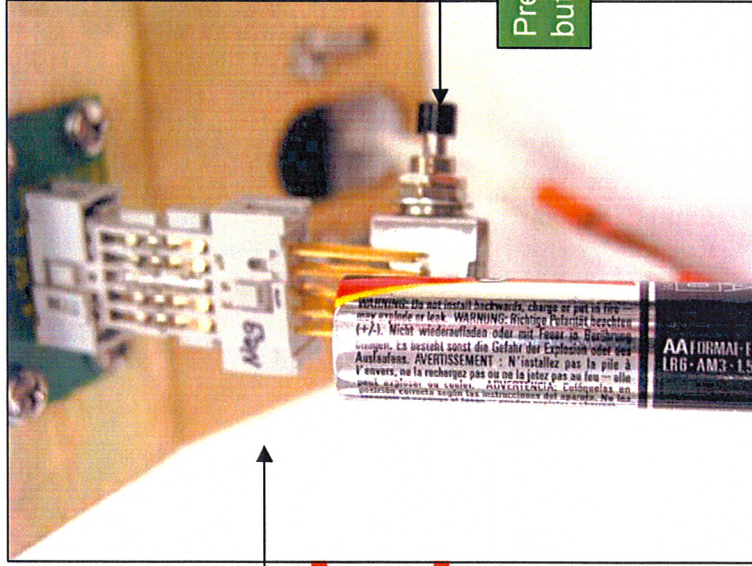
A4
0

Give the backscatter assembly to technician.



Proprietary and Confidential Information	Filename: 10000002625A.vsd	Part Number: 10000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 1050	TSI TSI Incorporated, St Paul MN 55126	Page 5 of 12

Ref	Qty	Part Number	Description
-----	-----	-------------	-------------



A1
0

Plug test
fixture into J15.

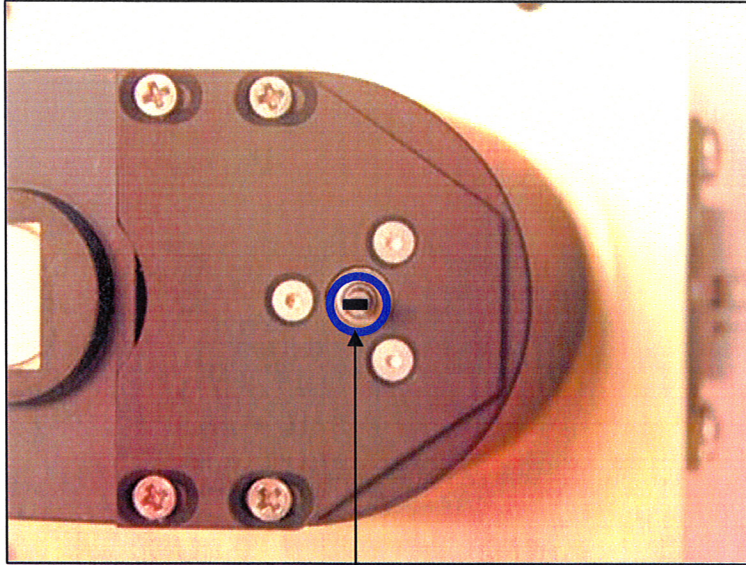
A2
0

Press switch
button.

T S I Confidential

Proprietary and Confidential Information	Part Number: 10000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 1060	TSI TSI Incorporated, St Paul MN 55126
Filename: 10000002625A.vsd	Page 6 of 12	

Ref	Qty	Part Number	Description
1	1	1035483	S/A BACKSCATTER SHUTTER, NEPH



A1
0

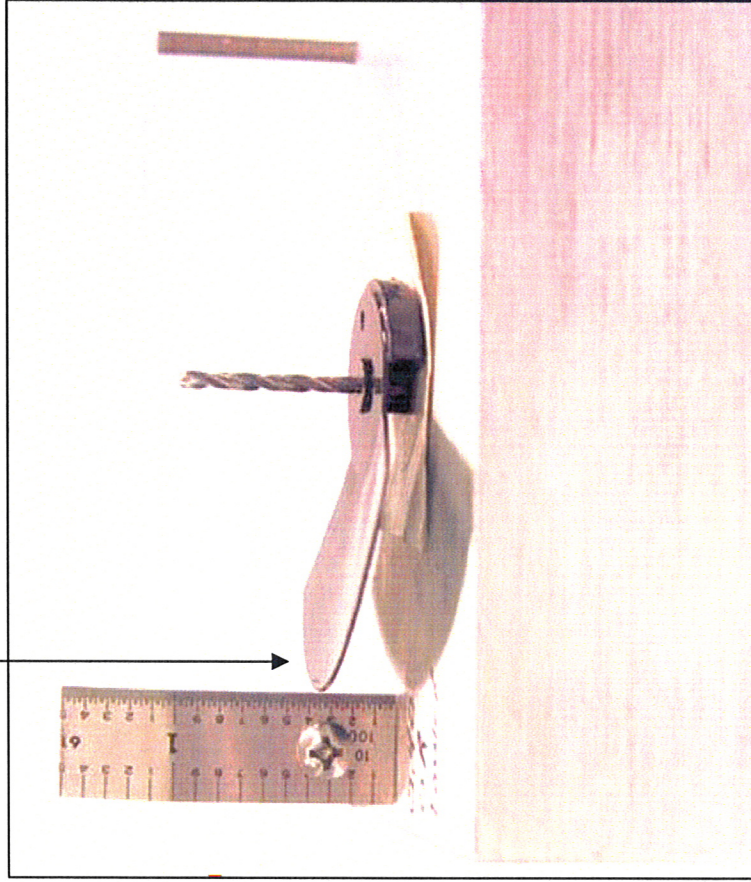
Draw a line on the shaft.

on

A2
1

Place shutter on fixture.

Verify the shutter does not exceed .40" high.

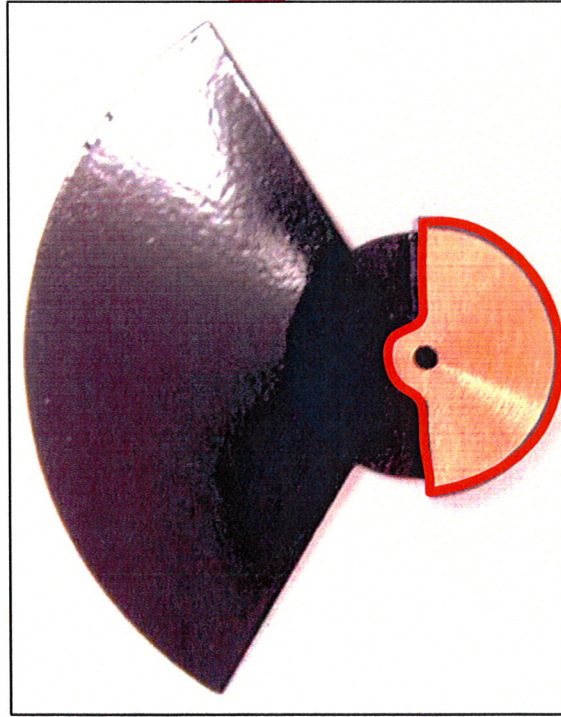


A3
0

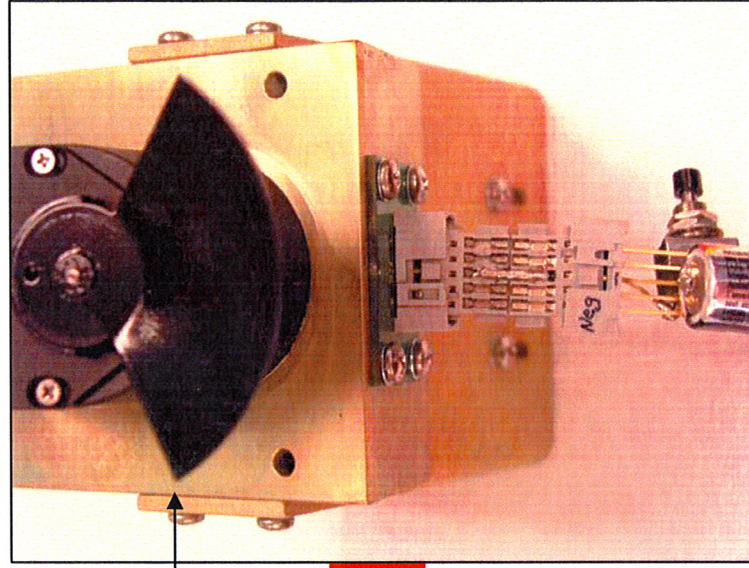
Remove from fixture.

Proprietary and Confidential Information	Filename: 10000002625A.vsd	Part Number: 1000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 1070	TSI Incorporated, St Paul MN 55126	
			Page 7 of 12

Ref	Qty	Part Number	Description
1	AS NEEDED	2300084	ACETONE



A1
1
Clean shutter
(gold area).



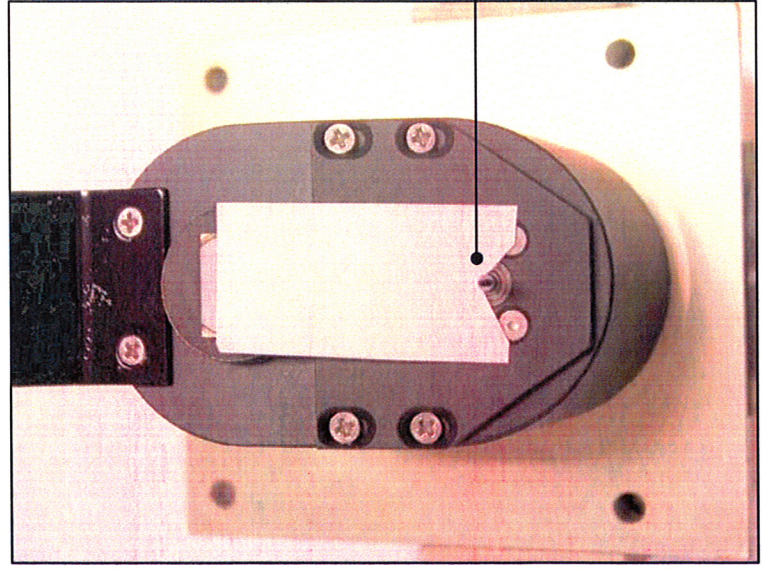
A2
0
Place shutter on
shaft and verify
that it slides
easily.

onfile

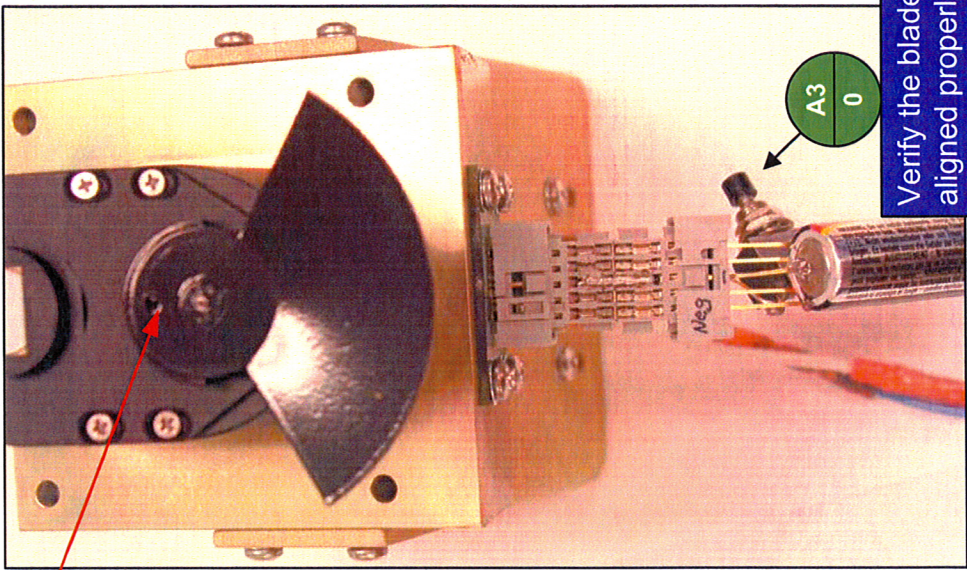
Proprietary and Confidential Information	Filename: 10000002625A.vsd	Part Number: 10000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 1080	 TSI Incorporated, St Paul MN 55126	

Ref	Qty	Part Number	Description
-----	-----	-------------	-------------

Confide



Place a piece of wax paper (the wax paper from 1503830 works good) on assembly.



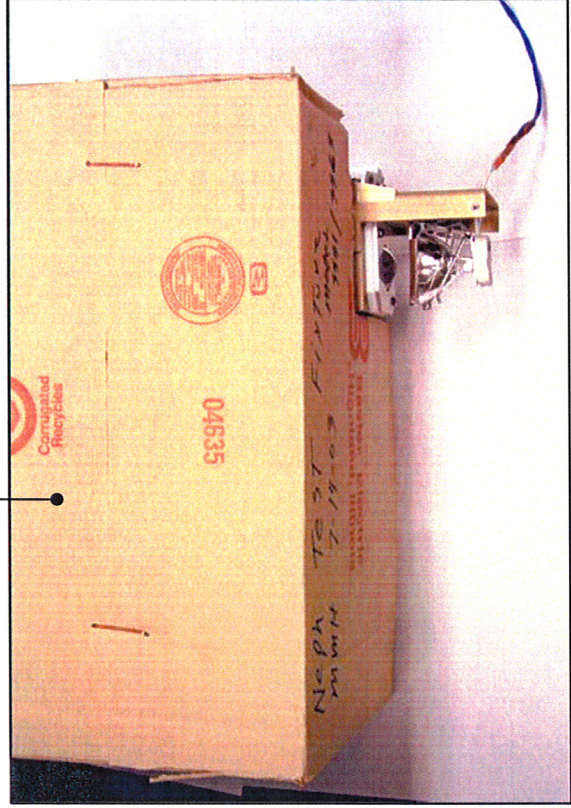
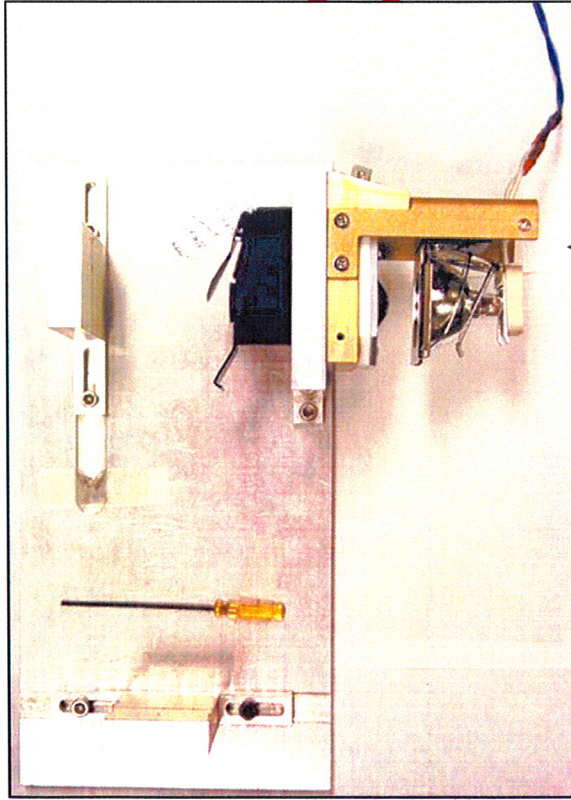
Place a piece of wax paper (the wax paper from 1503830 works good) on plate.
Holding the chopper blade in place tighten set screw with allen wrench.
Remove wax paper.

Verify the blade moves freely.
Verify there is a gap between the plate and chopper blade.

Verify the blade is aligned properly, press the switch.

Proprietary and Confidential Information	Filename: 10000002625A.vsd	Part Number: 10000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 1090	TSI Incorporated, St Paul MN 55126	

Ref	Qty	Part Number	Description
-----	-----	-------------	-------------



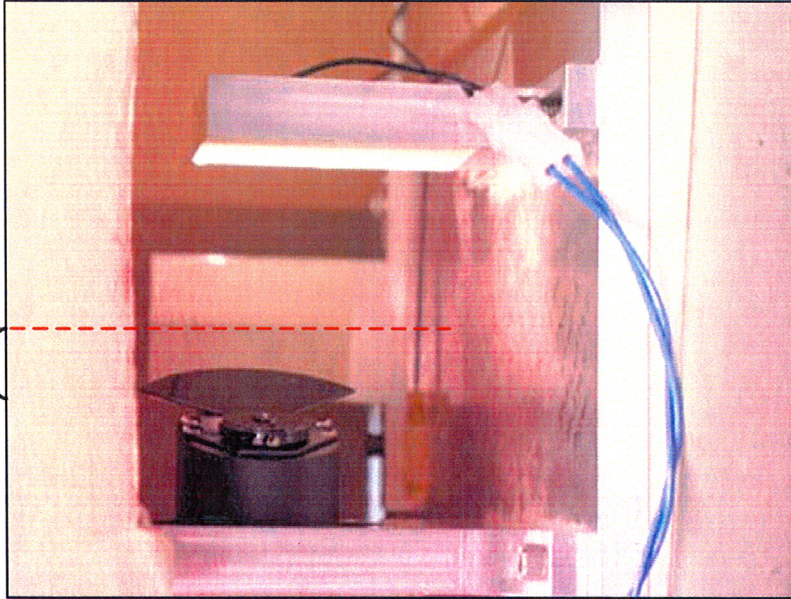
onfi

Proprietary and Confidential Information	Filename: 10000002625A.vsd	Part Number: 10000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 10100	TSI Incorporated, St Paul MN 55126	Page 10 of 12

Ref	Qty	Part Number	Description
-----	-----	-------------	-------------

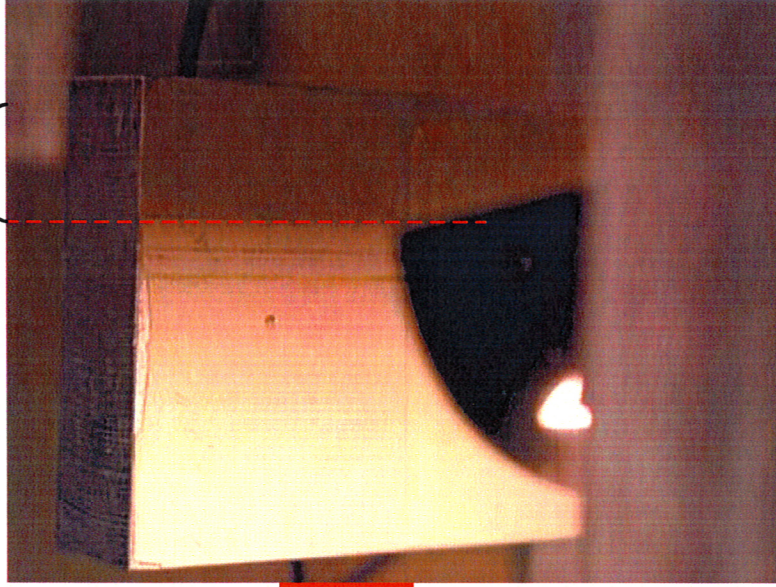
A1
0

Verify left side is dark.



A1
1

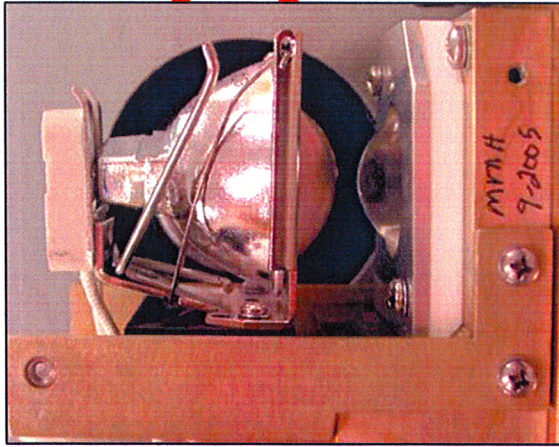
Verify right side is dark.



Confidential

Proprietary and Confidential Information	Filename: 10000002625A.vsd	Part Number: 10000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 10110	TSI TSI Incorporated, St Paul MN 55126	Page 11 of 12

Ref	Qty	Part Number	Description
-----	-----	-------------	-------------



A1
0

Mark with
Initials
Date

A2
0

Place in esd bag
and return to
assembly.

Confidential

Proprietary and Confidential Information	Filename: 10000002625A.vsd	Part Number: 10000002625	Description: Backscatter Neph 3563
Operational Method Sheet	Sequence: 10120	TSI Incorporated, St Paul MN 55126	Page 12 of 12