

# 9 x 20 Lathe DRO

*by Martin Kennedy*

April, 2012

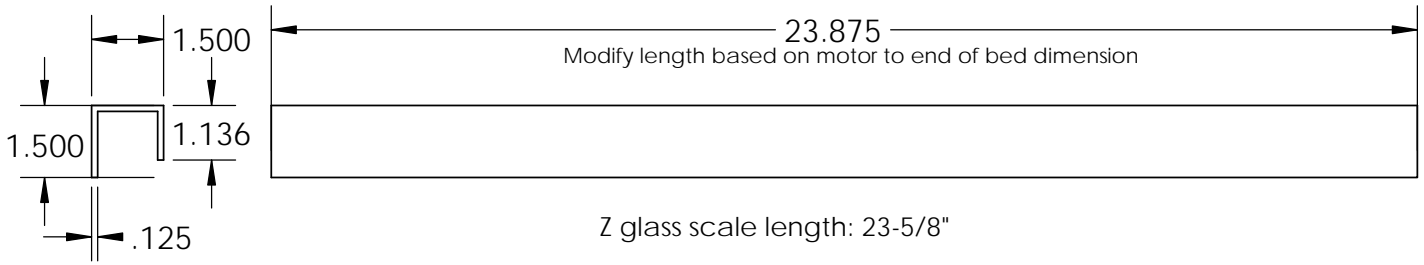
Contains some elements from  
DRO design by Dr. Alan Pinkus  
[www.micro-machine-shop.com](http://www.micro-machine-shop.com)

DR-375 electronics from ShumaTech  
[www.shumatech.com](http://www.shumatech.com)

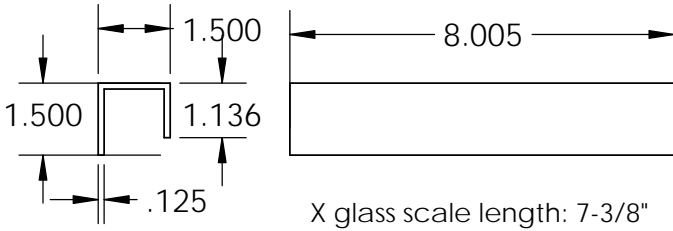
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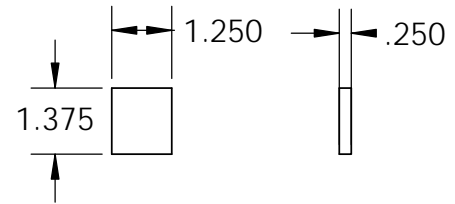
| SIZE      | FILE NAME                  | REV.         |
|-----------|----------------------------|--------------|
| A         | Lathe DRO Hardware Drawing | A            |
| SCALE 1:1 | Cover                      | SHEET 1 OF 8 |



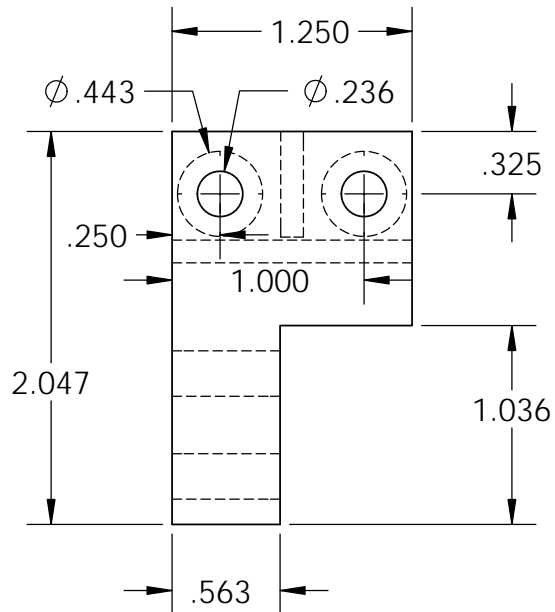
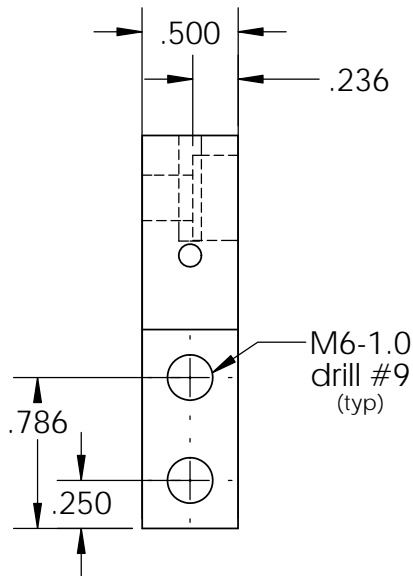
**Z Scale Cover**



**X Scale Cover**



**Scale Cover Ends**  
(3 req'd)



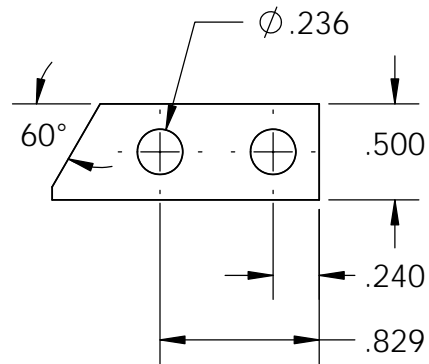
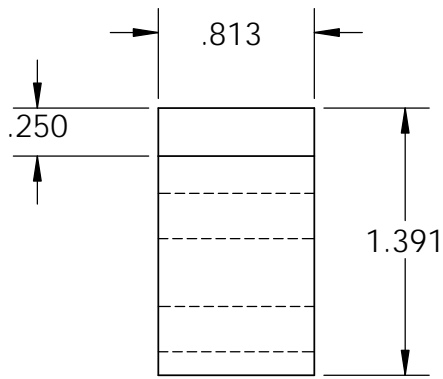
**X Scale Cover Mount**

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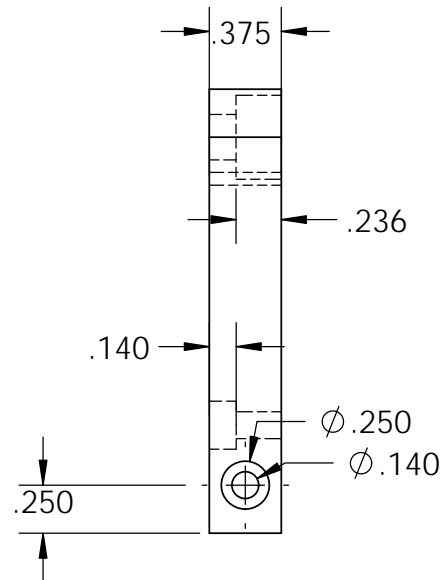
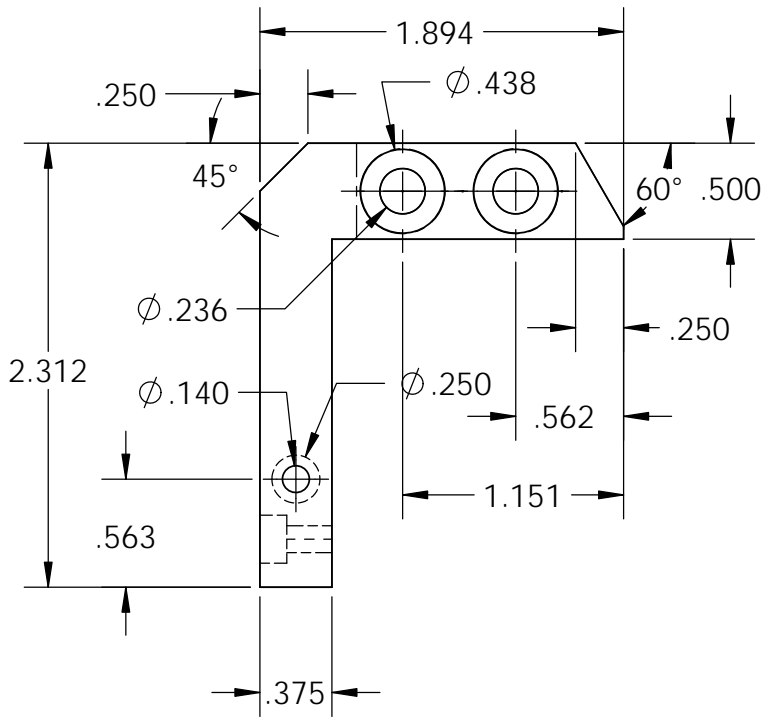
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|------------------|-----------------------------------------|--------------|
| SIZE<br><b>A</b> | FILE NAME<br>Lathe DRO Hardware Drawing | REV.<br>A    |
| SCALE 1:1        | Scales                                  | SHEET 2 OF 8 |





**X Read Head Spacer**



**X Read Head Bracket**

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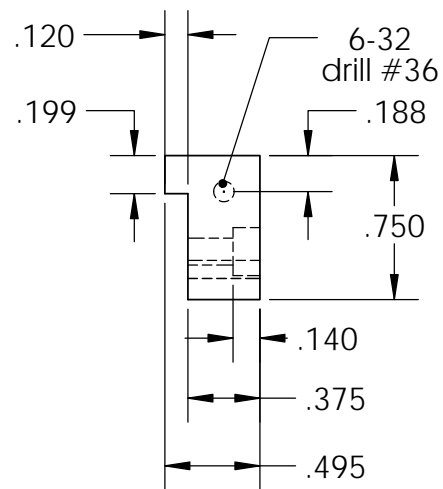
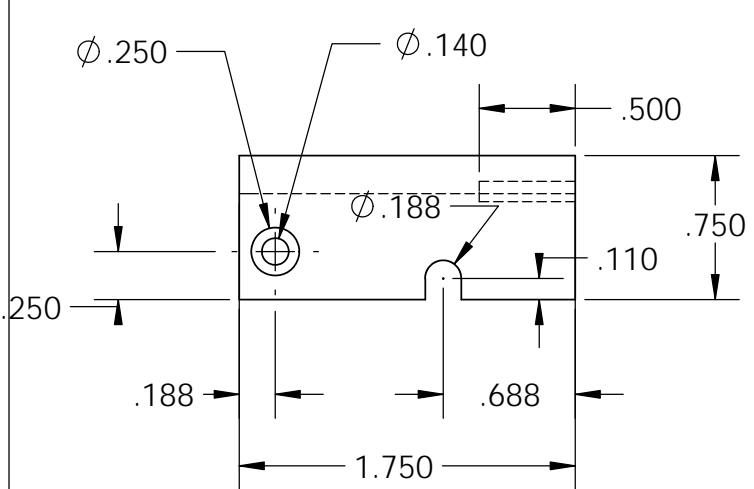
SIZE **A** FILE NAME Lathe DRO Hardware Drawing

REV. A

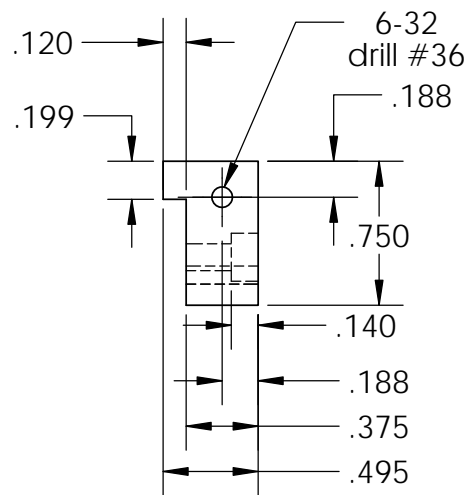
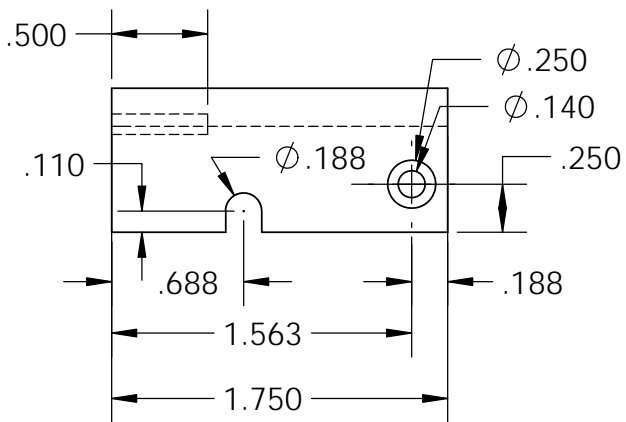
SCALE 1:1

X Head

SHEET 4 OF 8



**Z Read Head Bracket**

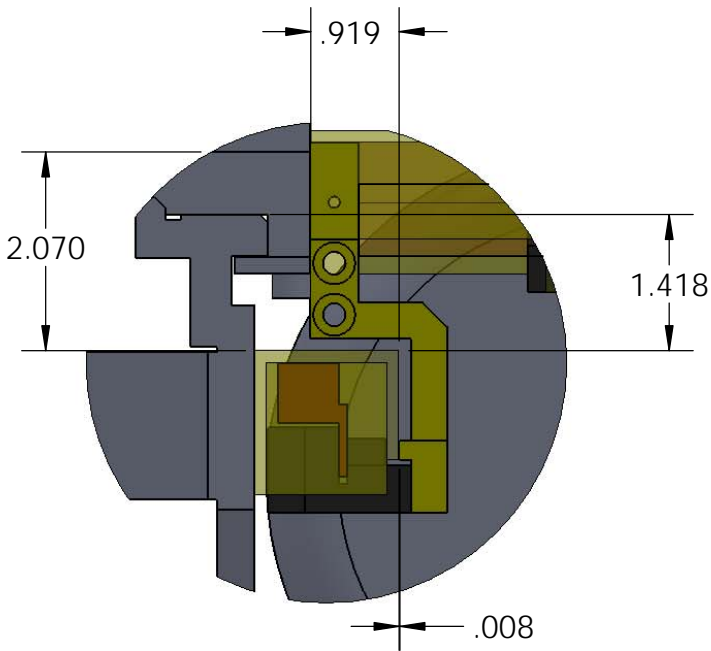
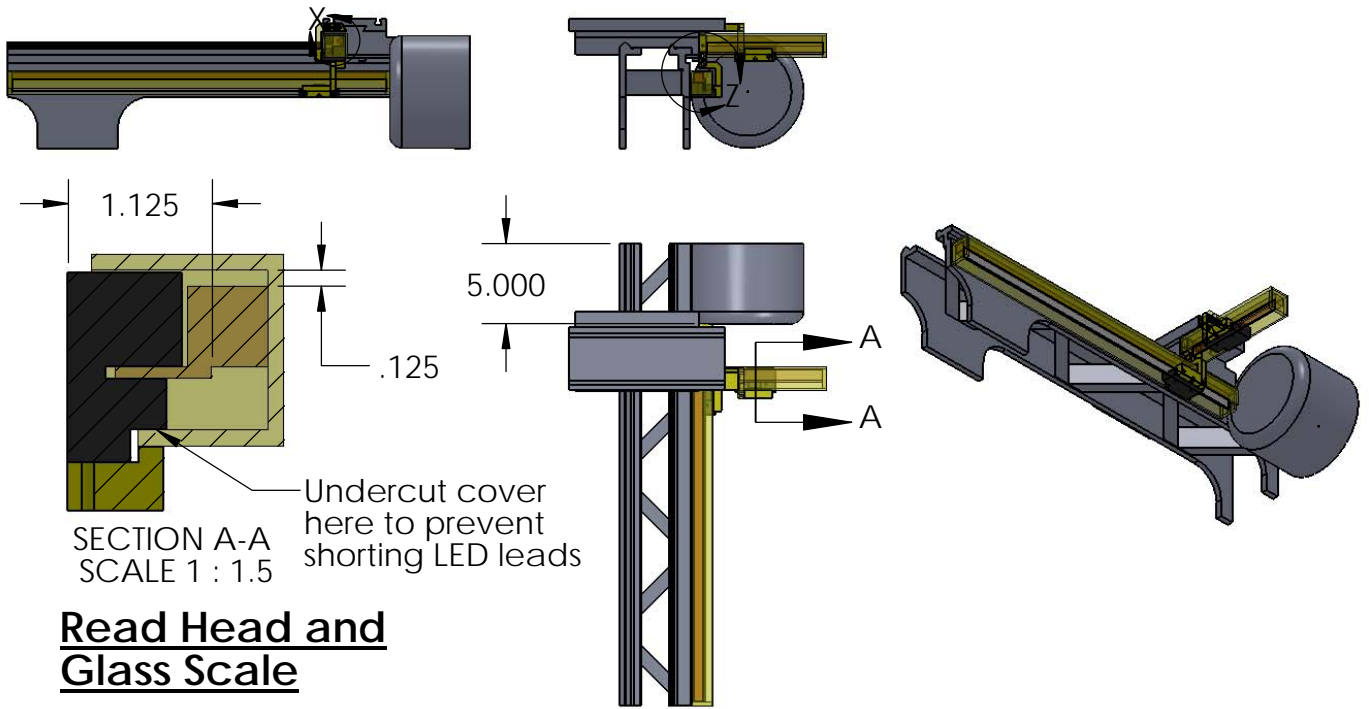


**X Read Head Bracket**

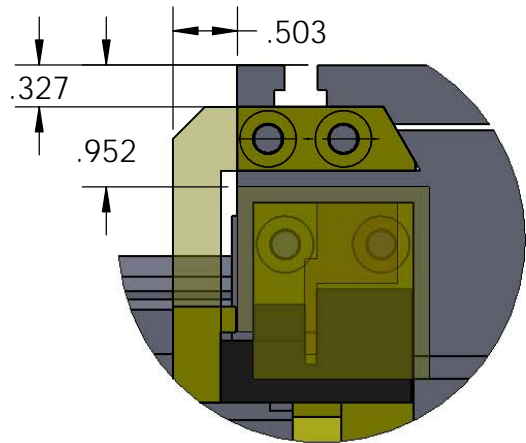
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|-----------|----------------------------|--------------|
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| A         | Lathe DRO Hardware Drawing | A            |
| SCALE 1:1 | Head                       | SHEET 5 OF 8 |



DETAIL Z  
SCALE 1 : 2



DETAIL X  
SCALE 1 : 1.5

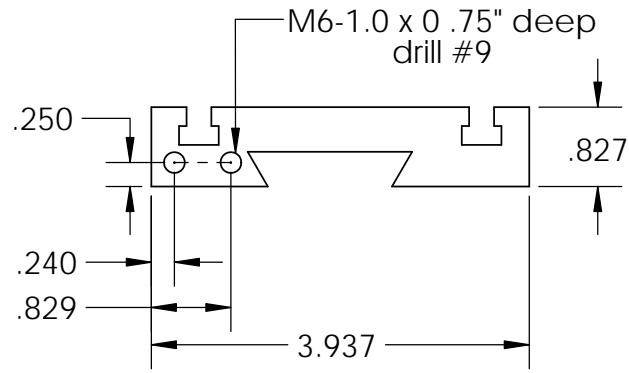
**Scale Cover Locations**

(Modify X & Z Brackets Based on As-Built Dimensions)

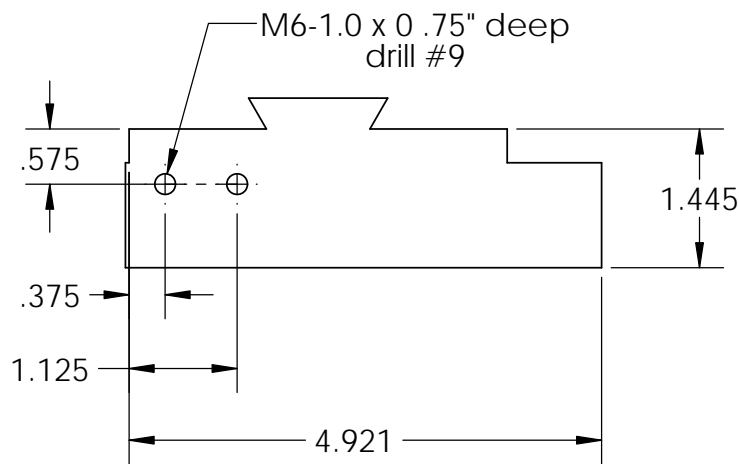
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|-----------|----------------------------|--------------|
| SIZE      | FILE NAME                  | REV.         |
| A         | Lathe DRO Hardware Drawing | A            |
| SCALE 1:1 | Assembly                   | SHEET 6 OF 8 |



**Carriage Cross Slide**



**Carriage Saddle**

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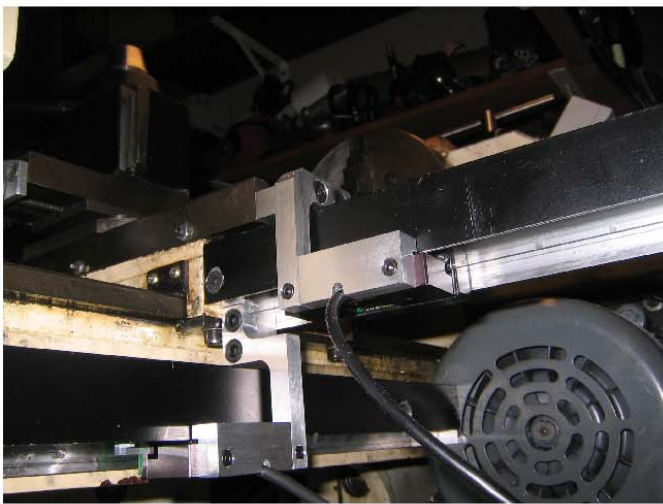
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|------------------|-----------------------------------------|--------------|
| SIZE<br><b>A</b> | FILE NAME<br>Lathe DRO Hardware Drawing | REV.<br>A    |
| SCALE 1:1        | Carriage                                | SHEET 7 OF 8 |



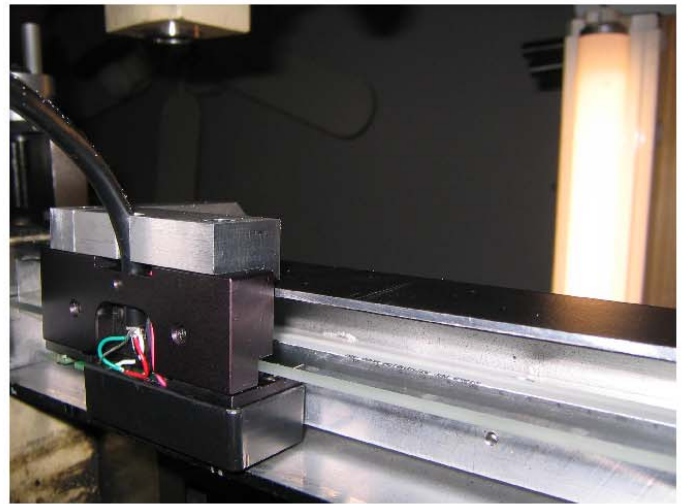
Using guide to assure hand drilled hole is perpendicular and in exactly the right place. Ended up being within 0.003"



Z axis cover just touches motor housing



DRO read heads.  
Cables are repurposed USB.



Detail of glass scale and reader under cover



Overview of DRO and VFD



View down Z axis. Hole in cover is for access to mounting screw.

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|-----------|----------------------------|--------------|
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| A         | Lathe DRO Hardware Drawing | A            |
| SCALE 1:1 | Pictures                   | SHEET 8 OF 8 |