Beckett Online Training

Series 1: The Basics of Oil Burners

Module 2: Beckett AF / AFG Burners – Head Selection, Settings, Igniters

May 6, 2020

Overview

This series will focus on the combustion cycle and set up of Beckett AF/AFG burners. Upon completion of this series you should be able to:

- List the components of a combustion cycle
- Apply and adjust a fuel unit / fuel pump
- Show how input rating changes directly with a change to pump pressure
- State the differences between an AF and AFG burner
- Set the electrodes and head positions using the Beckett T-501 and Z-2000 gauges
- Set the Z dimensions for:
  - F heads
  - M air tubes
- Benefits of solid-state igniters
- Understand operation and sizing of draft regulators
- Understand nozzle types
- Learn impact of oil temperature on operation
- Commission a burner using the 4-step combustion efficiency test

AF/AFG

AF BURNER

AFG BURNER

Both are rated from **0.40 to 3.00 GPH**

or **56,000 to 420,000 BTU/Hr** input

AF/AFG

AF BURNER	AFG BURNER
	
AF fan & air inlet bell	AFG fan & air guide

vs

Here's the difference!

It's all in how the static pressure is produced.

F0 .40 TO .75 F3 .75 TO 1.25 F4 .85 TO 1.35 F6 .85 TO 1.65

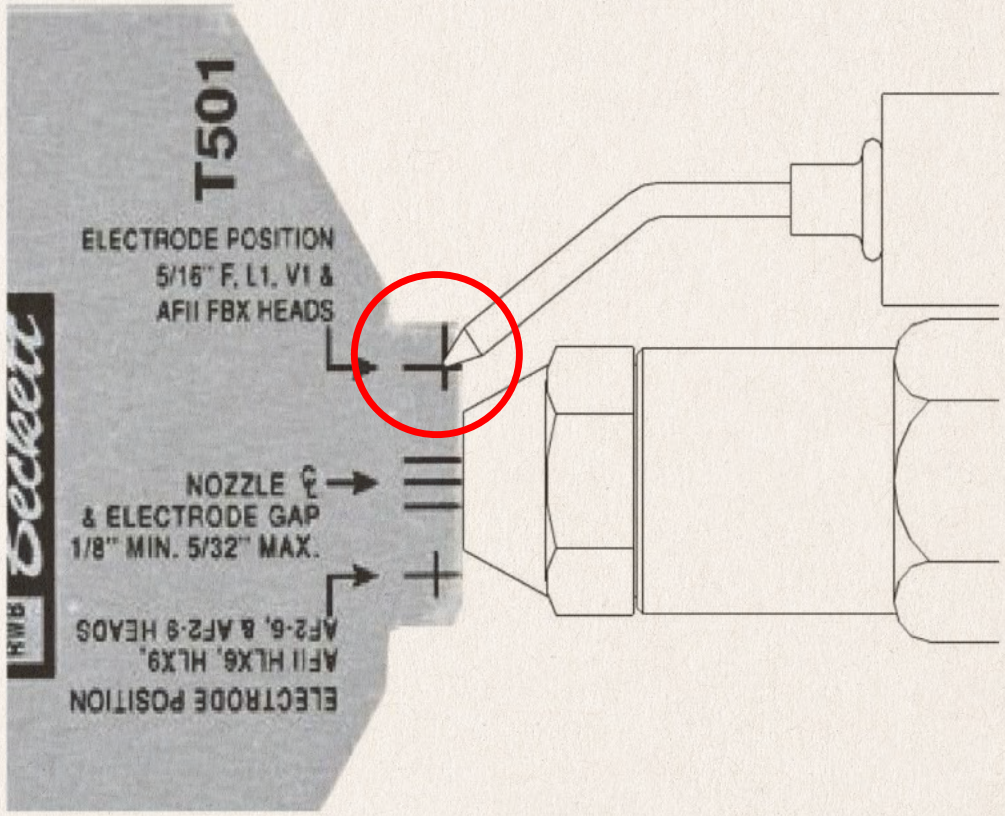
F12 1.10 TO 2.0 F16 1.25 TO 2.25 F22 1.65 TO 2.50 F31 2.50 TO 3.0

RATED IN GPH NOT NOZZLE SIZE

F-Series Retention Heads

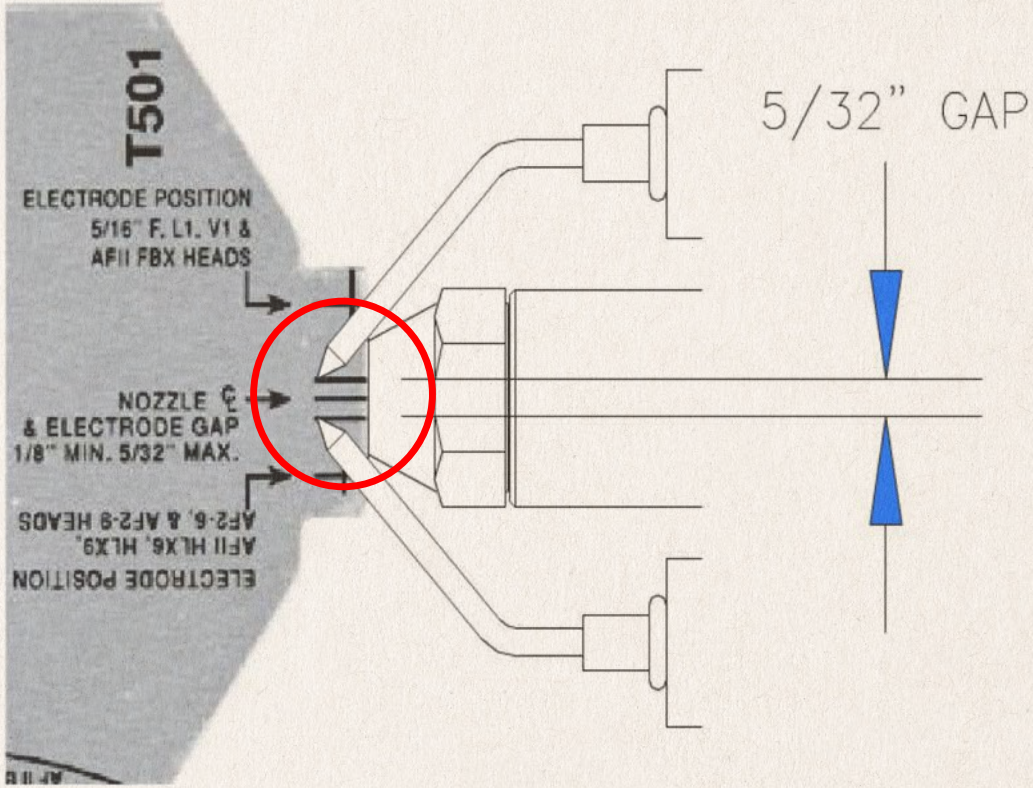
Beckett®

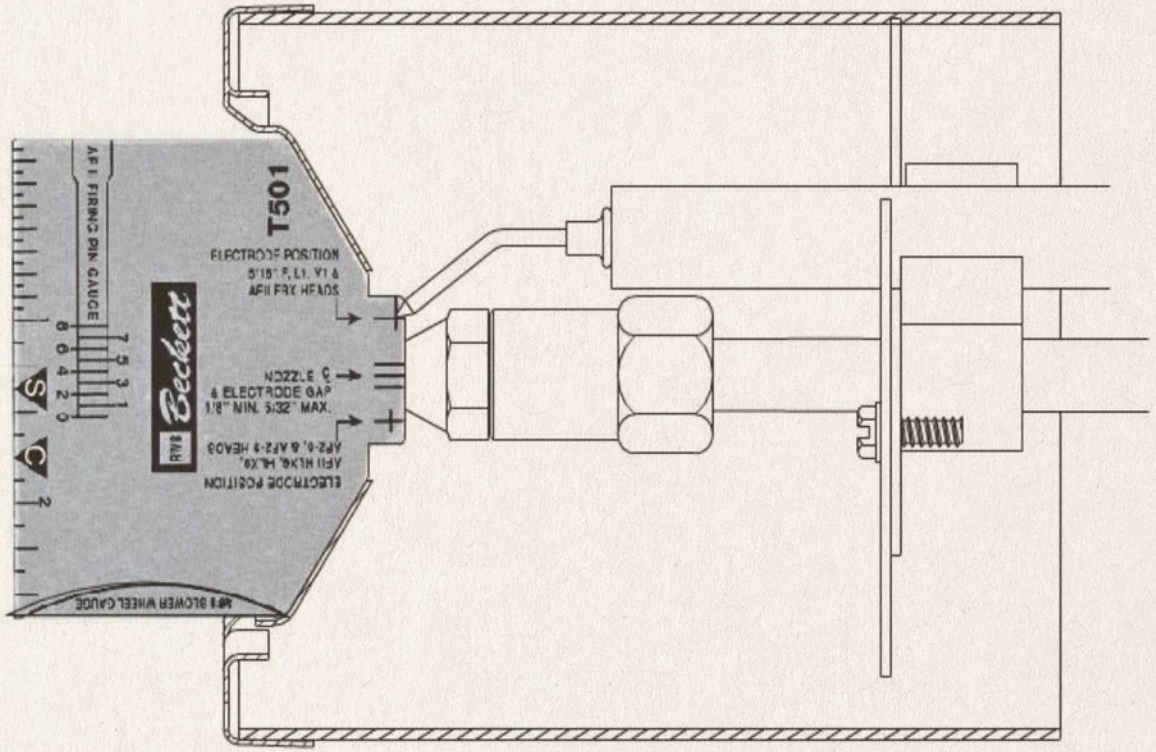
Gauges



Gauges

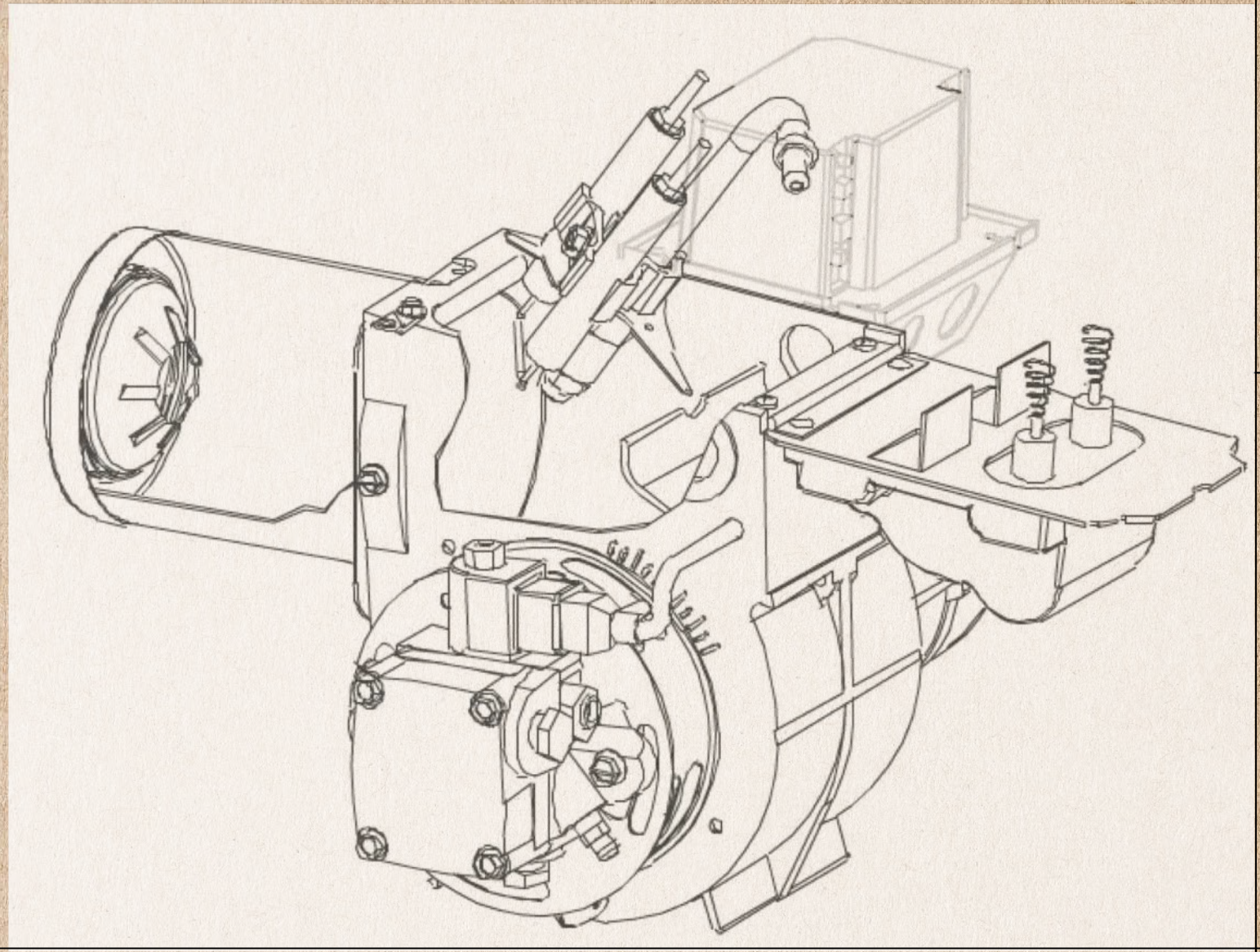
Gauges



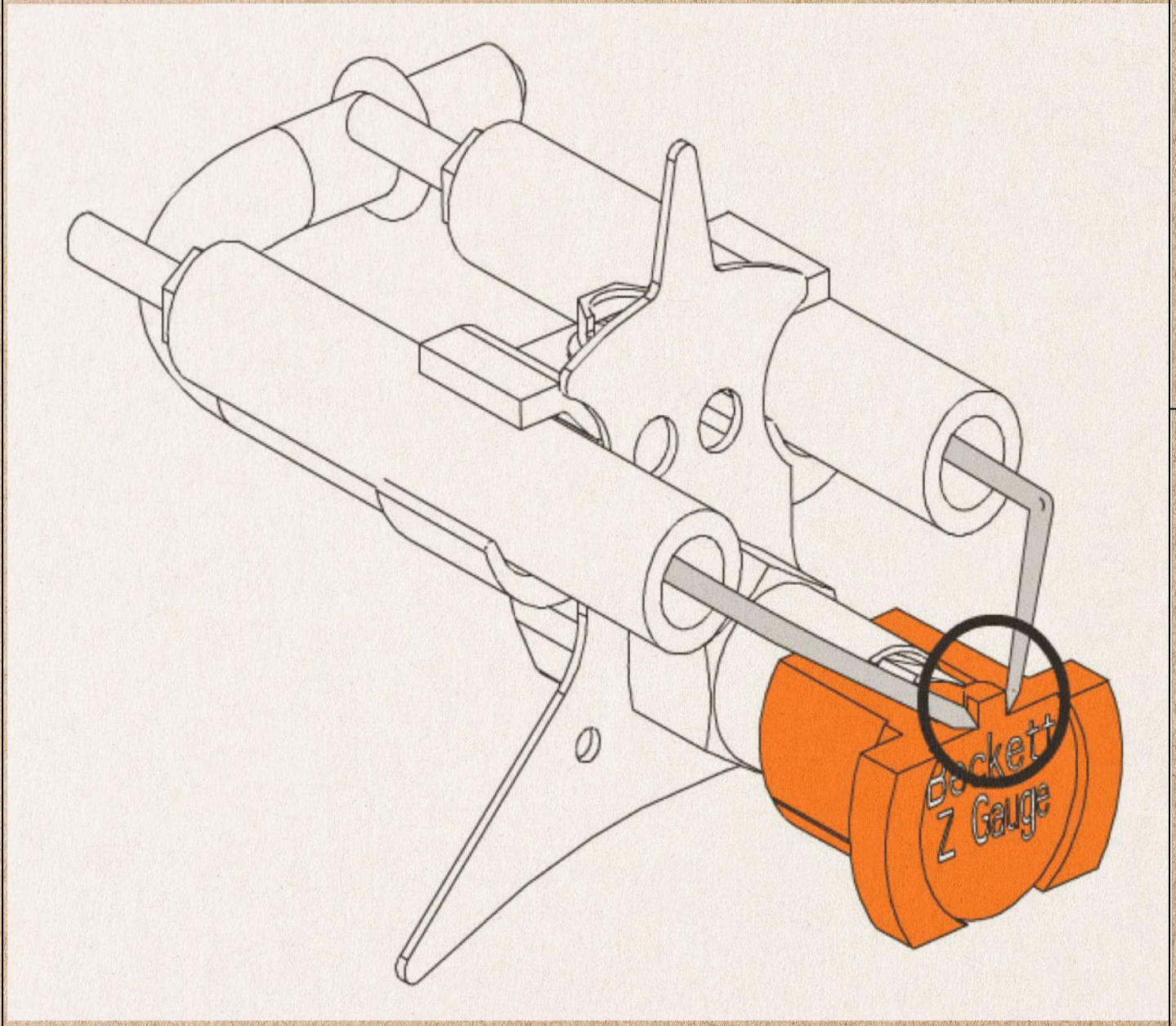


Gauges

Gauges



Gauges



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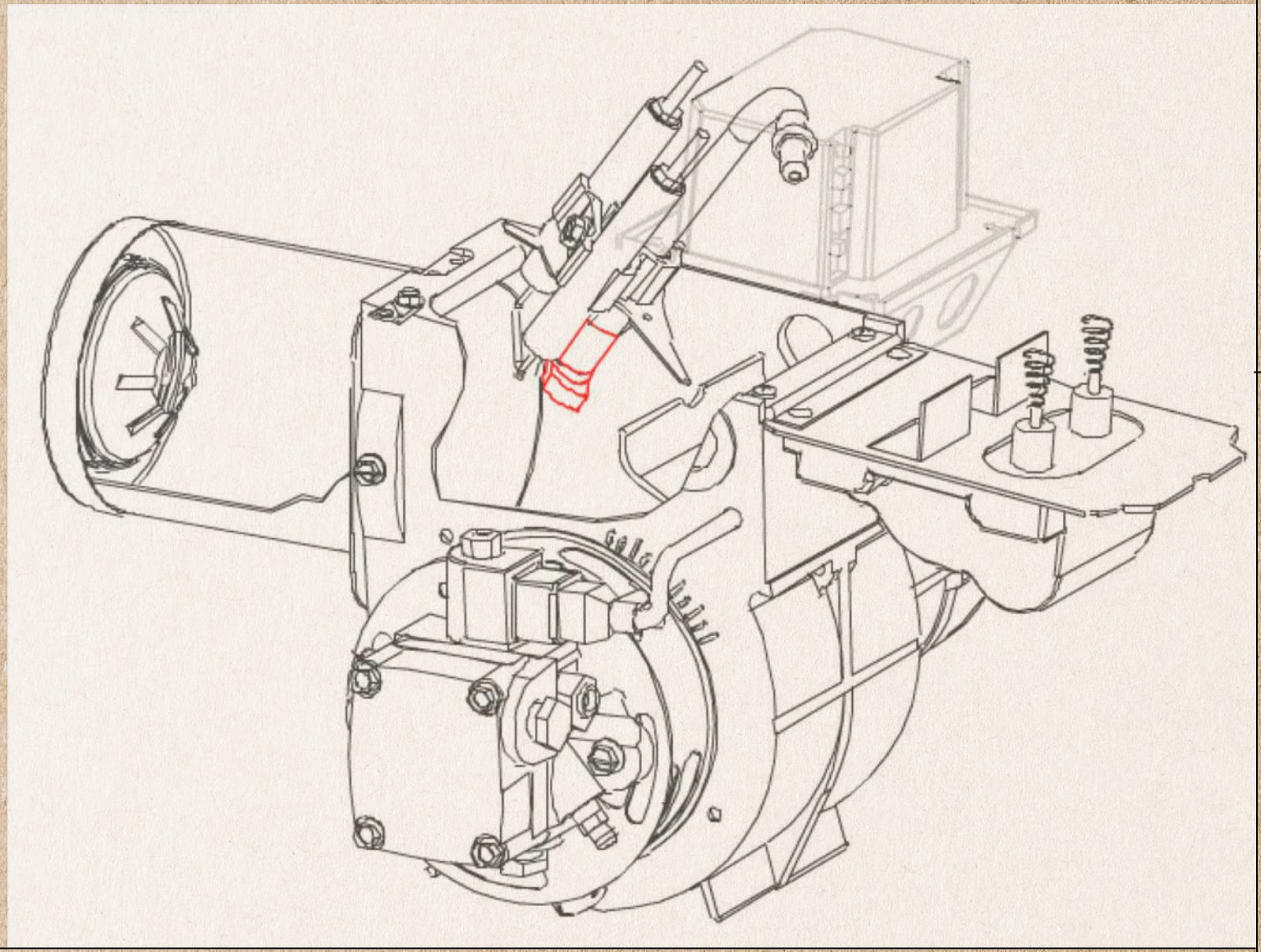

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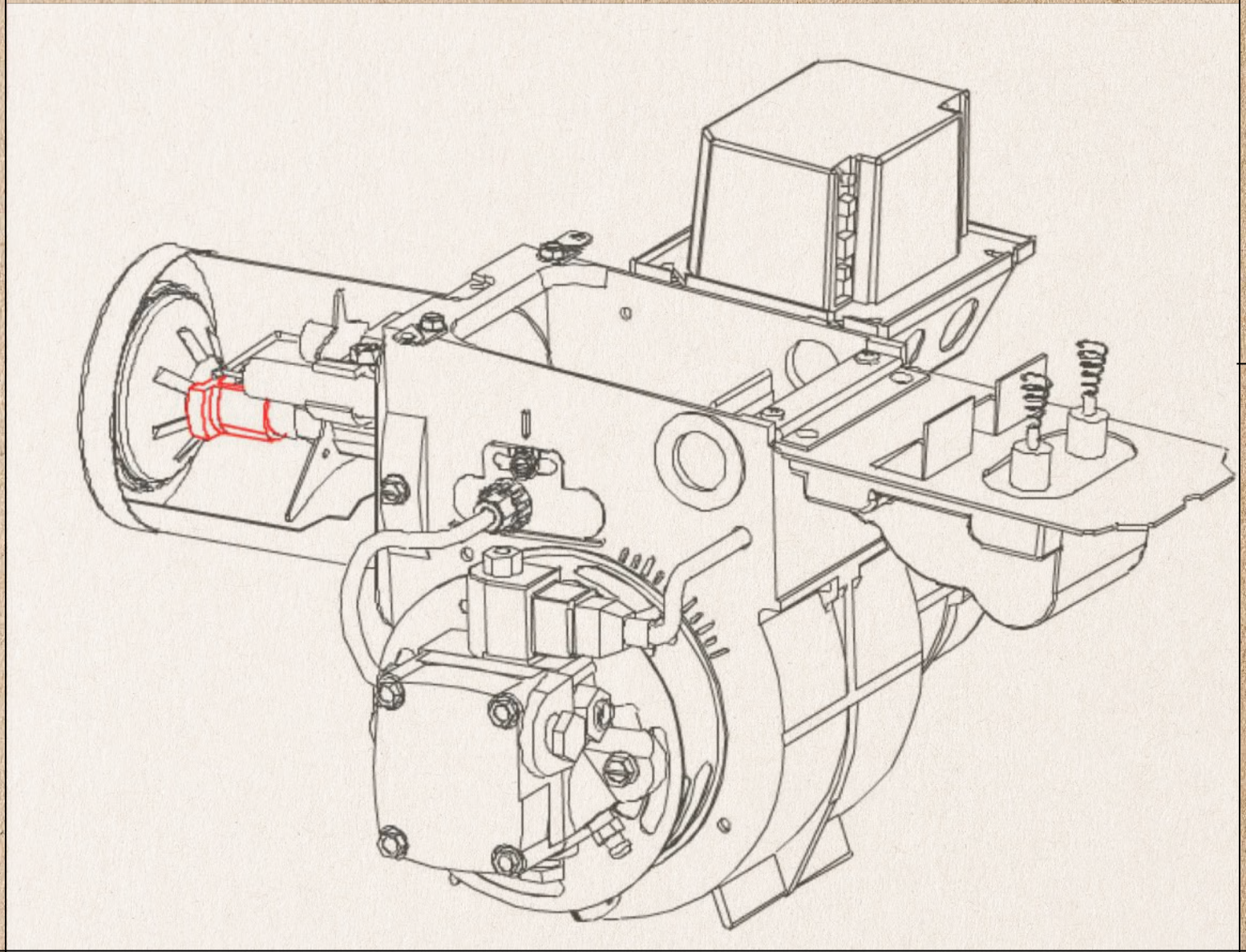

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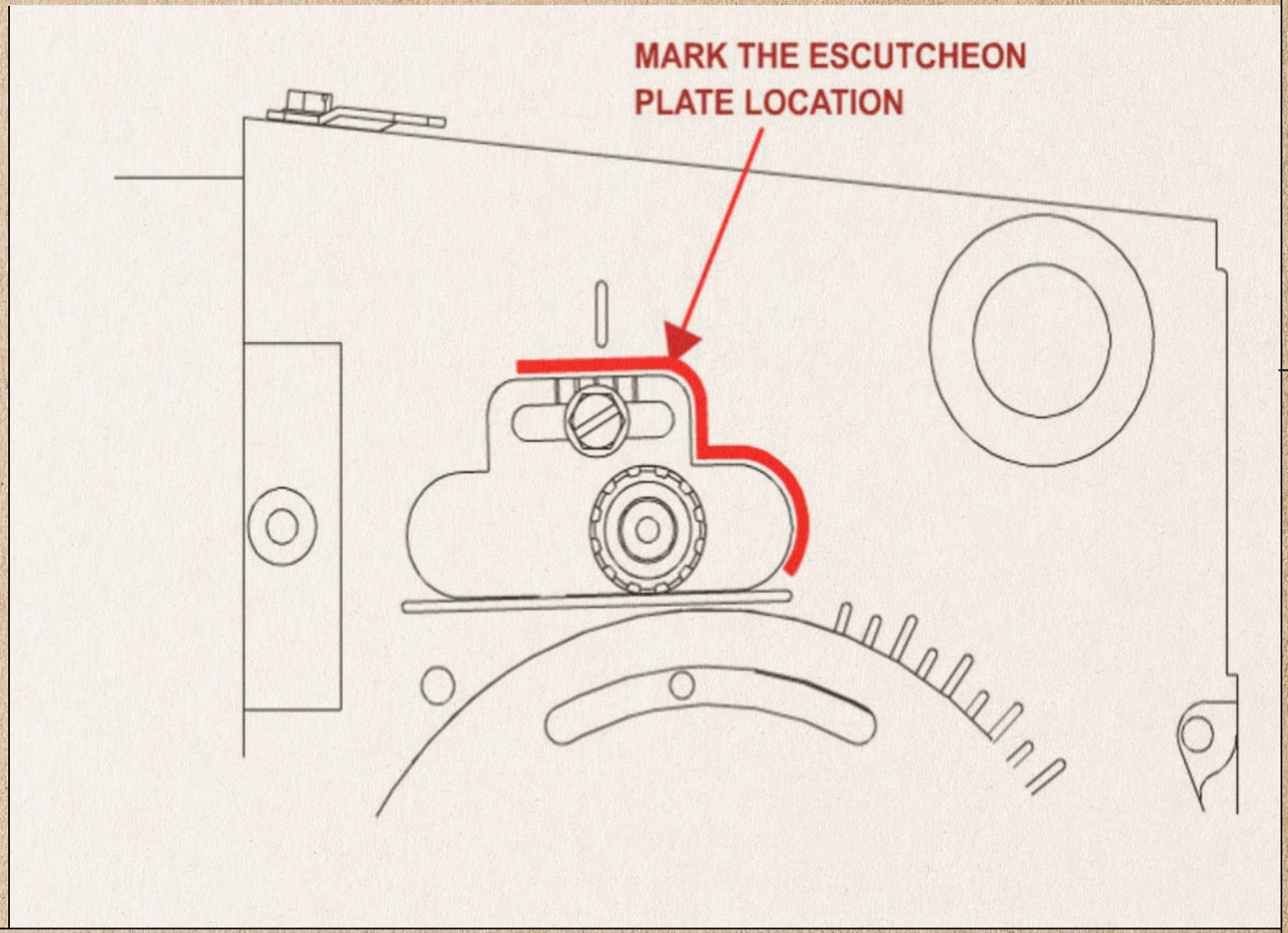

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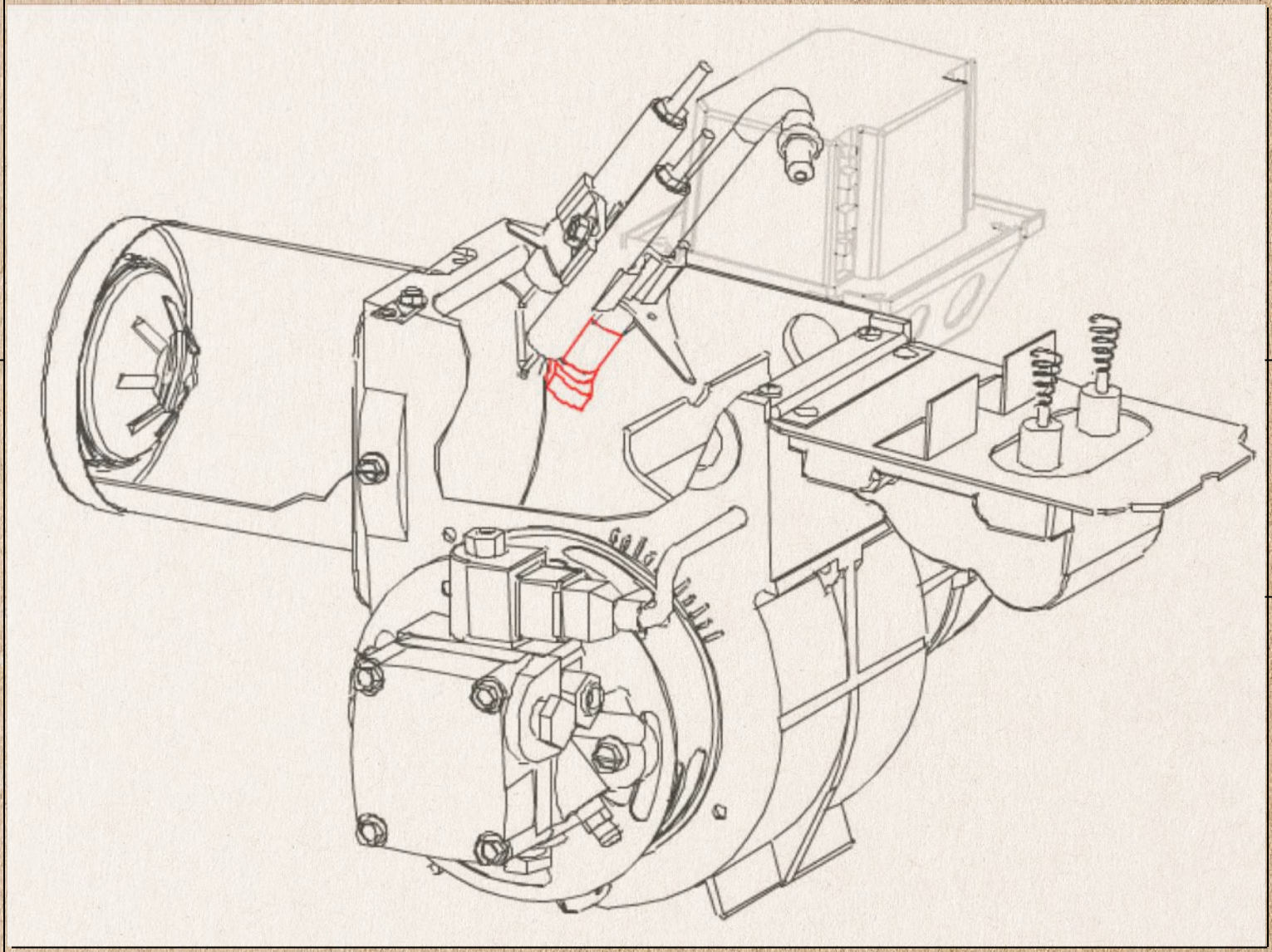
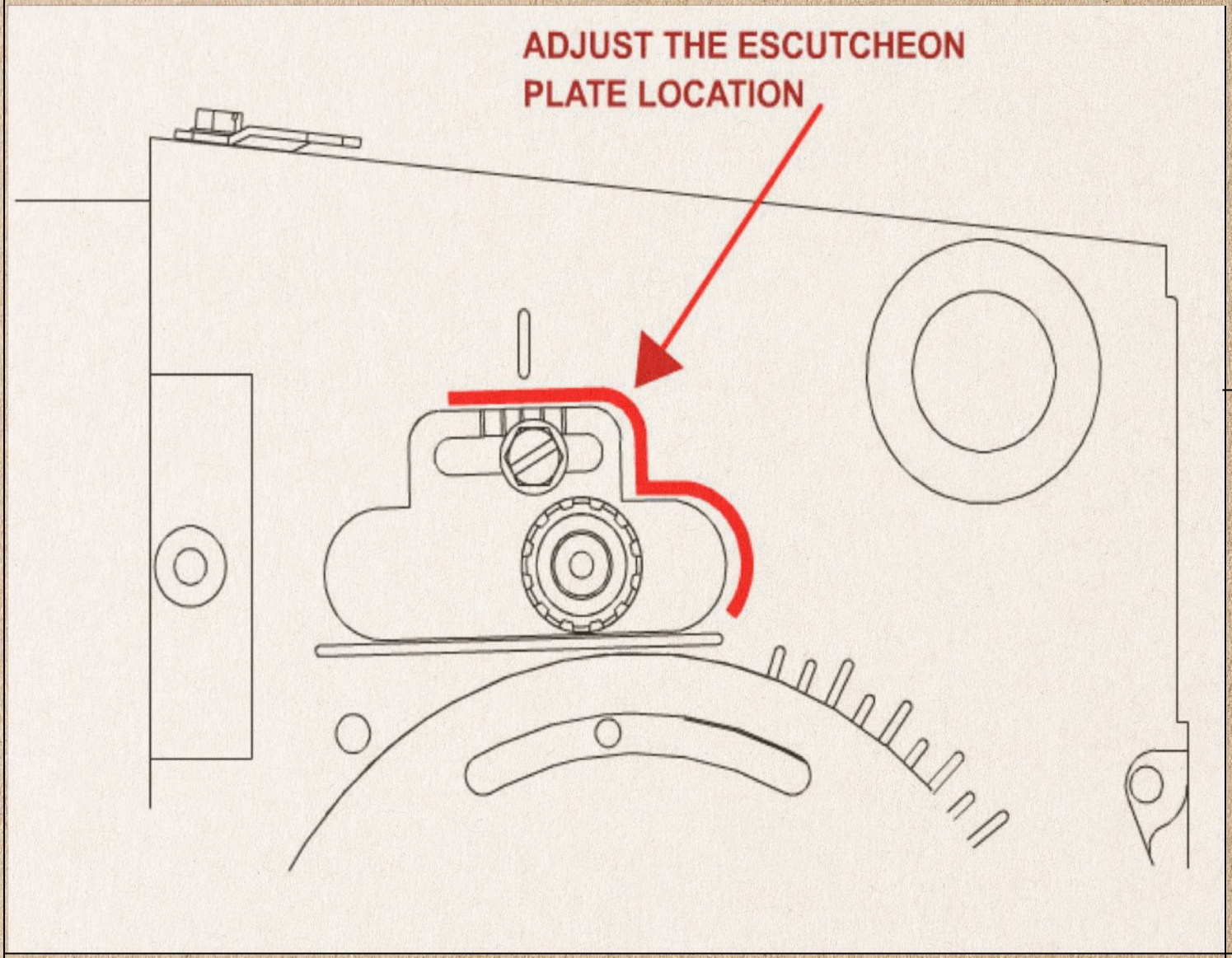


Gauges

- Remove the NLEA and gauge and reinstall the NLEA

Gauges

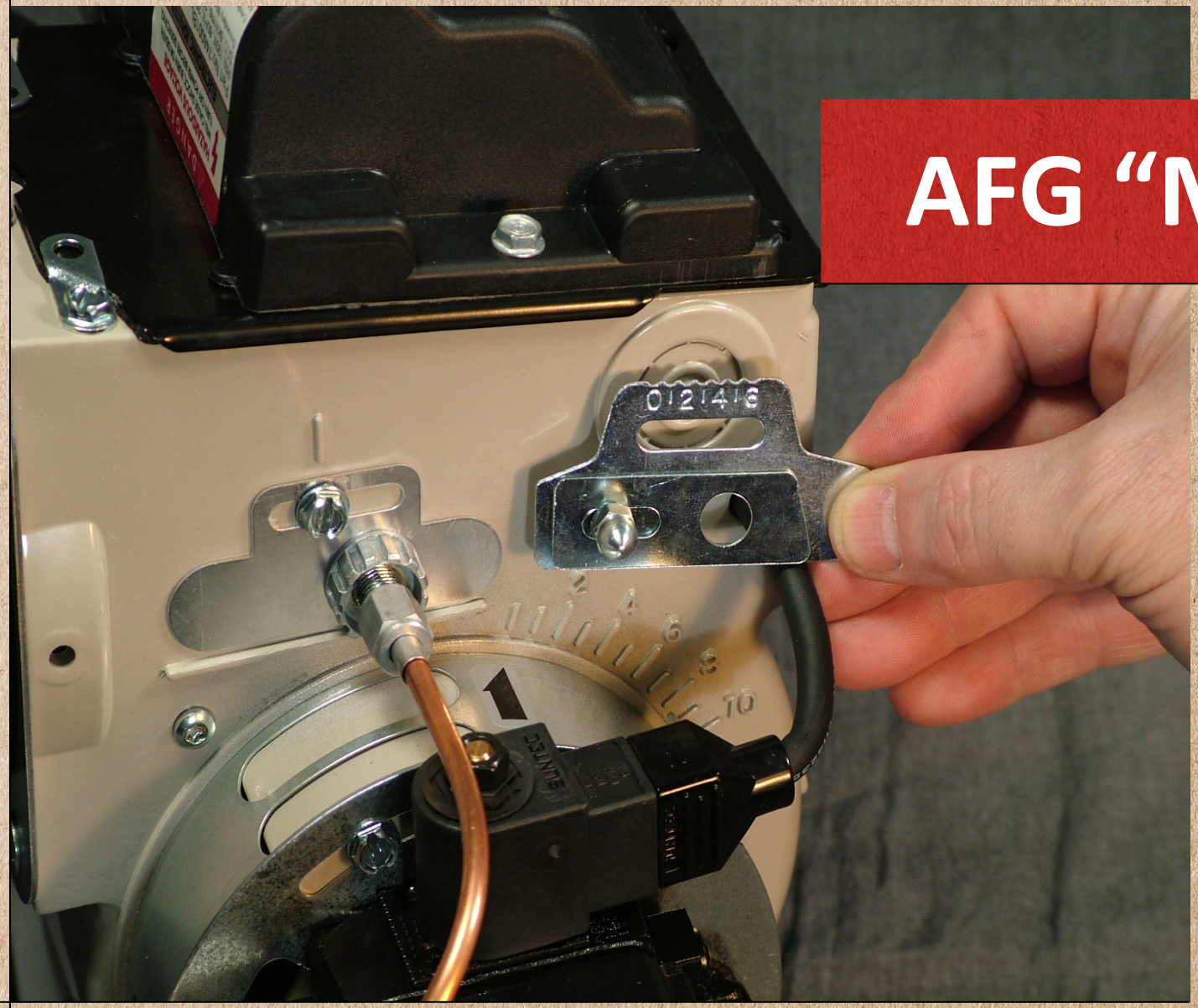


AFG “M” Series Airtubes

V1 .75 TO 2.75

L1 .40 TO 1.10

AFG “M” Series Airtubes



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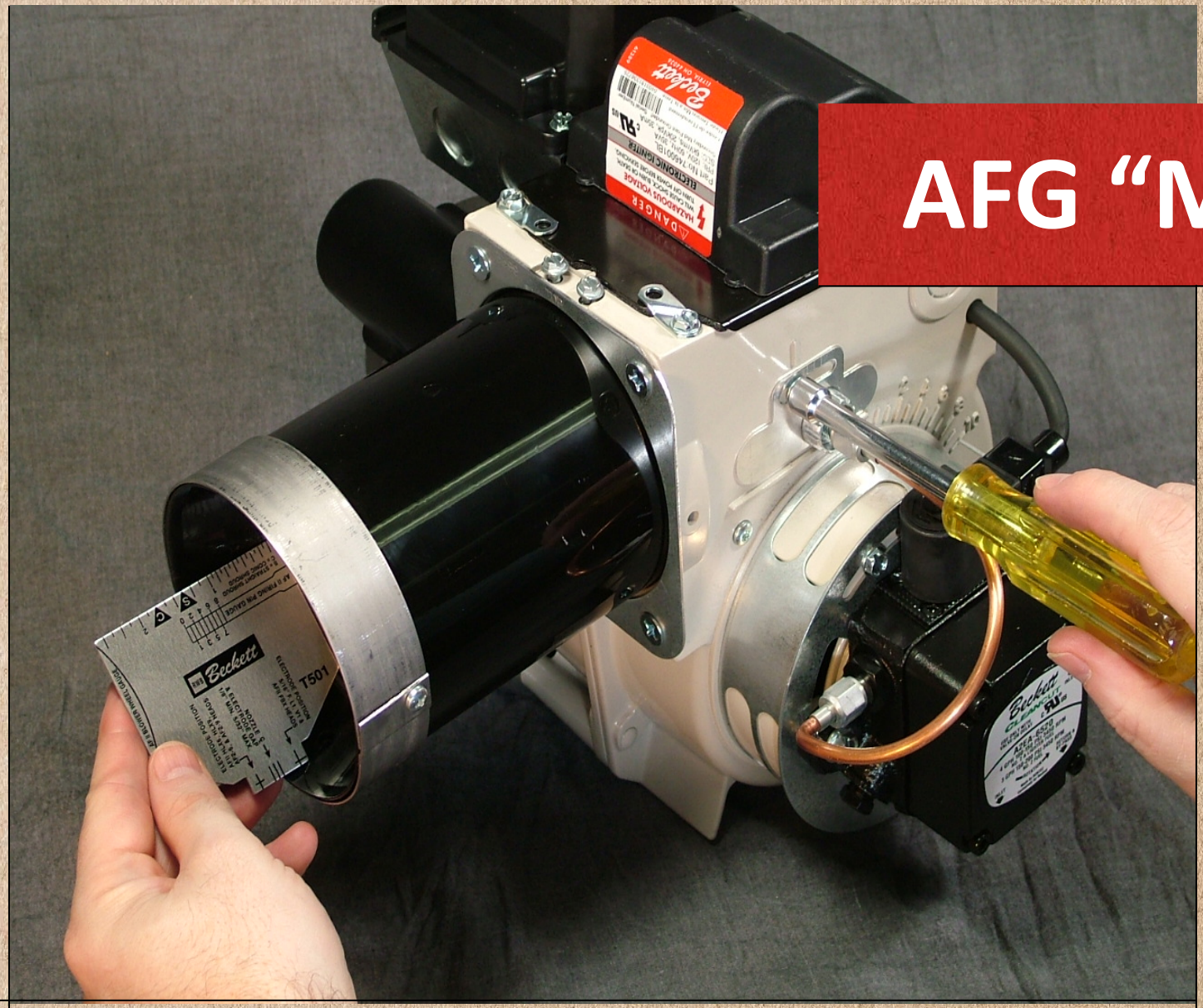

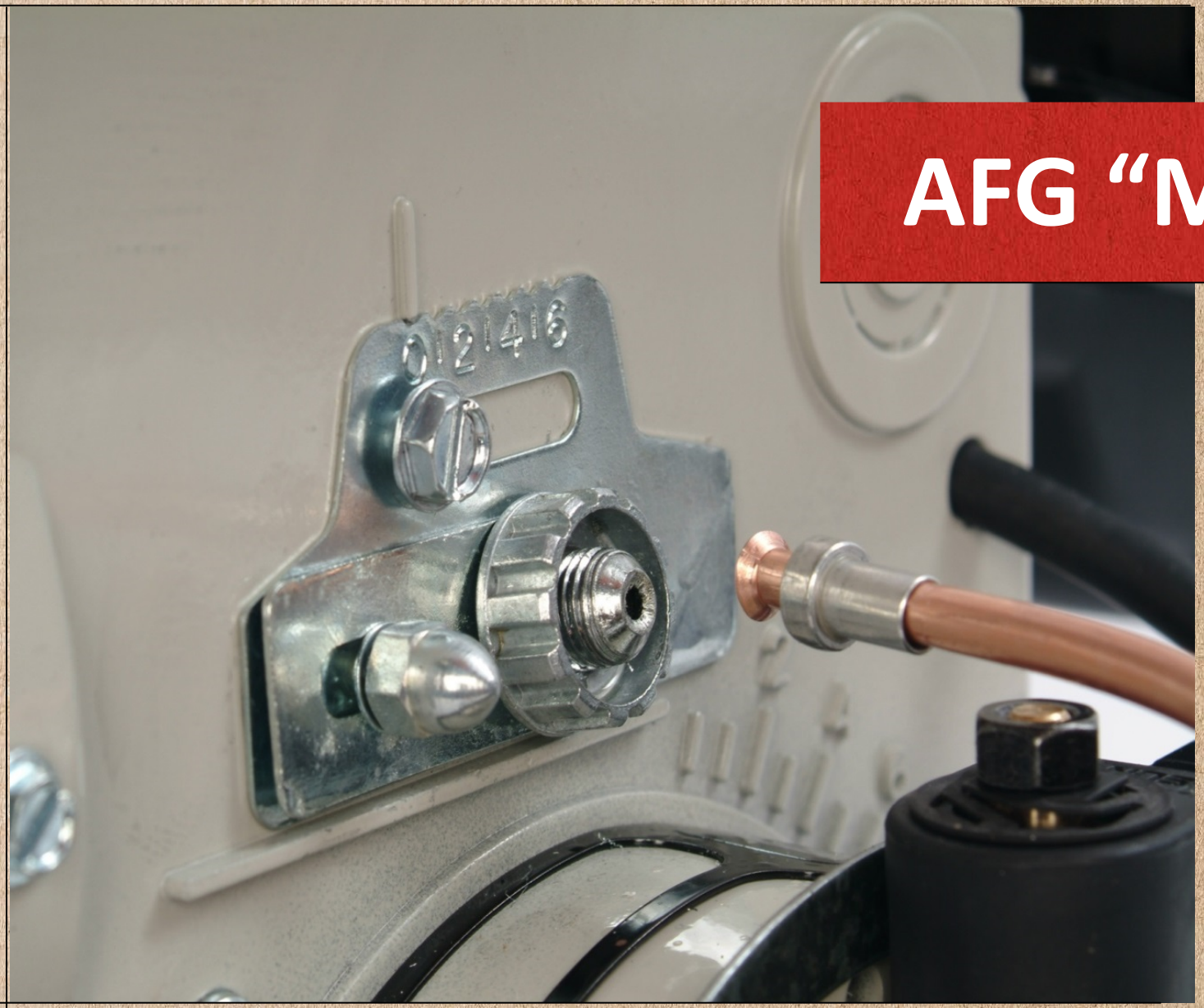

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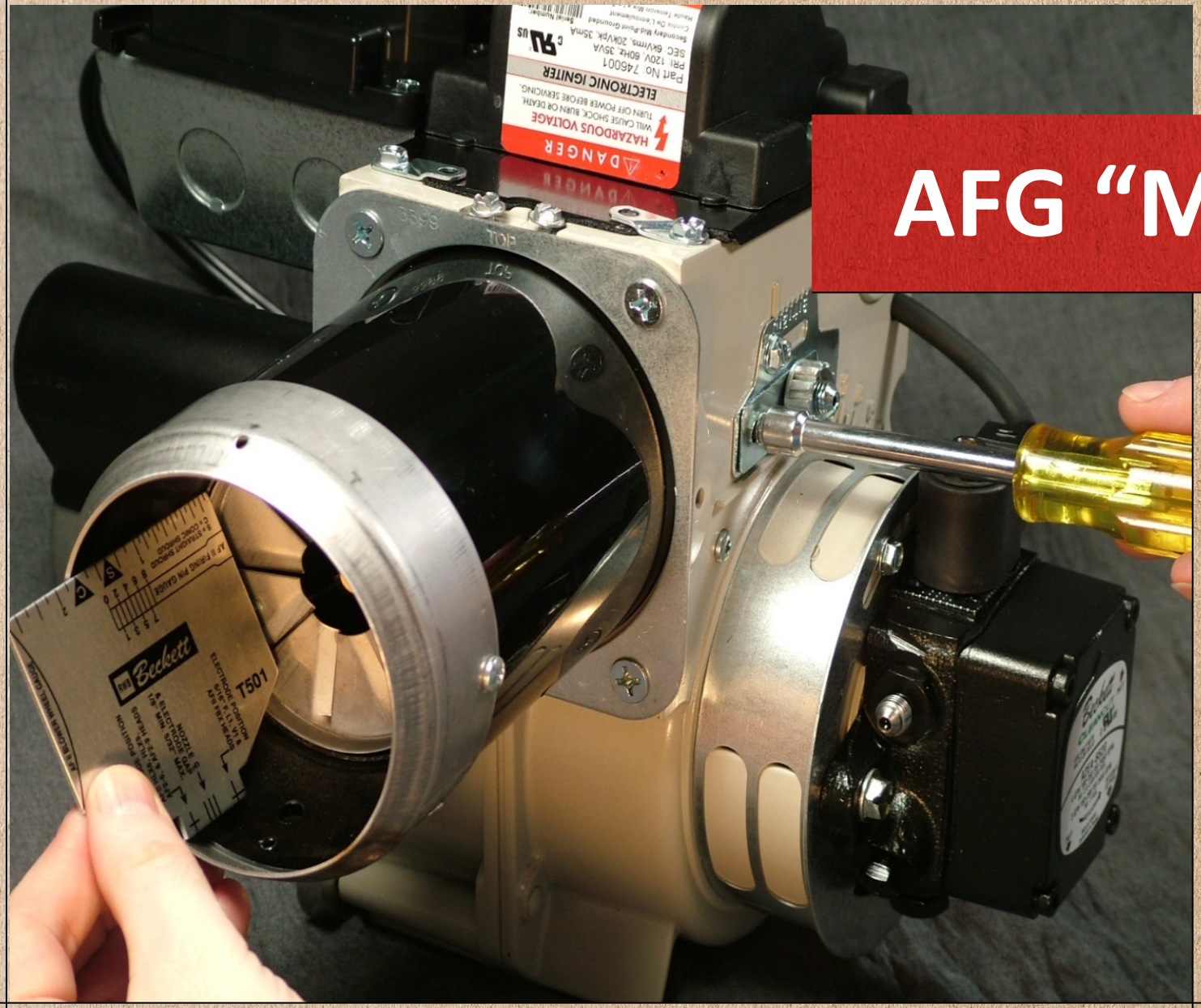

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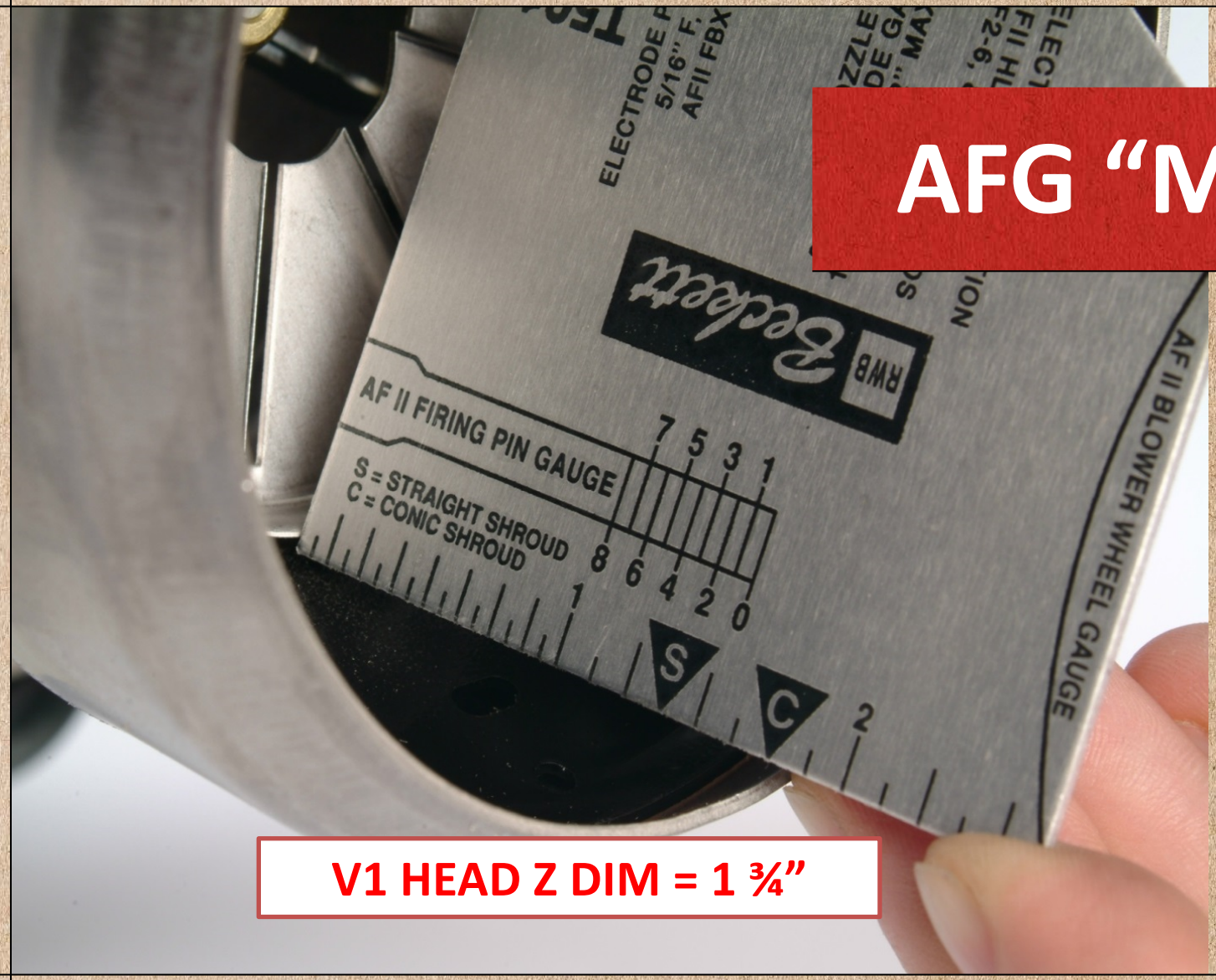
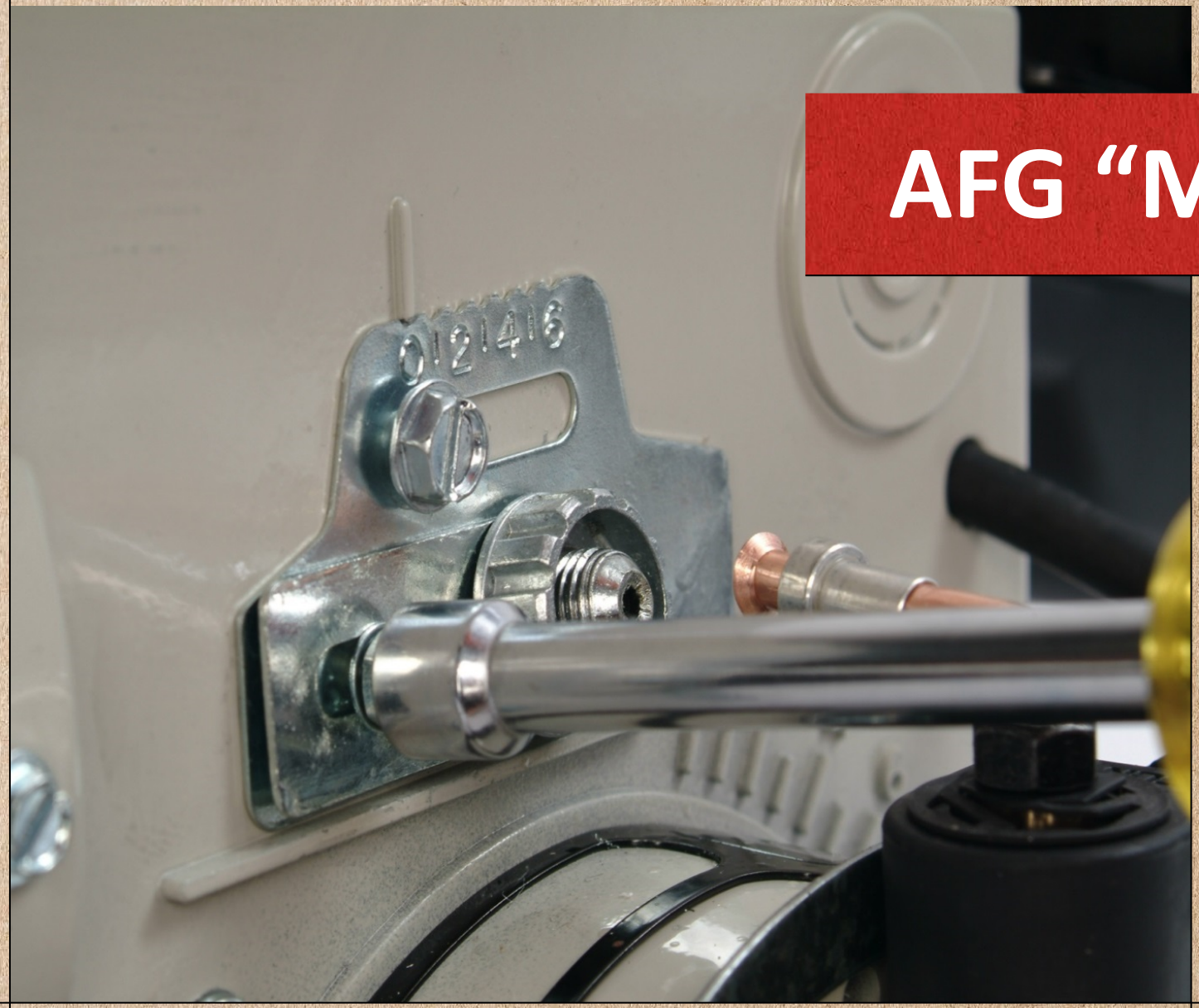
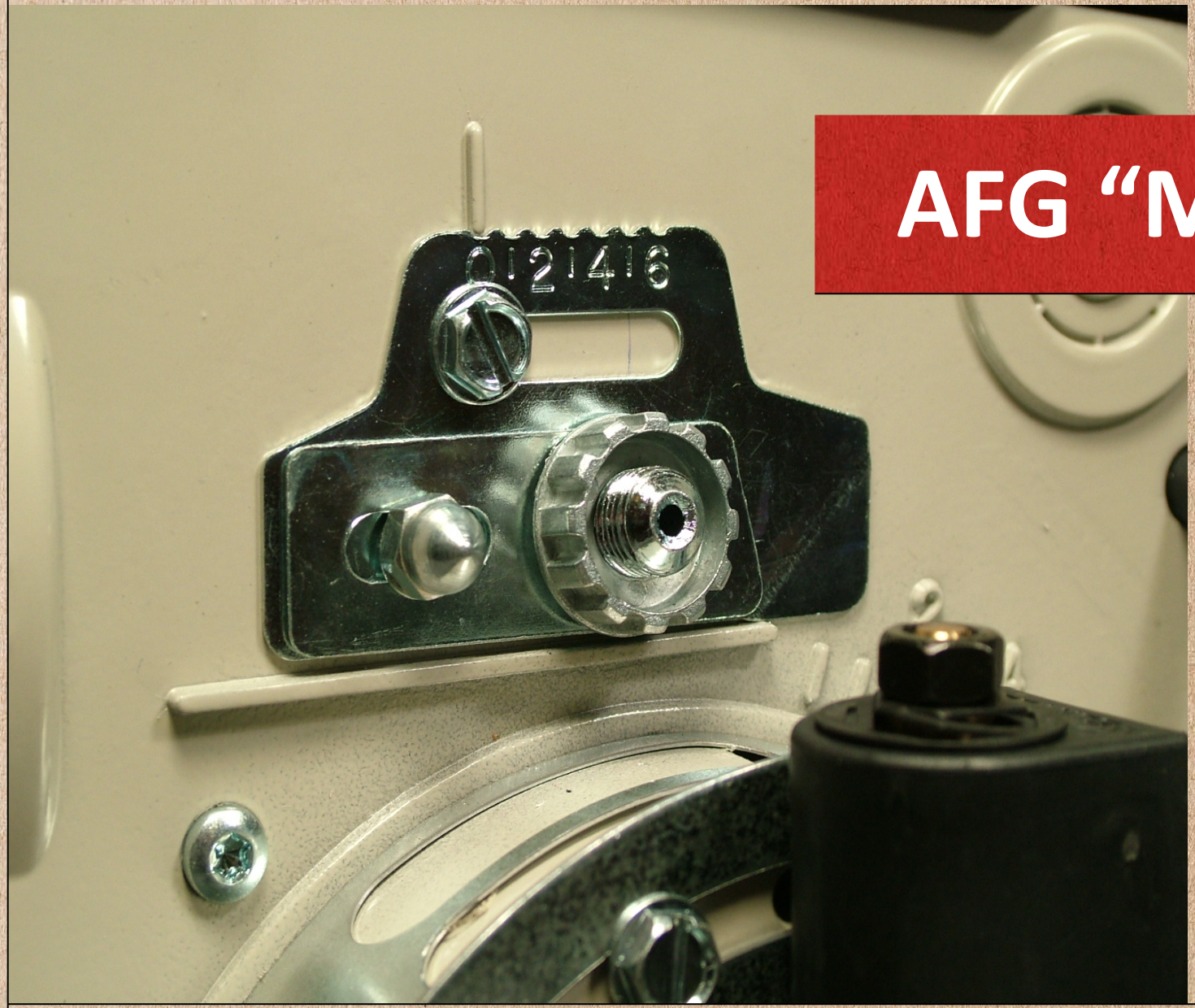


V1 HEAD Z DIM = 1 ¾”

AFG “M” Series Airtubes





AFG “M” Series Airtubes

AFG “M” Series Airtubes

V1 HEAD ASSEMBLY ADJUSTABLE PLATE SETTING CHART		
Firing Rate (GPH)		Adjustment Plate Setting
From	To	
0.75	1.0	0
1.0	1.50	1
1.50	1.75	2
1.75	2.0	3
2.0	2.25	4
2.25	2.50	5
2.50	2.75	6

AFG “M” Series Airtubes

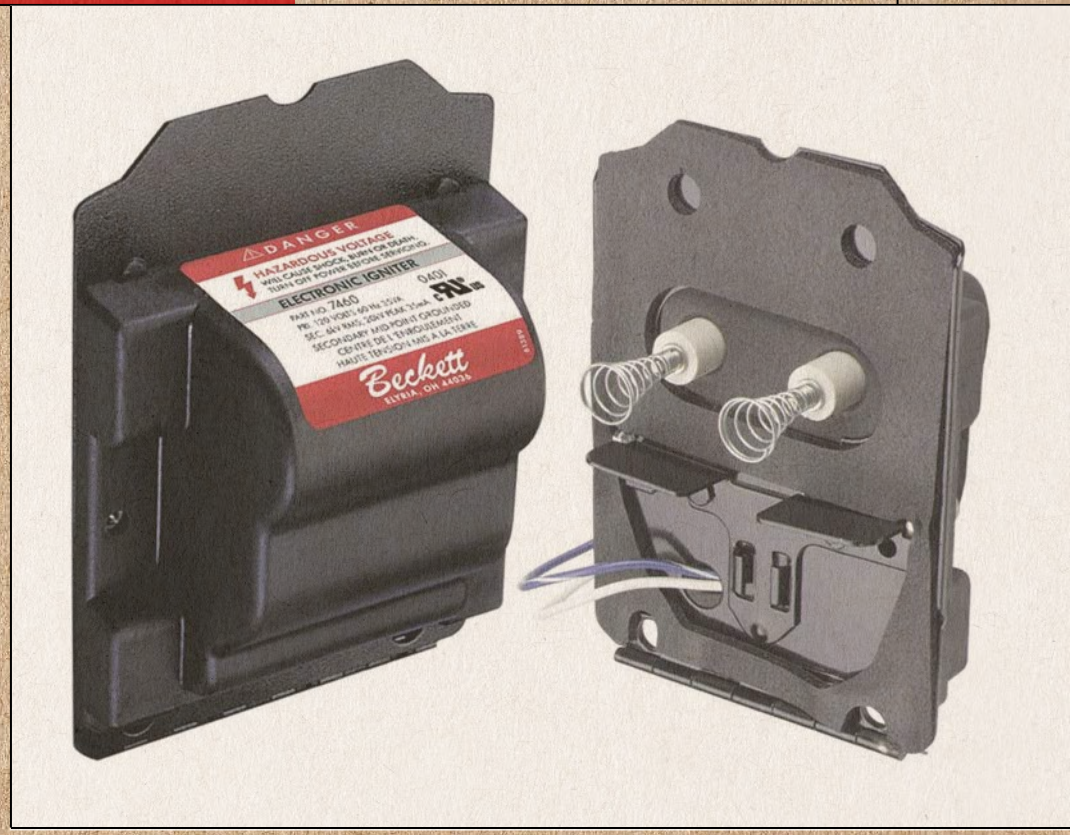
Beckett

AFG “M” Series Airtubes

Igniters

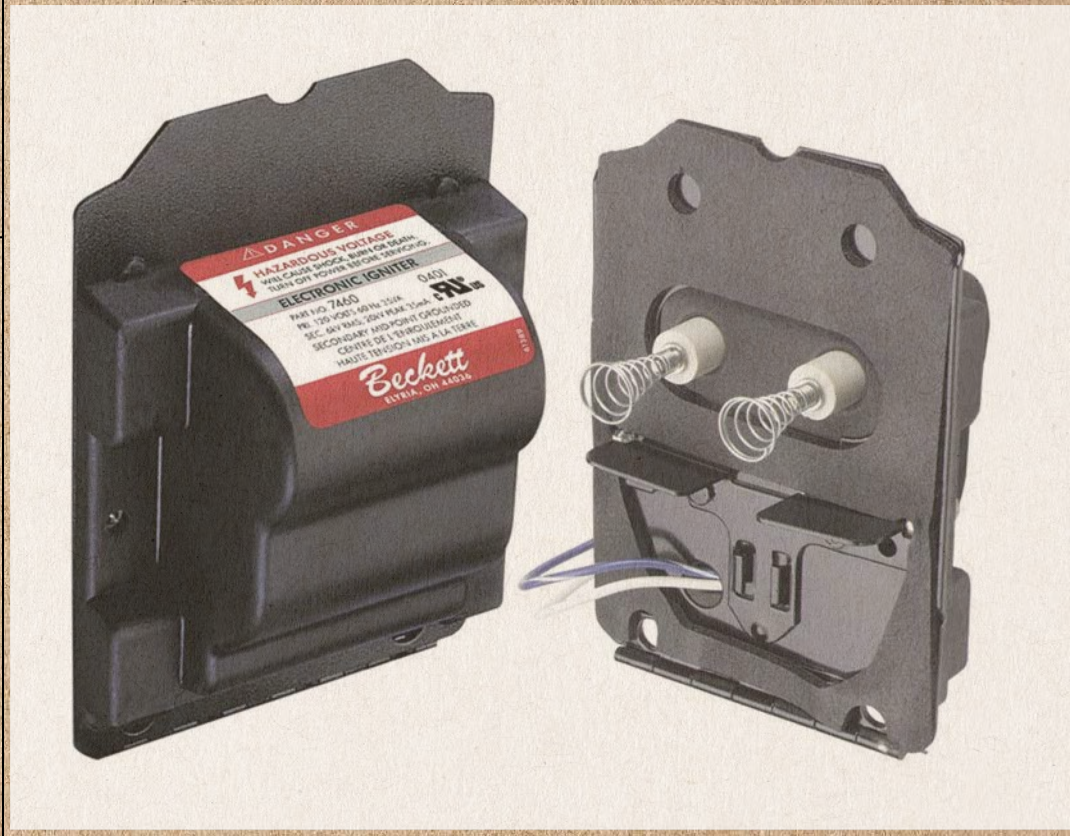
Igniters – Technical Benefits:

- Higher output voltage
  - Ignites oil better, especially cold oil (outdoor tanks).
- 75% lower input amps
  - Saves electricity
- Electrodes last 50% longer without adjustment
  - Reduced service
- Weight 1.0 lb. – not 8 lb.
  - Enhancing assembly, shipping, and handling



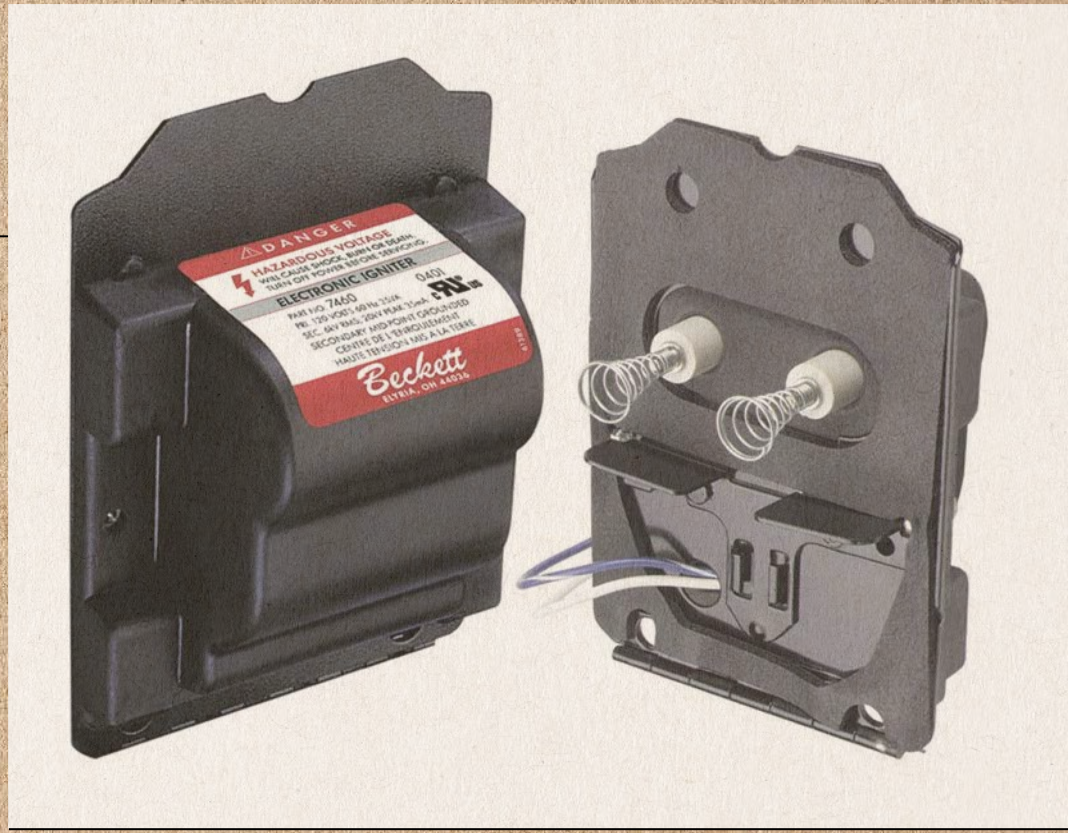
Ignition Testing

1. Use your senses, listen and watch!
2. Listen for a spark
3. Watch for the spark if possible
4. Turn off power



Ignition Testing

5. Perform an Ohms reading across the secondary posts
   - Typically the total is less than 2000Ω
6. Take ohms from one secondary post to chassis ground
   - Reading should be 50% of total +/- 10%
7. Test on other post in same fashion
8. Test for and observe spark in a safe manner



Ignition Testing

Beckett®

It’s your turn.

What other questions do you have?