

PREISER SCIENTIFIC

Operating Instructions
For

Z90-9300-01
115V/60Hz
Hardgrove Grindability
Index Tester

Preiser Scientific

94 Oliver St. PO Box 1330, St. Albans WV 25177-1330

Telephone: 304-727-2902 Toll Free: 800-624-8285

Fax: 304-727-2932 Email: preiser@preiser.com

Online Catalog: www.preiser.com

THE HARDGROVE GRINDABILITY TESTER

The purpose of this machine is to determine the relative Grindability of Coal in comparison with known standards. These standards are covered in ASTM D 409

In the test procedure a given amount of coal is crushed under a known force (29 Kgs. for 60 revolutions). The crushed sample is then measured and compared to ASTM Standards.

OPERATION:

To perform the test, first be sure the machine is plugged in with the control switch (Detail 2) set in the “off” position.

Remove the grinding unit by loosening the two wing nuts (Detail 14). Rotate the lower grinding element (Detail 3) counter-clockwise, dropping it down and remove from the base.

With a rag wipe clean the lower grinding element (Detail 3), the grinding balls (Detail 1) and the upper grinding element (Detail 2).

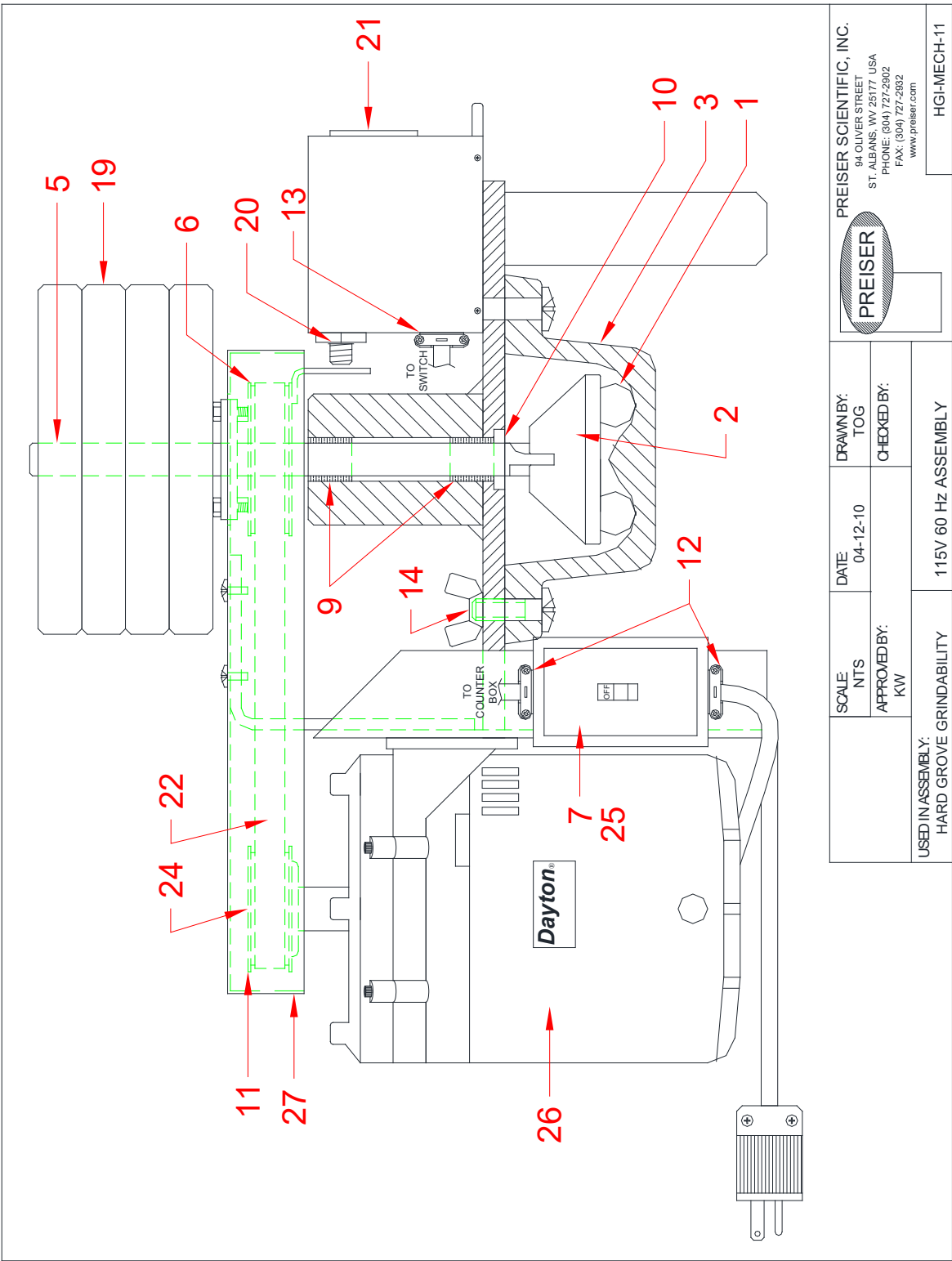
Space the balls evenly in the lower grinding element. Distribute coal sample evenly in the lower grinding element, dusting off any material that falls on top of the raised portion of the lower grinding element. Replace upper grinding element on top of the balls.

Remove weights (Detail 19) from the machine and lift the shaft about $\frac{1}{2}$ ” to $\frac{3}{4}$ ” in the shaft housing. Replace the grinding unit and tighten the wing nuts.

Push downward on the shaft (Detail 5), so that the drive shaft drops into the slots in the upper grinding element, reinstall the weights on the shaft.

Switch the machine to the “on” position. To start the machine rotating, press the RED reset button on the front of the Digital counter. The counter should count up from “0” to “60” and stop.

Remove the coal sample and test as per ASTM D409.



PREISER SCIENTIFIC, INC.
94 OLIVER STREET
ST. ALBANS, WV 25177 USA
PHONE: (304) 727-2902
FAX: (304) 727-2932
www.preiser.com



HGI-MECH-11

SCALE: NTS	DATE: 04-12-10	DRAWN BY: TOG	USED IN ASSEMBLY: HARD GROOVE GRINDABILITY	115V 60 Hz ASSEMBLY
APPROVED BY: KW	CHECKED BY:			

Part No:	Description	Diagram Number
Z90-9300-03	Grindability Ball Set, 1" (8)	1
90-9300-04	Upper Grinding Element	2
Z90-9300-05	Lower Grinding Element	3
Z90-9300-07	Timing Belt 230V	4
Z90-9300-12	Shaft	5
Z90-9300-14	Driven Pulley with Trip Arm	6
Z90-9300-16	On/Off Switch	7
Z90-9300-17	Thermal Overload 6.2 230V	8
Z90-9300-18	Brass Bushing (2)	9
Z90-9300-19	Grease Seal	10
Z90-9300-13	Drive Pulley for 230V/115V 60Hz	11
Z90-9300-23	Drive Pulley for 230V 50Hz	11
Z90-9300-26	1/2" Straight Connector	12
Z90-9300-27	90° 1/2" Connector	13
Z90-9300-28	Bolt and Wing Nut (2)	14
Z90-9300-36	Motor 230V 50Hz	15
Z90-9300-30	Motor 230V 50Hz	15
Z90-9300-31	Gear Reducer 230V	16
Z90-9300-32	Belt Guard 230V	17
Z90-9300-34	Bushing, Tapered 1" 230V	18
Z90-9300-37	Weight (4)	19
Z90-9300-38	Proximity Sensor	20
Z90-9300-39	Counter	21
Z90-9300-09	Timing Belt 115V	22
Z90-9300-15	Bushing, Tapered 3/4" 115V	24
Z90-9300-25	Thermal Overload 11.0	25
Z90-9300-29	115V Motor w/ Speed Reducer	26
Z90-9300-35	Belt Guard 115V	27

THE COUNTER

The counter on the Hardgrove Machine breaks the electric circuit after a set number of revolutions. The counter is pre-set at the factory for 60 revolutions.

PROGRAMMING THE COUNTER MODEL 7932

Note: The program is set at the factory but if needed the following describes how to reprogram the counter.

1. Press and Hold the PGM button for 3 seconds to enter Program Mode (Pro9/tyPE) will be displayed
2. Press the SEL button until top display indicates (type)
3. Press the Digit 1 button to change lower display to (Countr)
4. Press the SEL button until top display indicates (Countr)
5. Press the Digit 1 button until lower display indicates (dEC Pt)
6. Press the SEL button until top display indicates (dEC Pt)
7. Press the Digit 1 button until lower display indicates (0)
8. Press the SEL button until upper display indicates (Countr)
9. Press the Digit 1 button until lower display indicates (PSCALE)
10. Press the SEL button until top display indicates (PSCALE)
11. Press the Digit 1 button until lower display indicates (nonE)
12. Press the SEL button until top display indicates (Countr)
13. Press the Digit 1 button until lower display indicates (SPEED)
14. Press the SEL button until top display indicates (SPEED)
15. Press the Digit 1 button until lower display indicates (HIGH)
16. Press the SEL button
17. Press PGM button twice until (Pro9/type) is displayed
18. Press the Digit 1 button until (Pro9/rESEt) is displayed
19. Press the SEL button until the top display indicates (rESEt)
20. Press the Digit 1 button until the lower display indicates (rst 0)
21. Press the SEL button once to return to (Pro9/rESEt)
22. Press the Digit 1 button until (Pro9/inHib) is displayed
23. Press the SEL button until the top display indicates (inHib)
24. Press the Digit 1 button until the lower display indicates (Pro9)
25. Press the SEL button (Pro9/inHb) should be displayed
26. Press the Digit 1 button until top display indicates (Pro9/AUtO) is displayed
27. Press the SEL button until top display indicates (AUtO)
28. Press the Digit 1 button until lower display indicates (OFF)
29. Press the SEL button (Pro9/AUtO) should be displayed
30. Press the Digit 1 button (Pro9/rlytPE) is displayed
31. Press the SEL button until top display indicates (rlytPE)
32. Press the Digit 1 button until lower display indicates (Latch)
33. Press the SEL button until display indicates (Pro9/rlytPE)

34. Press the Digit 1 button until (Pro9/rlSAFE) is displayed
35. Press the SEL button until top display indicates (rlSAFE)
36. Press the Digit 1 button until lower display indicates (SET)
37. Press the SEL button until the display indicates (Pro9/rlSAFE)
38. Press the Digit 1 button until the display indicates (Pro9/Lcd bL)
39. Press the SEL button until the top display indicates (Lcd bL)
40. Press the Digit 1 until the lower display indicates (on)
41. Press the SEL button
42. Press the PGM button this will take you back to the main screen

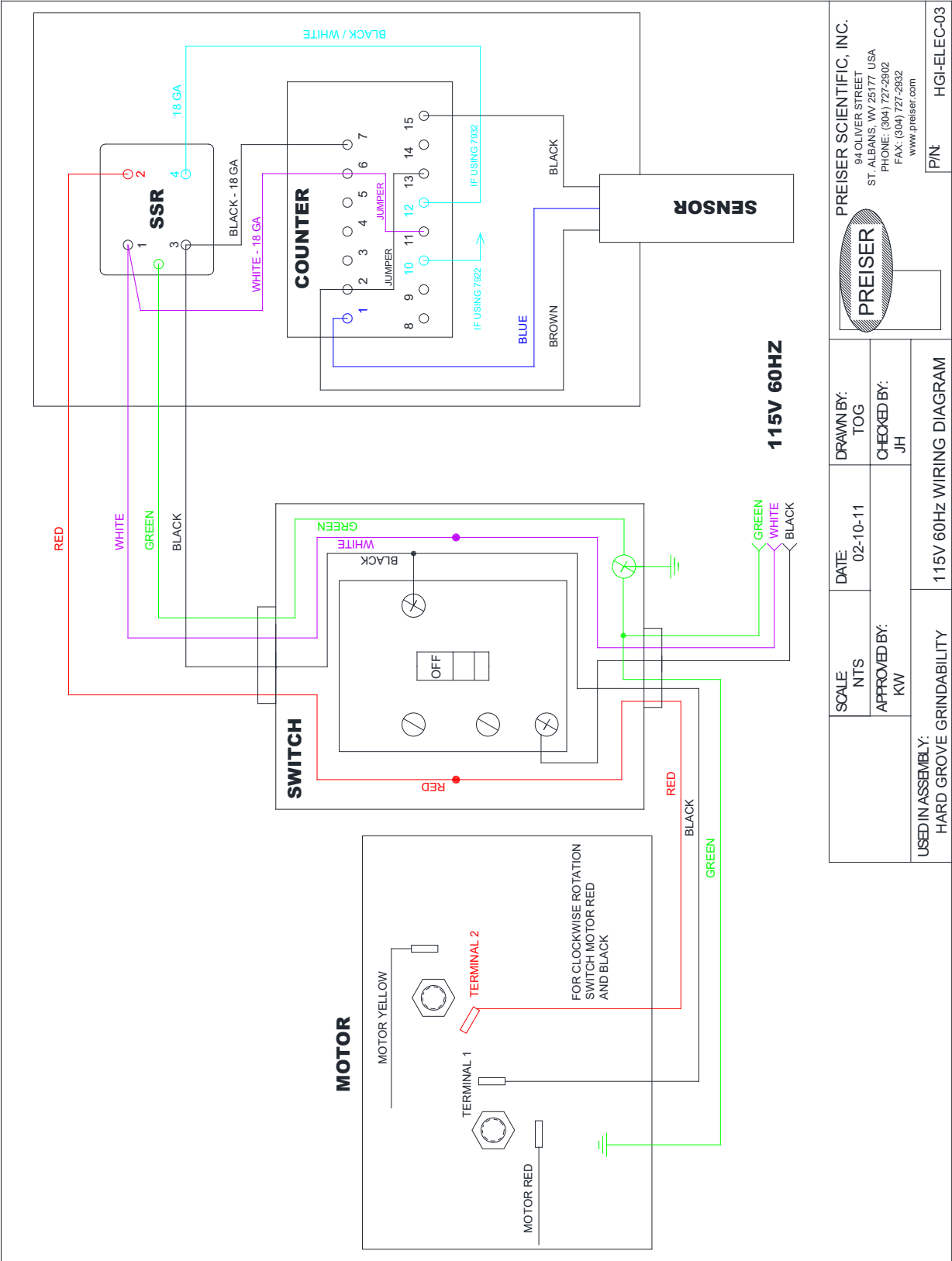
Set the number of revolutions

1. Press the SEL button (P1) should be displayed
2. Press the Digit 2 button until (6) is displayed
3. Press the Digit 1 button until (0) is displayed

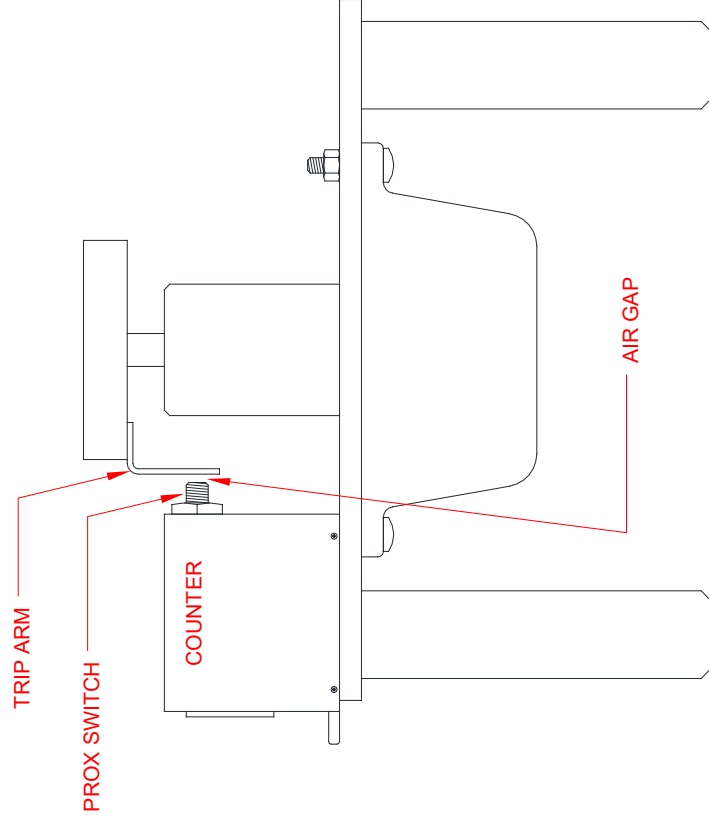
This sets the unit to rotate from 0 to 60 revolutions and stop until the RST button is pressed

THERMAL UNIT

The Hardgrove Machine has a thermal unit installed in the switch box to protect the motor against electrical short and voltage overload. Should the motor fail during operation, reset the unit by depressing the switch past the “off” position, then release.



	PREISER SCIENTIFIC, INC. 94 OLIVER STREET ST. ALBANS, WV 26177 USA PHONE: (304) 727-2902 FAX: (304) 727-2932 www.preiser.com	
	P/N	HGI-ELEC-03
USED IN ASSEMBLY: HARD GROVE GRINDABILITY	SCALE NTS	DATE 02-10-11
	APPROVED BY: KW	CHECKED BY: JH
DRAWN BY: TOG		
115V 60Hz WIRING DIAGRAM		



1. REMOVE OLD COUNTER AND WIRING.
2. INSTALL NEW COUNTER AND WIRING USING EXISTING MOUNTING HOLES.
3. REMOVE COUNTER COVER AND ADJUST AIR GAP BETWEEN PROX SWITCH AND TRIP ARM UNTIL CONSISTANT COUNTING IS ACHIEVED.

WARNING

ENSURE CLEARANCE BETWEEN TRIP ARM AND PROX SWITCH PRIOR TO TEST AS DAMAGE COULD OCCUR TO BOTH TRIP ARM AND PROX SWITCH IF CONTACT IS MADE.

SCALE NTS	DATE 03-18-10	DRAWN BY: TOG	
		CHECKED BY: JH	
APPROVED BY: KW		PROX ARM ADJUSTMENT	
USED IN ASSEMBLY: HARD GROVE GRINDABILITY			

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		P/N:	HG-ELEC-02

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PREISER SCIENTIFIC, INC.
 94 OLIVER STREET
 ST. ALBANS, WV 26177 USA
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