

GLEASON CRANKSHAFT WELDER VS COMPETITIVE WELDERS

Rod set up time -- less than 2 minutes	Approximately 10 minutes
Change from rods to mains in less than 5 seconds	Approximately 10 minutes
Production capability is double versus competition (up to 60 journals a day) in an 8 hour day	Production capability has not increased in over 25 years.
Floor space minimal	Twice as much as new style Gleason
Submerged arc welding is "State of the Art" technology	Short arc welding is outdated technology
Motorized thrust build up	Manual thrust build up
Hardness control dual wire feed circuit for diesel welding	None
Digital electronic surface speed indicator for accurate crankshaft rotation speed	None
Gleason builds custom made power supply (specifically designed for submerged arc crankshaft welding)	Esab/Lincoln/Hobart /Miller- Power Supply (power supply was not designed for crankshaft welding)
Self cleaning automatic torch system means wire feed conduit is cleaned after each weld	None
Automatic flux recovery system	Manual flux recovery system
Accurate digital meters for deposit height and width	Analog Volt and AMP meter
Semi-automatic oil hole weld skip eliminates plugging oil holes	Oil holes must be plugged (often causes defects in finish ground journals)
2-3 day factory training by Gleason Process Technician -- included with Domestic Sales -- extra charge for Export	Representative trains (often knows very little about crankshaft welding)
Standard equipment package -- Gleason supplies everything required to weld cranks -- there is very little optional equipment even offered	Very limited amount of standard equipment included
2 year warranty	Not Known
Gleason provides stuffers and marketing material to announce machine in your area	None available
The "Gleason Process" crankshaft rebuilding kits (wire & flux) are especially formulated for each application	No exclusive materials or process used
Higher Resale Value -- The Gleason "M" Series have had many of the advanced features for the past 15 - 20 years	The competitors used machines are worth very little because they lack the features of a Gleason and are too slow

SUPPLIERS OF CRANKSHAFT REBUILDING MACHINERY AND JOURNAL BUILDUP MATERIALS



Gleason Engineering Industries, Inc.

P.O. Box 828
Winona, Minnesota 55987.0828
www.gleasonengineering.com
Sales - Service - Engineering

Phone: 507.454.3817
Fax: 507.454.3842
e-mail: gleason@hbci.com

**Gleason Process Crankshaft Welding Machines
Technical Advantages vs Competition**

COMPARE the Gleason Crankshaft Welding Machines versus competition -- you will quickly discover there is no comparison!!

Stop and take 60 seconds to think about your future equipment purchasing decision. What you do today will affect you tomorrow. In business, it's called investing. Make sure you invest for your future. Purchase "STATE OF THE ART" equipment that can handle future growth, so you don't find yourself investing again sooner than planned. Investing a few more dollars today will save you thousands of dollars tomorrow.

Compare why Gleason Crankshaft Welding Machines are the "STATE OF THE ART" -- you will find that a comparable welder is not available -- anywhere in the World.

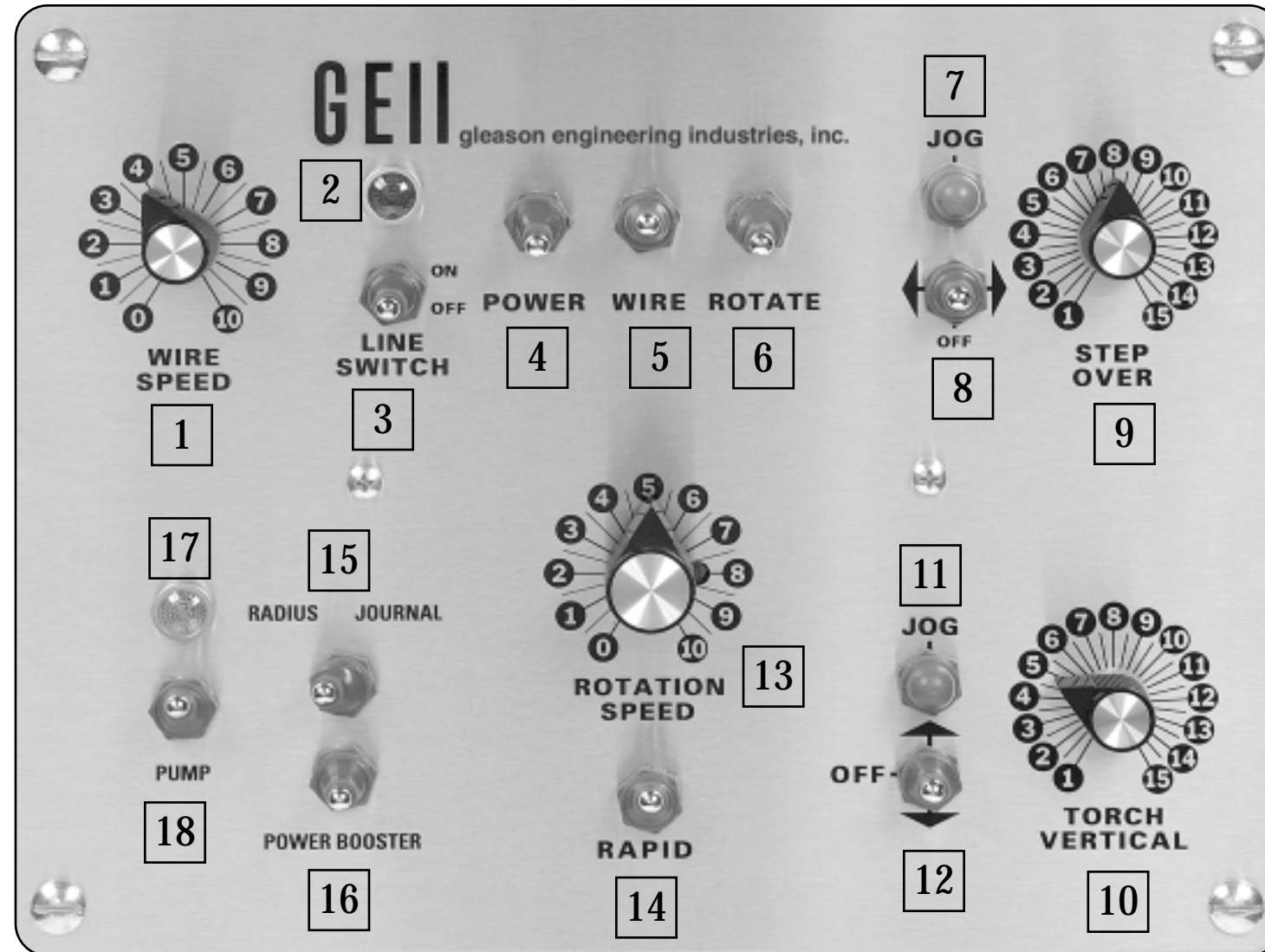
GLEASON'S SUBMERGED ARC WELDING VS COMPETITION'S SHORT ARC WELDING

Gleason "M" Series emits no fumes or gases -- machine can be placed anywhere in the shop because there is no visible ultraviolet arc	Noxious fumes and ultraviolet radiation is known to cause cancer -- machine must be carefully placed to avoid damage to co-workers eyes due to ultraviolet rays
No tinted glasses needed while operating the "M" Series	Welding mask and special leather clothing needed
Air conditioning can be operated or fans can be used around machine without any problem	Any form of ventilation such as air conditioning or fans will blow away welding gas, causing porosity
Welding is very comfortable all year round for operator -- no special protective clothing required	Protective wear and welding helmet becomes intolerably hot for operator during summer months
"M" Series is equipped with a 7/16" Slim Line Torch -- much easier to weld narrow journals	Gas nozzle is awkward or impossible to use in radius areas of small narrow journals
Dust Control System controls all flux dust to an absolute minimum	Not available, operator breathes dust/fumes caused by welding
Dust/Oil tight electrode wire spool storage cabinet keeps wire clean	Wire is exposed to dirt and rust contamination -- expensive wire is often wasted
Flux powder is nearly 100% efficient. Any used flux turns to slag -- unused flux is collected and recycled	Short arc shielding gas is expensive and not recyclable by user

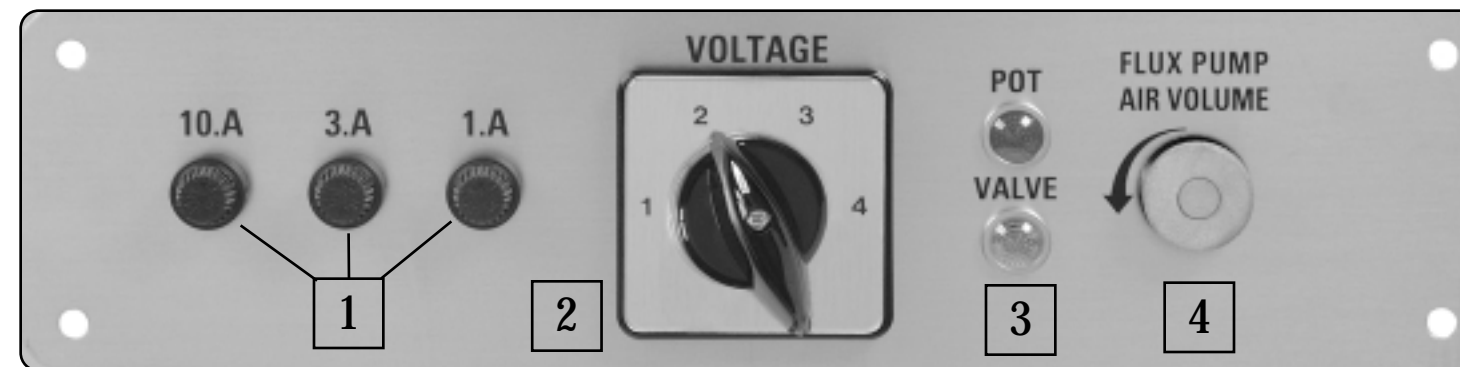
SUPPLIERS OF CRANKSHAFT REBUILDING MACHINERY AND JOURNAL BUILDUP MATERIALS

Gleason M-2 & M-3 Control Panel with Flux Dust Proof Switches

1. **WIRE SPEED CONTROL** - Wire feed rate electronically controlled for consistent weld deposition.
2. **LINE POWER "ON" LIGHT** - Indicates M-2 or M-3 is online and ready to operate.
3. **MAIN LINE POWER SWITCH** - Conveniently located in the event of emergency power shut down is needed.
4. **WELD POWER SWITCH** - Energizes welding torch contact tip when ready to commence welding of journal and also starts the automatic flow of submerged arc welding flux powder.
5. **WIRE FEED SWITCH** - Controls electrode wire feeding in forward and reverse eliminating constant trimming and waste of precious welding material. Also equipped with "SMART FEED" feature, machine automatically senses and slows wire feed rate to facilitate easier crankshaft journal welding torch set up, and then returns to normal feed rate during welding process.
6. **CHUCK ROTATION SWITCH** - Controls constant workpiece rotation.
7. **HORIZONTAL JOG STEP SWITCH** - Controls momentary sideways movement of welding torch during set up.
8. **HORIZONTAL TORCH DIRECTION SWITCH** - Controls sideways direction of torch in either automatic (during welding) or manual mode (during setup).
9. **HORIZONTAL STEP OVER CONTROL** - Controls weld spacing, infinitely variable from .050" to .250" while being both accurate and consistent. System moves welding torch over once each revolution instead of using a spiral thread movement as do many competitive machines. This eliminates gross uneven weld bead match up from opposing directions in center of journal which traps welding slag in weld deposit.
10. **VERTICAL STEP UP CONTROL** - Controls thrust weld spacing, infinitely variable from .050" to .250" while being both accurate and consistent. The motorized welding torch moves vertically unlike competitors machines. This allows for continuous, uninterrupted crankshaft thrust welding. This provides smooth, even vertical welding without lumps and bumps which can trap slag in the weld deposit.
11. **VERTICAL JOG STEP SWITCH** - Controls momentary up/down movement of welding torch during set up.
12. **VERTICAL TORCH DIRECTION SWITCH** - Controls vertical direction of torch in either automatic (during welding) or manual mode (during set up).
13. **CRANKSHAFT ROTATION SPEED** - Controls accurate and consistent work piece rotation speed during welding. Widely variable, and works in conjunction with automatic rotation speed WORK DIAMETER METER to determine proper welding tip surface speed over journal.
14. **CHUCK RAPID ROTATION SWITCH** - Automatically advances rotation speed to maximum during setup, without disturbing the current rotation speed setting.
15. **ELECTRODE WIRE SELECTOR SWITCH** - Allows the user to choose one of two different welding electrode wires loaded in the machine simultaneously without the need to rethread wire feed system, eliminating costly wasted labor time -- for example, radius and journal wire used in the rebuilding of Diesel crankshafts.
16. **POWER BOOSTER SWITCH** - Increases weld penetration and weld bead smooth appearance on larger journal diameters.
17. **FLUX PUMP PILOT LIGHT** - Light indicates flux pump is operating.
18. **FLUX PUMP SWITCH** - Controls the reliable, automatic flux powder recovery system which operates on compressed air with only one moving part.



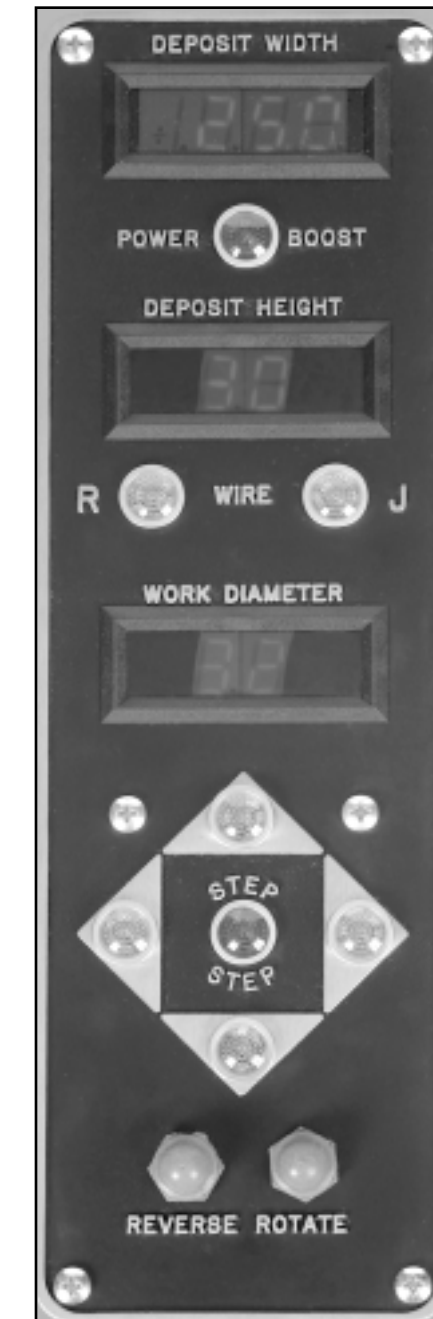
Fuse - Voltage - Flux Pump Panel



1. **ELECTRICAL LINE CONTROL FUSES** - Conveniently located in front of machine for easy replacement in case of overload.
2. **WELDING VOLTAGE SELECTOR** - Permits easy access to one of five preset welding heat settings.
3. **FLUX PUMP OPERATION LIGHTS** - Indicates and confirms correct flux pump cycle operation.

- 3A. **Valve Light** - Indicates that flux pump collection tank entry valve has closed in preparation to start flux pump cycle.
- 3B. **Pot Light** - Indicates that flux pump is recirculating flux to overhead storage hopper on welding carriage.
4. **FLUX PUMP AIR VOLUME** - Controls speed of flux pump recirculation system.

Meter Panel



1. **DEPOSIT WIDTH METER** - Indicates welding VOLTAGE D.C. value of how wide the weld bead is. Works in conjunction with WELD VOLTAGE SELECTOR .
2. **POWER BOOSTER PILOT LIGHT** - Confirms that the POWER BOOSTER is engaged.
3. **DEPOSIT HEIGHT METER** - Indicates value of how tall weld bead deposit is. Works in conjunction with WIRE SPEED CONTROL to determine correct amount of weld application.
4. **ELECTRODE WIRE SELECTOR PILOT LIGHTS** - Indicates and confirms which of the two electrode wires loaded into the machine, RADIUS or JOURNAL is currently chosen to feed.
5. **WORK DIAMETER METER** - Automatically indicates the correct work-piece rotation speed for a wide range of journal diameters. This feature eliminates complicated rotation speed calculations and problems associated in welding at incorrect rotation speeds, plus the resulting defects in the weld deposit.
6. **STEP DIRECTION PILOT LIGHTS** - 4 lights indicate the current direction that the welding torch is engaged to travel in the manual or automatic mode.
7. **STEP ACTION PILOT LIGHT & STEP BEEPER** - Center step light provides visual and audible signal that journal rotation has past the "step position" indicating correct start and stop position of the welding process.
8. **ROTATE JOG and REVERSE** - Allows momentary forward and reversing of the normal clockwise direction of the workpiece rotation. A handy set of switches used during setup.