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**Informational Document on Circuit Breaker Use and Ratings**

Please take the time to read this brief article to better understand circuit breakers and how they affect our Forney machines. Jason Mahugh also put together a short piece on our high output machines, please see below.

Technical Notification: The Forney 140 MIG as well as other high output 120V machines often produces end-user frustration due to the breaker popping and needing to be reset. This is a common problem and is very noticeable if the customer is using a 15 Amp breaker, using .035" wire, or is pushing the wire feed limits of the machine while on tap setting 4. When designing a 120V machine, there is a balance between maximizing the output of the machine or never blowing a breaker, but having a poor output machine. We chose to maximize the output of the machine as the machine settings can always be turned down. The performance of the Forney 140 MIG machine has the highest rated duty cycle and output at 90A at 35% in its class. If a customer is frustrated by a breaker popping, they can reduce the tap setting, reduce the wire feed speed, reduce the wire diameter, or get a less capable machine. The customer should also verify the breaker output and have an electrician install the largest breaker that can safely be used per electrical codes. The chart below will provide some guidance.

<b>Forney 140 MIG – Reference for breaker/duty cycle/wire diameter limitations</b>						
<b>*All limitations and listed times are approximate and can be affected by solid or flux core wire, stickout, gas used, input voltage, and type of breaker.</b>						
Wire Dia.	.030"	.030"	0.30"	.035"	.035"	.035"
WFS	5.5	6.5	7.5	5.5	6.5	7.5
Voltage Tap	4	4	4	4	4	4
20A Breaker	5 min. +	5 min.	1 min.	1m 45 sec.	1 min.	30 sec.
30A Breaker	5 min. +	5 min. +	5 min.	4 min.	Unstable Arc	Unstable Arc

The Forney 140 MIG needs a dedicated circuit and can operate on a 20A to 30A breaker without damaging the machine. A breaker that is too small (15A) or not dedicated can create frustration for the user as the breaker will pop frequently. Machines in this class usually recommend a 20A breaker minimum and some recommend a 30A breaker. Before changing out a breaker, make sure the wire gage and breaker size conform to electrical codes. "Slow Blow" or "High Magnetic" breakers are recommended but not required.

If you have questions please feel free to contact the Sales Planning team.

Thank you,



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