GMC Western States Fall Rally
Seven Feathers Casino Resort
Canyonville, Oregon
October 2 – 7, 2019



Onan – The Barbarian
What Every Owner Should Know

By Gary Bovee

Onan the Barbarian



My Onan won’t start

What should I do?

Gas Gauge

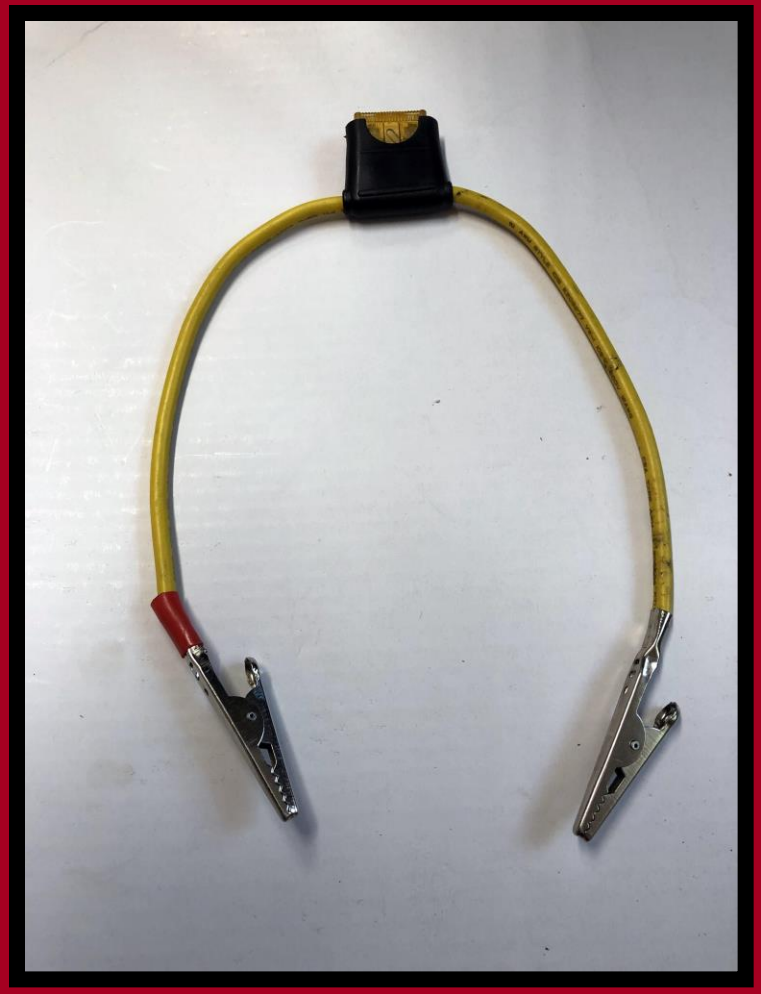


Must have a minimum of ¼ tank of fuel for the Onan to run!

Check engine oil level



Inline (5 amp) fuse holder



Spark tester



CRC 2-26


CRC
2-26®
Multi-Purpose
Precision Lubricant
Plastic Safe
Improves Electrical Properties
Para obtener las instrucciones completas de uso y advertencias de seguridad del producto en Español, visite www.crcindustries.com.
DANGER: FLAMMABLE. HARMFUL OR FATAL IF SWALLOWED. CAUSES SKIN IRRITATION. CONTENTS UNDER PRESSURE. KEEP AWAY FROM CHILDREN.
Read warnings on back panel.

Multi-meter



GMC Onan Power Drawer Electrical Trouble Shooting Demo

By Duane Simmons

GMC MOTORHOME
INTERNATIONAL CLUB



GMC ONAN POWER DRAWER
ELECTRICAL TROUBLE SHOOTING
DEMO

PREPAIRED BY: DUANE M SIMMONS
MARCH 21, 2004
SPRING CONVENTION....LAS VEGAS, NV

Common Problem

- Won’t start
- No starter action
- RC panel is non-functional
- Will not respond to stop switch
- No AC power output

Data Form

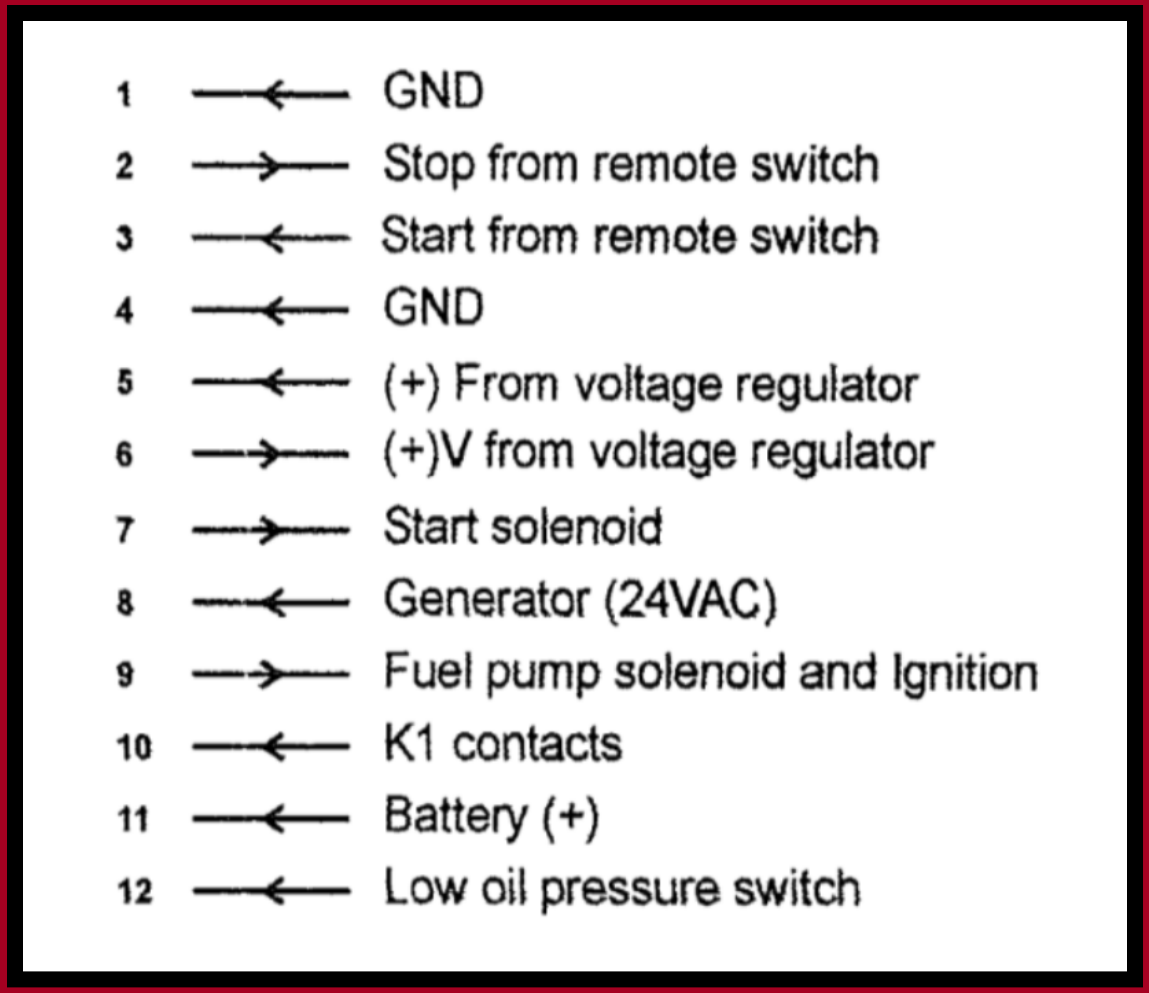
ONAN CONTROL BOARD OPERATION

DATA FORM: TROUBLE SHOOTING AID

1) Remove Board Cover & Spray/Soak Wire Terminals with 2-26		Measured Value
2) Measure DC Voltage between Terminals 5 & 1	(s/b ~ 12.8 v dc)	_____ v dc
3) Measure DC Voltage between Terminals 8 & 1	(s/b ~ 12.8 v dc)	_____ v dc
4) W/Starter engaged, measure dc voltage Term. 10 & 1	(s/b 10.5 v dc min.)	_____ v dc
5) Jumper Terminals 9 to 5, Hear Fuel Pump & Start Onan	FUEL PUMP RUN	YES____ NO____
NOTE: If No Start: Ignition, Fuel supply or wiring problem	START	YES____ NO____
6a) W/Onan Running, Measure AC Voltage between Term. 8 & 11	(s/b 26 to 31 v AC)	_____ v ac
6b) Measure DC Voltage between Term. 12 & 11	(s/b near zero)	_____ v dc
6c) Measure DC Voltage between Upper Term. 1 &2	(s/b ~ 12 v dc)	_____ v dc
6d) Remove the jumper.....does the Onan continue to run ????		RUN Yes____ No____
7a) Stop Onan & measure DC Voltage between Term. 12 & 11	(s/b ~ 12.8 v dc)	_____ v dc
7b) Pull wire from Term. 12.....Try to Start		START YES____ NO____*
8a) Stop Onan & measure DC Voltage between Upper Term. 1 & 2	(s/b ~ zero v dc)	_____ v dc
8b) Pull wire from UPPER Term. 1 , 2 & 3.....Try to Start		START YES____ NO____*

NOTE: 1) *If STEPS 1 THRU 6 (except 6d) is OK & Step 7 & 8 is No Start: Suspect Control Board !!!
2) "S/B~" Means "Should Be Approximate value"

Control Board Wiring #’s



Onan Control Board Operation

By Duane Simmons

GMC WESTERN STATES
MOTORHOME CLUB

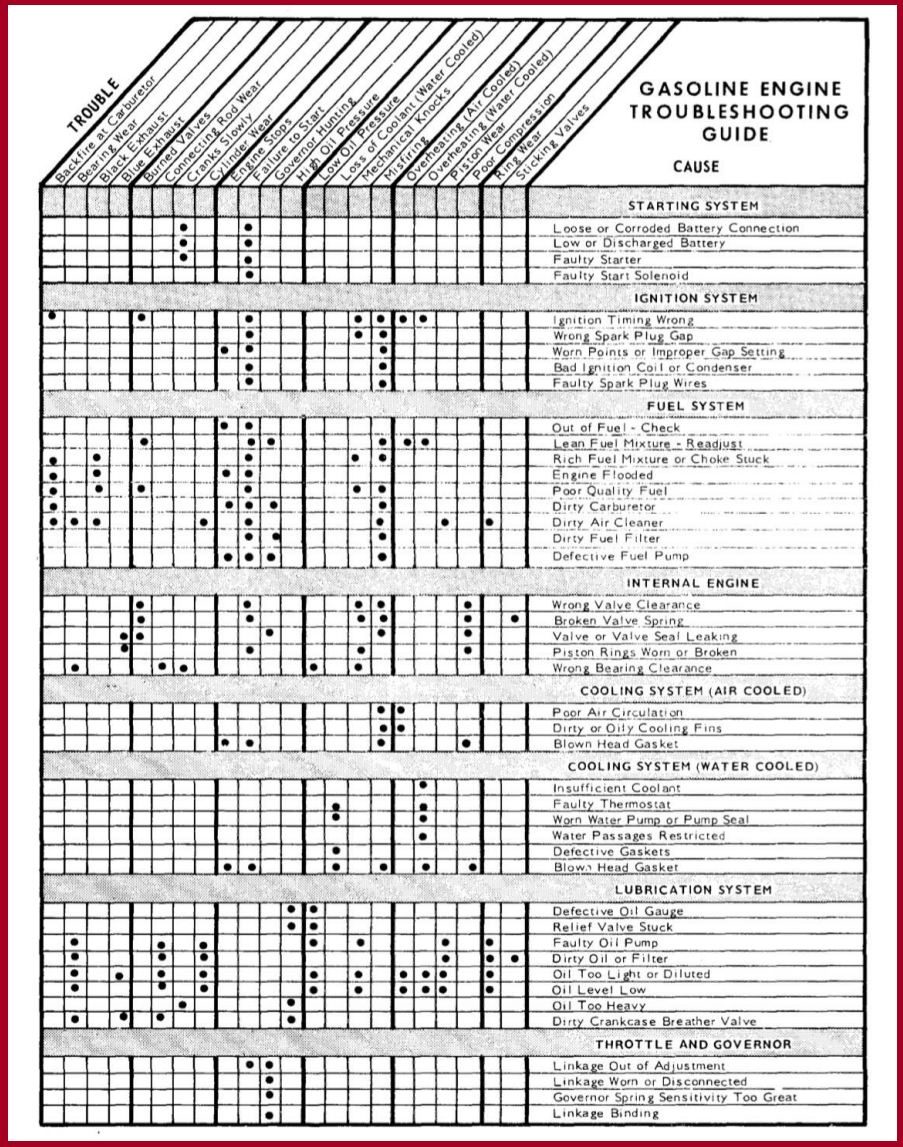


ONAN CONTROL BOARD
OPERATION

Control Board

- Control board tests
- Starting circuit
- Running circuit
- Stopping circuit

Onan Troubleshooting Guide



GASOLINE ENGINE TROUBLESHOOTING GUIDE

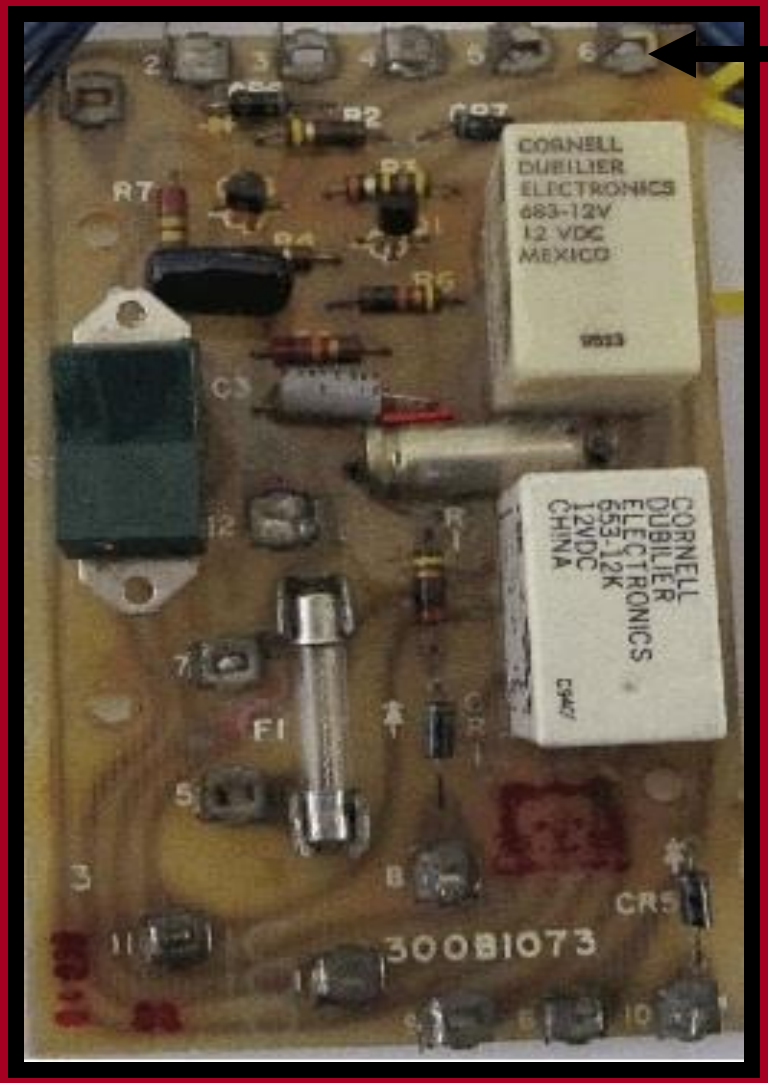
TROUBLE / CAUSE	Backfire at Carburetor	Bearing Wear	Black Exhaust	Blue Exhaust	Burned Valves	Connecting Rod Wear	Cranks Slowly	Cylinder Wear	Engine Stops	Failure to Start	Governor Hunting	High Oil Pressure	Low Oil Pressure	Loss of Coolant (Water Cooled)	Mechanical Knocks	Misfiring	Overheating (Air Cooled)	Overheating (Water Cooled)	Piston Wear	Poor Compression	Ring Wear	Sticking Valves
STARTING SYSTEM																						
Loose or Corroded Battery Connection							•			•												
Low or Discharged Battery							•			•												
Faulty Starter							•			•												
Faulty Start Solenoid							•			•												
IGNITION SYSTEM																						
Ignition Timing Wrong	•			•						•			•			•	•					
Wrong Spark Plug Gap									•	•			•									
Worn Points or Improper Gap Setting									•	•			•									
Bad Ignition Coil or Condenser									•	•			•									
Faulty Spark Plug Wires									•	•			•									
FUEL SYSTEM																						
Out of Fuel - Check										•												
Lean Fuel Mixture - Readjust	•									•												
Rich Fuel Mixture or Choke Stuck	•	•	•							•												
Engine Flooded	•									•												
Poor Quality Fuel	•									•												
Dirty Carburetor	•									•												
Dirty Air Cleaner										•												
Dirty Fuel Filter										•												
Defective Fuel Pump										•												
INTERNAL ENGINE																						
Wrong Valve Clearance		•										•								•		
Broken Valve Spring		•										•										
Valve or Valve Seal Leaking		•										•										
Piston Rings Worn or Broken												•										
Wrong Bearing Clearance												•										
COOLING SYSTEM (AIR COOLED)																						
Poor Air Circulation													•									
Dirty or Oily Cooling Fins													•									
Blown Head Gasket													•									
COOLING SYSTEM (WATER COOLED)																						
Insufficient Coolant																		•				
Faulty Thermostat																		•				
Worn Water Pump or Pump Seal																		•				
Water Passages Restricted																		•				
Defective Gaskets																		•				
Blown Head Gasket																		•				
LUBRICATION SYSTEM																						
Defective Oil Gauge														•	•							
Relief Valve Stuck														•	•							
Faulty Oil Pump	•			•		•								•					•			
Dirty Oil or Filter	•			•		•								•					•		•	
Oil Too Light or Diluted	•			•		•								•		•			•			
Oil Level Low	•			•		•								•		•			•			
Oil Too Heavy																						
Dirty Crankcase Breather Valve	•			•		•								•					•			
THROTTLE AND GOVERNOR																						
Linkage Out of Adjustment											•											
Linkage Worn or Disconnected											•											
Governor Spring Sensitivity Too Great											•											
Linkage Binding											•											

Onan Operator’s Manual, 6 kW Series

Control Board Cover

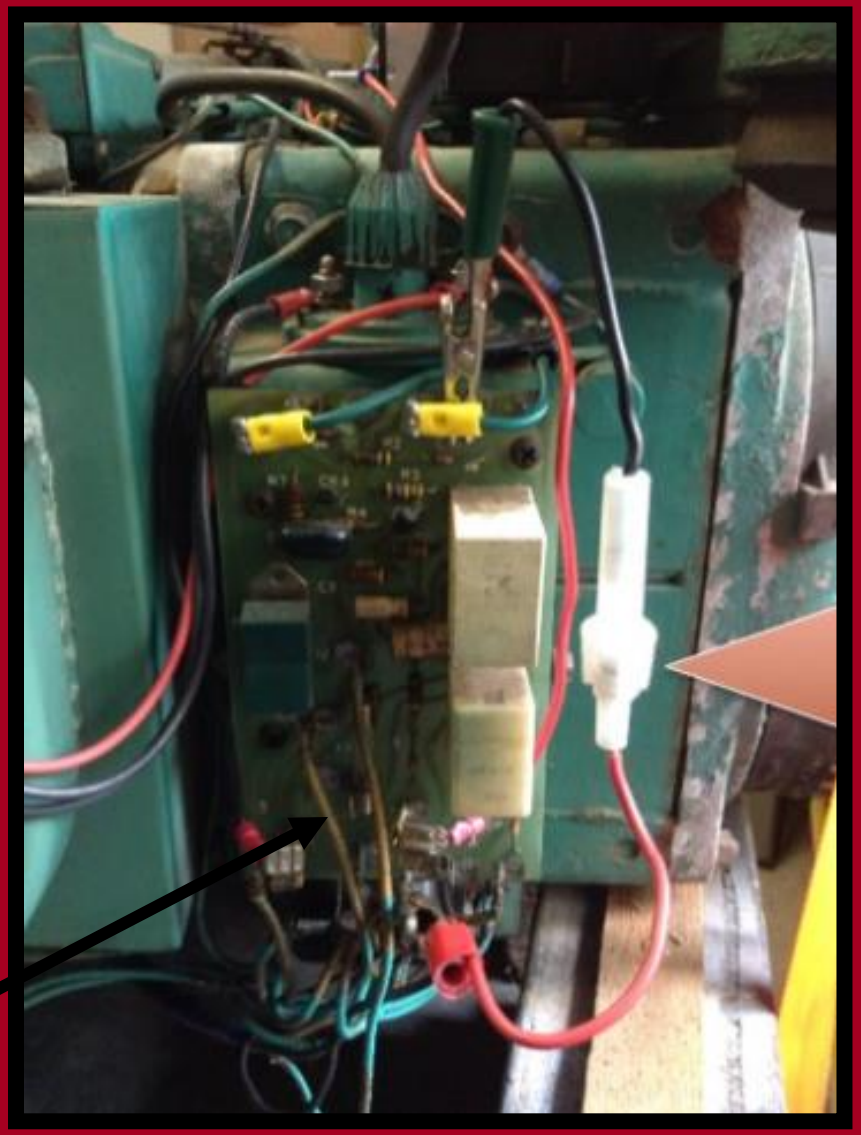


Control Board



Tab Connectors

Jumper Wire



Jumper
9 to 5

Check fuse

Inline fuse holder w/5 amp fuse

Checking for Spark



New Control Boards

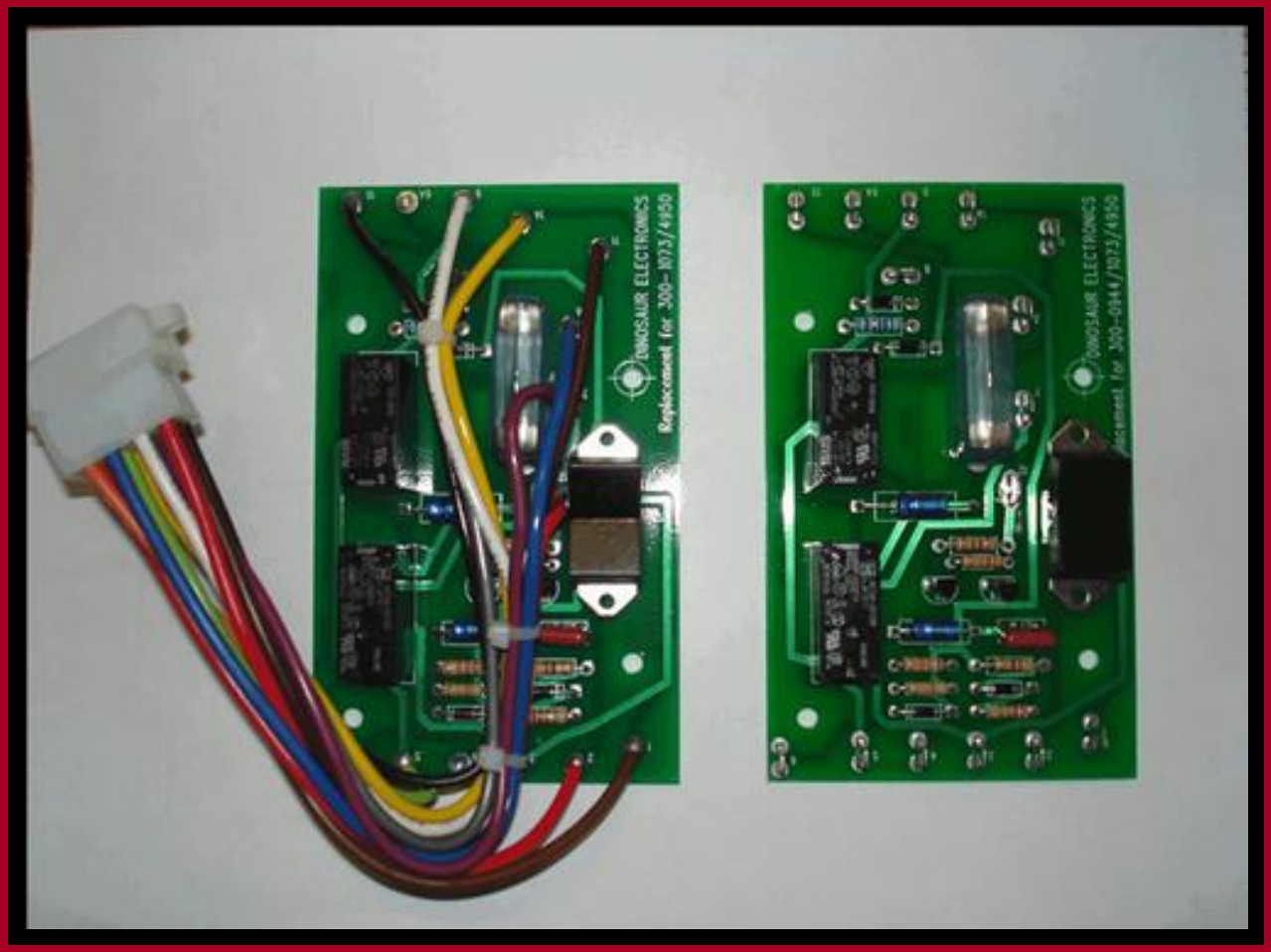


Photo Courtesy of Applied GMC

Onan - Right Side View

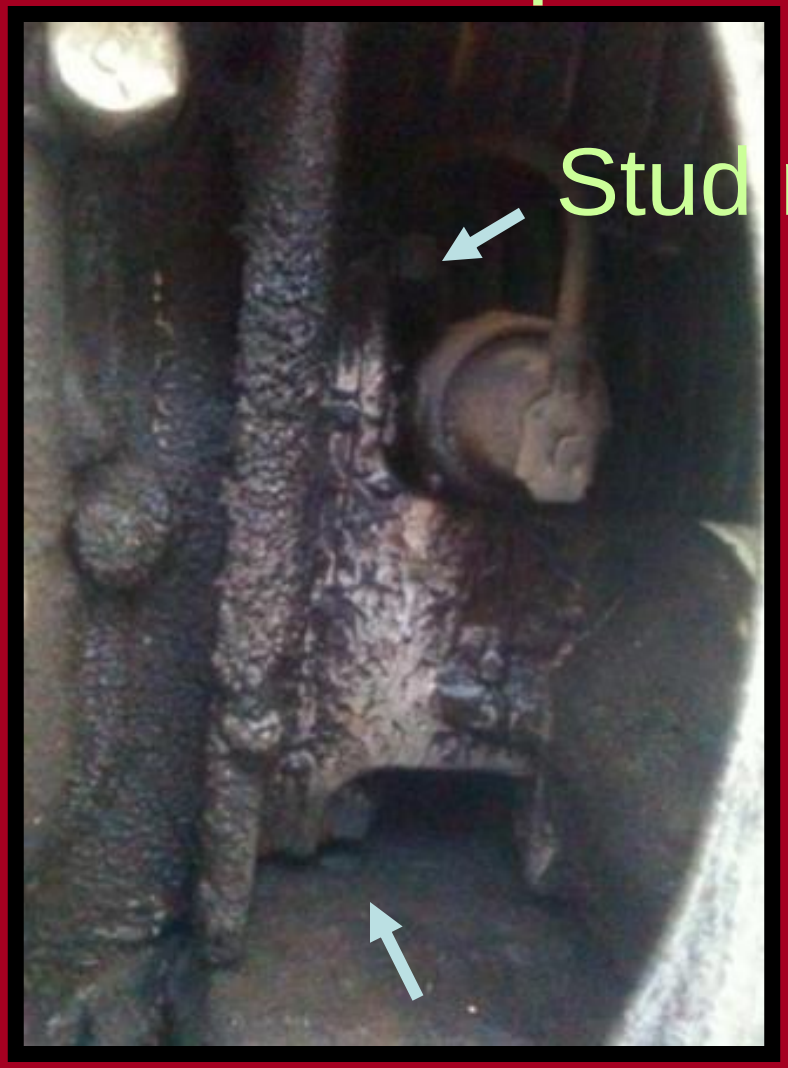


Check starter bracket/loose bolts

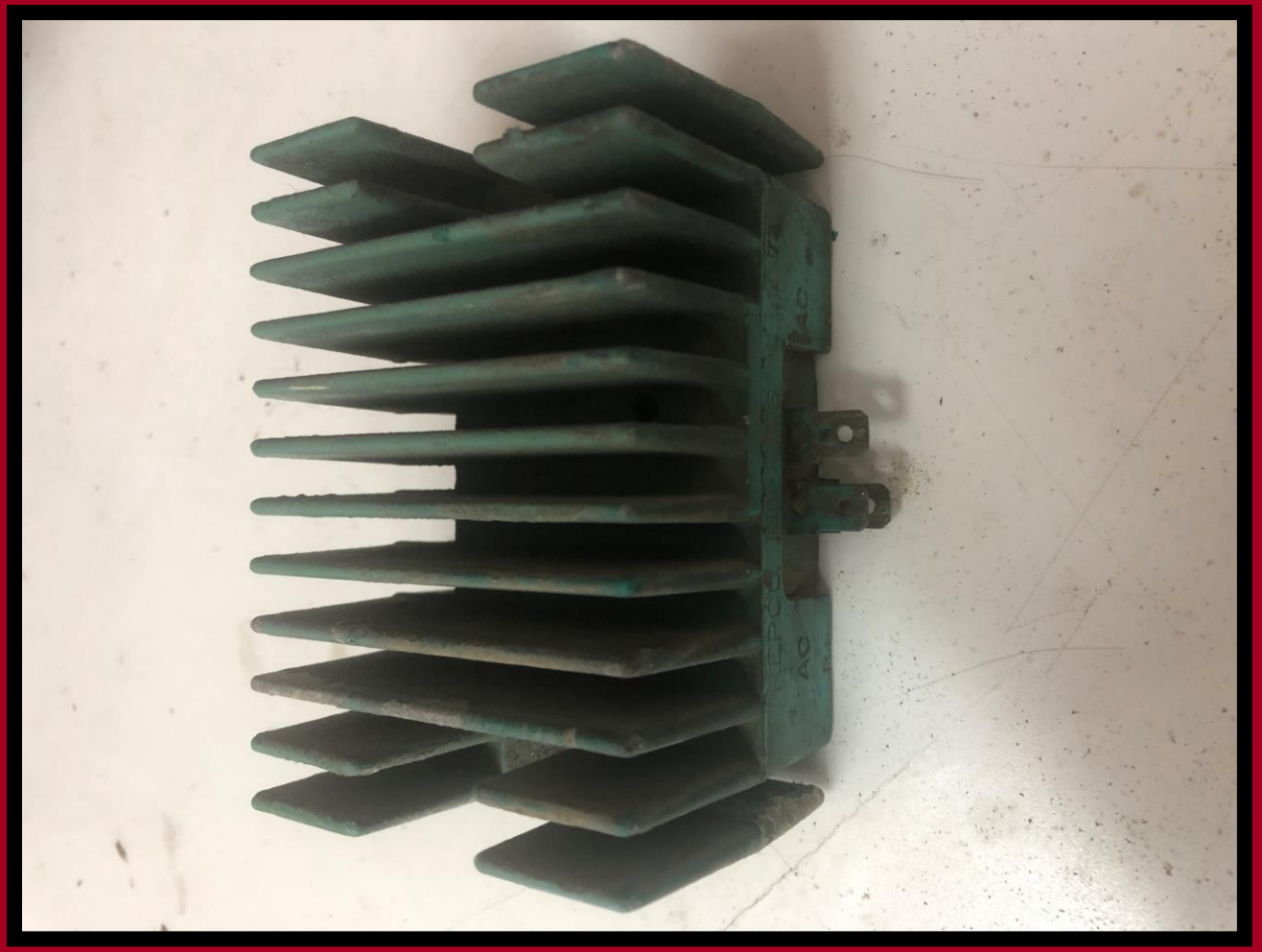
Oil Pressure Switch



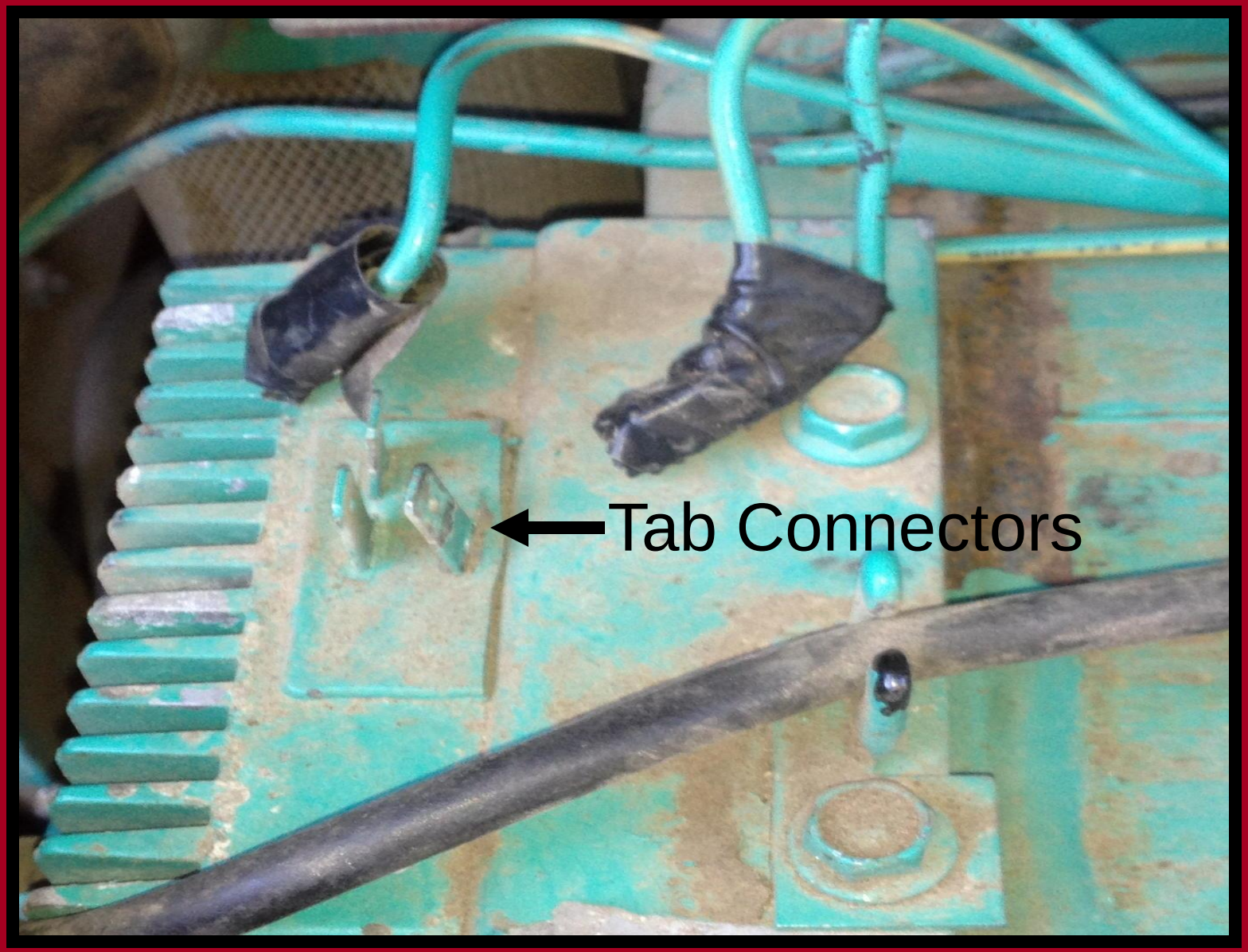
Loose Oil Filter Adapter Stud Nuts



Voltage Regulator



Voltage Regulator



Fuel Solenoid



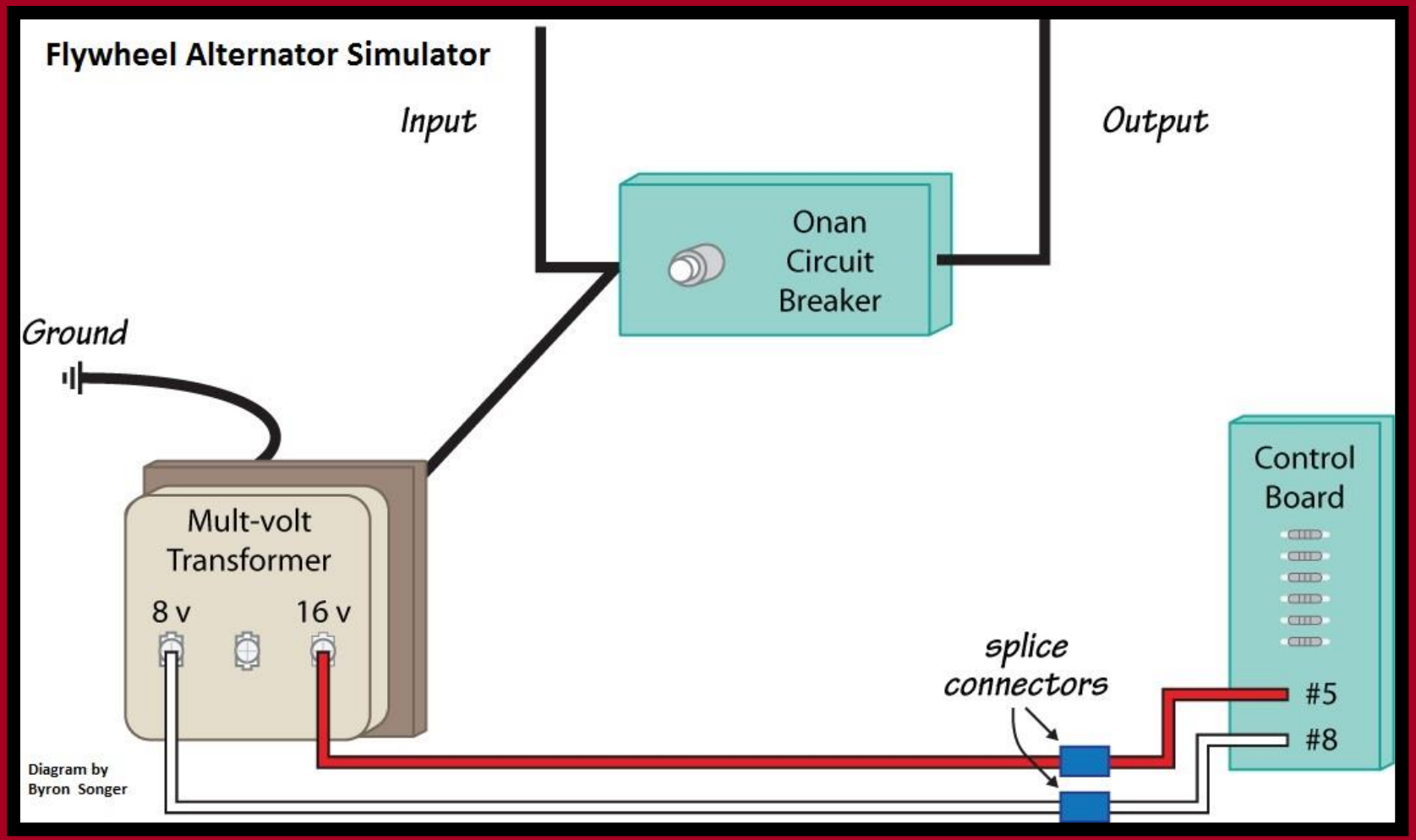
Fuel Solenoid

Photo Courtesy of Gene Fisher

Fuel Solenoid



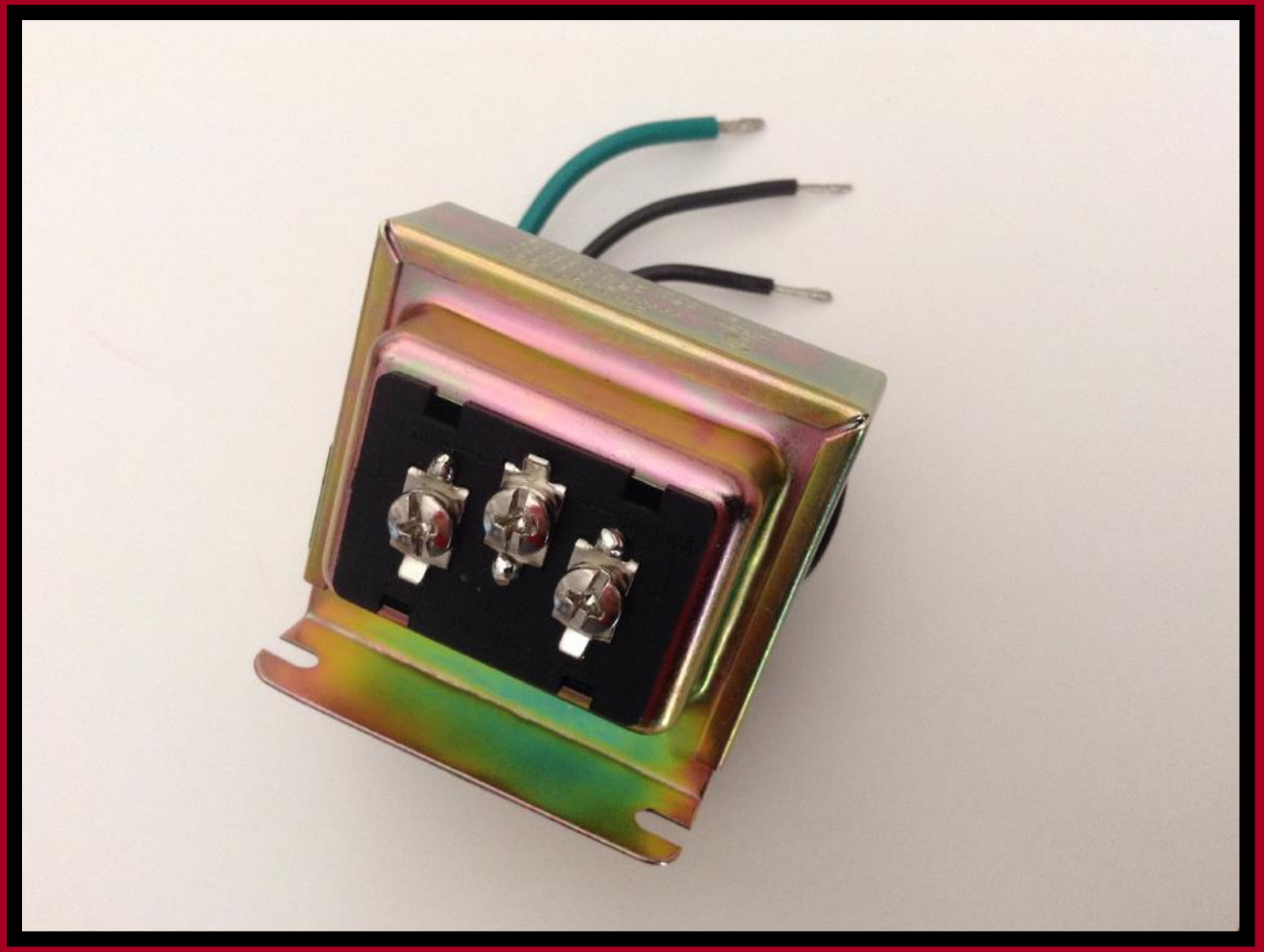
Flywheel Alternator Simulator
by Duane Simmons



Doorbell Multi Voltage Transformer

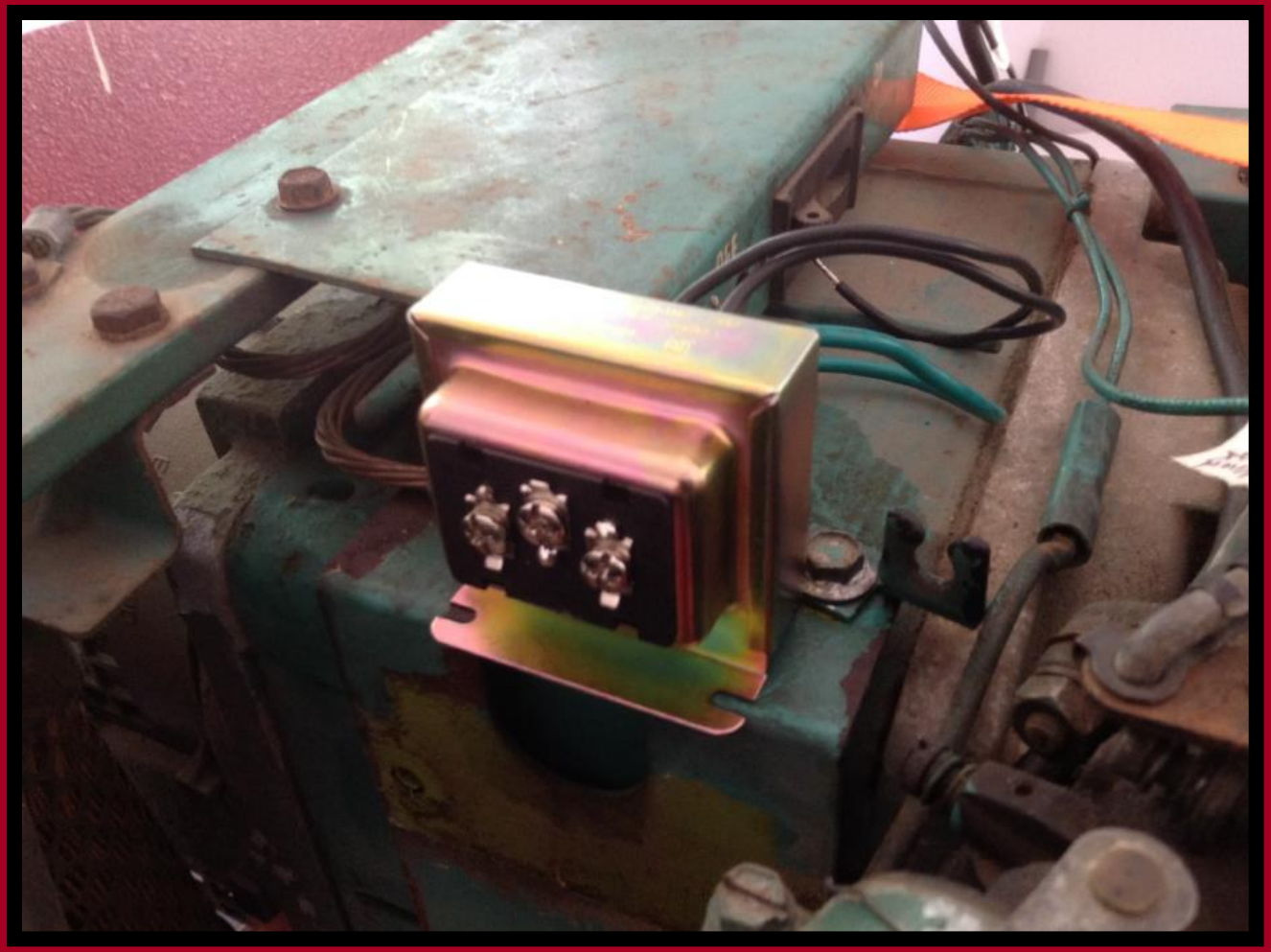


Internal Alternator Replacement



Doorbell Transformer

Transformer Installed

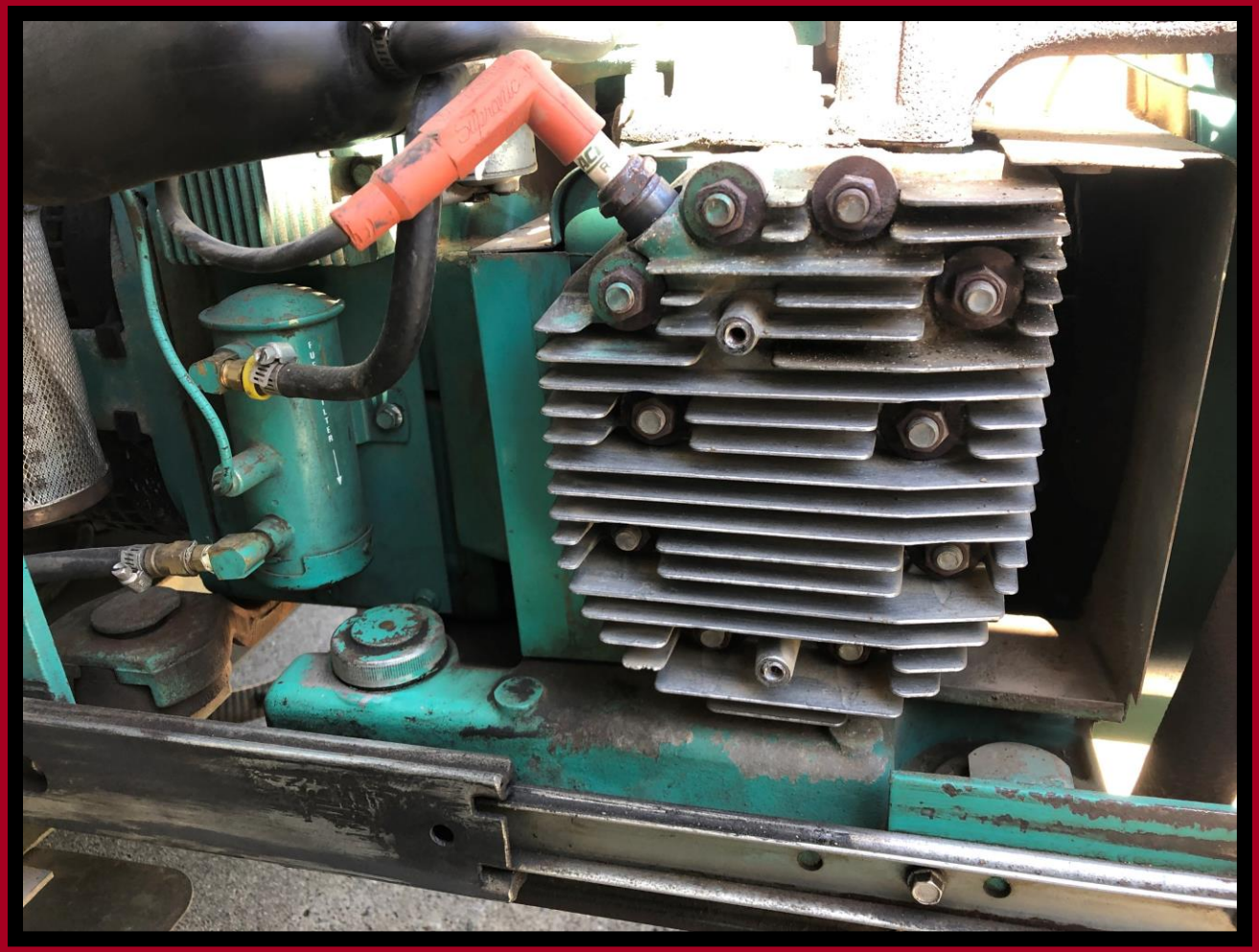


Maintenance

PERIODIC MAINTENANCE SCHEDULE

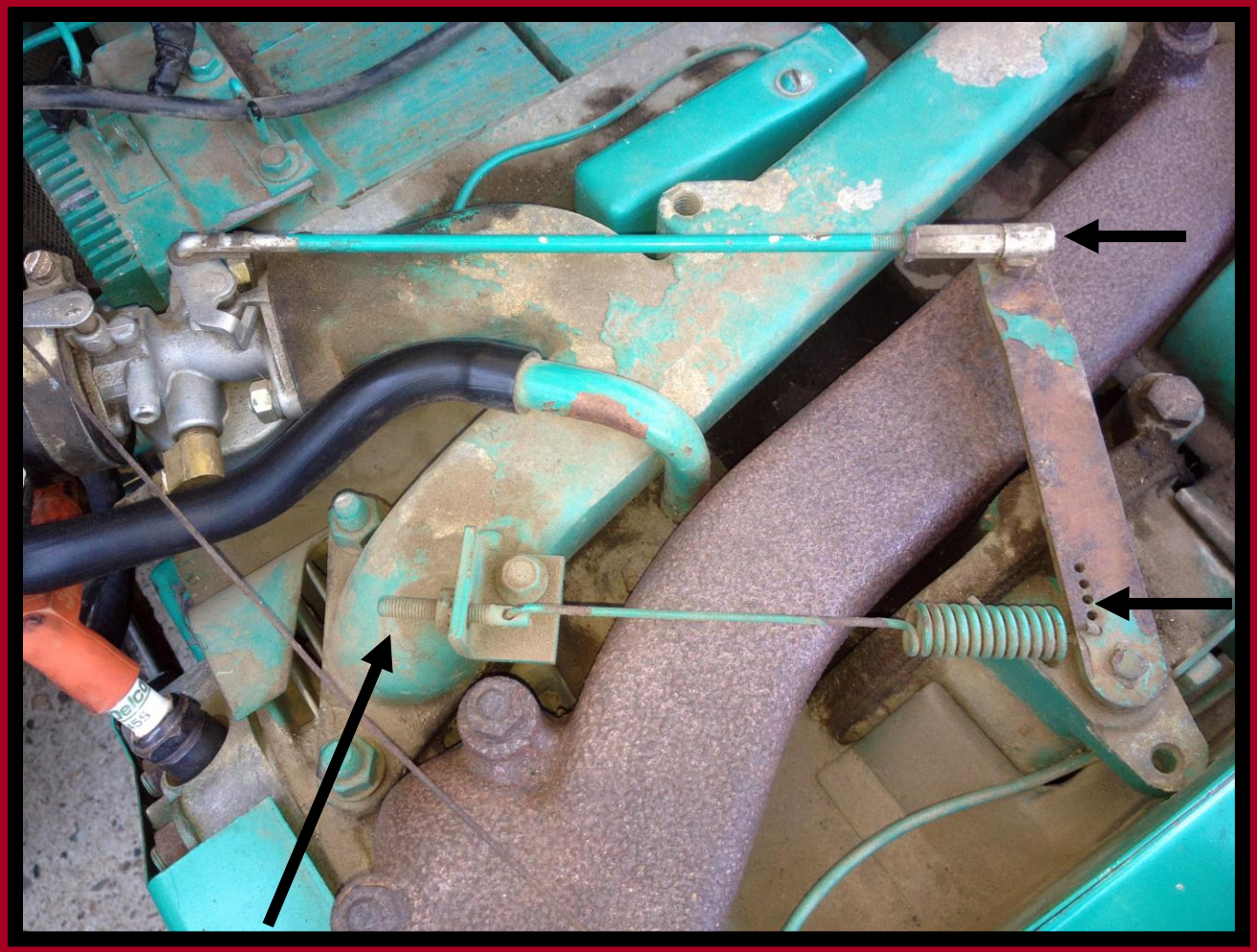
	AFTER EACH CYCLE OF INDIATED HOURS					
Service these items	8	50	100	200	400	1000
General Inspection	X					
Check the oil level	X					
Check battery		X				
Check crankcase oil			x1			
Check air cleaner			x1			
Check breaker points			x3			
Check spark plugs			x4			
Check oil filter				x1		
Check cooling fins				x1		
Clean crank case breather				x2		
Change breaker points				x2		
Fuel filter					x3	
Adjust tappets					x2	
Replace air cleaner					x1	
Remove carbon from heads					x2	
Check generator brushes for sticking			x5			
Complete reconditioning (As required)						x2
Check generator brushes (For wear)						x2

Cylinder Head

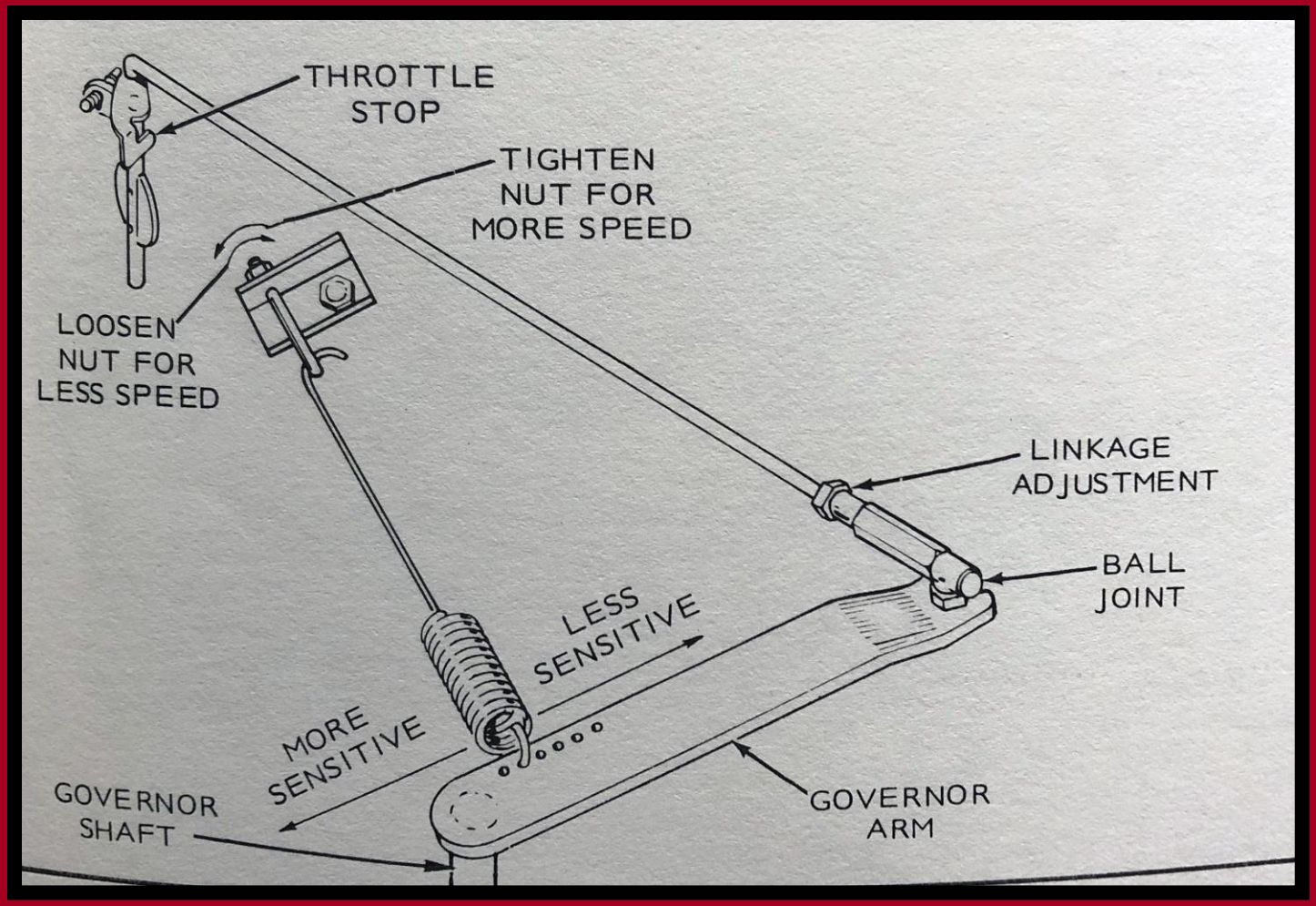


Wire brush and retorque the cylinder heads

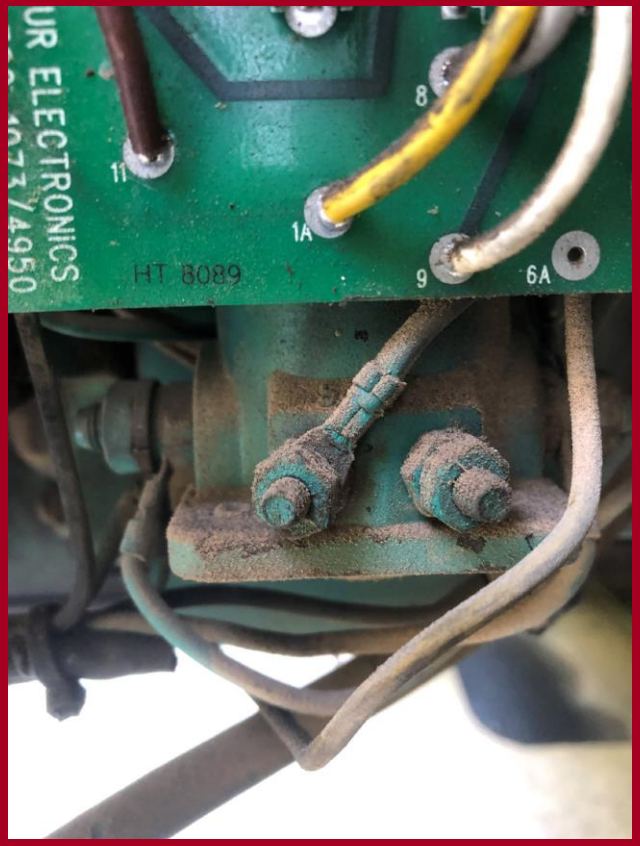
Governor Linkage



Sensitivity Adjustment

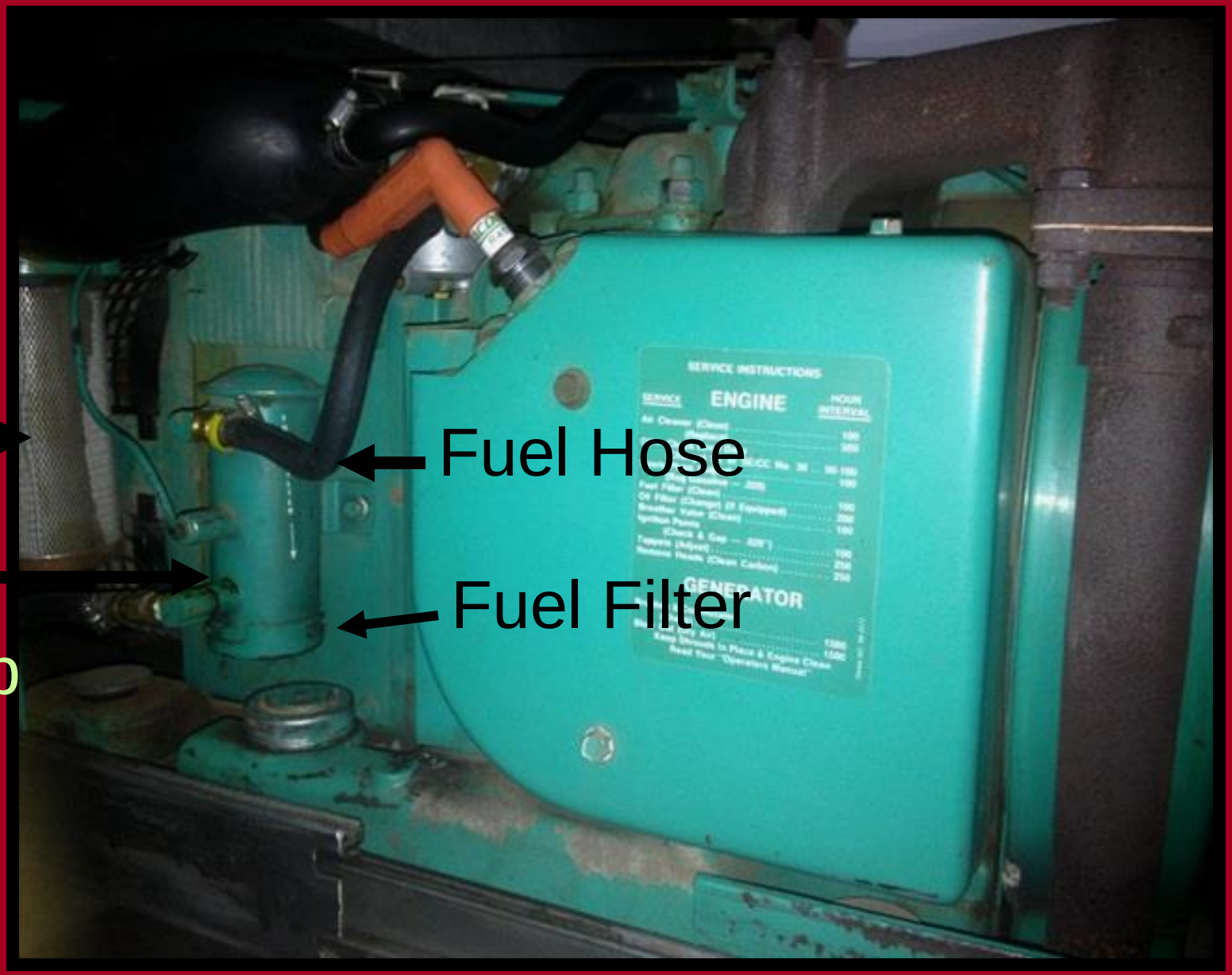


K1 Start Relay
Check for correct wiring

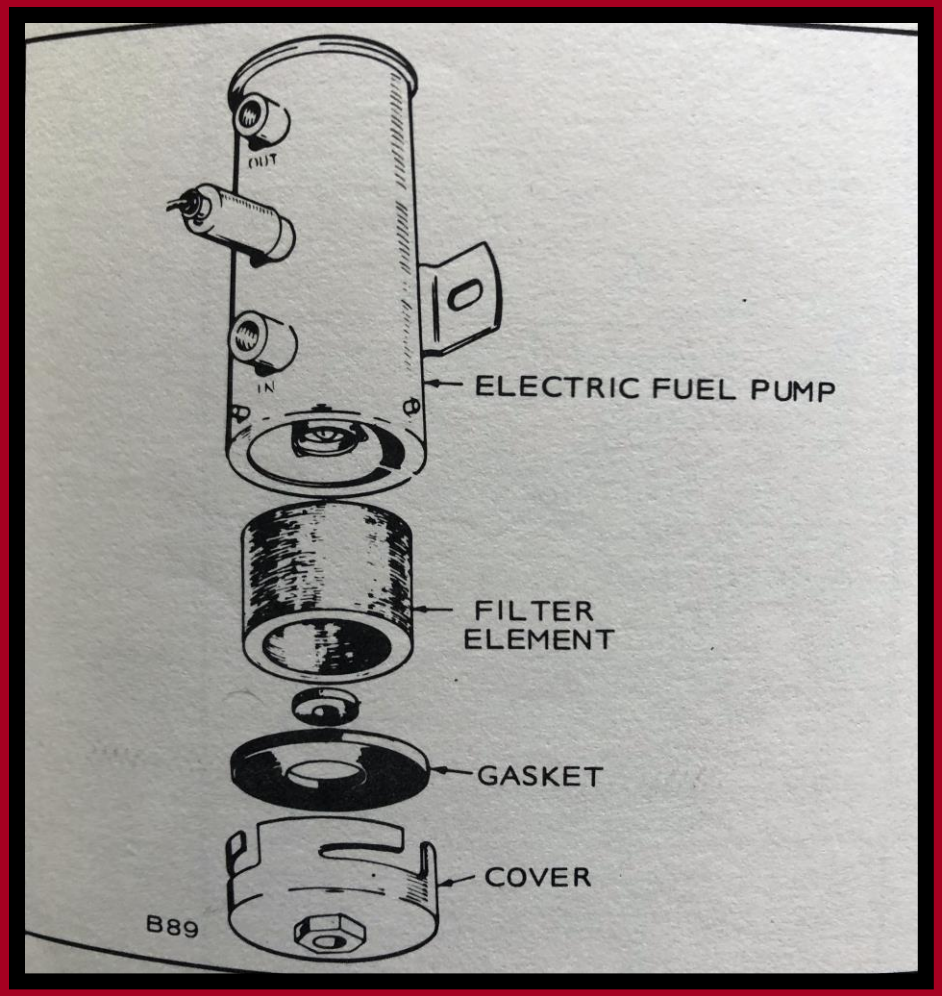




Onan - Left Side View



Fuel Pump



Fuel Pump Cover Removed



No AC Power Output



Bridge Rectifier



Find it here

4 Pin Connector



Photo courtesy of Gene Fisher

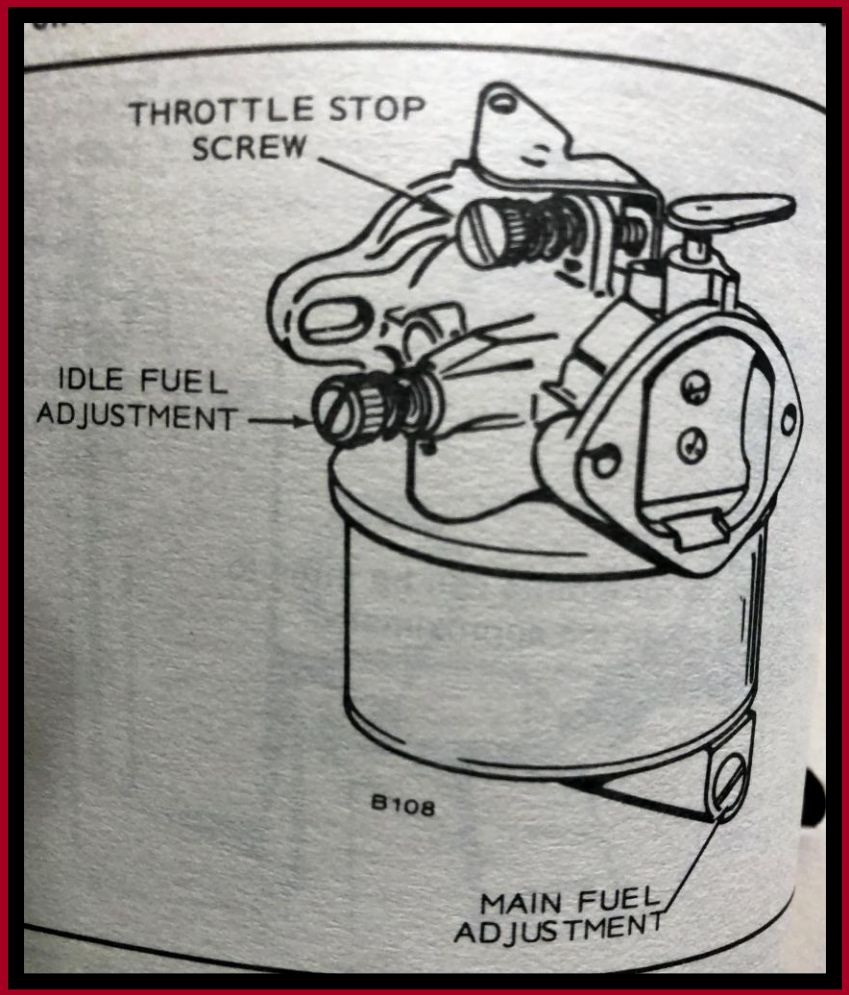
Circuit Breaker



Point, Condenser, Carb & Coil



Carburetor


THROTTLE STOP
SCREW
IDLE FUEL
ADJUSTMENT
B108
MAIN FUEL
ADJUSTMENT

Checking Timing



Onan the Barbarian



6 kW Timing Mark



4 kW Onan Timing Mark



Checking Timing

- When meter reads 1, points are open
- When meter reads 0, points are closed
- Closing the points gap retards timing
- Widening the points gap advances timing

Onan Primer Switch



Bovee's Electronic Ignition Kit



GMCnet Email

Johnny Bridges via Gmclist 8/21/19

Re: [GMCnet] What is it now? Generator issue. Details

To: Johnny Cc: Larry

JV

A well won victory! Now put Bovee's Pertronix electronic ignition on the thing and it will purr with the regularity of a Swiss watch.
<https://www.gmcrvparts.com/product-p/gm28-28.044h.01.htm>
--
Larry Davick
A Mystery Machine
1976(ish) Palm Beach
Fremont, Ca
Howell EFI + EBL + Electronic Dizzy

GMCnet mailing list
Unsubscribe or Change List Options:
http://list.gmcnet.org/mailman/listinfo/gmclist_list.gmcnet.org

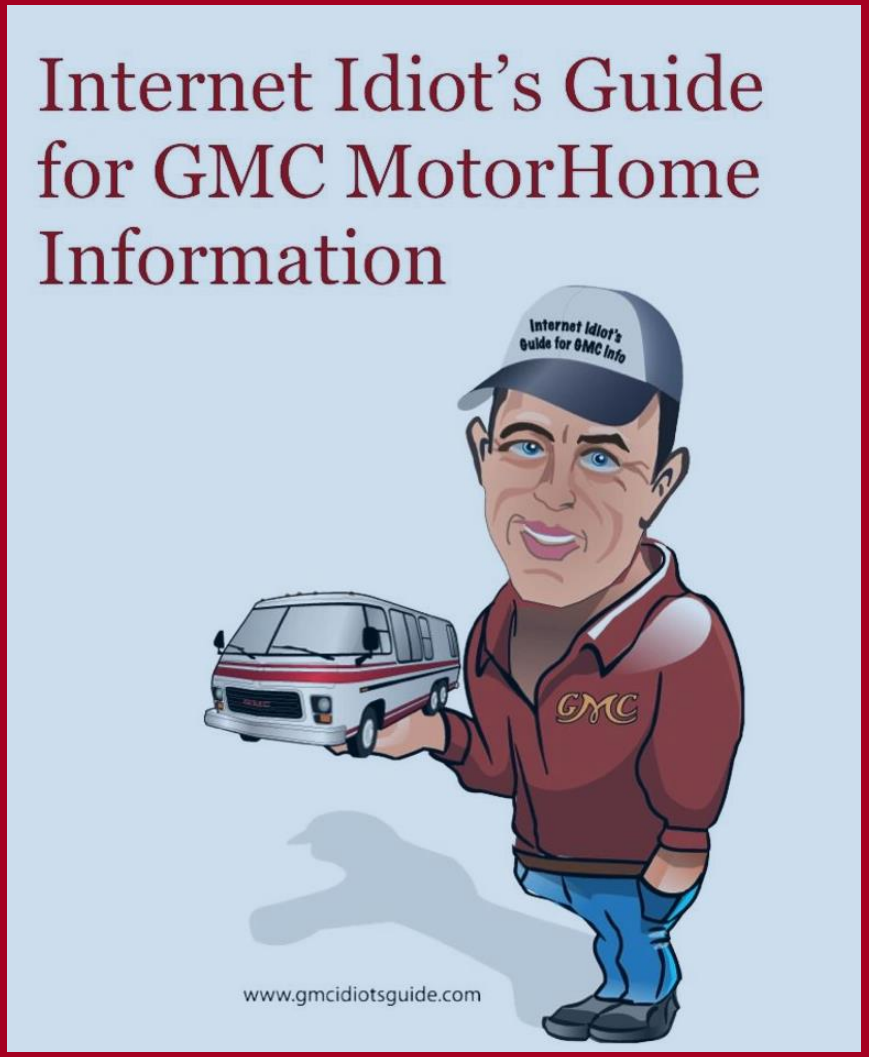
Propane Conversion Contact

- https://www.propanecarbs.com/onan.html



www.gmcidiotsguide.com

Chapter 5 – Troubleshooting The Onan, The GMC Genset



Summary

- Keep up with routine maintenance (air and oil filter replacement).
- Replace old parts (control board, fuel hose).
- Remove fuel solenoid.
- Remove voltage regulator if the Onan doesn’t have a designated battery.
- Lube governor linkage (only use graphite powder lube).
- Keep both copies of Duane Simmon’s Onan technical articles in your coach.