Replacement Onan® 300-4296(12V) 300-4297 (24V) ENGINE MONITOR

(FS Part No. 56-4296-00 or 56-4297-00)

Thank you for choosing Flight Systems P/N 56-4296-00 for the replacement of Onan® P/N 300-4296 (12V), or P/N 56-4297-00 for the replacement of Onan® P/N 300-4297 (24V). It will replace all revisions of the original Onan® product on systems using 2 to 12 lights. Revisions made by Onan® over a period of about three decades include the following:

- Glass fuses replaced by AT-type blade fuses
- Addition of TB3
- Addition of feature selection jumpers
- Addition of W10 to select flashing or steady for SWITCH OFF indication
- Addition of diagnostic LEDs to aid in troubleshooting
- AC start disconnect (K10) changed from an AC relay to a DC relay

You will notice that this new Flight Systems replacement board looks quite different from any of the Onan® boards. The most striking difference is the microprocessor-based design which enhances reliability and eliminates 17 of the 20 relays. Additional features include:

- Auto-reset on initial power-up
- Plainly marked DIP switches for feature selection (no jumpers)
- Plainly marked, user-friendly, on-board LED array for easier system troubleshooting
- Solid-state AC voltage sensing for crank termination
- Surge and reverse polarity protection
- Reverse polarity indication warns of incorrect battery connection
- Common alarm output is upgraded to 5A
- Solid-state outputs for annunciators
- Lamp test for both local and remote annunciators
- Cranking limited to 60 seconds when continuous crank is selected
- Network communications capability possible with Modbus option

You will also notice that the diagnostic LEDs are arranged in an orderly and easy-to-read fashion and that DIP switches have replaced movable jumpers for feature selection. Table 1 below shows how to set the DIP switches. The “ON” position is always to the right. For example, FAULT 1 is set up using S1, S2 and S3. If S1 is ON, FAULT 1 is enabled 15 seconds after RUN is detected. If S1 is OFF, FAULT 1 is enabled immediately when RUN is detected, without any delay. If S2 is ON, FAULT 1 will cause a shutdown. If S3 is ON, FAULT 1 is enabled always, running or not, there is no shutdown and the settings of S1 and S2 do not matter. In other words, S3 must be OFF to enable the selection of delay or shutdown using S1 and S2. FAULT 2 works exactly the same way using S4, S5 and S6. The settings for S7 through S10 are explained, along with the factory settings for all of the DIP switches in Table 1 - **SEE REVERSE.**

Designed & Built in USA by

FLIGHT SYSTEMS

207 Hempt Rd. Mechanicsburg, PA 17050 Ph: 717-590-7330 www.flightsystems.com

NOTE: The standard 56-4296-00 and 56-4297-00 boards are factory set to use "battery voltage" as the start command signal (W3 & W4 = B). On special request, these boards can be furnished to use "ground" as the start command signal (W3 & W4 = A). Table 2 below shows how to set the DIP switches if you want to keep the feature selection settings the same as on the board being replaced.

Table 1 - DIP Switch Settings by Feature

INPUT/FUNCTION	DIP SWITCH	POSITION	RESPONSE	FACTORY SETTING
FAULT 1	S1	ON	Enabled on RUN after 15 sec. time delay.	X
		OFF	Enabled on RUN, no time delay.	
	S2	ON	Shutdown.	X
		OFF	No Shutdown.	
	S3	ON	Enabled always, no shutdown. S1 & S2 have no effect.	
		OFF	Determined by S1 & S2.	X
FAULT 2	S4	ON	Enabled on RUN after 15 sec. time delay.	
		OFF	Enabled on RUN, no time delay.	X
	S5	ON	Shutdown.	X
		OFF	No Shutdown.	
	S6	ON	Enabled always, no shutdown. S4 & S5 have no effect.	
		OFF	Determined by S4 & S5.	X
PRE-LOP	S7	ON	Enabled on RUN after 15 sec. time delay, shutdown.	X
		OFF	Enabled on RUN after 15 sec. time delay, no shutdown.	
PRE-HET	S8	ON	Enabled on RUN after 15 sec. time delay, shutdown.	X
		OFF	Enabled on RUN after 15 sec. time delay, no shutdown.	
CYCLE CRANKING	S9	ON	60 sec. continuous crank, then OC.	
		OFF	15 sec. crank, 15 sec. off, for 3 cycles then OC.	X
"SWITCH OFF" WARNING	S10	ON	Flashing when REM/OFF/RUN switch is OFF.	X
		OFF	Steady when REM/OFF/RUN switch is OFF.	

Table 2 - DIP Switch Settings vs. Jumpers

JUMPER SETTING	DIP SWITCH SETTING
W1 = A	S4 OFF, S5 OFF
W1 = B	S4 OFF, S5 ON
W1 = C	S4 ON, S5 OFF
W1 = D	S4 ON, S5 ON
W2 = A	S1 OFF, S2 OFF
W2 = B	S1 OFF, S2 ON
W2 = C	S1 ON, S2 OFF
W2 = D	S1 ON, S2 ON
W3, W4 = B	FACTORY SET (See NOTE)
W5 = A	S9 OFF
W5 = B	S9 ON
W6 = A	S8 OFF
W6 = B	S8 ON
W7 = A	S7 OFF
W7 = B	S7 ON
W8 = A	S6 ON
W8 = B	S6 OFF
W9 = A	S3 ON
W9 = B	S3 OFF
W10 = A	S10 ON
W10 = B	S10 OFF

WARRANTY POLICY This Flight Systems manufactured replacement generator/ATS control is warranted to be free from defects in materials and workmanship for a period of two years from the date it was sold. *(This date appears on unit label)*

Flight Systems' Limited Warranty covers the repair or replacement of defective product within the warranty period. It does not cover the cost of installation, or removal costs incurred, or possible damage to other equipment (including the generator or parts thereof) as a result of this product.

Flight Systems (or its authorized agent) shall reserve the right to determine the cause of malfunction. ***In the case if we determine that it was due to abuse, misuse, improper installation, acts of nature (such as storms), failure to perform recommended gen set maintenance procedure or problems elsewhere in the gen set, the warranty claim shall be disallowed and established repair rates shall apply.*** *Ship defective units directly to:*

Flight Systems, 207 Hempt Rd. Mechanicsburg, PA 17050
- Attention: Warranty Repair

Please prepay all freight charges and note the nature of the failure, if known.

RETURN POLICY Unwanted items **may only be returned within 30 days of original purchase date**. Refund/credit issued shall be less a 25% per item restocking/re-test fee as long as unit is in new, undamaged condition. *Shipping charges are not refundable.*

TECHNICAL SUPPORT

Technical support is available by phone, fax or the internet for this and all Flight Systems products.

Phone: 717-590-7330 (8:00am - 4:30pm ET, M-F)

Fax: 717-590-7327 Email: techs@flightsystems.com Web: www.flightsystems.com

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