

START BUTTON: It is used to start the genset when the panel is in Test and Manual modes. At the same time, when the genset is in cooling and stop states in the same modes, pressing this button operates the genset restart procedure.

Emergency Stop Button: The generator switches to cooling while under load, and performs a direct stop when idling. Additionally, pressing this button switches the panel to Off Mode.

Auto Button: Switches the panel to Automatic mode. Under suitable network conditions, it connects the load to the grid; otherwise, it automatically starts the generator.

MAN MAN Start the generator, followed by pressing the generator contactor button to supply the load. Additionally, a short press switches to Test Mode.

Generator Contactor Button: In Manual Mode, it is used to supply the load with the generator. It disengages the generator while under load.Grid Contactor Button: In Manual Mode, it is used to supply the load to the grid. It disconnects the load from the grid while it is being powered by the grid.



Grid Contactor Button: In Manual Mode on the panel, when the grid is within the appropriate voltage and frequency range, this button is used to supply the load. In the same mode, pressing this button while the load is being powered by the grid will disconnect the load from the grid.



Alarm Mute Button: Deactivates the horn output and clears faults. You can delete individual faults on the active alarm page.

Enter Button: The enter button is used to navigate from monitoring pages to the main menu. In the main menu and submenus, pressing enter accesses deeper menus. On the maintenance page, the maintenance time is selected with the up/down buttons and reset by pressing enter for 5 seconds.

Navigation Down Button: Used to switch from phase-to-phase voltage or current display pages to the phase-neutral voltage display page. In active alarm and menu pages, it moves to the next fault or page heading below.

Navigation Up Button: Used to switch from phase-neutral voltage or current display pages to the phase-to-phase voltage display page. In active alarm and menu pages, it moves to the previous fault or page heading above



Navigation Right Button: Used in monitoring pages and the main menu to move to an adjacent page or menu title. It is used for navigating to pages like parameter changes, RTC settings, and the Ethernet settings page

Navigation Left Button: Used in monitoring pages and the main menu to move to an adjacent page or menu title. On pages where values are set, such as parameter changes, RTC settings, and the Ethernet settings page, it moves the cursor to the left. Additionally, if held down for 1 second, it exits to the upper menu while in any menu or exits from the parameter change stage

## MAIN MENU AND USER INTERFACE



Press the enter S button briefly on the monitoring screens to switch to the main menu. The main menu includes five main headings: "DIGITAL I/O", "EVENTS-ALARMS", "MAINTENANCE", "PANEL SETTINGS", and "PARAMETERS". You can navigate through the main menu by briefly pressing the left and right O buttons. When you arrive at any main heading and press the enter button briefly, you enter the submenu. To return to a higher page from the main menu and submenus, pressing the left navigation O button for 1 second is sufficient. Navigation within the submenus can be done using the up and down O O buttons.

PARAMETER MODIFICATION Navigate through the main menu to find the "PARAMETERS" heading and press the enter substant. Access the "Enter Parameter Number" tab by pressing the enter substant.



- Parameter Number to be
- Changed.
   The Name of the Parameter to be Changed.
  - Parameter Value
- The maximum value the parameter can take
- The minimum valua the parameter can take

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Press the enter 🔊 button to activate the parameter number selection. Use the navigation buttons to input and confirm the desired value with the enter 🍛 button. Then, press the down 🕥 navigation button to move to the set value field, enter the password screen with the enter button, and proceed if the password is correct. Confirm the new parameter value using the navigation buttons and finalize it with the enter 😒 button. To exit the parameter menu, hold the left navigation 🕥 button for 1 second.

# ALARM AND EVENT LOGS

Alarms	
01 Low Oil Pressure	
31/01/2024-16:48 <del>&lt;244 Ha</del>	ur_
	Ę
02 Emergency Stop	
31/01/2024-14:47 244 Ho	bur
03 Low Battery Voltage	
31/01/2024-14:41 244 Ho	our

## **ACTIVE ALARMS**



## SERVICE TIME RESET



Maintenance Name Time to Maintenance

Fault Record Number

Name of Fault Record

the fault

Engine Operating Hours at Time of Failure

The date and time of the occurence of

Service Level

Navigate to the "EVENTS AND ALARMS" heading from the main menu and press the enter 💌 button. You can access the last 50 event records by selecting "Events" and pressing the enter 🖸 button, or the last 50 alarm records by selecting "Alarms" and pressing the enter button. The records include time information in day, month, year, hour, and minute format; the generator's operating hours at the time of the event are also recorded.

From the main screen, use the right and left navigation **OO** buttons to go to the active alarms page. Alarms are listed with a red or yellow background. Alarms with a yellow background are at a warning level and do not stop the generator, while alarms with a red background can stop the generator. You can delet e an alarm you wish to clear by navigating to it and pressing the alarm silence 🚺 button.

From the main menu, go to the "MAINTENANCE" option and enter by pressing the enter 💌 button. After selecting the service interval to be reset using the up and down navigation 🔿 🛆 buttons, hold the enter button for 5 seconds to reset it.



## AMF-L CONNECTION DIAGRAM

NOTE1: If the amount of time equal to the menu exit duration has passed since the last password entry, the password screen will reopen and the user will be asked to enter the password again.

NOTE2: If a fault or warning occurs, a warning symbol will appear in the bottom right corner of the screen, and the word "Alarm" in the status bar will start flashing in red or yellow, depending on the severity of the error. 🔔

NOTE3: When the panel is in Manual mode and is being powered by either the network or a generator, the contactor for the source providing the load cannot be disengaged unless its corresponding contactor button is used.

#### PARAMETERS

	Ρ.	PARAMETER DESCRIPTION	UNI.	L	MİN.	MAX.	DEF		P	·.	PARAM											
	101	Off Mode Selection		2	0	1	0		2	2	Factory											
6	102	High Voltage Alarm Level	%	3	101	150	115	G	3	5	Service											
	103	Low Voltage Alarm Level	%	3	50	99	85	E	4	1	User Pa											
ĸ	104	High Frequency Alarm Level	%	1	101	150	104		5	;	Parame											
1	105	Low Frequency Alarm Level	%	2	50	99	96	N	6	5	LANGU											
D	110	Phase Sequence Control Action		3	0	1	1	E	7	,	Return											
	111	Connection Type		3	0	1	1	R	8	2												
	201	Connection Type		2	0	1	1	A			Engine											
	202	Engine Type		2	0	1	-	L	1	,	ManuT											
	302	Engine Type		2	0	1	0		1	.0	Ivienu I											
	303			3	U	1	0		1	.1	Exitivie											
	304	Mode Function		1	0	3	0		2	202	Number											
	305	Pre-Initialization Action		2	0	2	0		2	203	Nomina											
	306	Starter Cutoff Level from Generator Frequency	Hz	3	150	750	150		2	205	Generat											
	307	Starter Cutoff Level from Generator Speed	rpm	3	500	6000	500		2	206	General											
	308	Starter Cutoff Level from Generator Voltage	v	3	60	500	300		2	207	Generat											
		Cranking Cutoff Level from Charge Alternator																				
	309	Voltage	V	3	60	300	60		2	208	Generat											
	310	Starter Cutoff Level from Oil Pressure	bar	3 2 1 1 3	10 1	100	30		2	209	Nomina											
	311	Maximum Number of Starter Attempts				10	3	G	2	211	Generat											
	312	Intermittent Horn Output			0	1	0	E	2	12	Generat											
	313	Oil Pressure Unit	bar		0 0 5	1	0	N	2	213	Generat											
	314	Low Oil Pressure Alarm Action				- 4 95	4	E	2	14	Generat											
	315	Low Oil Pressure Alarm Level	bar	2			10	R	2	19	Generat											
	316	Oil Pressure Switch Open Circuit Action		2	0	4	4	Δ	2	20	General											
	217	Tomporature Unit	۰c	1	0	4	•	17	2	20	General											
	210	High Coolant Tomporature Alarm Action		2	0	1	4		2	21	General											
	210	High Coolant Temperature Alarm Lovel	°C	3	о г	4	4	0	4	.22	Conoral											
	319	High Coolant Temperature Alarm Level	L	2	5	150	110	R	4	.23	General											
	320	Coolant Temperature Sender Open Circuit Action		2	0	4 4	4		2	27	Generat											
	321	Low Fuel Level Alarm Action		3	0		4		2	28	Synchro											
	322	Low Fuel Level Alarm Level	%	2	0	45	5		2	29	Synchro											
F											Synchro											
	323	Fuel Level Switch Open Circuit Action		2	0	4	4		2	230	Differer											
IN	324	Fuel Pump Lower Limit	%	2	0	90	20		6	601	Initializa											
G	325	Fuel Pump Upper Limit	%	2	5	95	80		6	602	Networ											
1	326	Cooling Fan Low Limit	°C	3	0	240	65		6	603	Pre-run											
Ν	327	Cooling Fan High Limit	°C	3	5	245	100		6	604	Maximu											
E	328	Nominal Battery Voltage	v	2	100	260	130		6	605	Starter											
	329	Battery High Voltage Alarm Action		3	0	4	4		6	606	Failure											
	330	Battery High Voltage Alarm Level	%	2	101		125		6	607	Choke D											
			1	F					ľ													
	331	Battery Low Voltage Alarm Action		3	0	4	4		6	608	Oil Pres											
	332	Batarva Düsük Gerilim Alarm Sevivesi	%	2	75	99	75	E	6	511	Stop So											
	334	Charging Alternator High Voltage Alarm Action		3	0	4	4	N	6	512	Engine											
	335	Charging Alternator High Voltage Alarm Level	%	2	101	125	125	6	6	13	Cooling											
	336	Charging Alternator Low Voltage Alarm Action	10	2	0	125	4		6	15	Transfe											
	227	Charging Alternator Low Voltage Alarm Level	%	2	75	4	75	1	6	16	Horn Di											
	220	Motor High Spood Alarm Action	/0	2	0	1	15	N	6	10												
	339	Notor High Speed Alarm Action	0/	3	0	4	4	E	0	19	LOW UII											
	340	Notor High Speed Alarm Level	%	12		1	1 3 0		l in	20	i jii Pres											
	341	INIOTOR LOW Speed Alarm Action		2		150	120		6	.24	Ulah Ca											
		· · · · ·		3	0	150 4	120 4	Т	6	521	High Co											
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	342	Motor Low Speed Alarm Level	%	3	50	150 4 90	120 4 80	T İ	6	521 522	High Co Coolant Delay											
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ATOR TIMER	342 343 344 345 346 349 350 351 352 353 354 501 502 503 504 507 508	Motor Low Speed Alarm Level Maintenance Alarm (Oil) Action Maintenance Alarm (Air) Action Maintenance Alarm (Fuel) Action Maintenance Alarm (General) Action Maintenance Alarm (General) Action Number of Flywheel Teeth Test Mode Load Selection Oil Heater Low Temperature Limit Oil Heater Low Temperature Limit High Backup Temperature Alarm Action High Backup Temperature Alarm Action High Backup Temperature Switch Open Circuit Action Generator High Voltage Alarm Delay Generator Low Voltage Alarm Delay Generator Low Frequency Alarm Delay Generator High Current Alarm Delay Generator Phage Current Alarm Delay Generator High Current Alarm Delay	% °C °C °C °C S S S S S S S S S S	3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	110           50           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           5           0           1           1           1           1           1           1	150 4 90 4 4 4 4 1000 1 240 245 4 150 4 1000 1000 1000 1000 1000 1000	120 4 80 2 2 2 2 2 2 2 2 2 00 0 - 15 0 4 110 4 10 10 10 10 10 10	T i de r		221 223 224 229 229 330 331 332 333 334 335 337 338 .001 .006 .007 .008 .009 .010	High Co Coolant Delay Low Fue Fuel Lev Motor C Motor L Maintee Maintee Maintee Service High Ba Backup Delay J1939 E Ecu Spe Ecu Oil Ecu Ten Motor S Motor S											
IERATOR TIMER	342 343 344 345 346 348 349 350 351 352 353 354 501 502 503 504 509	Motor Low Speed Alarm Level Maintenance Alarm (Oil) Action Maintenance Alarm (Air) Action Maintenance Alarm (Fuel) Action Maintenance Alarm (General) Action Maintenance Alarm (General) Action Number of Flywheel Teeth Test Mode Load Selection Oil Heater Low Temperature Limit Oil Heater Low Temperature Limit High Backup Temperature Alarm Action High Backup Temperature Alarm Level Backup Temperature Switch Open Circuit Action Generator High Voltage Alarm Delay Generator Low Voltage Alarm Delay Generator Low Frequency Alarm Delay Generator Phase Sequence Error Delay Generator High Current Alarm Delay Generator High Power Alarm Delay	% °C °C °C S S S S S S S S S	3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	110           0           50           0           0           0           0           0           0           -10           0           -15           -10           0           1           1           1           1           1           1           1           1           1           1           1           1           1           1	150 4 90 4 4 4 1000 1 240 245 4 150 4 1000 1000 1000 1000 1000 1000	120 4 80 2 2 2 2 2 2 100 0 -15 0 4 110 10 10 10 10 10 10 10 20 2 2 2 2 2 2	T i 2 e r	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	221 222 223 224 229 330 331 332 333 334 335 337 338 .0001 .0006 .0007 .0008 .0009 .0100 .011	High Co Coolant Delay Low Fue Fuel Lev Motor C Motor C Maintee Maintee Maintee Service High Ba Backup Delay J1939 Ec Ecu Spe Ecu Oil Ecu Ten Motor S Motor S Can Ecu											
ienerator timer	342 343 344 345 346 348 349 350 351 352 353 354 501 502 503 504 507 508 509 510	Motor Low Speed Alarm Level Maintenance Alarm (Oil) Action Maintenance Alarm (Air) Action Maintenance Alarm (Fuel) Action Maintenance Alarm (Fuel) Action Maintenance Alarm (General) Action Number of Flywheel Teeth Test Mode Load Selection Oil Heater Low Temperature Limit Oil Heater High Temperature Limit High Backup Temperature Alarm Action High Backup Temperature Alarm Action High Backup Temperature Alarm Level Backup Temperature Switch Open Circuit Action Generator High Voltage Alarm Delay Generator Low Voltage Alarm Delay Generator Low Frequency Alarm Delay Generator High Current Alarm Delay Generator High Current Alarm Delay Generator High Power Alarm Delay Synchronous Switching Maximum Dwell Time	% °C °C °C S S S S S S S S S S S S	3         2       2         2       2         2       2         2       2         2       2         2       2         2       2         2       2         2       2         2       2         2       3         3       3         2       3         3       3         3       3         3       3	50 50 0 0 0 0 0 0 0 0 0 0 0 0 -15 -10 0 5 0 1 1 1 1 1 1 1 1 1 1 1 1 1	150 4 90 4 4 4 1000 1 240 245 4 150 1000 1000 1000 1000 1000 1000 1000 120	120 4 80 2 2 2 2 100 0 -15 0 4 110 10 10 10 10 10 10 10 10 10 10 10 10		6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	221 222 223 224 229 330 331 332 333 334 335 337 388 .001 .006 .007 .008 .009 .010 .011 .012	High Co Coolant Delay Low Fue Fuel Lev Motor I Mainte Mainte Mainte Service High Ba Backup Delay J1939 E Ecu Spe Ecu Col Ecu Ten Motor S Can Ecu Can Ecu											
GENERATOR TİMER	342 343 344 345 345 345 350 351 352 353 354 501 502 503 504 507 508 507 507 508	Motor Low Speed Alarm Level Maintenance Alarm (Oil) Action Maintenance Alarm (Oil) Action Maintenance Alarm (Fuel) Action Maintenance Alarm (Fuel) Action Maintenance Alarm (Fuel) Action Mumber of Flywheel Teeth Test Mode Load Selection Oil Heater Low Temperature Limit Oil Heater High Temperature Limit High Backup Temperature Alarm Action High Backup Temperature Alarm Action High Backup Temperature Alarm Level Backup Temperature Switch Open Circuit Action Generator High Voltage Alarm Delay Generator Low Voltage Alarm Delay Generator How Frequency Alarm Delay Generator High Frequency Alarm Delay Generator High Power Alarm Delay Generator High Power Alarm Delay Synchronous Switching Maximum Dwell Time Synchronous Transition Time	% % °C °C °C °C °C °C °C °C °C °C	3         2       2         2       2         2       2         2       2         2       2         2       2         2       2         2       2         2       2         2       2         2       2         3       3         3       3         3       3         3       3	50 0 0 0 0 0 0 0 0 0 0 0 0 0	150 4 90 4 4 4 1000 1 240 245 4 150 1000 1000 1000 1000 1000 1000 1000 1000	120 4 80 2 2 2 2 100 0 -15 0 4 110 10 10 10 10 10 10 10 10 10 10 10 2 2	T I N E R R V B V B V B V B V B V B V B V B V B	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	221 222 223 224 229 330 331 332 333 334 335 337 338 .001 .006 .007 .008 .009 .010 .011 .012 .013 .012 .013 .012 .014	High Co Coolant Delay Low Fue Fuel Lev Motor C Motor I Maintee Maintee Maintee Maintee Maintee Maintee Service High Ba Backup Delay J1939 E Ecu Spe Ecu Oil Ecu Ten Motor S Can Ecu Can Ecu											
GENERATOR TIMER	342 343 344 345 345 346 345 350 351 352 353 354 501 502 503 504 507 507 507 507 508 509 510 511 512	Motor Low Speed Alarm Level Maintenance Alarm (Oil) Action Maintenance Alarm (Air) Action Maintenance Alarm (Fuel) Action Maintenance Alarm (Fuel) Action Maintenance Alarm (General) Action Mumber of Flywheel Teeth Test Mode Load Selection Oil Heater Low Temperature Limit Oil Heater High Temperature Limit High Backup Temperature Alarm Action High Backup Temperature Alarm Action High Backup Temperature Alarm Level Backup Temperature Switch Open Circuit Action Generator High Voltage Alarm Delay Generator Low Voltage Alarm Delay Generator High Frequency Alarm Delay Generator High Frequency Alarm Delay Generator High Current Alarm Delay Generator High Ower Alarm Delay Generator High Ower Alarm Delay Synchronous Switching Maximum Dwell Time Synchronous Transition Contactor Delay	% % °C °C °C °C °C °C °C °C °C °C	3         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         3 <td< td=""><td>50       0       50       0       0       0       0       0       0       -10       0       5       0       1</td><td>150 4 90 4 4 4 1000 1 240 240 240 240 240 240 240 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000</td><td>120 4 80 2 2 2 2 100 0 -15 0 4 110 10 10 10 10 10 10 10 10 10 10 10 10</td><td></td><td>6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6</td><td>221 222 223 224 229 330 331 332 333 334 335 337 338 .001 .006 .007 .008 .009 .0010 .011 .012 .013 .014</td><td>High Coolant Delay Low Fue Fuel Lev Motor C Motor I Maintee Maintee Maintee Service High Ba Backup Delay J1939 E Ecu Spe Ecu Oil Ecu Spe Ecu Oil Ecu Ten Motor S Can Ecu Can Ecu Can Sou</td></td<>	50       0       50       0       0       0       0       0       0       -10       0       5       0       1	150 4 90 4 4 4 1000 1 240 240 240 240 240 240 240 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000	120 4 80 2 2 2 2 100 0 -15 0 4 110 10 10 10 10 10 10 10 10 10 10 10 10		6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	221 222 223 224 229 330 331 332 333 334 335 337 338 .001 .006 .007 .008 .009 .0010 .011 .012 .013 .014	High Coolant Delay Low Fue Fuel Lev Motor C Motor I Maintee Maintee Maintee Service High Ba Backup Delay J1939 E Ecu Spe Ecu Oil Ecu Spe Ecu Oil Ecu Ten Motor S Can Ecu Can Ecu Can Sou											

	DADAMETED DESCRIPTION	LINI	1	мім	MAX	DEE
2	Factory Descriverd		2	0	0000	1022
2			2	0	9999	1925
3	Service Password		2	0	9999	1922
4	User Password		1	0	9999	1934
5	Parameter Record		1	0	2	0
6	LANGUAGE		1	0	1	0
7	Return to Factory Settings		3	0	2	0
9	Log Cleanun		2	0	1	0
0			3	0	1	0
9	Engine Clock Setting		3	0	32000	U
10	Menu Timeout	min	3	1	30	5
11	Exit Menu		1	0	1	0
202	Number of Alternator Poles		1	0	7	1
203	Nominal Voltage	v	2	85	240	220
205	Generator High Voltage Alarm Action	-	2	0	1	1
205		o/	3	0	4	4
206	Generator High Voltage Alarm Level	%	2	101	150	115
207	Generator Low Voltage Alarm Action		3	0	4	4
208	Generator Low Voltage Alarm Level	%	2	50	99	85
209	Nominal Frequency	H <sub>7</sub>	2	300	600	500
205	Concrator High Frequency Alarm Action	112	2	0	4	4
211	Generator High Frequency Alarm Action	a(	3	0	4	4
212	Generator High Frequency Alarm Level	%	2	101	130	106
213	Generator Low Frequency Alarm Action		3	0	4	4
214	Generator Low Frequency Alarm Level	%	2	50	99	94
219	Generator Phase Sequence Control Action		1	0	4	2
220	Generator High Current Alarm Action		2	0	4	4
220	Conceptor High Concept Alarma Land		2	1	10000	-
221	Generator High Current Alarm Level	А	2	1	10000	50
222	Generator High Power Alarm Action		3	0	4	4
223	Generator High Power Alarm Level	%	2	110	150	150
227	Generator current transformer ratio		2	1	9999	20
227			2	1	3333	20
228	Synchronous Pass Selection		2	0	1	0
229	Synchronous Transition Frequency Difference	Hz	2	3	10	3
	Synchronous Transition Maximum Frequency					
230	Difference	Hz	2	3	15	10
601	Initialization Delay	c	1	0	6000	50
602	Network Stebilization Time	3	1	0	10000	200
602		S	1	U	18000	200
603	Pre-run Time	S	2	0	6000	20
604	Maximum Cranking Time	s	3	0	600	50
605	Starter Waiting Time	s	3	50	990	100
606	Failure Control Delay	s	3	0	1000	100
	· · · · · · · · · · · · · · · · · · ·	-	-	-		
607	Choke Duration	c	1	10	600	20
607	Choke Duration	s	1	0	600	20
607	Choke Duration	s	1	0	600	20
607 608	Choke Duration Oil Pressure Switch Starter Interruption Time	s s	1	0	600 50	20 0
607 608 611	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer	s s	1 3 3	0 0 0	600 50 1200	20 0 200
607 608 611 612	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time	s s s	1 3 3	0 0 0 0	600 50 1200 3600	20 0 200 0
607 608 611 612 613	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time	s s s s	1 3 3 3	0 0 0 0 0	600 50 1200 3600 18000	20 0 200 0 300
607 608 611 612 613 615	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time	s s s s s	1 3 3 3 3 3	0 0 0 0 0 0	600 50 1200 3600 18000 6000	20 0 200 0 300 7
607 608 611 612 613 615 616	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration	s s s s s s s	1 3 3 3 3 3 2	0 0 0 0 0 0 0 10	600 50 1200 3600 18000 6000 900	20 0 200 0 300 7 30
607 608 611 612 613 615 616 619	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay	s s s s s s s s s	1 3 3 3 3 3 2 2	0 0 0 0 0 10	600 50 1200 3600 18000 6000 900 600	20 0 200 0 300 7 30 30
607 608 611 612 613 615 616 619 622	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay	s s s s s s s s s	1 3 3 3 3 3 2 3 2 3	0 0 0 0 0 0 10 1	600 50 1200 3600 18000 6000 900 600	20 0 200 0 300 7 30 30 30
607 608 611 612 613 615 616 619 620	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay	s s s s s s s s s s s s s	1 3 3 3 3 3 2 3 2 3 2 3 2	0 0 0 0 0 10 1 1	600 50 1200 3600 18000 6000 900 600 600	20 0 200 0 300 7 30 30 30 30
607 608 611 612 613 615 616 619 620 621	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay	s s s s s s s s s s s s s s s	1 3 3 3 3 3 2 3 2 3 2 3 2 3	0 0 0 0 0 10 1 1 1 1	600 50 1200 3600 18000 6000 600 600 600 600	20 200 200 300 7 30 30 30 50
607 608 611 612 613 615 616 619 620 621	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit	s s s s s s s s s s s s s	1 3 3 3 3 2 3 2 3 2 3	0 0 0 0 0 10 1 1 1 1	600 50 1200 3600 18000 6000 900 600 600 600	20 0 200 0 300 7 30 30 30 30 50
607 608 611 612 613 615 616 619 620 621 622	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay	s s s s s s s s s s s s s s s	1 3 3 3 3 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3	0 0 0 0 0 10 1 1 1 1	600 50 1200 3600 18000 6000 600 600 600 600	20 0 200 0 300 7 30 30 30 30 50
607 608 611 612 613 615 616 619 620 621 622 623	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay	s s s s s s s s s s s s s s s s s	1 333332323 23 23	0 0 0 0 0 10 1 1 1 1 1	600 50 1200 3600 18000 6000 600 600 600 600	20 0 200 0 300 7 30 30 30 30 50 50 10
607 608 611 612 613 615 616 619 620 621 622 623 623	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay	s s s s s s s s s s s s s s s s s s	1 3 3 3 3 3 3 2 3 2 3 2 3 2 3 2 3 2 3 2	0 0 0 0 0 10 1 1 1 1 1	600 50 1200 3600 18000 6000 600 600 600 600 600 600 600	20 0 200 0 300 7 30 30 30 30 50 50 10
607 608 611 612 613 615 616 619 620 621 622 623 623 624	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay	s s s s s s s s s s s s s s s s s s	1 3 3 3 3 3 3 2 3 2 3 2 3 2 3 2 3 2 3 2	0 0 0 0 0 10 1 1 1 1 1 1 2	600 50 1200 3600 18000 900 600 600 600 600 600 600 600 600	20 0 200 0 300 7 30 30 30 30 50 50 10
607 608 611 612 613 615 616 619 620 621 622 623 624 629	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay	s s s s s s s s s s s s s s s s s s s	1 3 3 3 3 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3	0 0 0 0 0 10 1 1 1 1 1 1 1 0	600           50           1200           3600           18000           6000           900           600           600           600           600           600           600           600           600           600           600           600           600	20 0 200 0 300 7 30 30 30 30 50 50 10 10
607 608 611 612 613 615 616 619 620 621 622 623 624 629 630	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay	s s s s s s s s s s s s s s s s s s	1 3 3 3 3 2 3 2 3 2 3 2 3 2 3 3	0 0 0 0 10 1 1 1 1 1 1 1 0 0	600 50 1200 3600 18000 6000 600 600 600 600 600 600 600 60	20 0 200 0 300 7 30 30 30 30 50 50 10 10 10
607 608 611 612 613 615 616 619 620 621 622 622 622 624 629 630 631	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock	s s s s s s s s s s s s s h	1 33332323 23233 3333333333333333333333	0 0 0 0 0 10 1 1 1 1 1 1 0 0 0 200	600 50 1200 3600 18000 6000 600 600 600 600 600 600 600 60	20 0 200 300 7 30 30 30 30 50 50 10 10 10 10 10 1000
607 608 611 612 613 615 616 619 620 621 622 623 622 623 624 629 630 631 632	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Air) Clock	s s s s s s s s s s s s h h	1 3 3 3 3 3 2 3 2 3 2 3 2 3 3 3 3 3 3	0 0 0 0 10 1 1 1 1 1 1 0 0 200 200	600 50 1200 3600 18000 6000 600 600 600 600 600 600 600 60	20 0 200 0 300 7 30 30 30 50 50 10 10 10 10 1000
607 608 611 612 613 615 616 619 620 621 622 623 624 629 630 631 632	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Eucl)	s s s s s s s s s s s s s s s s s s s	1 3 3 3 3 2 3 2 3 2 3 2 3 2 3 3 3 3 3 3	0 0 0 0 10 1 1 1 1 1 1 1 0 0 0 200 200 2	600 50 1200 3600 18000 6000 600 600 600 600 600 600 600 60	20 0 200 0 300 7 30 30 30 30 50 50 10 10 10 10 1000 1000
607 608 611 612 613 615 616 619 620 621 622 623 623 624 629 630 631 632 633	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Cil) Clock Maintenance Alarm (Concert) Clock	s s s s s s s s s s s s s s s h h h h	1 3 3 3 3 2 3 2 3 2 3 2 3 2 3 3 3 3 3 3	0 0 0 0 10 1 1 1 1 1 1 0 0 200 200 200	600 50 1200 3600 18000 6000 600 600 600 600 600 600 600 60	20 0 200 0 300 7 30 30 30 30 30 50 10 10 10 10 1000 1000
607 608 611 612 613 615 616 619 620 621 621 622 623 624 622 630 631 632 633 634	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Fuel) Clock Maintenance Alarm (General) Clock	s s s s s s s s s s s s s s s s s s s	1 3 3 3 3 2 3 2 3 2 3 2 3 2 3 3 3 3 3 3	0 0 0 0 10 1 1 1 1 1 1 1 0 0 200 200 200	600 50 1200 3600 6000 900 600 600 600 600 600 600 600	20 0 200 0 300 7 30 30 30 50 50 10 10 10 10 1000 1000 10
607           608           611           612           613           615           616           619           620           621           622           623           624           630           631           632           633           634           635	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Cow Speed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Air) Clock Maintenance Alarm (General) Clock Maintenance Alarm (General) Clock	s s s s s s s s s h h h h h	1 3 3 3 3 3 2 3 2 3 2 3 2 3 2 3 3 3 3 3	0 0 0 0 10 1 1 1 1 1 1 1 0 0 2000 2000	600 50 1200 3600 900 6000 600 600 600 600 600 600 600	20 0 200 0 300 7 30 30 30 50 50 50 10 10 10 100 1000 100
607           608           611           612           613           615           616           619           620           621           622           623           624           629           630           631           632           633           634           635           637	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Fuel) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay	s s s s s s s s s s s s s s s s s s s	1 3 3 3 3 3 2 3 2 3 2 3 2 3 3 3 3 3 3 2 3	0 0 0 0 10 1 1 1 1 1 1 1 1 0 0 200 200 2	600           50           1200           3600           18000           6000           900           600           600           600           600           600           600           600           600           600           600           600           600           600           600           10000           10000           4           600	20 0 200 0 300 7 30 30 30 30 50 10 10 10 1000 1000 1000 0 0 50
607           608           611           612           613           615           616           619           620           621           622           623           624           629           630           631           632           633           634           635           637	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Fuel) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit	s s s s s s s s s s s s s s s s s s s	1 3 3 3 3 3 2 3 2 3 2 3 2 3 3 3 3 3 3 2 3	0 0 0 0 10 1 1 1 1 1 1 0 0 0 2000 2000	600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           600           10000           10000           4           600	20 0 200 0 300 7 30 30 30 30 50 50 10 10 10 10 10 1000 100
607           608           611           612           613           615           616           619           620           621           622           623           624           629           630           631           632           633           634           635           637           638	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Coverspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Fuel) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Switch Open Circuit Delay	s s s s s s s s s s s s s s s s s s s	1 3 3 3 3 3 2 3 2 3 2 3 2 3 2 3 3 3 3 3	0 0 0 0 10 1 1 1 1 1 1 1 0 0 0 2000 200	600 50 1200 3600 6000 6000 600 600 600 600 600 60	20 0 200 0 300 7 30 30 30 50 50 10 10 10 10 1000 1000 10
607           608           611           612           613           615           616           620           621           622           623           624           632           633           634           635           637           638           1001	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Cow Speed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Air) Clock Maintenance Alarm (General) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1939 Ecu Type	s s s s s s s s s s s s s s s s s s s	1 3 3 3 3 3 2 3 2 3 2 3 2 3 2 3 3 3 3 3	0 0 0 0 10 1 1 1 1 1 1 1 1 0 0 2000 200	600           50           1200           3600           18000           6000           900           600           600           600           600           600           600           600           600           600           600           10000           10000           4           600           600           17	20 0 200 0 300 7 30 30 30 50 50 10 10 10 1000 1000 1000 50 50 50 50 50 0 50 50 50
607           608           611           612           613           615           616           619           620           621           622           623           634           635           637           638           1006	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Motor Low Speed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Fuel) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Fue Sneed Control Active	s s s s s s s s s s s s s s s s s s s	1     3     3     3     2     3     2       3     3     3     3     2     3     2       3     3     3     3     2     3	0 0 0 0 0 10 1 1 1 1 1 1 0 0 200 200 200	600           50           1200           3600           18000           6000           900           600           600           600           600           600           600           600           600           600           10000           10000           4           600           17           1	20 0 200 0 300 7 30 30 30 30 50 10 10 10 1000 1000 1000 1000 50 50 50 1 10 10 10 10 10 10 10 10 10
607           608           611           612           613           615           616           619           620           621           622           623           631           632           633           634           635           637           638           1001           1006	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Air) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active	s s s s s s s s s s s s s s s s s s s	1     3     3     3     2     3     2       3     3     3     3     2     3     2       3     3     3     3     3     3       3     3     3     3     3     3	0 0 0 0 10 1 1 1 1 1 1 1 0 0 2000 2000	600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           10000           10000           4           600           17           1           1	20 0 200 0 300 7 30 30 30 50 50 10 10 10 100 1000 1000 1
607           608           611           612           613           615           616           620           621           622           623           624           632           633           634           635           637           638           1001           1006	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Fuel) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active	s s s s s s s s s s s s s s s s s s s	1       3       3       3       2       3       2       3       2       3       3       3       3       2       3       3       3       3       3       3       2       3	0 0 0 0 10 1 1 1 1 1 1 1 1 1 1 1 0 0 0 2000 2000 2000 2000 0 1 1 0 0 0 0	600 50 1200 3600 900 6000 600 600 600 600 600 600 600	20 0 200 0 300 7 30 30 30 50 50 10 10 10 1000 1000 1000 1000 1000 50 50 50 50 10 10 10 10 10 10 10 10 10 1
607           608           611           612           613           615           616           619           620           621           622           623           624           632           633           634           635           637           638           10001           1007	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Fuel) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active Ecu Oil Pressure Control Active	s s s s s s s s s s s s s s s s s s s	1       3       3       3       2       3       2       3       2       3       3       3       3       2       3       2       3	0 0 0 0 10 1 1 1 1 1 1 1 1 1 1 0 0 2000 2000 2000 2000 1 1 0 0 0 0	600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           10000           10000           10000           17           1           1           1	20 200 200 0 300 7 30 30 30 50 50 10 10 10 10 1000
607           608           611           612           613           615           616           619           620           621           622           623           634           635           637           638           1001           1008           1009	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active Ecu Oil Pressure Control Active Ecu Temperature Control Active	s s s s s s s s s s s s s s s s s s s	1     3     3     3     3     2     3     2     3     2     3     3     3     3     2     3     2     3     3     3     3     3     2     3 <td>0 0 0 0 10 1 1 1 1 1 1 1 0 0 200 200 200</td> <td>600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           10000           10000           4           600           600           17           1           1           1</td> <td>20 0 200 0 300 7 30 30 30 50 50 10 10 10 1000</td>	0 0 0 0 10 1 1 1 1 1 1 1 0 0 200 200 200	600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           10000           10000           4           600           600           17           1           1           1	20 0 200 0 300 7 30 30 30 50 50 10 10 10 1000
607           608           611           612           613           615           616           619           620           621           622           623           624           629           630           631           632           633           634           635           637           638           1001           1008           1000	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (General) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active Ecu Temperature Control Active Ecu Temperature Control Active Motor Speed Setpoint Motor Speed Correction	s s s s s s s s s s s s s s s s s s s	1     3     3     3     3     2     3     2     3     2     3     2     3     2     3     3     3     3     3     2     3     2     3 <td>0 0 0 0 10 1 1 1 1 1 1 1 1 1 0 0 0 2000 2000 2000 2000 2000 2000 1 1 0 0 0 0</td> <td>600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           10000           10000           10000           17           1           1           100</td> <td>20 0 200 0 300 7 30 30 50 50 10 10 10 100</td>	0 0 0 0 10 1 1 1 1 1 1 1 1 1 0 0 0 2000 2000 2000 2000 2000 2000 1 1 0 0 0 0	600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           10000           10000           10000           17           1           1           100	20 0 200 0 300 7 30 30 50 50 10 10 10 100
607           608           611           612           613           615           616           620           621           622           623           624           632           633           634           635           637           1006           1007           1008           1001           1010	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Coverspeed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Air) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active Ecu Oil Pressure Control Active Ecu Temperature Control Active Motor Speed Setpoint Motor Speed Correction	s s s s s s s s s s s s s s s s s s s	1         3         3         3         2         3         2         3         2         3	0 0 0 0 10 1 1 1 1 1 1 1 1 1 1 1 2000 2000 2000 2000 0 1 1 0 0 0 0	600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           600           600           10000           10000           17           1           1           1000           4	20 0 200 0 300 7 30 30 30 50 50 10 10 10 10 1000 1000 1000 1000 50 50 50 0 1 0 0 50 1 0 10 10 10 10 10 10 10 10
607           608           611           612           613           615           616           619           620           621           622           623           624           632           633           634           635           637           1006           1007           1008           1001           1010           1011	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Fuel) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active Ecu Oil Pressure Control Active Ecu Temperature Control Active Ecu Temperature Control Active Ecu Temperature Control Active Ecu Temperature Control Active Ecu Temperature Control Active Ecu Temperature Control Active Ecu Temperature Control Active Ecu Temperature Control Active Ecu Temperature Control Active Motor Speed Setpoint Motor Speed Correction Can Ecu Communication Error Action Can Ecu Communication Error Action	s s s s s s s s s s s s s s s s s s s	1         3         3         3         2         3         2         3         2         3         3         3         2         3         3         3         2         3	0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 0 0 2000 2000 2000 2000 0 0 1 1 0 0 0 0	600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           600           600           10000           10000           1           1           1           1           1           1           1           1           1           1           1	20 200 200 0 300 7 30 30 30 50 50 10 10 10 10 10 1000 000 1000 000 1000 0000 000 000 000 000 000 000 000 0000 000 000 000 000
607           608           611           612           613           615           616           619           620           621           622           623           624           629           630           631           632           633           634           1006           1007           1008           1009           1010           1011           1012	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (General) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active Ecu Oil Pressure Control Active Ecu Oil Pressure Control Active Ecu Compunciation Error Action Can Ecu Communication Error Action Can Ecu Droop Active	s s s s s s s s s s s s s s s s s s s	1         3         3         3         2         3         2         3         2         3	0 0 0 0 0 10 1 1 1 1 1 1 1 1 1 0 0 0 2000 2000 2000 2000 2000 2000 2000 0 1 1 0 0 0 0	600           50           1200           3600           18000           600           600           600           600           600           600           600           600           600           600           600           10000           10000           1           1           100           4           1           100           4	20 0 200 0 300 7 30 30 50 50 10 10 100 1000 000 1000 0000 000 000 000 0000 0
607           608           611           612           613           615           616           620           621           622           623           624           632           633           634           635           637           638           1001           1008           1009           1011           1012           1013	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Coverspeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Oil) Clock Maintenance Alarm (Jolock Maintenance Alarm (Jolock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Switch Open Circuit Delay J1939 Ecu Type Ecu Speed Control Active Ecu Compunication Error Action Can Ecu Ornop Active	s s s s s s s s s s s s s s s s s s s	1         3         3         3         2         3         2         3         2         3	0 0 0 0 0 10 1 1 1 1 1 1 1 1 1 1 1 0 0 0 2000 2000 2000 2000 2000 2000 2000 2000 2000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	600           50           1200           3600           18000           6000           600           600           600           600           600           600           600           600           600           600           600           10000           10000           1           1           100           4           100           4	20 0 200 0 300 7 30 30 50 50 10 10 10 10 1000
607           608           611           612           613           615           616           620           621           622           623           624           632           633           634           635           637           1006           1007           1008           1001           1011           1012           1013	Choke Duration Oil Pressure Switch Starter Interruption Time Stop Solenoid Timer Engine Warm-up Time Cooling Time Transfer Time Horn Duration Low Oil Pressure Alarm Delay Oil Pressure Sender Open Circuit Delay High Coolant Temperature Alarm Delay Coolant Temperature Sender Open Circuit Delay Low Fuel Level Alarm Delay Fuel Level Gauge Open Circuit Delay Motor Overspeed Alarm Delay Motor Cowrespeed Alarm Delay Motor Low Speed Alarm Delay Maintenance Alarm (Air) Clock Maintenance Alarm (General) Clock Maintenance Alarm (General) Clock Service Time Refresh High Backup Temperature Alarm Delay Backup Temperature Switch Open Circuit Delay J1339 Ecu Type Ecu Speed Control Active Ecu Oil Pressure Control Active Ecu Temperature Control Active Can Ecu Droop Active Can Ecu Droop Percent Can Source Address	s s s s s s s s s s s s s s s s s s s	1     3     3     3     2     3     2     3     2     3     2     3 <td>0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 0 0 2000 2000 2000 2000 2000 0 1 1 0 0 0 0</td> <td>600           50           1200           3600           18000           6000           900           600           600           600           600           600           600           600           600           600           600           10000           10000           1           1           1           100           255</td> <td>20 200 200 0 300 7 30 30 50 50 10 10 10 10 1000 000 1000 000 1000 000</td>	0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 0 0 2000 2000 2000 2000 2000 0 1 1 0 0 0 0	600           50           1200           3600           18000           6000           900           600           600           600           600           600           600           600           600           600           600           10000           10000           1           1           1           100           255	20 200 200 0 300 7 30 30 50 50 10 10 10 10 1000 000 1000 000 1000 000

#### **INPUT-OUTPUT PARAMERTERS**

	Relay 1	Relay 2	Relay 3	Relay 4	Digital Output 1	Digital Output 2	Digital Output 3	Digital Output 4		Analog Input 1	Analog Input 2	Analog Input 3	Analog Input 4
Output Function	1101	1103	1105	1107	1109	1111	1113	1115	Analog Input Sender Type	1301	1401	1501	1601
Default Value	10	1	2	8	6	4	0	71	Default Value	2	2	2	2
Output Delay	701	702	703	704	705	706	707	708	0:None	0:None	0:None	0:None	
Default Value	0	0	0	0	0	0	0	0	1:Digital Input	1:Digital Input	1:Digital Input	1:Dijital Input	
Output Contact Type	1102	1104	1106	1108	1110	1112	1114	1116	2:Pressure Sensor	2:Pressure Sensor	2:Fuel Level Sensor	2:Temperature Sensor	
Default Value	NO	NO	NO	NO	NO	NO	NO	NO	Analog Input Switch Selection	1302	1402	1502	1602
0 : Output Inactive	11 : Choke Output	22 : Digital Input- 2 Active	31 : Digital Input- 11(Analog Input- 4) Active	31 : Digital Input- 11(Analog Input- 4) Active	49 : Coolant Temperature Switch Open Circuit	58 : User Defined Digital Input 8	67 : System in Auto Mode	72 : Oil Heater	Default Value	3	3	3	3
1 : Starter Output	14 : Cooling Fan	23 : Digital Input- 3 Active	32 : Emergency Stop Alarm	32 : Emergency Stop Alarm	50 : Fuel Level Switch Open Circuit	59 : User Defined Digital Input 9	68 : System in Manual Mode	73 : APU Enabled	0 : Input Inactive	0 : Input Inactive	0 : Input Inactive	0 : Input Inactive	
2 : Fuel Solenoid	15 : Fuel Pump	24 : Digital Input- 4 Active	33 : Engine Failed to Start Fault	33 : Engine Failed to Start Fault	51 : User Defined Digital Input 1	60 : User Defined Digital Input 10	69 : System in Test Mode	74 : APU Malfunctioning	1 : Normally Open	1 : Normally Open	1 : Normally Open	1 : Normally Open	
3 : Stop Solenoid	16 : General Alarm	25 : Digital Input- 5 Active	34 : Engine Failed to Stop Fault	34 : Engine Failed to Stop Fault	52 : User Defined Digital Input 2	61 : User Defined Digital Input 11	70 : Audible Warning Before Operation	75 : Battle Mode	2 : Normally Closed	2 : Normally Closed	2 : Normally Closed	2 : Normally Closed	
4 : Horn Output	17 : Electrical Fault Alarm	26 : Digital Input- 6 Active	35 : Generator High Voltage Alarm	35 : Generator High Voltage Alarm	53 : User Defined Digital Input 3	62 : Maintenance Alarm (Oil) Output	71 : AMF Ready	76 : APU Shutdown	3 : VDO 5 Bar	3 : VDO 120	3 : VDO Ohm(10-180)	3 : VDO 120	
6 : Generator Contactor	18 : Engine Stop Alarm	27 : Digital Input- 7 Active	36 : Generator High Frequency Alarm	36 : Generator High Frequency Alarm	54 : User Defined Digital Input 4	63 : Maintenance Alarm (Air) Output	72 : Oil Heater		4 : VDO 10 Bar	4 : Datcon High	4 : VDO Tube(90-0)	4 : Datcon High	
8 : Mains Contactor	19 :Temporary Warning Alarm	28 : Digital Input- 8(Analog Input- 1) Active	37 : Generator Low Voltage Alarm	37 : Generator Low Voltage Alarm	55 : User Defined Digital Input 5	64 : Maintenance Alarm (Fuel) Output	73 : APU Enabled		5 : Datcon 5 Bar	5 : Datcon Low	5 : US ohm(240-33)	5 : Datcon Low	
9 : Ready to Receive Payload Exit	20 : Permanent Warning Alarm	29 : Digital Input- 9(Analog Input- 2) Active	38 : Generator Low Frequency Alarm	38 : Generator Low Frequency Alarm	56 : User Defined Digital Input 6	65 : Maintenance Alarm(General) Output	74 : APU Malfunctioning		6 : Datcon 10 Bar	6 : Murpy	6 : GM ohm(0-90)	6 : Murpy	
10 : Pre-Initialization	21 : Digital Input 1 Active	30 : Digital Input- 10(Analog Input- 3) Active	39 : Low Oil Pressure Alarm	39 : Low Oil Pressure Alarm	57 : User Defined Digital Input 7	66 : System in Stop Mode	75 : Battle Mode		7 : Datcon 7 Bar	7 : Cummins	7 : GM ohm(0-30)	7 : Cummins	
	Digital Input 1	Digital Input 2	Digital Input 3	Digital Input 4	Digital Input 5	Digital Input 6	Digital Input 7		8 : Murphy 7 Bar	8 : PT100	8 : Ford(73-10)	8 : PT100	
Input Function	1201	1205	1304	1404	1504				9 : CMB812	9 : Veglia	9 : User Defined	9 : Veglia	
Default Value	0	1	0	0	0				10 : Veglia	10 : Beru		10 : Beru	
Input Delay	701	702	703	704	705				11 : User Defined	11 : User Defined		11 : User Defined	
Default Value	0	0	0	0	0								
Input Contact Type	1102	1104	1106	1108	1110								
Default Value	NC	NC	NC	NC	NC								
0 : Input Inactive	2 : Remote Start/Stop	4 : Panel Lock	13 : Stop Button Simulation	24 : Alarm Disabled	26 : Battle Mode	28 : APU Gate							
1 : Emergency Stop	3 : Remote Operation/Uplo ad	8 : AVR Voltage Selection	14 : Start Button Simulation	25 : Alarm Reset	27 : Blackout	29 : User Configured							