

Service Bulletin

Starair Aircraft Co., Ltd.

Document No.: 2023-SA60L-31-01

Ver.: 01

Date: October 27, 2023

Subject	Installation of low fuel voice alarm				
Category	Important				
Applicability	This bulletin applies to the Aurora SA60L series and Aurora SA70L series light sport aircraft listed in Attached Table 1.				
Finish Time	Aircraft within the scope of application must be done the work required by this service bulletin completely before December 31, 2024.				
Reason	<p>The fuel gauge of the Aurora SA60L series and Aurora SA70L aircraft are equipped with low fuel alarm indicator lights, which will trigger a light alarm when the fuel level is low. However, there have been recent incidents that pilots have not paid attention to the low fuel alarm in a timely manner, resulting in unsafe engine stoping in the air. To further improve the safety performance of the aircraft, it is required that aircraft within the scope of application be equipped with a low fuel voice alarm system according to the required actions of this bulletin (at their own expense).</p> <p>Issue Date: October 27, 2023 Effective Date: October 27, 2023</p>				
Required Action(s)	A. Material Preparation.Prepare materials according to the table below. The voice alarm board has been wrapped with insulation tape, and wired at Starair Aircraft Co.,Ltd..				
	No.	Material No.	Name	Quantit	Note
	1	3168000009	Voice alarm board SWST401	1	
	2	7340000458	Wire to Wire Connector2P	1	
	3	7340000460	Wire to Wire Connector 4P	1	
	4	7340000461	Wire to Wire Connector 5P	1	
	5	720237000003J	Self reset type buttonPAS6	1	

6	720701000093	Socket 10A or above (366-4382)	4	
7	720110000021	Aviation wire AWG20	2	
8	720110000028	Aviation wire AF-250, AWG20, black	2meter	
9	720111000006	Teflon AWG22 × 3-core high-temperature resistant aviation cable with shielding layer	3meter	Only AuroraSA
10	7110000006	hole type terminal 1062-12-0166	2	60L-iS
11	7110000009	Terminal pin 160-12-0166	2	and
12	7110000007	Connector plug DTP04-2P	1	Aurora
13	7110000008	Connector receptacle DTP06-2S	1	SA70L-iS

B. Required Actions for Aurora SA60L and Aurora SA60L-T.

1. Disconnect the wiring of the negative terminal of the battery and insulate it properly;
2. Operation for dashboard:
 - a. If the aircraft is equipped with a large magnetic compass cover plate (as shown in Figure 1), remove the magnetic compass cover plate and proceed with subsequent operations.
 - b. If the aircraft is equipped with a small magnetic compass cover plate (as shown in Figure 2), the dashboard needs to be removed for subsequent operations.



Figure 1 large magnetic compass cover plate



Figure 2 small magnetic compass cover plate

3. Modification of the radio station wiring:

Remove the DB25 connector of the radio station and disconnect it. Peel off pin 1 of the 5-core connector of the voice alarm board and connect it to pin 4 of the DB25 connector (Operate according to the actual type of connector on the radio station. If the DB25 connector is a crimping connector, use crimping terminals to crimp the wiring for connection. If the DB joint is a welded joint, use a welding tool for welding and use a heat shrink tube for insulation) , then restore the DB25 connector and connect it back to the radio station.

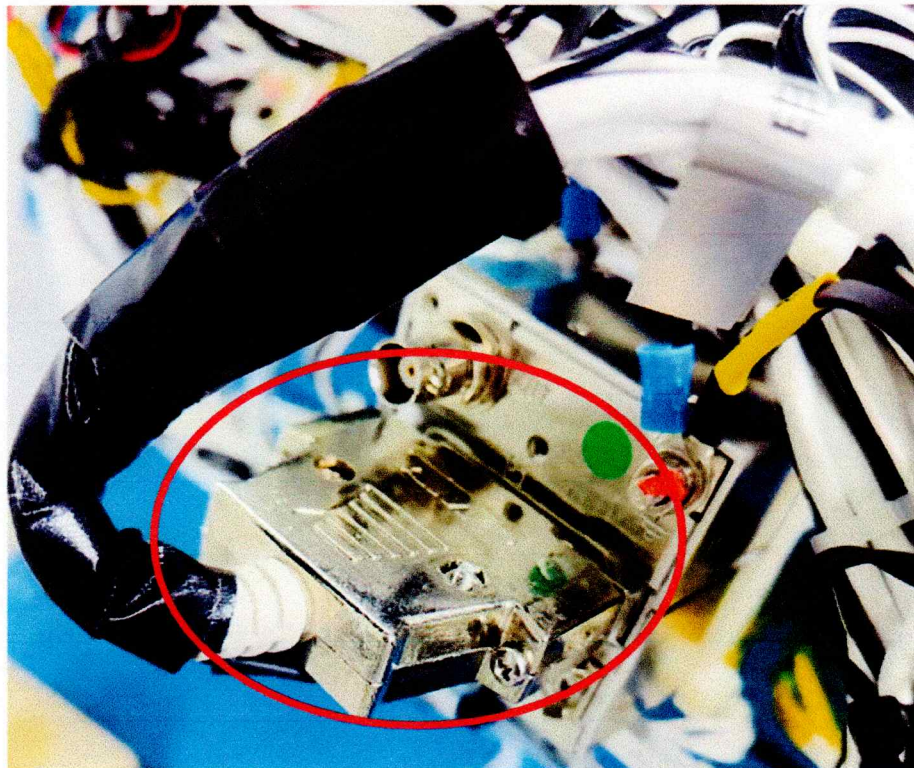


Figure 3 DB25 connector of the radio station

4. Opening a hole on the dashboard :

The position and size of the new hole for dashboard of Aurora SA60L refer to the S4 edition of the carbon fiber dashboard drawing 816897200601, and the position and size of the new hole for dashboard of Aurora SA60L-T refer to the S2 version of the carbon fiber dashboard drawing for Plateau Aircraft 816897200601. Open a hole with a diameter of 12mm at the bottom right of the dashboard, and stick a sticker with "alarm clear" above the hole position. (As shown in Figures 4 and 5)

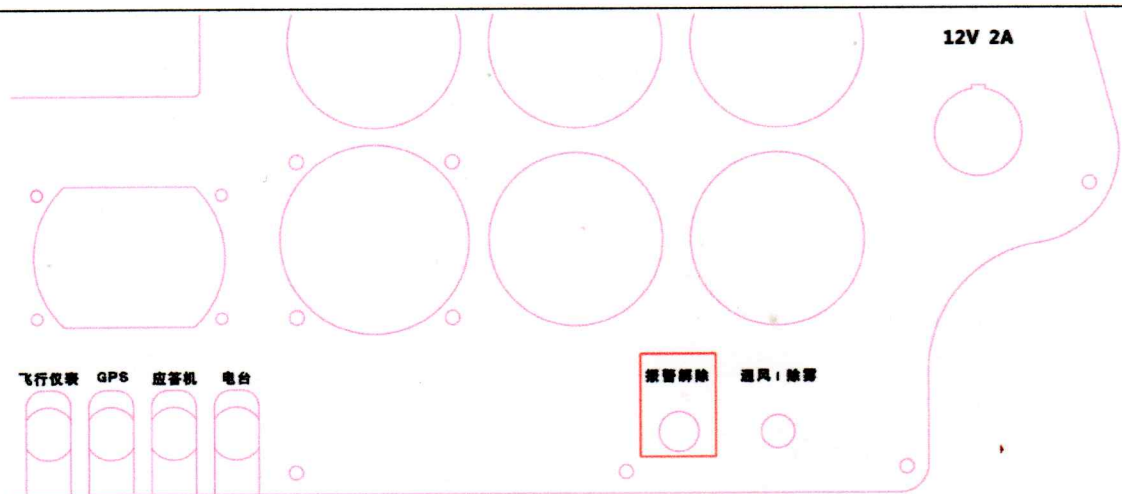


Figure 4 Schematic diagram of the alarm clear button position for Aurora SA60L

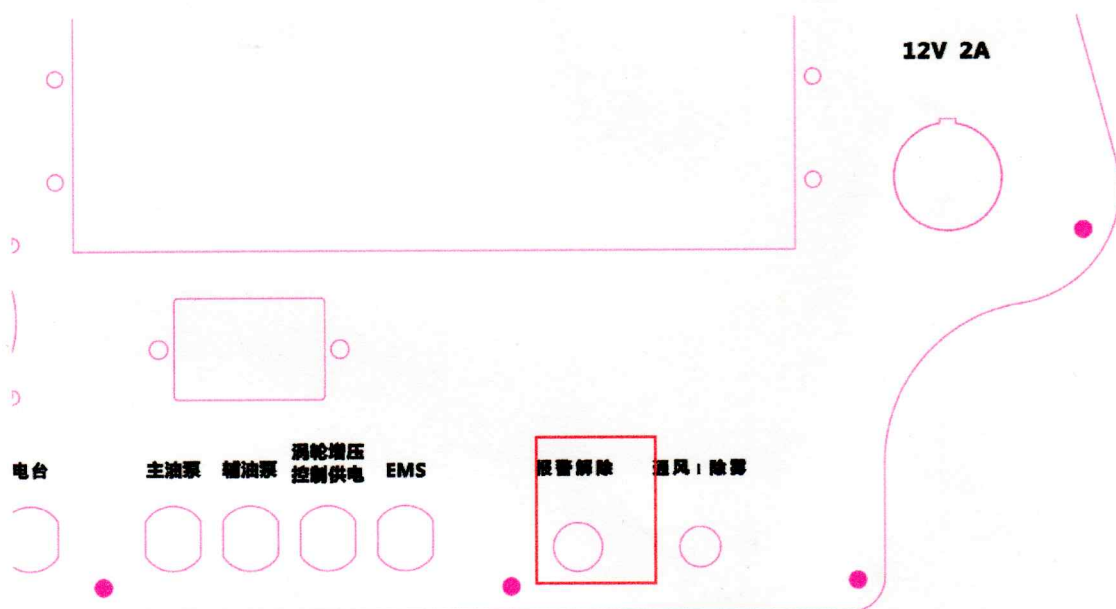


figure 5 Schematic diagram of the alarm clear button position for Aurora SA60L-T

5. Installation of the alarm clear button:

- a. Wiring, as shown in Figure 6. Thread the pin 3 lead wire of the 5-core connector of the voice alarm board through the button installation nut and gasket, cover it with a heat shrink tube, and then weld it to one of the pins of the reset button. After welding, heat the heat shrink tube to insulate. Take a 20cm short AWG20 black wire and peel it, then weld it to another pin of the reset button. After welding, cover it with a heat shrink tube, heat the heat shrink tube to insulate.

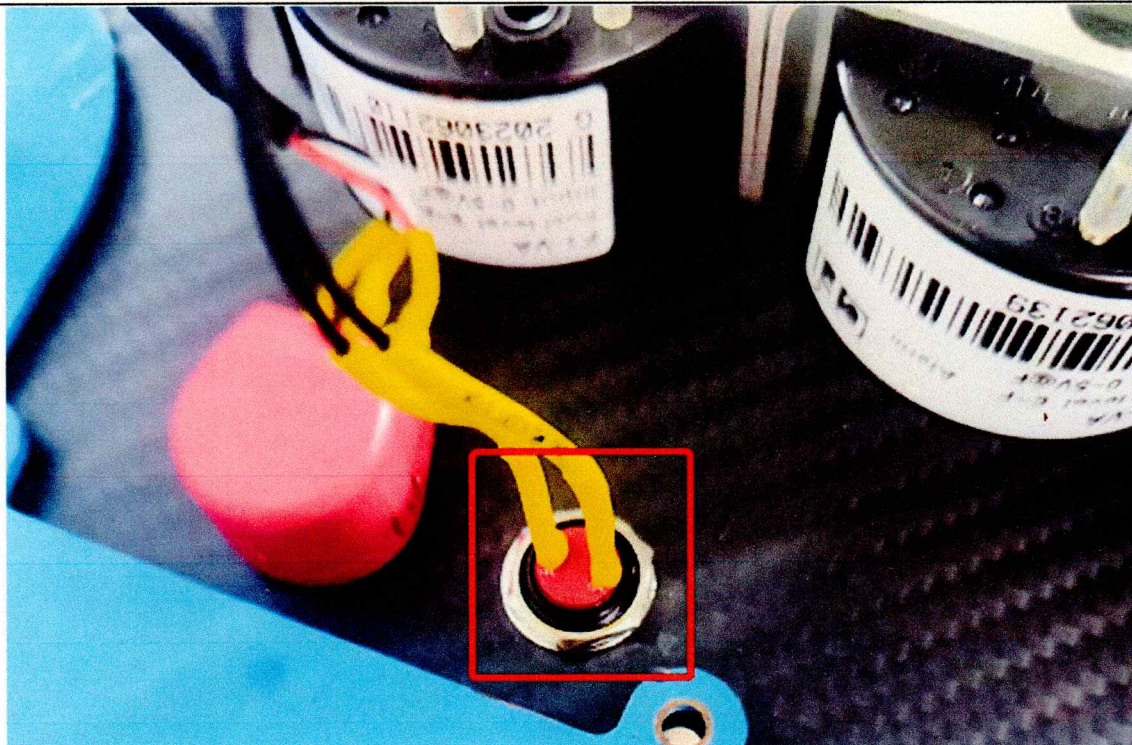


Figure 6 Welding diagram of the reset button

- b. Install the reset button into the newly opened hole on the dashboard. (As shown in Figure 7)

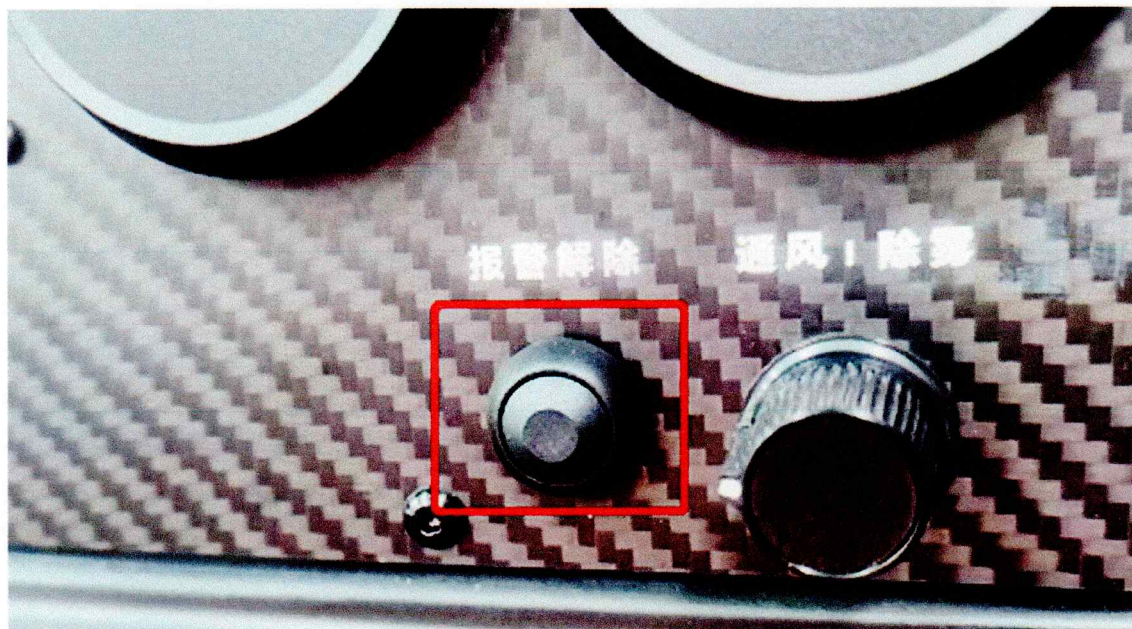


figure 7 Installation diagram of the reset button on dashboard

6. Operation for voice alarm board (Perform the following operations based on whether the aircraft is equipped with a fuel alarm board)

Situation 1: If the aircraft is equipped with an alarm board (refer to Figure 8 for operation)

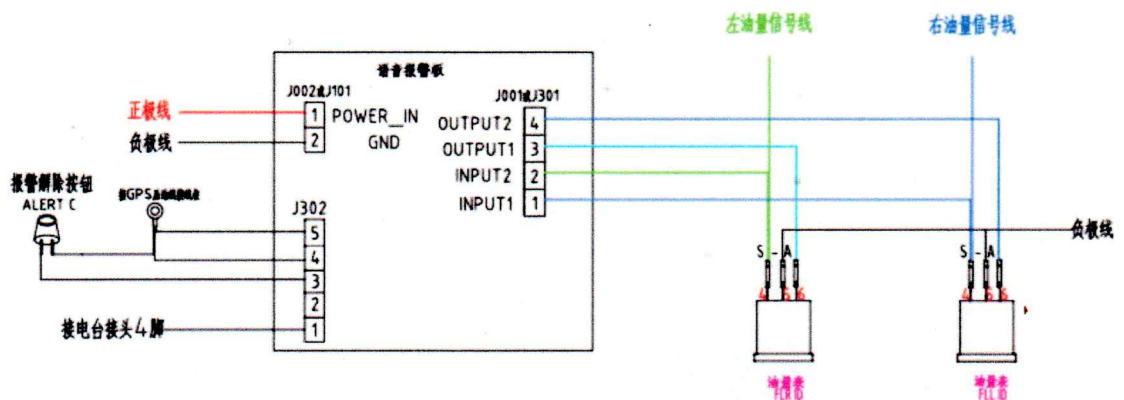


figure 8 Overall schematic diagram I of modified wiring for voice alarm board

- a. Disconnect the 2-core and 4-core connectors of the fuel alarm board, as well as the 2-core and 4-core connectors on the voice alarm board. Connect the 2-core and 4-core connectors of the fuel alarm board to the corresponding positions on the voice alarm board.
- b. Peel and crimp a total of three wires, including the pin 4 lead wire, pin 5 lead wire of the 5-core connector on the voice alarm board, and the remaining black wire of the reset button, to an OT4-5 terminal. Install the terminal on the ground wire block of the GPS. (Pay attention to disassembly and assembly operations, do not damage the GPS installation box)

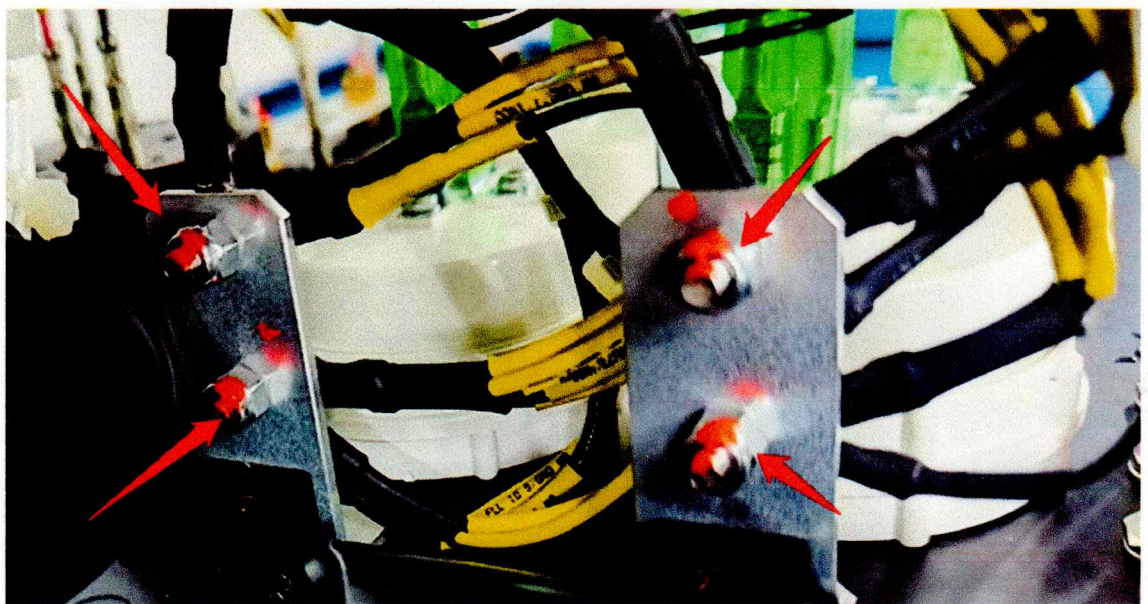


Figure 9 Ground wire terminal block of the GPS behind the dashboard

- c. Insert the 5-core connector into the corresponding position of the voice alarm

board

Situation 2: If the aircraft is not equipped with a fuel alarm board (refer to Figure 10 for operation)

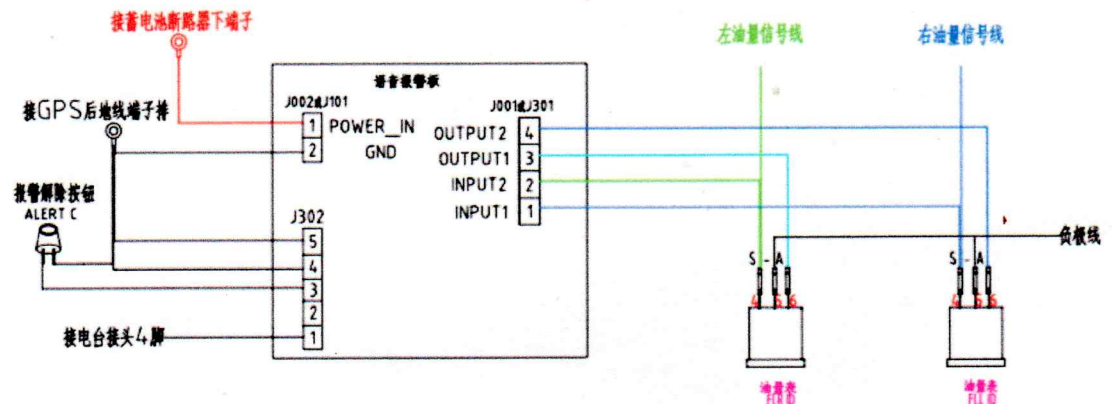


figure 10 Overall schematic diagram II of modified wiring for voice alarm board

a. Remove the pin 4 wiring terminal of the left oil gauge, cut off the original terminal, peel and crimp the wire with the pin 1 lead wire of the 4-core connector on the voice alarm board to a 10A hole type terminal. Cover the hole type terminal with a heat shrink tube, heat to insulate, and insert the hole type terminal into the pin 4 terminal of the left oil gauge. (As shown in Figure 11)

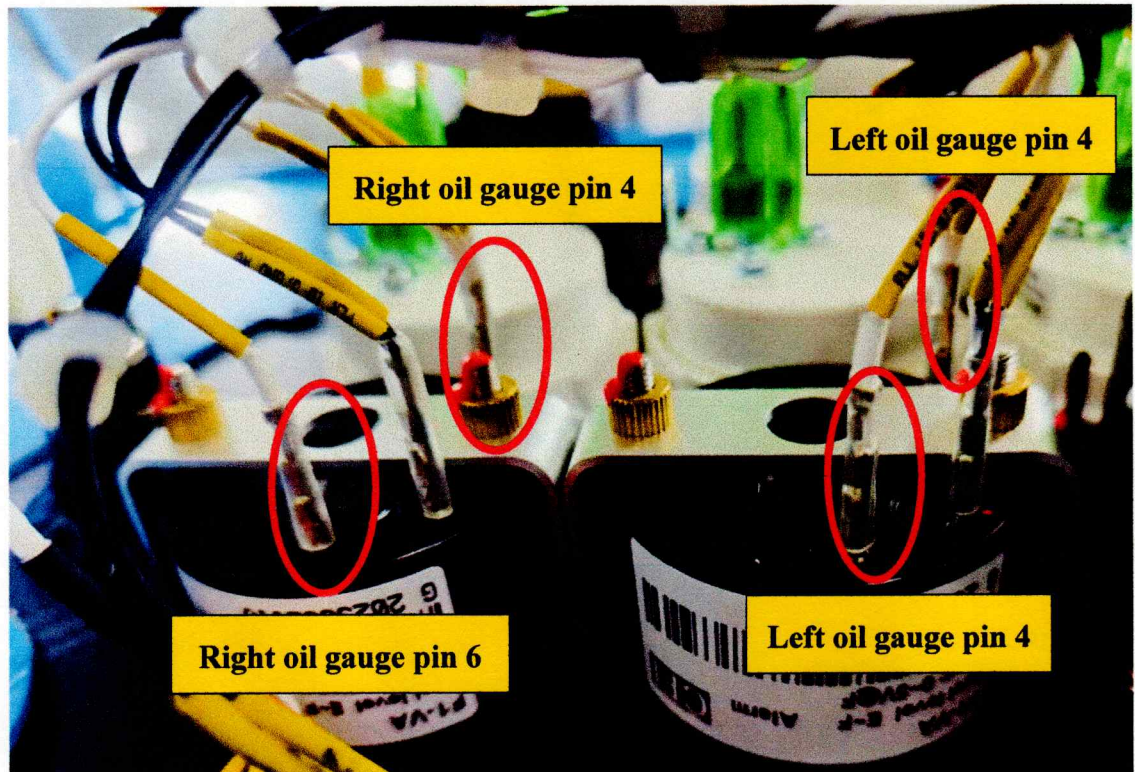


figure 11 Wiring diagram of the left/right oil gauge

b. Remove the pin 4 wiring terminal of the right oil gauge, cut off the original

terminal, peel and crimp the wire with the pin 2 lead wire of the 4-core connector on the voice alarm board to a 10A hole type terminal. Cover the hole type terminal with a heat shrink tube, heat to insulate, and insert the hole type terminal into the pin4 terminal of the right oil gauge.

c. Peel and crimp the pin3 lead wire of the 4-core connector of the voice alarm board to a 10A hole type terminal, cover the hole type terminal with a heat shrink tube, heat to insulate, and insert the hole type terminal into the pin 6 terminal of the left oil gauge.

d. Peel and crimp the pin 4 lead wire of the 4-core connector of the voice alarm board to a 10A hole type terminal, cover the hole type terminal with a heat shrink tube, heat to insulate, and insert the hole type terminal into the pin 6 terminal of the right oil gauge.

e. Peel and crimp the pin 1 of the 2-core connector of the voice alarm board to an OT4-5 terminal and connect it to the terminal below the battery circuit breaker.

f. Peel and crimp a total of four wires, including the pin 4 lead wire, pin 5 lead wire of the 5-core connector on the voice alarm board, the remaining black wire of the reset button, and the pin 2 lead wire of the 2-core connector to an OT4-5 terminal. Install the terminal on the ground wire block of the GPS. (Pay attention to disassembly and assembly operations, do not damage the GPS installation box)

7. Wrap the voice alarm board onto the wire harness (as shown in Figure 12), fix the new wire harness properly, then restore the aircraft and battery terminals.

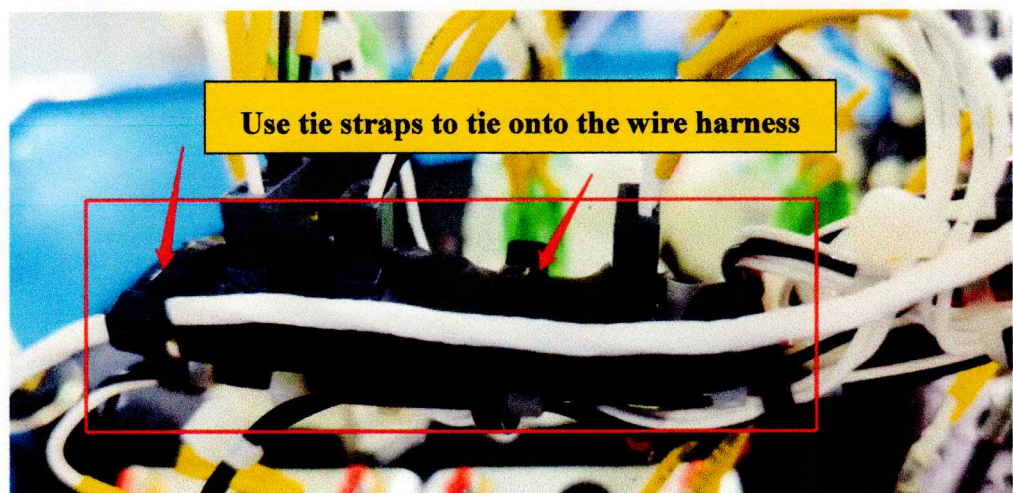


figure 12 Wrapping diagram of voice alarm board

8. Modification of radio station settings. Refer to 6168GY0171_ “Operation Guide for

Radio Parameter Setting” for parameter resetting.

9. Testing and inspection

a. After the radio station is set up, power on the aircraft, and the pointers of the left and right fuel gauges will first point to maximum and then return to zero. The red light will remain on for 10 seconds.

b. Turn on the radio and use the headphones to hear the voice of "Voice alarm board self checking successful" or "low fuel level".

c. After hearing the voice, press the reset button on the dashboard, and hear the "reset" voice twice from the headphones.

10. The functions of the voice alarm board are detailed in the latest edition of the flight manual's voice alarm board section.

C. Required Actions for Aurora Aurora SA60L-iS and Aurora SA70L-iS.

1. Disconnect the wiring of the negative terminal of the battery and insulate it properly.

2. Operation for dashboard. Remove the magnetic compass cover plate and proceed with subsequent operations. .

3. Modification of the GEA24 wiring (As shown in Figure 13)

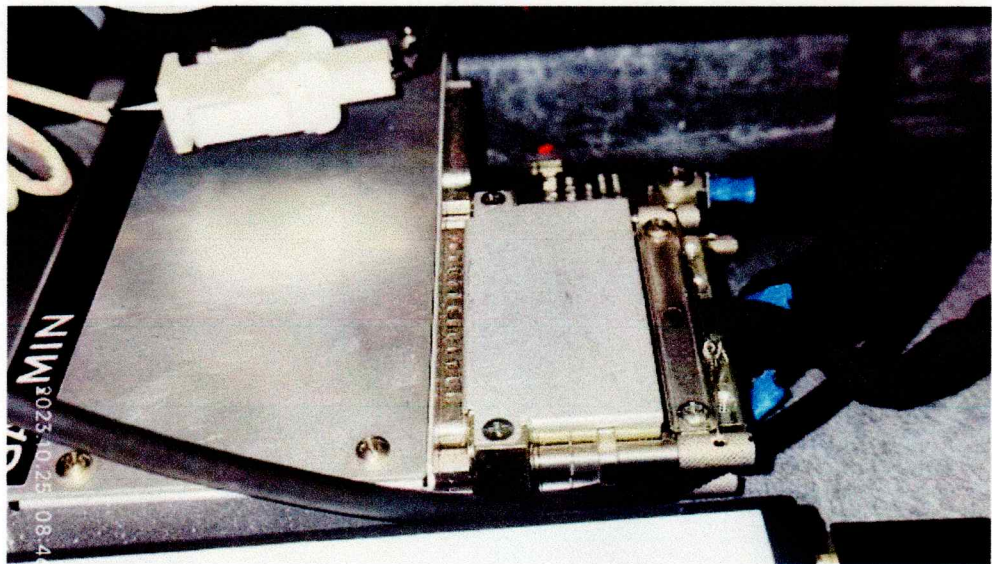


figure 13 Connector of the GEA24 P/J244

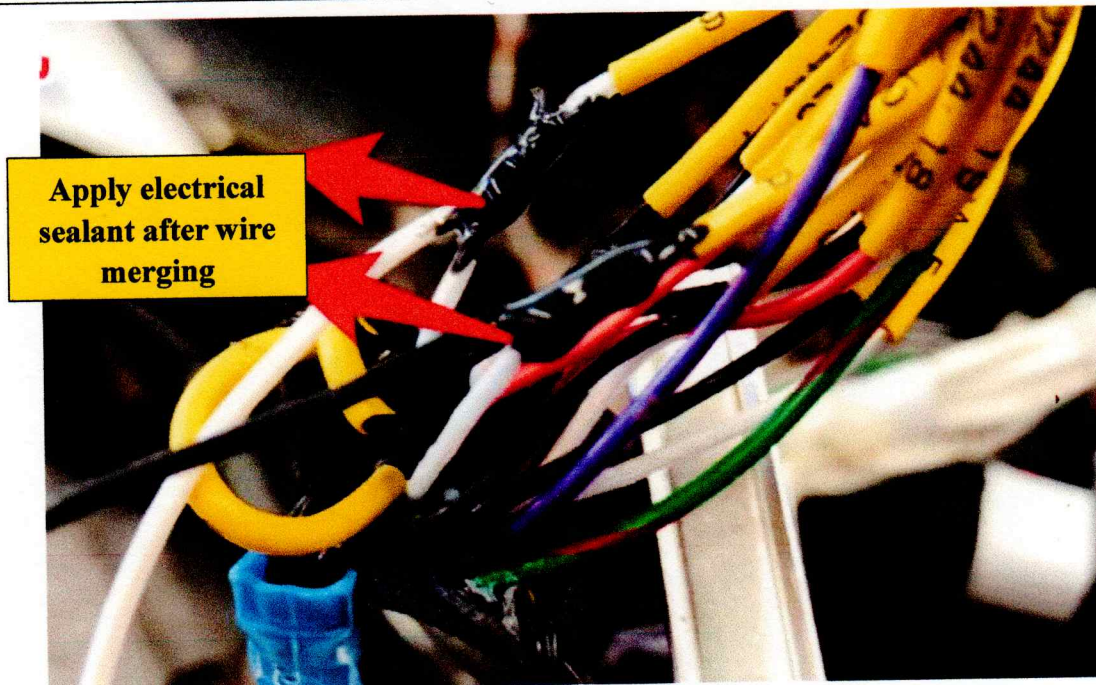


figure 14 Modification of the GEA24 P/J244 wiring

- a. Remove the P/J244 connector of GEA24 and disassemble it. Peel the wiring at pin 6 of P/J244, weld the lead wire of pin 1 of the 4-core connector on the voice alarm board to the peeled wiring of pin 6 of P/J244, apply electrical sealant, and wrap insulation tape around it when the electrical sealant is dry.
- b. Peel the wiring at pin 9 of P/J244, weld the lead wire of pin 2 of the 4-core connector on the voice alarm board to the peeled wiring of pin 9 of P/J244, apply electrical sealant, and wrap insulation tape around it when the electrical sealant is dry.
- c. Restore the P/J244 connector of GEA24 and connect it back to GEA24.
4. Opening a hole on the dashboard:

Due to the installation of a electro luminescent panel on the surface of the dashaboard and the wiring inside the electro luminescent panel, it is not allowed to open holes at will, and holes can only be made in the reserved position on the electro luminescent panel. It is necessary to communicate with the aircraft operator and both parties agree on the actual opening position. The diameter of the hole is 12cm, and a sticker with "alarm clear" should be affixed above the hole position.
5. Installation of reset button:
 - a. Wiring. Thread the pin 3 lead wire of the 5-core connector of the voice alarm

board through the button installation nut and gasket, cover it with a heat shrink tube, and then weld it to one of the pins of the reset button. After welding, heat the heat shrink tube to insulate. Take a 40cm short AWG20 black wire and peel it, then weld it to another pin of the reset button. After welding, cover it with a heat shrink tube, heat the heat shrink tube to insulate.

b. Install the reset button into the newly opened hole on the dashboard.

6. Operation for voice alarm board (Refer to Figure 15 for operation)

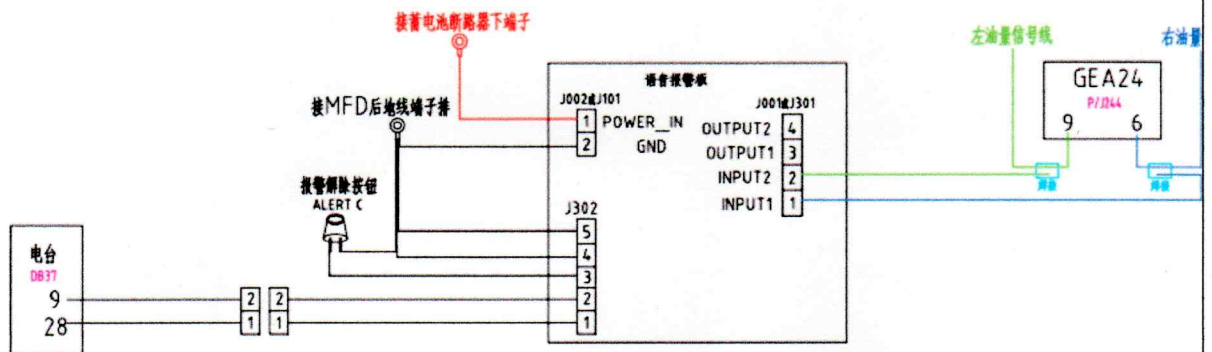


figure 15 Overall schematic diagram III of modified wiring for voice alarm board

a. Peel and crimp the pin 1 of the 2-core connector of the voice alarm board to an OT4-5 terminal and connect it to the terminal below the battery circuit breaker.

b. Peel and crimp a total of four wires, including the pin 4 lead wire, pin 5 lead wire of the 5-core connector on the voice alarm board, the remaining black wire of the reset button, and the pin 2 lead wire of the 2-core connector to an OT4-5 terminal. Install the terminal on the ground wire block of the PFD.

c. Crimp the pin 1 and pin 2 of the 5-core connector of the voice alarm board into the TE2 core plug.

7. Modification of the radio station wiring

a. Remove the fuselage cover from the dashboard to the radio station on back panel.

b. Route the shielded wire of the TE2 core socket from the dashboard along the original path of the wire harness of the fuselage to the radio station. (The TE2 core socket is on the dashboard side)

c. Disconnect the DB37 core connector of GTR20 and disconnect it. Connect the red wire in the wire harness to pin 9 of the DB37 core connector and the white wire to pin 28. Then restore the DB37 connector and connect it back to the radio station.

	<p>8. Wrap the new wire and the voice alarm board onto the wire harness, then restore the aircraft and battery terminals.</p> <p>9. Testing and inspection</p> <p>a. power on the aircraft, turn on the radio, and use the headphones to hear the voice of "Voice alarm board self checking successful".</p> <p>b. After hearing the voice, press the reset button on the dashboard, and hear the "reset" voice twice from the headphones.</p> <p>10. The functions of the voice alarm board are detailed in the latest edition of the flight manual's voice alarm board section..</p>		
Reference Documents	<p>816897200601 "Carbon Fiber Dashboard" S4 Edition</p> <p>3J1097200604 "Carbon Fiber Dashboard for Plateau Aircraft" S2 Edition</p> <p>6168GY0171 "Operation Guide for Radio Parameter Setting " A1 Edition</p>		
Tools	<p>crimping pliers、 wire stripper、 hot air gun、 insulating tape、 tie straps、 diagonal pliers、 electrical drill、 3mm hex socket screwdriver、 cross screwdriver、 heat shrink tube、 "alarm clear" sticker、 reference documents</p>		
Weight and Balance Impact	None		
Special tools and equipment	None		
Contact Information	<p>contacts:</p> <p>Peng Liang</p>	<p>phone number:</p> <p>4006635288</p>	<p>mail address:</p> <p>safety@sunward.cc</p>
Approval	<p>This service bulletin has been approved by the airworthiness management department of Civil Aviation Administration of China.</p>		

Attached Table1: Aircraft with the Serial Number listed below are affected

No.	S/N	No.	S/N	No.	S/N
1	SA60LS00103	35	SA60LS00142	69	SA60LS00186
2	SA60LS00104	36	SA60LS00143	70	SA60LS00187
3	SA60LS00105	37	SA60LS00145	71	SA60LS00188
4	SA60LS00106	38	SA60LS00148	72	SA60LS00189
5	SA60LS00107	39	SA60LS00149	73	SA60LS00190
6	SA60LS00108	40	SA60LS00150	74	SA60LS00191
7	SA60LS00109	41	SA60LS00151	75	SA60LS00192
8	SA60LS00110	42	SA60LS00152	76	SA60LS00193
9	SA60LS00111	43	SA60LS00153	77	SA60LS00195
10	SA60LS00112	44	SA60LS00154	78	SA60LS00196
11	SA60LS00114	45	SA60LS00156	79	SA60LS00197
12	SA60LS00115	46	SA60LS00157	80	SA60LS00198
13	SA60LS00116	47	SA60LS00158	81	SA60LS00199
14	SA60LS00117	48	SA60LS00160	82	SA60LS00200
15	SA60LS00118	49	SA60LS00161	83	SA60LS00201
16	SA60LS00119	50	SA60LS00162	84	SA60LS00202
17	SA60LS00120	51	SA60LS00163	85	SA60LS00205
18	SA60LS00121	52	SA60LS00164	86	SA60LS00206
19	SA60LS00122	53	SA60LS00166	87	SA60LS00207
20	SA60LS00123	54	SA60LS00167	88	SA60LS00208
21	SA60LS00125	55	SA60LS00168	89	SA60LS00209
22	SA60LS00126	56	SA60LS00169	90	SA60LS00210
23	SA60LS00128	57	SA60LS00173	91	SA60LS00211
24	SA60LS00130	58	SA60LS00174	92	SA60LS00212
25	SA60LS00131	59	SA60LS00175	93	SA60LS00213
26	SA60LS00132	60	SA60LS00176	94	SA60LS00215
27	SA60LS00133	61	SA60LS00177	95	SA60LS00216
28	SA60LS00134	62	SA60LS00178	96	SA60LS00217
29	SA60LS00135	63	SA60LS00179	97	SA60LS00218
30	SA60LS00136	64	SA60LS00180	98	SA60LS00219
31	SA60LS00137	65	SA60LS00182	99	SA60LS00220
32	SA60LS00138	66	SA60LS00183	100	SA60LS00221
33	SA60LS00139	67	SA60LS00184	101	SA60LS00222
34	SA60LS00140	68	SA60LS00185	102	SA60LS00223

No.	S/N	No.	S/N	No.	S/N
103	SA60LS00225	135	SA60LS00263	167	SA60LS00302
104	SA60LS00226	136	SA60LS00265	168	SA60LS00303
105	SA60LS00227	137	SA60LS00266	169	SA60LS00305
106	SA60LS00228	138	SA60LS00267	170	SA60LS00306
107	SA60LS00230	139	SA60LS00268	171	SA60LS00307
108	SA60LS00231	140	SA60LS00269	172	SA60LS00308
109	SA60LS00232	141	SA60LS00270	173	SA60LS00309
110	SA60LS00233	142	SA60LS00271	174	SA60LS00310
111	SA60LS00235	143	SA60LS00272	175	SA60LS00311
112	SA60LS00236	144	SA60LS00273	176	SA60LS00312
113	SA60LS00237	145	SA60LS00275	177	SA60LS00313
114	SA60LS00238	146	SA60LS00276	178	SA60LS00315
115	SA60LS00239	147	SA60LS00277	179	SA60LS00317
116	SA60LS00240	148	SA60LS00280	180	SA60LS00318
117	SA60LS00241	149	SA60LS00281	181	SA60LS00319
118	SA60LS00242	150	SA60LS00282	182	SA60LS00320
119	SA60LS00243	151	SA60LS00283	183	SA60LS00321
120	SA60LS00245	152	SA60LS00285	184	SA60LS00322
121	SA60LS00246	153	SA60LS00286	185	SA60LS00323
122	SA60LS00247	154	SA60LS00287	186	SA60LS00325
123	SA60LS00248	155	SA60LS00288	187	SA60LS00326
124	SA60LS00249	156	SA60LS00290	188	SA60LS00327
125	SA60LS00251	157	SA60LS00291	189	SA60LS00328
126	SA60LS00252	158	SA60LS00292	190	SA60LS00329
127	SA60LS00255	159	SA60LS00293	191	SA60LS00330
128	SA60LS00256	160	SA60LS00295	192	SA70LS00102
129	SA60LS00257	161	SA60LS00296	193	SA70LS00103
130	SA60LS00258	162	SA60LS00297	194	SA70LS00105
131	SA60LS00259	163	SA60LS00298		----- END -----
132	SA60LS00260	164	SA60LS00299		
133	SA60LS00261	165	SA60LS00300		
134	SA60LS00262	166	SA60LS00301		