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## SERVICE LETTER 112

### OPTIONAL HYDRAULIC POWER PACK TIMER RELAY INSTALLATION

<b>Aircraft Makes/Model(s):</b>	<b>Float Model(s):</b>	<b>Compliance:</b> Recommended	<b>By:</b> MAS
Aviat Husky, Cessna 170, 172, 175, 180, 182, 185, 206, 208, 208B Piper PA-18, PA-12, American Champion 8GCBC, Pilatus PC-6, DeHavilland DHC-2, DHC-3, Quest Kodiak 100	2100A, 2350A, 3000A, 3450A, 6100A, 7000A, 8000A, 8750A	<b>Part Number:</b> 1005052	<b>Approved:</b> DRH
		<b>Date:</b> 10/10/2024	<b>Revision:</b> H

FAA approval has been obtained for technical data in this publication that affects STC or TSO design compliance.

### LOG OF REVISIONS

Revision	Description	Date
A	Initial release	1/15/2011
B	Transferred Service Kit 80 to Service Letter	5/31/2012
C	Updated work instructions.	4/9/2014
D	Removed Hydraulic Accumulator lines	5/21/2019
E	Updated warranty.	9/26/2019
F	Updated connector part numbers.	3/1/2022
G	Updated aircraft make and model and floats. Updated effectivity of STCs. Updated installation procedure instructions, electrical schematics and configuration table and parts list.	10/11/2023
H	Updated Work Instructions for 1005052-01 and -02 configurations. Updated -02 electrical schematic. Updated parts list.	10/10/2024

#### EFFECTIVITY:

This service letter applies to all aircraft modified by STCs SA00637CH, SA00674CH, SA00713CH, SA00763CH, SA00804CH, SA00900CH, SA00901CH, SA01411CH, SA01156CH, SA01185CH, SA01320CH, SA01272CH, SA610GL, SA309CH, SA227CH, SA02848CH, and SA1311GL.

**Note:** Float installations from roughly 2012 and newer incorporate changes from this service letter. If the hydraulic pump cycles on for about 1 second every time the master switch is turned on, compliance with this service letter is not necessary.

#### COMPLIANCE:

Compliance with this service letter is optional, but recommended.

#### BACKGROUND:

Wipaire Engineering received several reports of hydraulic system malfunctions. Pressure lock of the system was determined to be the cause and adding this timer relay will enable the system to function as designed. This is a recommended product enhancement by Wipaire Engineering to improve the function of the hydraulic system.

#### COMPLIANCE METHOD:

Install parts in accordance with instructions in this service letter.

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**APPROX. SHOP HOURS:**

This Service Letter will take approximately 1-3 labor hours, based on aircraft configuration.

**WARRANTY INFORMATION:**

This service letter does not include warranty for parts and labor.

**TECHNICAL DATA:**

Copies of this service letter, float service manual, modification drawing, and float parts manual are available on the website [www.wipaire.com](http://www.wipaire.com).

For basic Float model maintenance information, see Wipaire applicable Service Manual on website [www.wipaire.com](http://www.wipaire.com).

For basic Float model parts information, see applicable Wipaire Parts Manual on website [www.wipaire.com](http://www.wipaire.com).

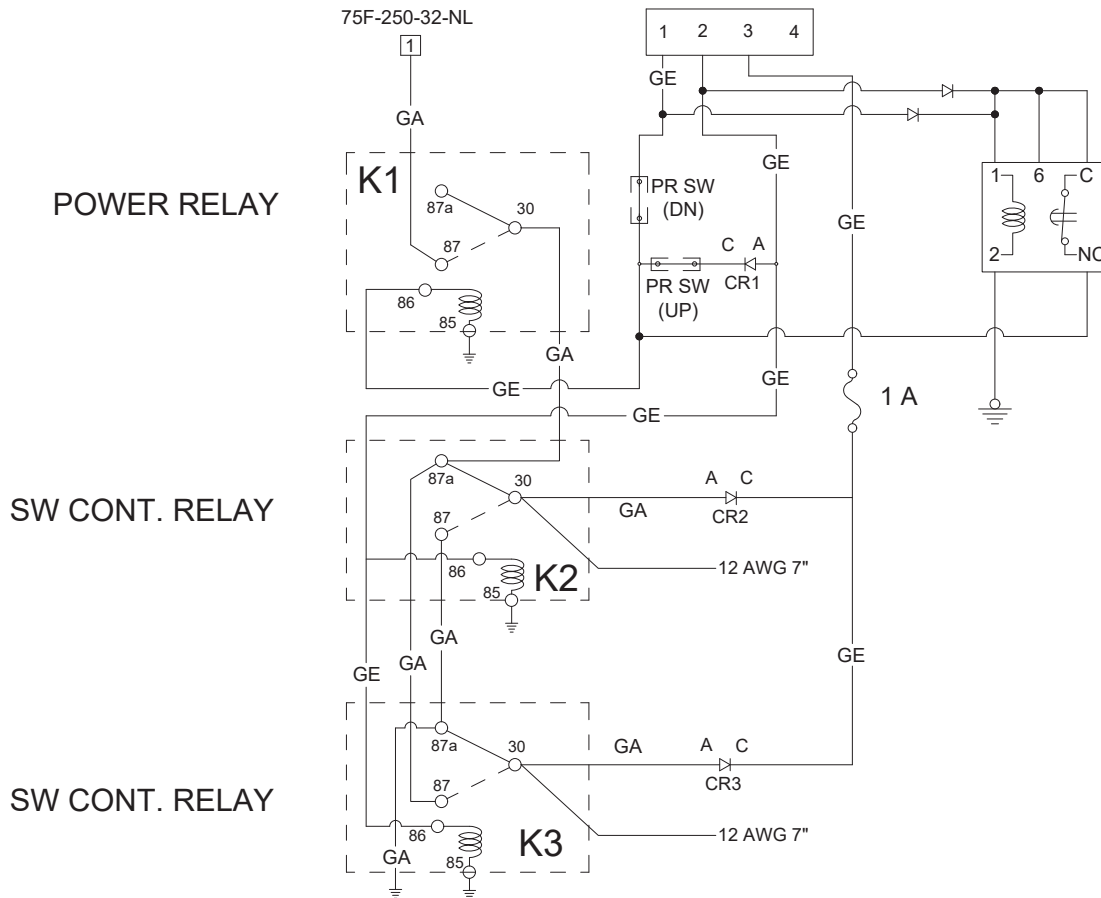
## WORK INSTRUCTIONS

### 1005052-01 CONFIGURATION (BI-DIRECTIONAL PUMPS EXCLUDING DHC-2) INSTALLATION

1. Although it is possible to complete work with the hydraulic pump installed in the aircraft, it is recommended that the hydraulic pump is removed from the aircraft for easier access.
2. Remove backshell from three-wire round plug on pump side of connection.
  - a. Cut back heat shrink 1" from plug end.
  - b. Remove pin 1 from round connector.
    - i. Cut off pin and strip insulation back on removed wire. Strip back insulation on one of the wires coming from terminal "1" of the time delay relay.
    - ii. Using pin 66099-4, crimp both wires together in the pin. Install pin into round connector at position "1".
  - c. Remove pin 2 from round connector.
    - i. Cut off pin and strip insulation back on removed wire. Strip back insulation on the other wire coming from terminal 1 of the time delay relay.
    - ii. Using pin 66099-4, crimp both wires together in the pin. Install pin into round connector at position "2".
  - d. Reinstall backshell onto three-wire round plug.
3. Disconnect two wire molex plug on the down pressure switch. Down pressure switch is the pressure switched that is on the same side of the hydraulic manifold as the hydraulic fitting labeled "DN".
  - a. Remove pin 1 from molex housing. Pin locations are marked on the bottom of the plug where the wires enter.
    - i. Cut off pin and strip insulation back on removed wire. Strip back insulation on the wire coming from "NC" terminal from the time delay relay assembly.
    - ii. Using pin 02-09-1117, crimp both wires together in the pin. Install pin into molex housing at position "1".
4. Connect the wire from "2" terminal from the time delay relay to ground using MS25036-102 terminal ring.
5. Mount the time delay relay assembly to an available space on the hydraulic pump mount. Use 1012412 bracket for proper fit if needed.
6. If removed, re-install hydraulic pump into the aircraft.
7. Put aircraft on stands and perform a gear retraction/extension for function test and to remove any air in the system.
8. To test timer relay:
  - a. With the gear and selector in the down position, turn master switch on. Pump should run for ~1 second, then shut off. Put the gear selector in the gear up position. Let the gear retract all the way up and stop, then turn master switch off.
  - b. With the gear and selector in the up position, turn master switch on. Pump should run for ~1 second, then shut off. Put the gear selector in the gear down position. Let the gear retract all the way down and stop. Turn master switch off.
  - c. Remove aircraft from stands.

**1005052-02 CONFIGURATION (DHC-2 WITH BI-DIRECTIONAL PUMP) INSTALLATION**

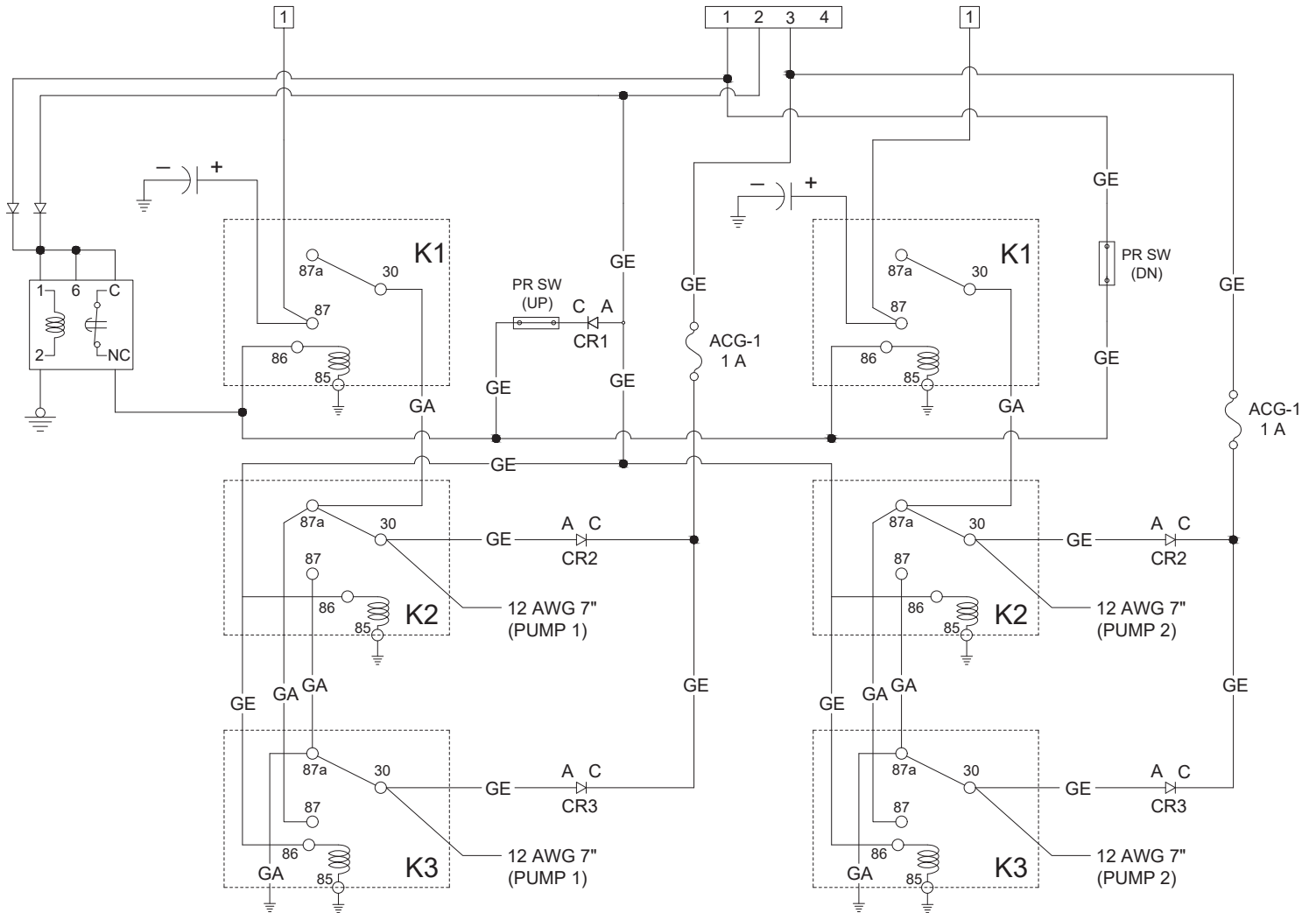
1. Although it is possible to complete work with the hydraulic pump installed in the aircraft, it is recommended that the hydraulic pump is removed from the aircraft for easier access.
2. On both time delay relays make sure the “T1” pod is pointing at 1 and “T2” pod is turned all the way counterclockwise.
3. Locate one time delay relay on top of the top plate, next to the fuse holder and secure with AN4-11A bolt, NAS1149D0463J washer and MS21083N4 nut. Locate the second time delay relay on the bottom of the top plate, under the reversing solenoid (T24450-24). Remove the forward mounting bolt for the reversing solenoid (T24450-24) and replace with AN4-14A bolt, NAS1149D0463J washer and MS21083N4 nut.
4. For the time delay relay that is mounted on top of the top plate:
  - a. Connect terminals “C”, “6” and “1” together using 20 gauge wire and 71F-250-32-NL terminals. Cut a 20 gauge wire long enough to go from terminal “1” of the time delay relay to the anode side of the “UP” diode terminal on the terminal strip. Connect wire to terminal strip using MS25036-102 terminal ring. See -02 configuration wire schematic.
  - b. Connect a 20 gauge wire from terminal “NC” on time delay relay using 71F-250-32-NL terminal end. Remove wire and cut off terminal end on “T1” terminal of the reversing solenoid (T24450-24). Strip back insulation on existing wire. Using terminal end 71F-250-32-NL crimp both existing wire and wire from “NC” terminal on time delay relay. Install terminal end onto “T1” terminal on reversing solenoid (T24450-24). See -02 configuration wire schematic.
  - c. Connect a wire from terminal “2” on the time delay relay to the ground point on the hydraulic pump assembly using 71F-250-32-NL and MS25036-102 terminals.
5. For the time delay relay that is mounted on the bottom of the top plate:
  - a. Connect terminals “C”, “6” and “1” together using 20 gauge wire and 71F-250-32-NL terminals. Cut a 20 gauge wire long enough to go from terminal “1” of the time delay relay to the anode side of the “DN” diode terminal on the terminal strip. Connect wire to terminal strip using MS25036-102 terminal ring. See -02 configuration wire schematic.
  - b. Connect a 20 gauge wire from terminal “NC” on time delay relay using 71F-250-32-NL terminal end. Remove wire and cut off terminal end on “T2” terminal of the reversing solenoid (T24450-24). Strip back insulation on existing wire. Using terminal end 71F-250-32-NL crimp both existing wire and wire from “NC” terminal on time delay relay. Install terminal end onto “T2” terminal on reversing solenoid (T24450-24). See -02 configuration wire schematic.
  - c. Connect a wire from terminal “2” on the time delay relay to the ground point on the hydraulic pump assembly using 71F-250-32-NL and MS25036-102 terminals.
6. If removed, reinstall hydraulic pump into the aircraft.
7. Put aircraft on stands and perform a gear retraction/extension for function test and to remove any air in the system.
8. To test timer relay:
  - a. With the gear and selector in the down position, turn master switch on. Pump should run for ~1 second, then shut off. Put the gear selector in the gear up position. Let the gear retract all the way up and stop, then turn master switch off.
  - b. With the gear and selector in the up position, turn master switch on. Pump should run for ~1 second, then shut off. Put the gear selector in the gear down position. Let the gear retract all the way down and stop. Turn master switch off.
  - c. Remove aircraft from stands.



# ELECTRICAL SCHEMATIC

**CONFIGURATION -01 SINGLE PUMP WIRING SCHEMATIC**  
 (RELAYS SHOWN IN RELAXED CONDITION)

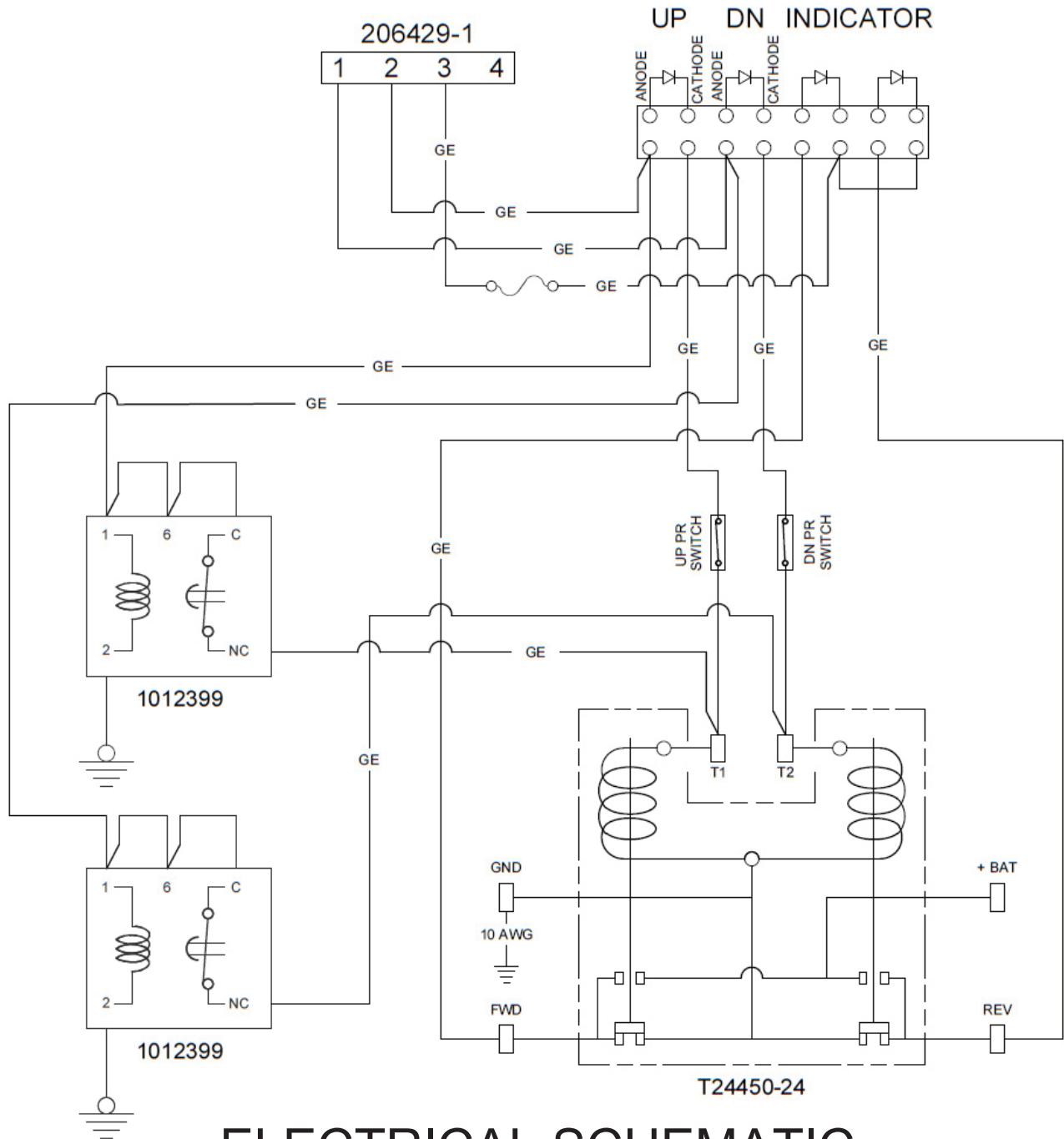
1. GE WIRES 20 GA
2. GA WIRES 12 GA



# ELECTRICAL SCHEMATIC

**CONFIGURATION -01 DUAL PUMP WIRING**  
 SCHEMATIC  
 (RELAYS SHOWN IN RELAXED CONDITION)

1. GE WIRES 20 GA
2. GA WIRES 12 GA



# ELECTRICAL SCHEMATIC

**CONFIGURATION -02 SINGLE PUMP WIRING  
 SCHEMATIC  
 (RELAYS SHOWN IN RELAXED CONDITION)**

1. GE WIRES 20 GA

### CONFIGURATION TABLE

CONFIGURATION	DESCRIPTION
-01	ALL BI-DIRECTIONAL HYDRAULIC PUMPS (NOT DHC2)
-02	DHC2, WITH BI-DIRECTIONAL HYDRAULIC PUMP

### PARTS LIST

ITEM	QTY -01	QTY -02	P/N	DESCRIPTION
1	1	0	02-09-1117	SOCKET, CRIMP, FEMALE, 22-18 AWG
2	0	2	1012399	RELAY, TIME DELAY RELEASE, 6-18 VDC
3	1	0	1012411	ASSEMBLY, RELAY, TIME DELAY RELEASE, 6-48 VDC
4	1	0	1012412	BRACKET, RELAY, HYDRAULIC PUMP
5	0	5 FT	22759-16-20-9	WIRE, 20 AWG, WHITE
6	2	0	66099-4	CRIMP PIN, MALE
7	0	10	71F-250-32-NL	CRIMP DISCONNECT, FEMALE, FULLY INSULATED, 18-22 AWG
8	1	1	AN4-11A	BOLT, 1/4-28, 06875 GRIP, UNDRILLED
9	0	1	AN4-14A	BOLT, 1/4-28, 1.0625 GRIP, UNDRILLED
10	1	1	MS21083N4	NUT, LOCKING, LOW HEIGHT, 1/4-28
11	1	4	MS25036-102	RING TERMINAL, #6 STUD, 16-22 AWG
12	1	1	NAS1149D0463J	WASHER, 0.265 I.D., 0.063 THK, ALUMINUM

## Aircraft Closing & Return to Service

1. Upon completion of inspection, enter information in Aircraft Logbook for completion of Wipaire Service Letter 112.