DEPARTMENTS OF THE ARMY AND THE AIR FORCE
TECHNICAL BULLETIN

AVIATION GROUND POWER UNIT

(INVERTER REPLACEMENT)

NSN 1730-01-144-1897

Headquarters, Departments of the Army and the Airforce, Washington, D. C.

31 March 1997

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of away to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. You may also submit your recommended changes by E-mail directly to <mpmt%Yavma28@st-louis-emh7.army.mil>. A reply will be furnished directly to you. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

1. INTRODUCTION. This TB details the changes to remove the Tripp Lite Direct Current to Alternating Current Inverter, Part Number PV-500PC-24V from the Aviation Ground Power Unit (AGPU), Model 360A. The TB also details the tools and material required to install and operate the Stat Power Prowatt 800/24 inverter on the AGPU.

2. TOOLS REQUIRED

a. Wire cutter.

b. Wire stripper.

c. Electric drill and face shield.

d. Drill bit. 9/32 (.281 in.) diameter or 5/16 (.312 in.) diameter. A 1/4 diameter drill may be used, however, reaming of the holes will be required.

e. 2 adjustable wrenches or a standard wrench set.

f. Pencil.

g. Tape measure.

h. Flashlight.

i. Screwdriver, flat tip.

j. 1/4 in. ratchet and extension.

k 7/16 in. socket and a 1/4 in. socket.

l. Goggles.

3. MATERIAL REQUIRED

a. Wire, #8 AWG, insulated, 3 in. long, stripped 1/2 in. on each end. Wire shall be marked P56A8N.

b. Standoffs, quantity 4, .63 outside diameter x .31 inside diameter, x.680 long, zinc plated. Suggested source of supply: Accurate Screw Machine Co. 10 Aubrey Place, Fairfield, New Jersey 07004. FSCM 51506, P/N 8071 -R-S-.680-31 or .250 inside diameter washers, quantity 28.

c. Screw, Cap, Hex Head, 1/4-20UNC-2A X 1.375 long, quantity 4, P/N MS90725-11 NSN 5305-00-071-2240

d. Washer, Flat, .250 ID, quantity 8, P/N AN 960-416 NSN 5310-00-141-1795

e. Washer, Lock, .250 ID, quantity 4, P/N MS35338-44 NSN 5310-00-582-5965

f. Fuses Type 257

4. REMOVAL OF INVERTER. (Roof removed).

WARNING

Turn the AGPU off If It Is operating. Disconnect all AGPU electrical lines from aircraft. Disconnect the battery cable from the on board AGPU battery.

Refer to figure 1, DC to AC Inverter to remove the mounting hardware and the DC supply wires.

a. Open Pneumatic Hose access door. Remove and save two jam nuts, item (9), and two lockwashers, item (10) from the top of the retaining bar, item (11), which is located on top of the inverter.

b. Remove retraining bar, item (11).

c. Remove and save two jam nuts, item (9), and two lock washers, item (10) from underneath the mounting tray, item (15). Remove the two mounting studs, item (12) from mounting tray, item (15).

d. Remove black terminal cover, item (1) from negative (-) terminal. Do not remove black terminal cover from the wire.

e. Remove red terminal cover, item (2) from positive (+) terminal. Do not remove red terminal cover from the wire.

f. Remove two nuts, item (3) and two lock washers, item (4) from the negative (-) and positive (+) terminal. move the wires from the terminals.

g. Remove the inverter, item (14) from the mounting tray, item (15).

h. Push the red and black terminal covers onto the wires so that approximately 6 in. of white wire is exposed.

CAUTION

It Is Important to maintain the correct polarity of the positive and negative wires. Reversing the polarity can cause damage to the new Inverter and possibly other components. Follow the next steps carefully.

i. The positive white (+) wire with the red terminal cover shall be marked P54A10 if it is not already marked.

j. The negative white wire (-) with the black terminal cover shall be marked P54A10N if it is not already marked.

k. Cut the ring terminals off each of the two wires (P54A10 and P54A10N) and strip the insulation 0.5 inch from each end of the two wires.

l. Remove the wires from the grommet in the mounting plate but do not lose the identity of the wires. If needed, reinstall the terminal covers on the wires after removing the wires from the grommet. Remove the grommet.

5. INSTALLATION OF INVERTER. (Roof Removed).

a. Drill four holes, (9/32 or 5/16 diameter) in the inverter mounting tray, item (15), figure 1 as shown in figure 2, Mounting Plate Hole Location-Top View. Measure 3.0 inches from the AGPU wall and .75 inches from the right edge of the mounting plate. The holes are shown in figure 2 as A, B, C, D.

b. Ensure that the ON/OFF switch on the PROWATT800 inverter is in the OFF position.

c. Connect the positive white wire P54A10 to the red positive terminal (+). Insert the bare end of the wire into the terminal and tighten the screw to damp the wire securely.

d. Connect the negative white wire P54A1 ON to the white negative (-) terminal on the new inverter. Connect the new 3 in. long wire (P56A8N) to the white negative terminal. Tighten the screw to damp the two wires securely.

e. Verify that the black terminal cover is on the wire connected to the negative white terminal on the new inverter. Verify that the red terminal cover is on the wire connected to the positive (+) red terminal on the new inverter. The terminal covers can now be cut off the two wires if the wiring is correct

f. Connect the end of the new 3 in. wire (P56A8N) to the 'G" terminal on the new inverter (immediately below the positive (+) terminal) and tighten the screw to clamp the wire securely. This completes the wiring of the new inverter. Check that all connections are correct: (Positive to Positive) since reverse polarity connections will blow a fuse in the PROWATT 800 and may permanently damage the inverter. Insure that all wire screws are tight since loosely tightened connectors result in excessive voltage drop and overheated wires.

WARNING

Operation of the Inverter without a proper ground connection may result In electrical safety hazard.

g. Refer to figure 3. Position the inverter, item (3), on the mounting plate and install the two back 1/4-20 x 1.375 in. long screws, item (1), with a .250 diameter washer, item (2), on each screw through the two rear holes (Holes A and D of Figure 2) on the inverter, item (3), then through the .680 long spacer, item (4), or use approximately seven .250 diameter washers that will dear the right angle tabs on the front of the mounting plate. Install a .250 diameter washer, item (2), a .250 diameter lock washer, item (5), and a 1/4-20 nut, item (6), on the 1/4-20 screw below the mounting plate, item (3). Center the inverter on the mounting plate and tighten the two back screws.

h. From the bottom of the mounting plate line drill a 9/32 or 5/16 diameter hole through the mounting flanges on the inverter using the front holes (holes B and C of figure 2) in the mounting plate as a guide. Insure that the drill passes through the mounting flange on the inverter and not into the case of the inverter.

i. Install the fastener hardware as described in step g.

j. Verify that the wiring is correct.

k. Verify that the fan grill on the rear of the inverter is not blocked.

I. Turn all the AGPU switches to OFF. Connect the AGPU battery cable to the AGPU battery.

6. OPERATION.

a. **POWER ON**. Turn the AGPU on. Refer to TM 55-1730-229-12. Set the inverter ON/OFF switch to ON. The VOLTS bar graph should indicate 22 to 28 volts DC depending on the voltage at the AGPU power source. If it does not indicate 22-28 volts, check the connections to the AGPU and DC output voltage. The AMPS bar graph on the inverter should indicate 0 with no load connected to the AC outlets on the inverter. The OVER TEMP indicator and OVERLOAD indicator lights should be OFF.

b. **LOAD CONNECTION**. Turn the inverter OFF. The indicator lights may blink and the internal alarm may sound momentarily. This is normal. Connect a suitable load (Less than 1000 watts; 8.3 amps 120 Volts Alternating current, 60 hertz) to the AC OUTLET on the inverter. We recommend that you start with a relatively low power load, such as a 100 watt lamp to verify your connections before trying high power loads. The inverter should supply power to the AC load.

c. **INDICATORS**.

(1) The VOLTS and AMPS bar graph indicators on the front of the inverter indicate battery input voltage and amps to the inverter. The AMPS should be in the green zone for continuous operation. The inverter will operate for several minutes when the AMPS are in the yellow zone. Operation with battery voltage or current in the red zone will result in protective shutdown of the inverter. In the event that the inverter shuts down remove the load and allow the inverter to cool before adding load.

(2) The OVER TEMP indicator lights and an alarm sounds when the inverter protects itself against overheating. Remove the load.

(3) The OVERLOAD indicator lights when the inverter is shutdown because of severe overload. Turn the inverter off, remove the load, and turn the inverter on to reset.

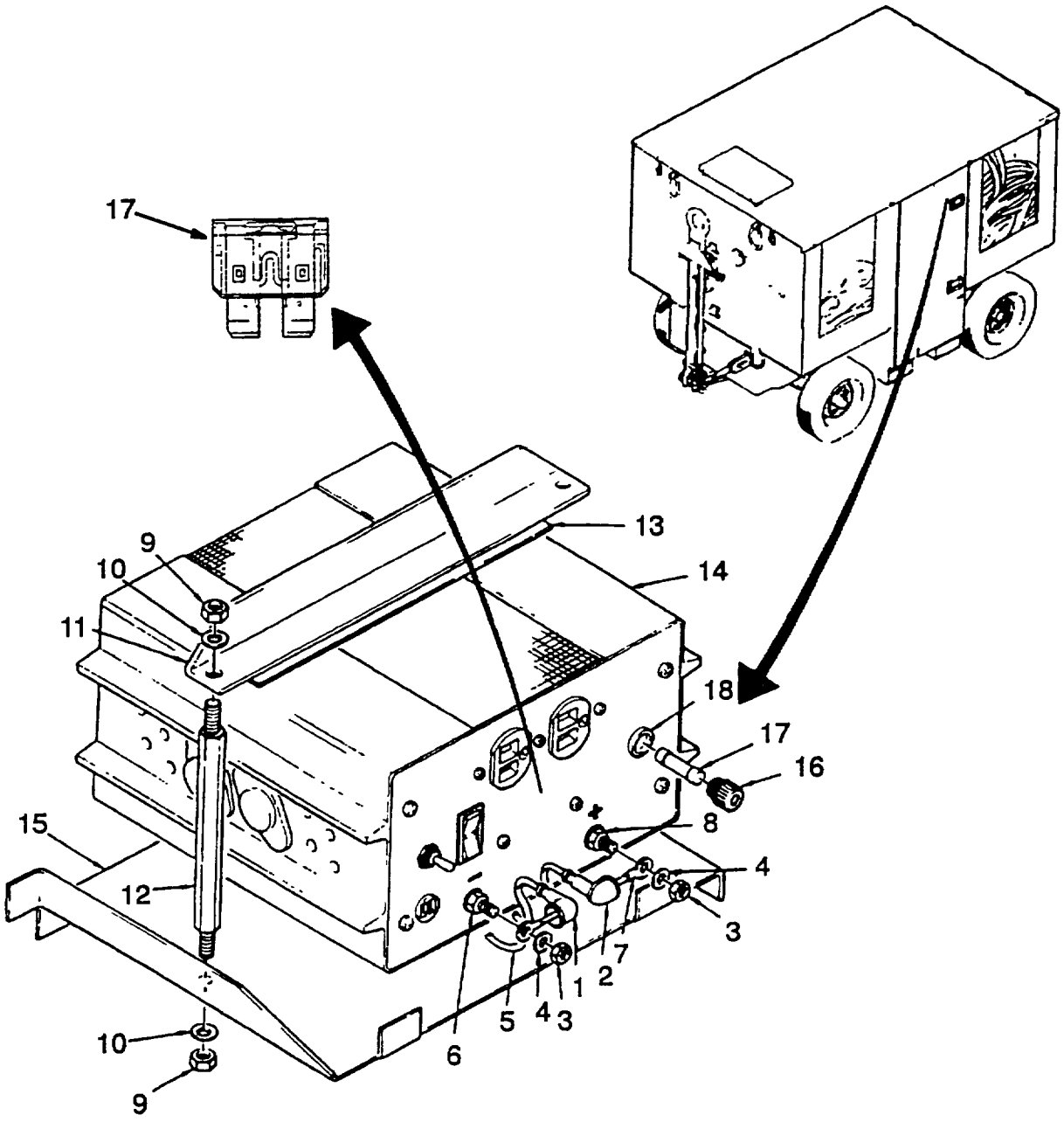
(4) LOW BATTERY ALARM. An audible alarm will activate when the battery voltage is 21.5 volts DC.

(5) LOW BATTERY CUTOUT. The low battery cutout will operate when the battery voltage is 20 volts or less.

7. MAINTENANCE.

a. Clean the exterior with a damp cloth to prevent accumulation of dust and dirt. At the same time, tighten the screws on the DC input terminals with the AGPU battery disconnected.

b. Internal fuse open. Inverter Removed. Eliminate the source of the external excessive load. Remove the inverter cover and replace the fuse.



1. BLACK TERMINAL COVER
2. RED TERMINAL COVER
3. NUT
4. LOCKWASHER
5. NEGATIVE WIRE
6. NEGATIVE (-) TERMINAL
7. POSITIVE WIRE
8. POSITIVE (+) TERMINAL
9. NUT
10. LOCKWASHER
11. RETAINING BAR
12. MOUNTING STUD
13. RUBBER STRIP
14. DC-TO-AC INVERTER
15. MOUNTING TRAY
16. FUSE CAP
17. FUSE (25 AMP) (257 TYPE, 15 AMPS)
18. FUSE HOLDER

Figure 1. Dc-to-Ac Inverter.

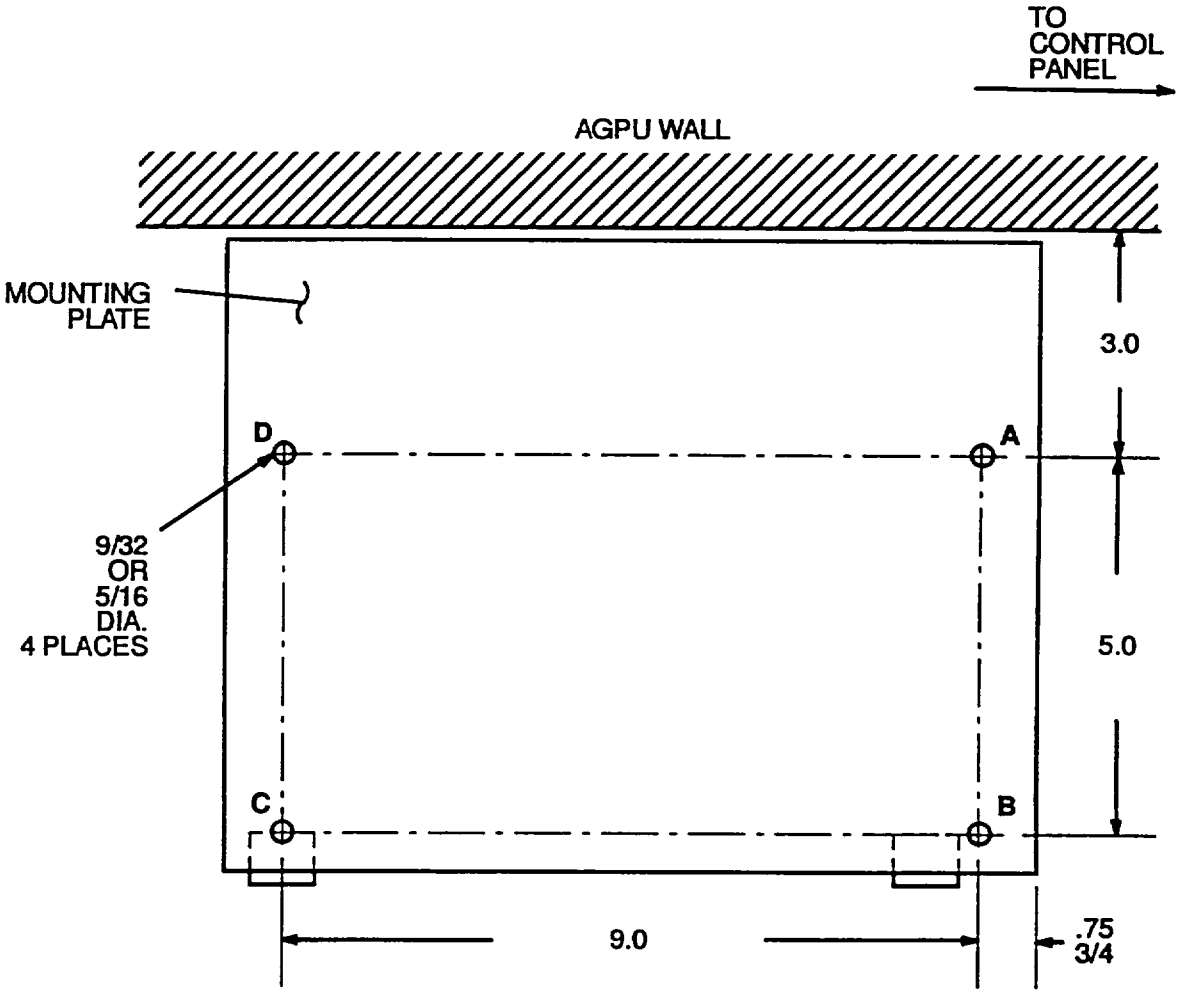


Figure 2. Mounting Plate Top View Hole Location.

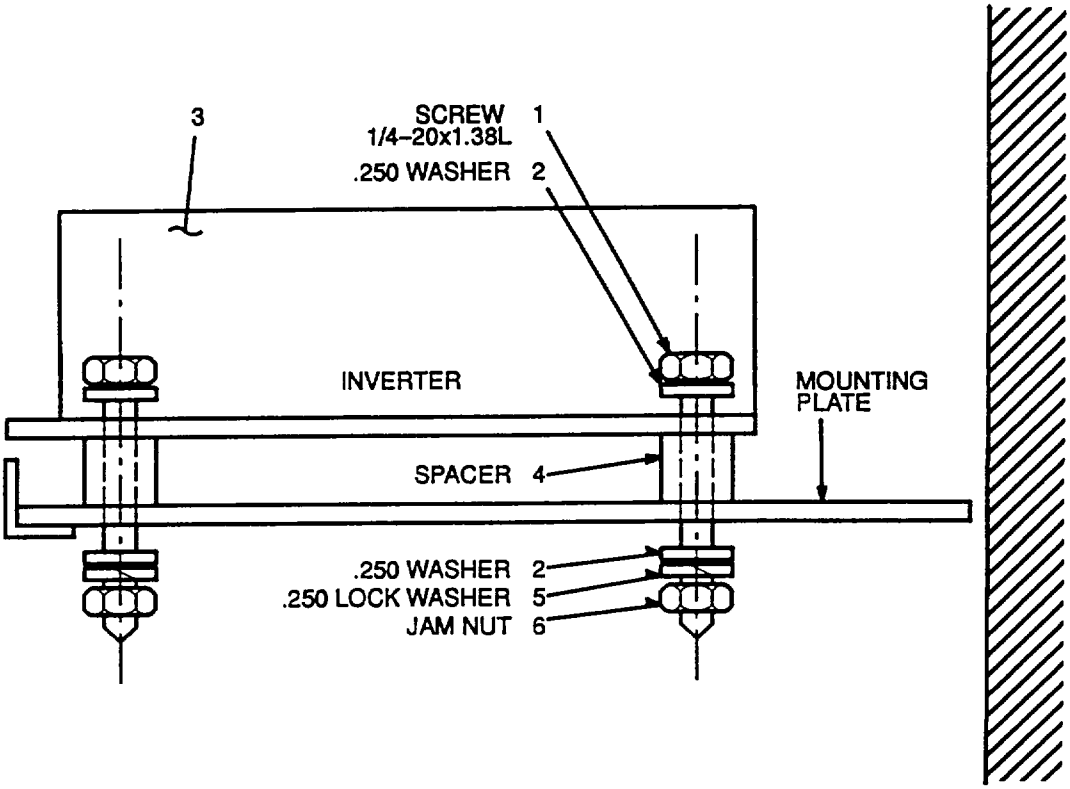


Figure 3. Inverter Mounting Hardware Side View.

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General, United States Army
Chief of Staff

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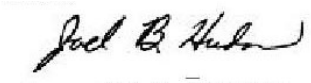

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Administrative Assistant to the
Secretary of the Army
03430

RONALD R. FOGELMAN
General, USAF
Chief of Staff

HENRY VICCELLIO, JR.
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To: mpmt%avma28@st-louis-emh7.army.mil

Subject: DA Form 2028
1. ***From***: Joe Smith
2. *Unit*: home
3. ***Address***: 4300 Park
4. ***City***: Hometown
5. ***St***: MO
6. ***Zip***: 77777
7. ***Date Sent***: 19-OCT-93
8. ***Pub no***: 55-2840-229-23
9. ***Pub Title***: TM
10. ***Publication Date***: 04-JUL-85
11. *Change Number*. 7
12. *Submitter Rank*: MSG
13. ***Submitter FName***: Joe
14. *Submitter MName*: T
15. ***Submitter LName***: Smith
16. ***Submitter Phone***: 123-123-1234
17. ***Problem: 1***
18. *Page*: 2
19. *Paragraph:* 3
20. *Line:* 4
21. *NSN*: 5
22. *Reference*: 6
23. *Figure*: 7
24. *Table:* 8
25. *Item*: 9
26. *Total*: 123
27. ***Text***:

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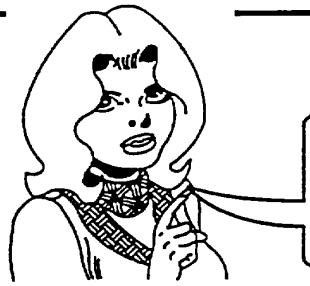

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FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
PFC John DOE
CO A 3rd Engineer Bn
Ft. Leonardwood, MO 63108

DATE SENT 22 August 1992

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 1-1520-250-10	15 June 1992	Operator's manual MH60K Helicopter

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
6	2-1 a		
B1		4-3	

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

In line 6 of paragraph 2-1a the manual states the engine has 6 cylinders. The engine on my set only has 4 cylinders. Change the manual to show 4 cylinders.

Callout 16 on figure 4-3 is pointed at a bolt. In key to figure 4-3, item 16 is calle a shim. Please correct one or the other

EXAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

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SIGN HERE

JOHN DOE John Doe

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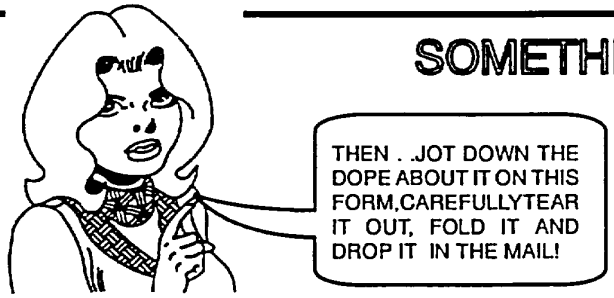

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