SERVICE BULLETIN

M-917A

April 11, 1986

SOUND SYSTEM TROUBLESHOOTING

General

Like any other complex equipment, the Harley-Davidson sound system requires proper care and maintenance. The sound system represents a considerable investment on the part of the owner and he has the right to expect extended trouble-free service. Remember that most sound system problems are avoidable. Here are some important **DOs** and **DON'Ts** which, when followed, will assure customer satisfaction and eliminate the possibility of major problems.

Dealer:

DO — Educate the customer on proper care and maintenance of the sound system at time of delivery.

DO — Clean tape deck when motorcycle is brought in for service.

Dealer Instructions to Customer:

DO — Use good quality sixty minute (maximum) tape.

DON'T — Use tapes that are loosely wound (may cause tape ingestion).

DON'T — Leave tape cartridges in tape door or in hot sun (may cause tape ingestion).

DO — Clean tape deck every fifteen hours of play with Harley-Davidson Tape Deck Cleaner, Part No. 76165-86.

DO — Exercise care when washing motorcycle to prevent water entry. The sound system is not water tight and water, in quantity, will adversely affect sound system performance.

DON'T — Move bass control to maximum setting with full volume. This will cause distortion.

The following updated troubleshooting guide should help you with most difficulties you may encounter with the sound system.

CAUTION

Before doing any electrical work on the three radio power wires, turn the ignition switch to the OFF position and disconnect negative lead from the battery. When finished, connect the negative lead to the battery with the ignition switch in the OFF position. Failure to do so may cause irreversible damage to the radio.

NOTE

Before troubleshooting, disconnect remote controls (six pin connector) to isolate problems at radio chassis. Functions will then be confined to the control panel only.

ROUTING:	SERVICE MANAGER	SALES MANAGER	PARTS MANAGER	CHIEF MECHANIC	MECHANIC NO. 1	MECHANIC NO. 2	MECHANIC NO. 3	MECHANIC NO. 4	RETURN THIS TO:
INITIAL HERE									

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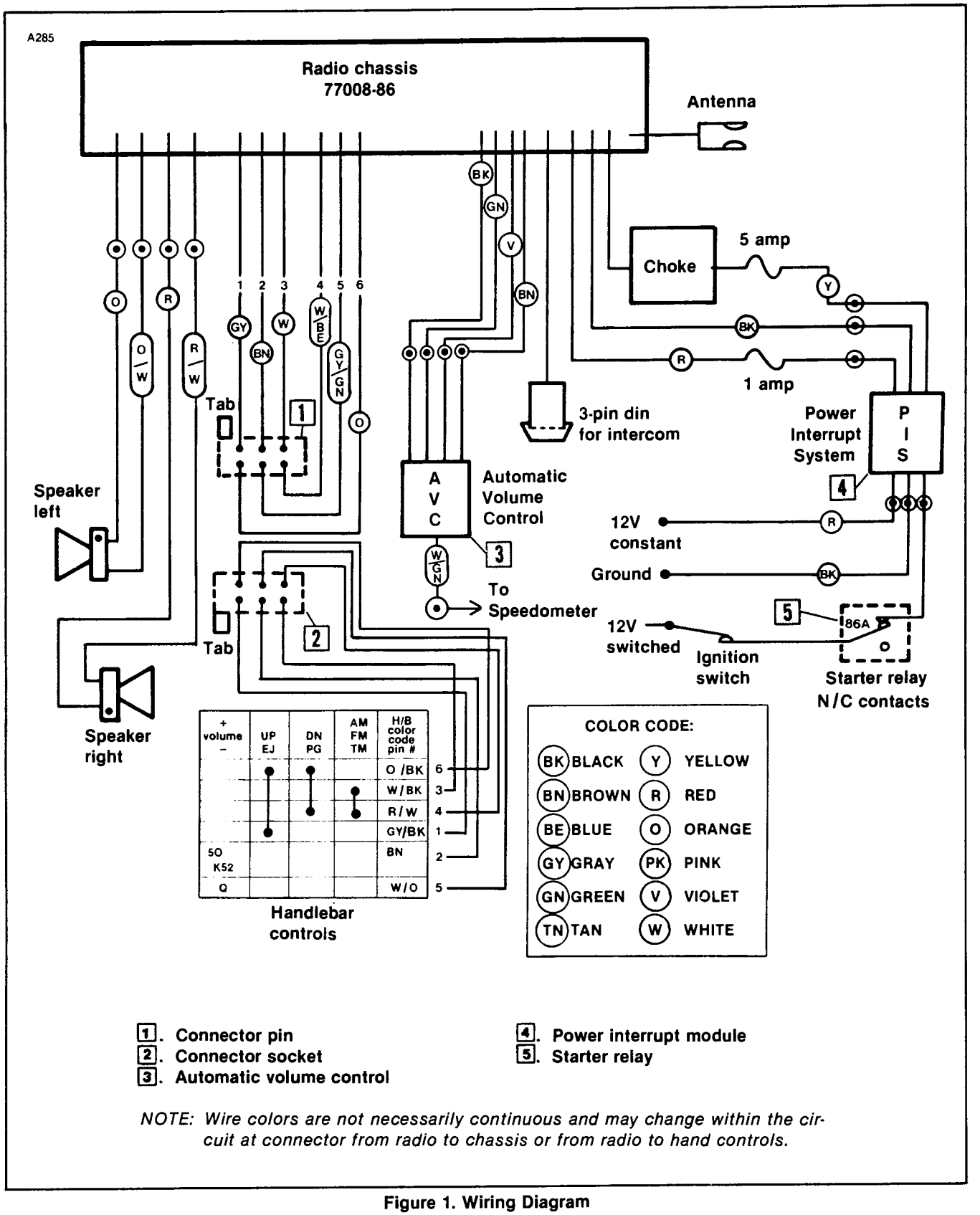

1. Connector pin
2. Connector socket
3. Automatic volume control
4. Power interrupt module
5. Starter relay

NOTE: Wire colors are not necessarily continuous and may change within the circuit at connector from radio to chassis or from radio to hand controls.

Figure 1. Wiring Diagram

Problem	Cause	Solution
1. No lights, No sound. Tape player inoperable.	1.1 External P.I.S. module (4) plugged into system.	1.1.1 Remove P.I.S. module (4) from system as per bulletin M-913A.
	1.2 Grounded handlebar switch.	1.2.1 Refer to the test procedures under Handlebar Switches later in this bulletin.
		1.2.2 Tape or replace pinched wires Replace any faulty switches.
	1.3 Fuse blown.	1.3.1 Check fuses. Replace blown fuse with fuse that is equally rated.
	1.4 Faulty starter relay (possibly caused by brake fluid contamination).	1.4.1 Replace starter relay (5).
	1.5 Faulty control panel or panel not fully engaged.	1.5.1 Check engagement without rubber hood.
		1.5.2 Substitute a known good control panel.
	1.6 Minimal or below control voltage limit.	1.6.1 Reset radio by turning ignition switch to OFF position and momentarily disconnecting battery. On FLTC models, turn ignition switch OFF and disconnect fairing twelve pin connector, if more convenient.
	1.7 No power.	1.7.1 Check battery, circuit breaker and wiring.
2. No switching at control panel and/or at handlebar controls.	2.1 Minimal or below control voltage limit.	2.1.1 Reset radio by momentarily disconnecting battery.
	2.2 Grounded handlebar switches.	2.2.1 Refer to Handlebar Switches later in this bulletin.
	2.3 Faulty control panel.	2.3.1 Replace with known good control panel.
3. Cover sticks. (FLTC/FLHTC)	3.1 Cover binding on hood.	3.1.1 Lubricate radio hood and radio cover with LUBRIPLATE 1200-2 grease, or equivalent. Lubricant should be applied at cover hinge points, along detent ridge of hood between the cover hinges and on both ends of the hood. The grease should be rubbed lightly on the rubber until it becomes clear.
		3.1.2 Check to be sure hood is not distorted due to overtightening of top mounting screws.
4. Cannot obtain full volume at either volume control slider.	4.1 Low voltage.	4.1.1 Charge battery. Check current draw and charging system output. Reduce load at idle by turning off unnecessary accessories. If current draw is excessive, eliminate one or two accessories to reduce load.
	4.2 Water in speaker grilles.	4.2.1 Blow water out of speaker grilles with compressed air.

Problem	Cause	Solution
5. No volume or intermittent volume.	5.1 Faulty AVC.	5.1.1 Check AVC (3) unit by disconnecting four pin connector. Attach a jumper wire, at pin connector half, between pins connected to brown and violet wires. If problem is corrected, replace AVC unit.
	5.2 Grounded volume control.	5.2.1 See 1.2
	5.3 Water in volume control	5.3.1 Dry switch housing with compressed air and spray slide control with WD-40 or equivalent.
6. Distortion or poor performance.	6.1 Bass and volume set too high.	6.1.1 Adjust bass and volume controls to median settings.
	6.2 FLT models, loose speakers.	6.2.1 Replace speednuts with nylock nuts. See Bulletin M-913A.
	6.3 FLT models, bottom panel under caddy vibrating.	6.3.1 Install vibration pads under caddy. See Bulletin M-913A.
	6.4 Incorrect speaker polarity.	6.4.1 Check if solid colored wire is on the speaker terminal with painted dot.
7. Poor reception on AM or FM. Tape unit plays satisfactorily.	7.1 Faulty starter relay (sometimes evidenced by erratic voltmeter).	7.1.1 Replace starter relay (5).
	7.2 Antenna cable or mast shorted to ground.	7.2.1 Replace antenna or cable. See Antenna Tests later in this bulletin.
	7.3 Water in radio chassis.	7.3.1 Allow three days to dry out chassis in warm dry environment.
	7.4 Low voltage.	7.4.1 Charge battery.
8. Lights out on control panel.	8.1 Control panel not fully engaged.	8.1.1 Remove control panel from hood and install panel. Observe lights, if OK, check if fairing (FLHTC) or hood is too thick. Reduce fairing thickness or tighten hood mounting screws more securely.
	8.2 Lights burned out in control panel.	Substitute a known good control panel.
9. Tape cartridge stuck.	9.1 Stuck tape release mechanism.	9.1.1 Push in slightly on tape cartridge to activate release mechanism. **CAUTION** **If tape is difficult to dislodge, do not force as damage to tape mechanism could result. Call Harley-Davidson Service Department for assistance.**

Problem	Cause	Solution
10. Tape ingested.	10.1 Capstan or pinch roller dirty.	10.1.1 Push EJT button. If tape doesn't eject, lightly push in on tape cartridge. If cartridge still does not eject, turn ignition and radio power OFF, then ON. Push cartridge in more firmly, but not hard. If tape is now fully taken in by drive unit, wait ten seconds, and press EJT button. If cartridge does not eject, remove nose piece and rotate visible gear below tape opening to the right until the tape is up and out. Clean cassette deck.
	10.2 Loosely wound tape in deck or tape left in door for extended period then inserted.	10.2.1 Slowly remove cassette cartridge and if the ribbon is wrapped around the internal workings gently pull on the ribbon so as to free it from the drive. If the ribbon breaks, call Harley-Davidson Service Department.
11. Radio makes a "flub, flub, flub" noise.	11.1 Low voltage.	11.1.1 Charge battery. Check current draw and charging system output. Reduce load at idle by turning OFF unnecessary accessories. If currect draw is excessive, eliminate one or two accessories to reduce load.
12. Battery drained when motorcycle is not operated for one or two weeks.	12.1 Radio memory and clock constantly draw small amount of current.	12.1.1 Trickle charge, or disconnect battery occasionally, during periods that motorcycle remains idle more than four days. An accessory timer module will soon be available to alleviate this problem.
13. Radio picks up engine noise. Noise (signal frequency) changes with engine R.P.M.	13.1 Poor antenna ground or antenna shorted to ground.	13.1.1 Check antenna ground following test procedures under Antenna Tests later in this bulletin.
	13.2 Loose spark plug wire or wires.	13.2.1 Clean coil tower and check ignition wire connections.
	13.3 Water in radio chassis.	13.3.1 Allow motorcycle to dry out in dry environment for three days.

Handlebar Switches

INTERMITTENT POWER LOSS

Refer to Figure 1. The circuit from radio to function switch, through pin one, if grounded will start and stop radio. To isolate problem, disconnect connector halves (1) and (2).

If problem is eliminated, grounding is in circuit between pin connector (2) and function switch.

LOSS OF VOLUME

Refer to Figure 1. Circuit from radio to volume control, through pin five, if grounded will kill volume. To isolate problem, disconnect connector (1) and (2).

If problem is eliminated, grounding is in circuit between pin connector (2) and volume control. To check for a grounded condition, take ohmmeter and place one probe on suitable ground and the other probe, alternately to each socket. The reading at each socket should be infinity.

SWITCH CONTACTS

1. Refer to Figure 1. Disconnect connector halves (1) and (2).

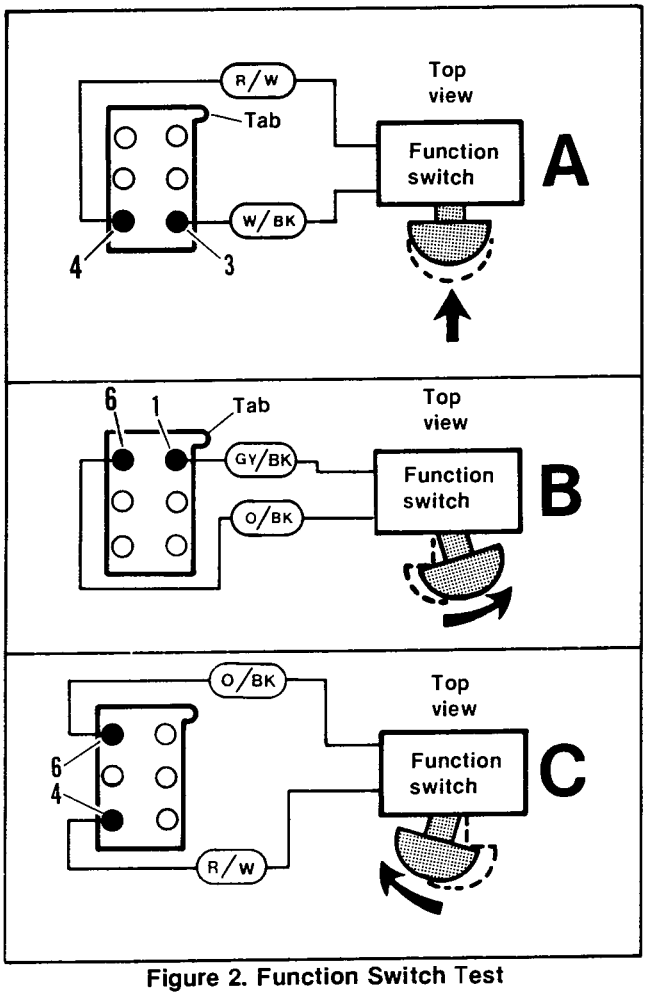

Figure 2. Function Switch Test

2. Refer to Figure 2, View A. With ohmmeter, place probes on pins (3) and (4), and push function switch straight inward. Meter should register zero ohms. A resistance reading significantly higher than zero indicates the switch contacts are not closing and the switch should be replaced. Release the switch control knob. The meter should now register infinite ohms. If the meter registers a reading other than infinite ohms, the contacts are not fully opening and the switch should be replaced.

3. Refer to Figure 2, View B and C. Place the meter probes on the pins and move the switch control knob in the direction shown. The meter should indicate zero ohms when moved to either side with the probes at appropriate connector pins. The meter should register infinite ohms when the switch knob is released.

4. Refer to Figure 3, View D. Place ohmmeter probes on connector pins (5) and (2), and move volume control knob to extreme left (when facing switch) or 'minus' side. Meter should register approximately two (2) ohms. Leave probes on pins (5) and (2), and move control knob to extreme right, or to 'plus' side. Meter should register 50,000 ohms. If meter readings vary significantly from the recommended readings, replace switch.

Transient Signal Voltage

Refer to Figure 1. Disconent connector halves (1) and (2). Connect voltmeter black lead to vehicle ground. Touch each pin of pin connector (2) with red probe and watch for an indication of voltage on meter. There should be no voltage present at any of the pins. If a voltage is present, this is an indication of current flow into the radio control circuit from source other than radio chassis.

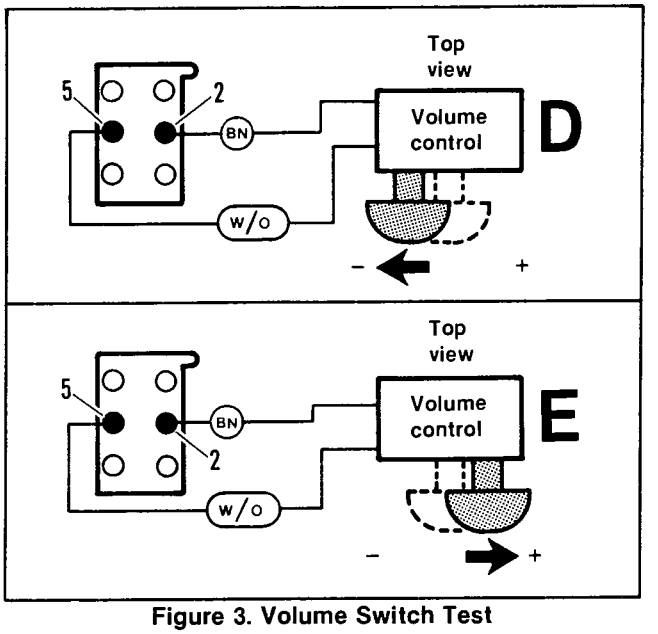

Figure 3. Volume Switch Test

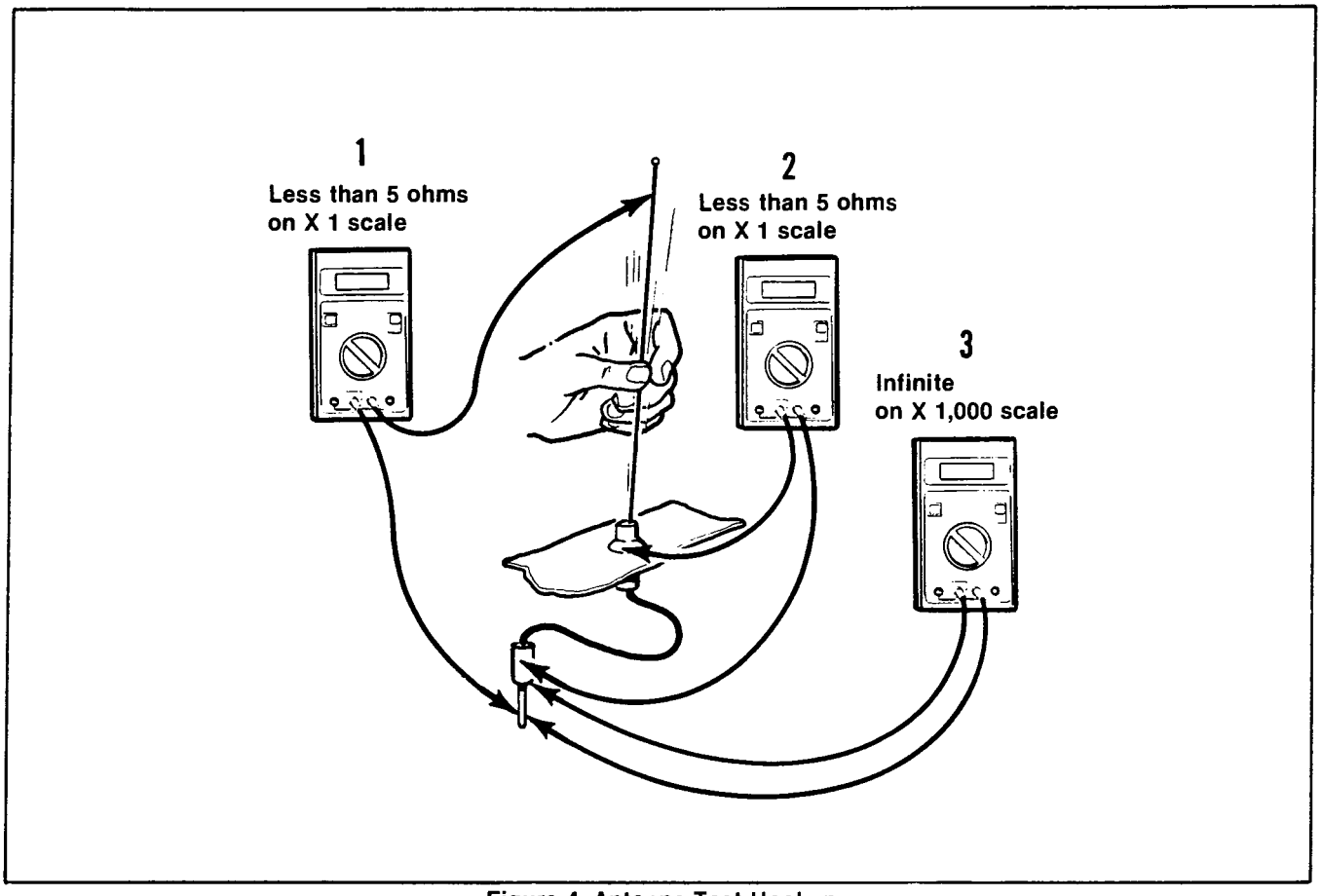

Figure 4. Antenna Test Hookup

Antenna Test (Figure 4)

A faulty antenna can cause poor reception. Check it in three steps after cleaning the mast. Step one: set your ohmmeter to the X 1 scale, and connect the leads as shown in the drawing. A reading of more than five ohms means you should replace the antenna or cable. If less than five ohms, proceed to Step 2. Using the same scale, connect the leads as shown. If the reading is greater than five ohms, replace the antenna or cable. If it's less than five ohms, proceed to Step 3. Set the meter to the X 1,000 scale, and connect the leads as shown. If the reading is not infinite, replace the antenna or cable. If replacement parts are necessary, retest after installation of new parts.