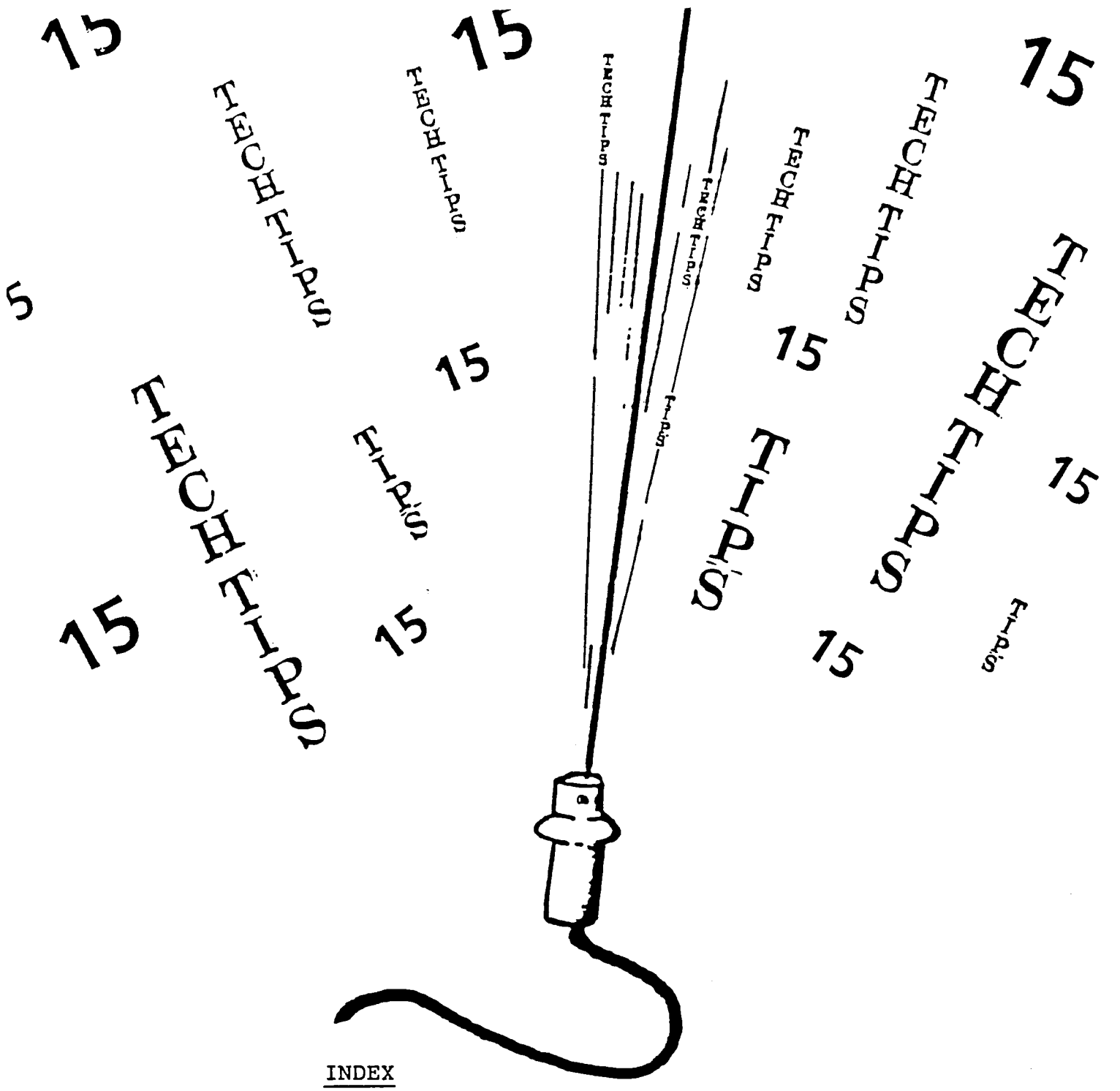


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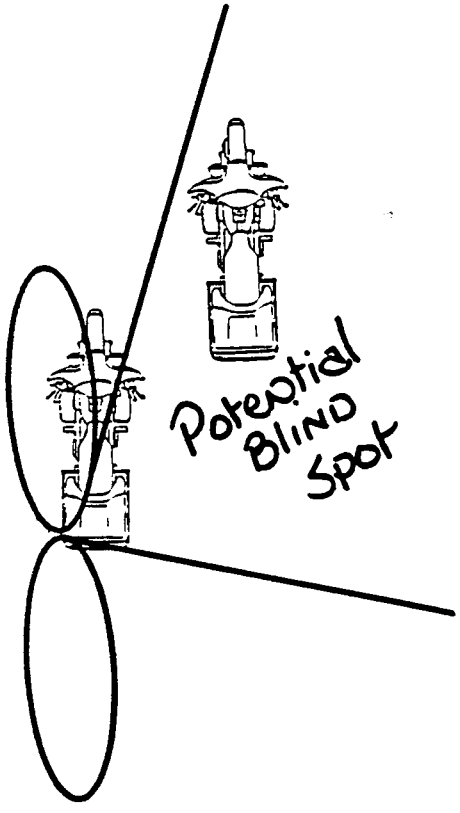
ML-280
Spark Plug usage chart

A LUCKY PRODUCTION

1) The CB, smaller than a bread box, more wires than Ma Bell, capable of driving a good tech mad. Why???????????




Answer: We don't know anything about it. Well let's strap on our thinking caps and get ready to exercise our brains.

A) The CB generates an AM radio type signal and just as an AM radio, its signal can be affected by buildings, terrain and weather. This also includes guard rails, overpasses and surrounding traffic.

B) The CB's transmitted signal is a magnetic field. This means that any magnetic object or material that can be magnetized will effect its broadcasting ability.

C) The signal pattern created by the antenna is similar to a figure eight. The direction of this signal is determined by the ground plane, that is the reflective properties of surrounding objects. Should the antenna be mounted below the fender line, a short range blind spot could be created. (See the picture) This explains why the guy riding next to you may receive a poor transmission or no transmission at all.

Ok! Sit back, take a deep breath, reflect on what we've just said. If your brain is over-heating, go get a soda. - - - - - - - - - - - - - - - - - - - - - - - - - - - - Feel better? Lets continue.

D) Why don't more people listen to AM radio? Is it the programming? No, it's the static! AM and CB reception is sensitive to static interference. Sources of this interference are; ignition secondaries, alternator outputs, power lines, fluorescent street lights, microwaves, sun spots and jive @#!* rap music.

E) On the other hand, broadcasting range can be reduced by oncoming traffic, large iron ore deposits. (Northern WI, MN, MO, ND, & MT). This also includes cross country XL riders.

Breaktime!

CB Continued

F) Customers always ask the most interesting questions.

Q1) Why can't I install two CB antennas ? It should improve the CB's reception and increase my broadcasting range, right?

Ans. The antennas must be separated by at least a quarter of the CB's broadcast wave, (see fig. O). As you can see, that would be 8 feet. If they were not separated by this amount, the transmitted waves would cancel each other out and would be weak. Tractor trailers can run two antennas because they can achieve the proper separation distance mirror to mirror. This addition of an extra antenna reduces the potential for blind spots, it does not improve transmission or reception.

Fig O

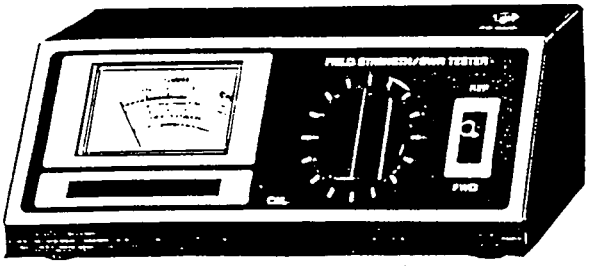

Q2) I was talking to this guy about my CB and he said, "Ya gotta tune your antenna to make your CB work right." Does he know what he's talking about? What does he mean?

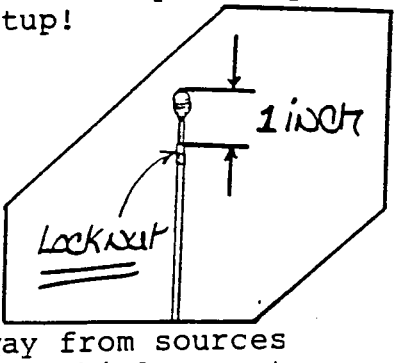
Ans. Remember in the last Tech Tips, I said I'd tell you about S.W.R. meters? (Standing Wave Ratio Meter). Well here we go.....
Radio transmissions or signals are waves.
The broadcasted waves travel out through the CB's coax cable to the CB antenna. The wave then travels up the antenna. When the wave reaches the end of the antenna, it turns around heading back towards the coax. The wave traveling up the antenna must match the wave that is returning from the top of the antenna. This wave matching maximizes signal strength. How do you match these waves? With an S.W.R. meter. The S.W.R. meter allows you to match these waves by modifying the antennas length, until the proper reading is achieved.

## BASIC S.W.R.TEST

Start with the antenna tip set at 1 inch, top of tip to top of nut. The S.W.R. meter is connected in line with the CB and antenna. The meter is set on FWD. You key the mic and set the meters needle on CAL. (Calibrate). This sets your meter to that particular wave length. Now you switch the meter to REF, with the mic still keyed, read the meter. Your reading should be below 2, (see fig. Meter). If the reading is above 2, then adjust the antenna's tip up or down until you achieve the desired meter reading. Be sure you tighten the locknut so you don't lose the antenna's tip. Always check locknut for tightness at pre-delivery setup!

WARNING: Never key the Mic with the CB antenna disconnected! It will burn-out the out-put stage.






* The S.W.R. settings must be performed outside away from sources of interference, and while you are sitting on the vehicles seat.

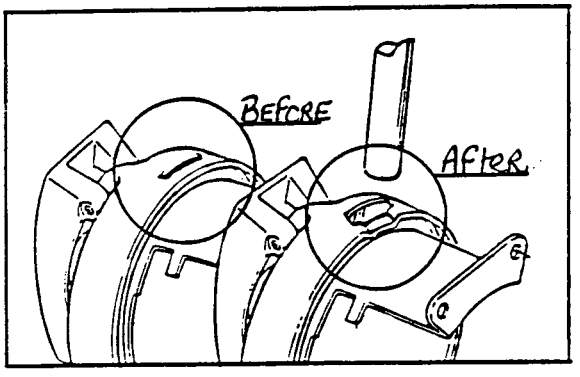
3) CB: If it goes nuts what can I do?

CB inoperative? No LED display? CB channels keep cycling? Squelch not working properly?

Vehicle setup can cause this problem. How? You ask, with a feeling of wonder and expectation. Well, I say, in a high pitched glass etching voice, if the vehicles battery is installed and the ignition switch happens to be on as the battery is connected, the CB's function side and the memory side will be powered up at the same time. They are now out of sequence with one another and can exhibit the above abnormal conditions. You must now flush the system. Follow these directions to the letter!

F) Turn CB off.
L) Turn ignition off.
U) Disconnect battery ground.
S) Turn ignition on.
H) Turn CB on.
t) Wait one minute for capacitors to discharge.
h) Turn CB off.
e) Turn ignition off.
C) Reconnect battery.
B) Verify repair.

4) The FL style ignition switch.




Look! The tabs which hold the switch together are a little on the short side. This can cause the chrome cover to disengage from the tabs and fall right off! A switch replacement won't solve the problem. Remove the switch and deflect the chrome cover as shown in the picture over there.

5) Primary gaskets right or wrong?

Print-O-Seal gaskets.
Engineering says: There is no right or wrong side for the print-o-seal as the printed line was meant to act as a shim not a sealer. The shimming action of the print only helps maintain proper gasket compression should distortion between the fasteners occur. The greater the distance between fasteners, the greater the potential for uneven load distribution. This point can be supported by the new FXST, FLST and FXSTS primary covers, which now have two added fasteners and the deletion of print-o-seal around screw holes.It seals better because of more even load distribution.

## MECHANIC'S NOTES

The new 1989 Softail shocks DO NOT retro fit anything. DON'T BOTHER trying, as excess stomach acid causes heartburn. Shock canister will contact transmission mounting plate on earlier vehicle and center to center distance as changed.

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### Are you Tired?

Honestly! We have not approved the 491 tires yet. That means it should not be installed on our vehicles. Should the tire pass our testing, we will let you know A.S.A.P.

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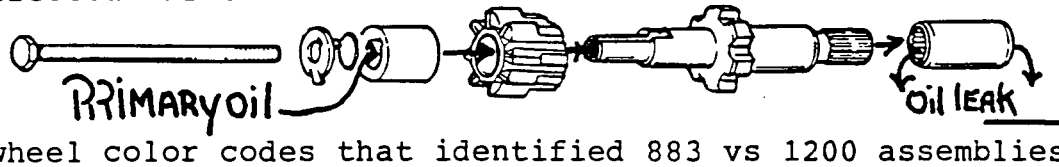
The Ultra Classic (cruise control). If it won't set, check the grounds, make sure that there is a ground strap and that it is tight and has continuity with a multimeter.
How about the Ultras' radio? If it has an alternator Hummmmmmm coming from the speaker, you most likely have a ground problem or a weak battery.

---

The 1989, 1340 models have a new starter and we've got a new tip. To keep you up to date and from making multiple repairs, BE ADVISED!!!
There is a potential for an oil leak to occur if, the o-ring (item 1) fails to mate properly with the sleeves chamfer (item 2). This problem can be identified by introducing fluorescent dye into the inner primary, ride it, then park it and check the oil puddle with a black light. Repairs for this could be Hylomar and the stock o-ring or a replacement o-ring, part #11171. Engineering is aware and are requiring that the chamfers tolerance be more accurately controlled. Due to Engineerings quick response time, the number of affected units will be small.




The flywheel color codes that identified 883 vs 1200 assemblies have changed due to the implementation of the new Micro alloy flywheels. Please note this in your parts book under Flywheels.

| | OLD CODE | NEW CODE |
|---|---|---|
| 883cc | YELLOW | GREEN |
| 1200cc | WHITE | RED |

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The 1985 to 1989 FX / SOFTAIL SERVICE MANUAL page 7-1 SPECIFICATIONS - 4-SPEED, TORQUE VALUES, Transmission sprocket nut 80-90 ft.lbs. WRONG WRONG WRONG! It should be 110-120 ft.lbs.

6) SPARK PLUG USAGE CHART

| PLUG # | H.D. PART # | SIZE/REACH | GAP | APPLICATION |
|---|---|---|---|---|
| 5 | 32307-58 | 14mm /.375 | .028/.033 | 58 to early 75 FL,FX,G<br>54 to 70 K,XL,XLH<br>58 to 77 XLCH |
| 5-6 | 32309-69 Obsolete | 14mm/.750 | .023/.028 | Late 75 to Early |
| 5A6 | 32310-77 Active | " " | " " | 77 FL,FX |
| 5A6A | 32310-78 Obsolete | 14mm/.750 | .038/.048 | Late 77 to 79 FL, |
| 5A6 | 32310-77 Active | " " | .023/.028 | Changed to 5A6A in mid 78 |
| 5RL | 32312-78A Active (Only low compression motors) | same | .038/.048 | Same and 82 to 84 FL,FLT,FX |
| 5R6A | 32312-78 Obsolete | 14mm/.750 | .038/.048 | Late 77 to 81 FL, FX,FLT |
| 5R6A | 32311-83 | 14mm/.750 | .038/.048 | 1340cc Evolution |
| 5R6 | 32312-77 Active | " | " | Changed to 5R6A in mid 78 |
| 6R7 | 32314-83 | 14mm/.750 | .038 to .043 | XR-1000 |

Obsolete Cross Chart

| | | | | |
|---|---|---|---|---|
| 2 | 32305-48A | Champion | H-L | (48 to early 75 FL,FX, 52 to 78 K,XL,XLCH, 70 to 78 XLCH, 56 to 74 G (Servi-car) ) |
| 6 | 32308-71 | Champion | N-4 | (M50,M65,Z90 Late 74-SX 125) |
| 7 | 32306-61 | Champion | N-3 | (All Sprints and acceptable for all light weights 125,175,250, M50,M65,ML and Z90,Baja's) |
| 7-8 | 32344-74 | Champion | N-2 | (125,175,250) |

NOTES

RESOURCE MATERIAL NEEDED FOR WORKBOOKS 001 THROUGH 008 AUG. 18, 1988

A.V. PROGRAMS

| | | |
|---|---|---|
| Shop I Booklet only | 99937-82 | $8.50 |
| Shop II | " 38-83 | |
| Shop III | " 39-83 | |
| 5 Spd. Trans. | " 26-85 | |
| Clutches | " 31-84 | $15.00 |
| Evo. Eng. Oiling | " 30-84 | |
| Evo. Eng. | " 34-84 | |
| Evo. Sportster Eng. | " 25-86 | |
| Evo. Sportster Trans. | " 24-86 | |
| Electrical I | " 35-82 | |
| Electrical II Booklet only | " 36-82 | $8.50 |

INSTRUCTION SHEET

Kent-Moore XL pushrod Gauging Instruction sheet or XL service manual

1987 OWNERS MANUAL 99466-87

KENT-MOORE TOOL CATALOG HD87-165

PARTS CATALOGS

| | |
|---|---|
| 79 TO 85 XL | 99451-85 |
| 1340 Evo. | 99450-88 |
| XL Evo. | 99451-88 |

SERVICE MANUALS

| | |
|---|---|
| 84 TO 87 FLT/FXR | 99483-87 |
| 85 TO 87 FX | 99482-82 |
| 86 XL | 99484-86 |
| 78 1/2 TO 84 FL/FX | 99482-84 |

SERVICE BULLETINS
(Service Bulletins available on Micro fiche only)
M-913A
M-917A
M-918
M-860
M-907
M-891
M-906
M-928
M-909

Also
M-927
M-879
M-865

SERVICE SEMINAR NOTES

1984
1985
1986

SERVICE LETTERS

ML-271 (this is a Tech Tip)
ML-280

DEALER LETTER

JANUARY 22, 1985 Re: A.V. #10

ALL TECH TIPS