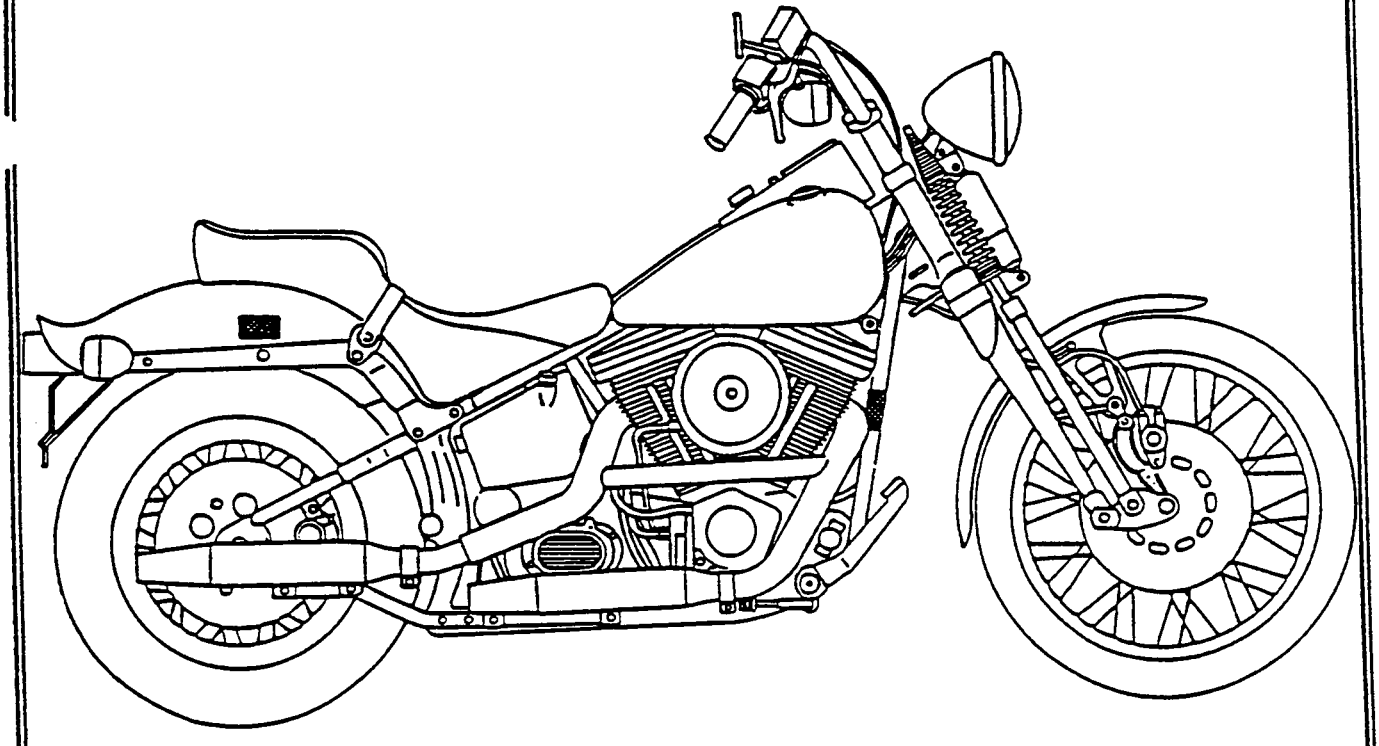
TECHNICAL TIPS

April 1995
TT#42



MOTOR HARLEY-DAVIDSON COMPANY

TECH TIPS #42

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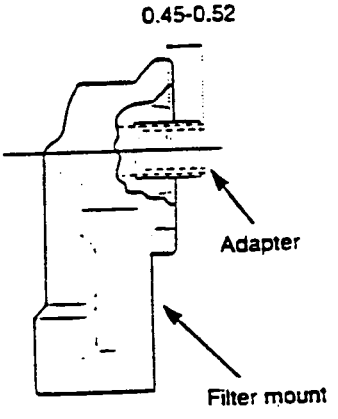
** ALL MODELS **

EXHAUST SYSTEM REMOVAL

Mid-Continent Harley-Davidson technician, Drew, writes to us with his suggestion for easing the removal of exhaust pipes. After loosening all the mounting hardware, Drew uses a small amount of Dry-Slide at the muffler/ exhaust pipe connection. The liquid graphite allows the mufflers to slide off quite easily. Then, wipe any remaining lubricant from the components afterward.

OIL FILTER MOUNT

When replacing oil filters during service intervals, please check to see that the oil filter adapter has a sufficient amount of threads protruding to properly engage the oil filter. The correct thread length should be between 0.45 to 0.52 inches.



** XL MODELS **

GASKET CHANGE

The steel fire ring has been added to the head gaskets used for Evolution 883cc Sportster models for improved durability. The new part number is 16664-86A.
Look for the new gaskets on production vehicles built after January and in engine gasket sets from Parts & Accessories.

SPORTSTER 1200cc COATED PISTONS

Remember the coated pistons that we told you about in Service Bulletin # 1047?
Well they are now in production on 1200cc engines starting with crankcase number; 2595 073 025.

** 1340cc MODELS **

CAMSHAFT BEARING FAILURES

There has been a lot of talk about the Harley-Davidson "cam bearing situation" and we would like to share some facts. Through analyzing dozens of failed components supplied by you and your customers, we have learned the following.

- Component analysis indicates a camshaft failure that in turn destroys the bearing– not a bearing that destroys the camshaft.
- The camshafts that have failed have been almost exclusively non-original camshafts.

The failures are a result of the camshaft bearing surface breaking down. Even though these cams may be made of the proper grade of steel, the steel had relatively large non-metallic deposits. When these inclusions are in the needle bearing load area, surface spalling of the camshaft begins and destroys the bearing.
Harley-Davidson camshafts are made of "Bearing Quality" steel. The specifications for this type of steel do not allow these non-metallic inclusions to exist. Camshaft failures on recent Evolution engines with original equipment camshafts are extremely rare.

So, what does this mean to you and your customers?

- If your customers experience a camshaft failure with a non-Harley-Davidson camshaft, there will be no warranty coverage.
- If your customers experience a camshaft failure with one of Harley-Davidson Screamin' Eagle cams, you need to contact the Technical Support line at (414) 935-4887. Installation of Screamin' Eagle cams does void the warranty on the engine, but we will be willing to review your specific circumstances for possible special policy adjustment consideration

SOFTAIL JIFFY STAND SPRING REMOVAL & INSTALLATION

An easy way to remove and install the jiffy stand spring on Softail models is as follows:
1. Remove the top bolt and lock washer that hold the leg stop in place.
2. Remove the leg stop.
3. Pivot the jiffy stand forward. This will allow the spring to be removed from the two mount holes.

To reinstall the spring:
1.Reverse the process to reassemble. Remember when installing the leg stop the long side goes against the stop on the leg bracket. (i.e. towards the rear of the motorcycle)

The mandated usage of reformulated gasoline has become quite a burning issue (no pun intended) in many parts of the country this winter. Concerns have been raised by owner's of both 2 and 4 stroke engines about the impact of these new fuels.
In order to clear the air, Harley-Davidson's Vice-President of Product Management, Mark Tuttle recently issued a press statement clarifying Harley's stance on the usage of reformulated gasoline and it's possible side effects on our motorcycles.
We have printed the Customer Service Department's position in this issue of Tech Tips. It is our hope that this will better prepare you to answer questions that your customers may ask.

HARLEY-DAVIDSON CUSTOMER SERVICE DEPARTMENT POSITION STATEMENT- REFORMULATED GASOLINE

Harley-Davidson has tested reformulated fuels under controlled conditions;

- **Ethanol-** 10% Ethanol and 90% unleaded gasoline- OK for use in your Harley-Davidson.
- **MTBE- (Methyl Tertiary Butyl Ether)-** tested at up to 15%- OK for use in your Harley-Davidson.
- **Methanol-** DO NOT USE.
- **Blends of Ethanol and MTBE fuels-** did not test, we do not know the effects. However, industry and EPA sources indicate that mixing of fuels is not an issue.

Concerns;

Labeling- Fuel labeling is not Federally regulated but may be at state and local levels. In the absence of RFG identification labels, RFG is distributed in areas classified by the EPA as having high ozone levels and conventional gasoline blends are in all other areas.

Health- we feel that there may be some effect on health, but we don't understand it at this time.

Engine performance- overheating or detonation.

Fuel economy- expect on the average a 2-5% reduction on ethanol and RFG blends.

Recommendations;

- Look for fuel identification on the pump if possible. Develop and support state and local labeling action.

- Watch/notice engine performance and respond;
  too lean/overheating- use lower octane. Our experience has been that lower octane fuel typically has lower alcohol content.

  detonation- use higher octane

  if changing octanes causes the opposite problem, it may be necessary to mix octanes (half high, half low).

- Make sure that engines are at a proper state of "tune" and that all systems affecting vehicle performance are operating correctly.

If our riders are experiencing health problems that they feel may be associated with this new fuel, we suggest that they may want to curtail their riding until the EPA completes their investigation of these health concerns.

We are urging the EPA to hasten an investigation of the health concerns.

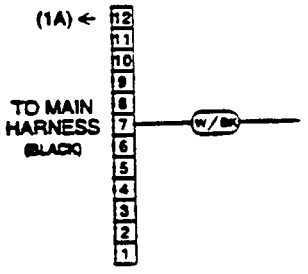
We urge the distributors be required to control the additive percentages and that the consumer be informed of what these percentages are at the pump.

** AMP CONNECTOR CONFUSED? **

There have been inconsistancies in our earlier service literature when referencing any wiring diagrams for our troublingshooting charts for cruise, turnsignal, and sound systems. These inconsistancies relate to the terminal numbering system for Amp connectors. We have attempted to summarize and clarify this information for you in this Tech Tips article.

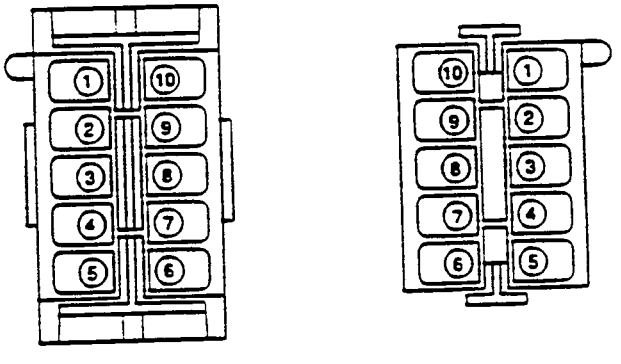
All 1995 wiring diagrams follow a new connector format that was introduced in 1994. This may pose some confusion for those of you that have become accustomed to using the terminal numbering system (rear view) used in the older publications. Two numbering systems have been used since 1988 (89 model year). Now, in 1995, there will be only one.

NEW WIRING DIAGRAM FORMAT

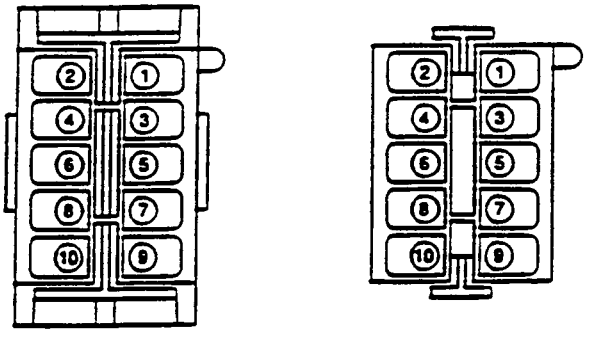


AMP TERMINAL NUMBERING SYSTEMS

The 1989-1994 cruise and sound system troubleshooting terminal numbering system started with number 1 at the index lug and rotated in sequence either clockwise or counterclockwise, depending whether the connector was a pin or socket housing.



Amp Numbering System A: Sound System & Cruise



Amp Numbering System B: Turnsignal Module

The system used on the turnsignal module starts with number 1, at the index lug, and has odd numbers on the index lug side and even numbers on the other side of the connector. This system is actually closer to reality and can be verified when looking closer at the terminal side of the housing. On some connectors, the numbers are molded right into the housing! This should make troubleshooting easier. **All the 1995 Service manuals and wiring diagrams now follow System B when you look at Amp connectors.**
The manuals and wiring diagrams are correct for the year they were written. Confusion may arise wif system A were used with the new manuals. We hope you find the new method more user friendly and convenient.