2016 MACS Field Survey

The Mobile Air Conditioning Society (MACS) is conducting this survey to identify trends in mobile air conditioning service. When the survey is completed, participants will receive a report of the information compiled.

Rather than have the survey address the detail repair activity of each vehicle, this survey is being conducted as a general facility servicing profile, addressing the general trends.

The service profiles are separated to identify servicing activity.

Facility Information

1. Please provide the location of your service facility: City_____ State_____
   My shop primarily deals with ___Automotive ____ Collision ____ Trucks
2. What are the approximate number of A/C systems serviced in your facility from May 1 through June 30? Record number of systems serviced here: _____
   a. What percentage of those systems required refrigerant circuit service? _____%
   b. What percentage of those systems required service of A/C system controls? _____%
   c. What percentage of those systems required another type of service other than listed in a and b above? _____%
3. Do you use refrigerant identification equipment? ___Yes ___No
4. Do you have a problem identifying system refrigerant leaks? ___Yes ___No
5. What method do you prefer for identifying small leaks? (Check preferred method.)
   a. Dye __ Electronic Detector __ Other Method __
   Other Method Used? _____
6. What method do you prefer for identifying large leaks?
   a. Dye __ Electronic Detector __ Other Method __
   Other Method Used? _____

Serviced Vehicle Profile

7. What vehicle vintages do you currently service at your facility, using estimated percentages (totaling 100%)?
   a. 1 to 5 years old _____%
   b. 6 to 10 years old _____%
   c. 11 to 15 years old _____%
   d. 16+ years old _____%
8. What mileage ranges do you currently service at your facility, using estimated percentages (totaling 100%)?
   a. Less than 10,000 miles _____%
   b. 11,000 to 50,000 miles _____%
   c. 51,000 to 100,000 miles _____%
   d. 110,000 to 150,000 miles _____%
   e. 150,000+ miles _____%
9. Have you serviced vehicles which have been converted to use a refrigerant other than that for which the A/C system was originally designed? ___Yes ___No
   a. If “yes,” what type of conversions have you observed? (See below.)
      i. R-12 replaced with _____ Percent of occurrence_____%
      ii. R-134a replaced with_____ Percent of occurrence_____%
      iii. R- 1234yf replaced with _____Percent of occurrence_____%

10. Do you find many refrigerant systems are contaminated? ___Yes ___No
    a. If “yes,” what type of contamination do you find? Please list:
       Other refrigerant_____ Air_____ Unknown/other problems_____
       Estimate the percentage of vehicles you find contaminated: _____%

Reason For Service

11. What types of A/C failures have you observed in your shop, using estimated percentages totaling 100%? (See below.)
    a. Poor cooling/low refrigerant charge Percent of occurrence_____%
    b. Complete loss of refrigerant from leaks Percent of occurrence_____%
    c. System component failure Percent of occurrence_____%
12. What type(s) of refrigerant, for servicing, do you currently use at your facility, using estimated percentages totaling 100%?
    a. R-12_____%
    b. R-134a_____%
    c. R-1234yf_____%
    d. Other_____%
    e. Hydrocarbon_____%

13. Reason for service (Figure 1 below) lists typical component failures from prior MACS Surveys.

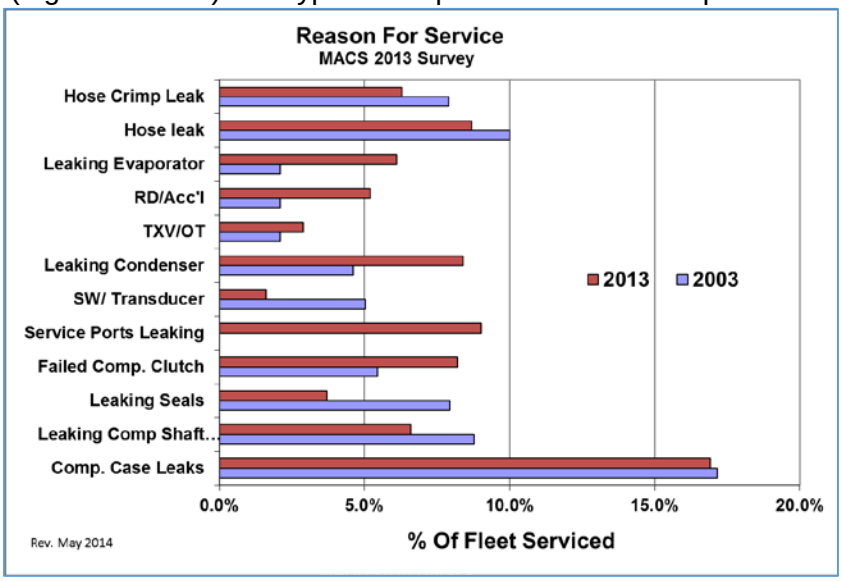

Figure 1

From the reasons for service listed immediately below (1 through 12), please write in the blanks provided below, from #1 (highest) to #5, the top five reasons for service on vehicles seen in your service facility

14. Reasons for service of refrigerant circuit:
    1. Hose crimp leak
    2. Hose leak (not at crimp)
    3. Leaking evaporator
    4. RD/Accumulator
    5. TXV/OT
    6. Leaking condenser
    7. SW/Transducer
    8. Service ports leaking
    9. Failed compressor clutch
    10. Leaking seals
    11. Leaking compressor shaft seal
    12. Compressor case leaks

    Your facility ranking of reason for service:

    1. _____(Highest)
    2. _____
    3. _____
    4. _____
    5. _____

15. Where have the majority of system operational control failures occurred (totally 100%)? (Check a or b below.)
    a. Engine compartment _____% Refrigerant circuit ____% Electrical ___ %
    b. Passenger compartment_____% Refrigerant circuit ____%Electrical ___%

Service procedures used at your shop

16. Check below the type of refrigerant circuit service most often performed at your shop:
    a. _____Top off
    b. _____Recover/evacuate/recharge

17. Do you add refrigerant oil during normal system service? ___Yes ___No
    a. How much oil do you typically add? List amount: _____ounces

18. Do you install performance or sealer additives? ___Yes ___No
19. Do you flush the refrigerant circuit? ___Yes ___No
    a. Flush for oil removal? ___Yes ___No
    b. Flush to remove foreign material? ___Yes ___No
    c. Have you experience problems in flushing systems? ___Yes ___No
       Describe: _____
       Other comments on flushing systems: _____

General servicing issues

20. With the advent of electronic controls on A/C systems, have you had many or any unusual diagnostic or servicing issues? (Please describe below.)

    _____

21. What type of failures have been challenging to diagnose and/or repair?

    _____

22. What are the typical control failure issues seen in the refrigerant circuit?
    Describe_____

23. What are the typical control failure issues seen in operational or system controls?

Describe_____

_____

24. Have you had a problem obtaining servicing information on systems needed to resolve a problem? ___Yes ___No

25. What type of information have you had difficulty in finding? Describe _____

_____

Any additional comments on issues regarding servicing of MAC systems?_____

_____

Should we need some additional information:

Name: _____

Company Name: _____

Phone: _____

Email: _____

My shop primarily deals with ___Automobiles ___ Collision ___ Trucks