**Automotive Contest - 2013**

1. Engine Performance – Chrysler 200
   1. Pull an engine code, check the current data stream, the ECT was unplugged/open
2. Electrical – Boards 7 resistors
   1. Voltage checks, voltage drops, amp readings, and resistances.
3. Suspension – Ford Fusion
   1. 2012 - Parts ID, alignment angles, how to perform the alignment
   2. 2011 - Identify caster, camber, and toe. Your given specs of a used vehicle and you have to identify if they are in operating specs of the alignment.
4. Engine Mechanical – 2.0L Toyota
   1. Install chain guides first, Oil pump gear/chain, VCT timing chain
5. HVAC – Toyota Camry
   1. 2013 - A/C clutch engagement, controls, pressure tests
   2. 2012 - Put the clutch drive pulley assembly back on the a/c compressor pump.
   3. 2011 - A/C ( parts id and hook up and measure pressure in high/low side)
6. Disc Brakes – Dodge Caravan
   1. Disc run out, parallelism, rotor thickness, assemble
7. Automatic Transmissions – 4L60E
   1. 2013 - Remove oil pump, disassemble, look up, reassemble
   2. 2011 - 700R4 transmission ( install three clutch pack in a single drum)
   3. 2012 - Measure the clearance of the outer gear and the pump body. Explain the different gear ratios of al planetary gear set and measure clearance in the smaller gears
8. Differentials
   1. Gear ratio (stamped on ring), assemble
9. Starter/Alternators-
   1. Had to use a growler to test the armature. Parts ID
10. Transfer Cases-
    1. Identify all of the parts in the transfer case and explain the power flow of it
11. Measuring-
    1. 2012 - You had to measure the warp age on a head, the piston skirts, connecting rod bearing, cam bearing and the rod journals on the crank.
    2. 2011 - Remove valve spring and measure valve stem and guide, then calculate valve stem clearance.
12. Disc Brakes – Toyota Camry
    1. Measure the thickness in 6 different areas on the rotor, measure the run out on it. And identify what the specs are for those, reassemble the brakes correctly.
13. Drum Brakes
    1. measure inside diameter of drum and write max diameter, then reassemble drum brakes on the vehicle)

**Diesel Contest – 2013**

1. Cummins insight
   1. Find parts and sensors
2. Measurement
3. Safety
4. Transmission Axle
   1. Powerflow through a differential
   2. 5 speed transmission with a PTO
5. DOT Inspection
6. Front clutch assembly
   1. Push / pull
7. Starting Charging Battery
   1. Load test
8. Macmentor
   1. Almost identical to the OTC Genysis
9. HVAC
   1. Parts ID
   2. High side and low side
   3. Difference between TXV and FOT
10. Hydraulics
    1. Parts ID and training board
    2. Schematics
11. Injector
    1. Height and valve clearance
12. Electrical
    1. Boards – Series, parallel, complex.

**Small Engines Contest 2013**

Station:

1. Rest/Uniform Safety Analysis
2. Rest
3. A Judge would give you a score based upon your clothing, jewelry, shoes, and safety glasses.
4. Parts Failure Analysis
5. Look at parts of small engines that have failed in some way
6. Determine the cause and problem
7. Timing on a Honda engine
8. Follow the procedure sheet and look at the bolt removal order in the Honda booklet
9. Remove Sump and Head cap
10. Correct Timing
11. Reassemble
12. Journal and Bore Measurements
13. Using a micrometer, dial caliper, or feeler gauge to measure where needed as described on the Procedure sheet.
14. Crankshaft Journal, crank pin journal, Valve lash
15. Engine Model and Specification Identification
16. Using correct engine manual find out meanings of codes and write down the model number, date of manufacture, type, and so on.
17. Rocker Arm Adjustment
18. Look up specs in the Kohler Manual for the rocker arm clearance
19. Measure clearance and make sure it is correct
20. Honda Specification Worksheet
21. Look up specs in the Honda manual while following the worksheet
22. Briggs and Stratton Specification Worksheet
23. Look up specs in the Briggs and Stratton manual while following the worksheet
24. 2 Stroke Specification Worksheet
25. Look up specs in the 2 stroke manual while following the worksheet
26. Tool and Parts Identification
27. Match part or tool with number on worksheet and write correct name in blank
28. Electrical Testing
29. Test for continuity in the starter switch
30. Test resistance in the primary and secondary wires on the alternator
31. Check yes or no on whether or not there is an open in the primary or secondary wires
32. ASE testing
33. General Questions over small engines