



AUTO 2462  
Automotive Service Technology, ADAS and AV internship  
work sheets.

## **Notes:**

- **It is not necessary to provide the owner's full name on these work sheets.**
- **If your internship facility does not do alignments, you can do those worksheets at school.**
- **Remember to have the internship agreement signed and returned to me.**
- **I need full address and contact information for the shop where you work as well as your mentor's name.**

**Oil Change and Safety/Maintenance Inspection**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Check off each step on the check off sheet as you do them. Make sure to note any needed items on the second page. Have the mentor sign this sheet when you are finished.

Mentor comments:

Mentor approval:

### **Oil Change and Safety/Maintenance Check List**

Be sure to use fender covers if that is normally used where you are interning.

The sequence here is not necessarily the order you need to perform the checks in.

- Raise vehicle, when tires are off the floor, check to be sure vehicle is secure.
- Position pan and remove oil drain plug and filter (if accesible from underneath).
- Locate, wipe and grease all fittings.
- Check oil level in the transmission, if manual.
- Check oil level in the transfer case if so equipped.
- Check oil level in the axle differential(s) if so equipped.
- Check front and rear shock absorbers for wetness.
- Check tire pressure. \_\_\_\_ lbs. Also check for abnormal wear, nails, or other problems.
- Inspect exhaust pipes, hangers, muffler, and catalytic converter for wear/leakage.
- Inspect for fluid leakages.
  - Leakage found Yes/No
  - What is leaking?
- Check wheel bearing adjustment, tie rod ends, idler arms, ball joints.
- Spin wheels and check for brake drag. Look for brake fluid on brake lines and cylinders.
- Check linkage: clutch, brake/cable, transmission.
- Check front and rear springs for broken leaves, "U" bolts or coils.
- Check universal joints for looseness or front axle boots for holes.
- Check auto trans cooler lines.
- Install oil pan drain plug and filter.
- Lower vehicle to floor.
- Install oil to proper level using OEM recommended fluid.
- Check battery condition and fluid level.
- Check battery connections and condition of cables.
- Check radiator fluid level.

- Check antifreeze strength.  deg.
- Check upper and lower radiator hoses.
- Check heater hoses.
- Check all belts.
- Check water pump for leaks and bearing looseness.
- Check master cylinder fluid and for leaks.
- Check air filter.
- Check valve covers for leaks.
- Check wiper operation and condition of the wiper blades.
- Check windshield washer fluid supply.
- Check power steering fluid level.
- Check spare tire pressure.
- Start engine, check for leaks.
- Check ATF level
- Stop engine, check oil level.
- Check all lights
  - parking lights
  - head lights (low & high beam)
  - signal lights
  - brake lights
  - 4-way flashers
  - back up lights
- Check the horn.
- Install new lube sticker.
- Reset oil life monitor (if so equipped)
- Write down on the work order any necessary or recommended repairs needed.

### Cooling System Flush

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Cooling system capacity  qts or liters.

Type of coolant

Quarts or liters of antifreeze needed

Verify the proper radiator cap.

Pressure check system to just under the radiator cap opening pressure.

Are there any leaks?

Test radiator cap.

Flush and refill system. Perform proper bleeding procedure.

The use of a vacuum bleeder is preferred.

Operate the engine until the thermostat opens. Cooling system closed.

Once the system has cooled sufficiently, double check the coolant level and freeze protection.

Coolant is OK to  degrees F

Mentor approval:

### Mount and Balance Tires

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Before dismounting, check tire for leaks and identify if the tire has a TPMS (Tire Pressure Monitoring System) sensor.

Mark any leak.

Make note of any special service procedures from the SIS (Service Information System).

Dismount tire, being careful not to damage the TPMS sensor. Clean rim and repair any leaks with an internal patch. Replace valve stem, if not part of the TPMS system, remount and balance tire.

Number of tires mounted and balanced?

Torque of wheel lug nuts or bolts?

Keep track of size and number of wheel weights.

Charge each new wheel weight on the work order.

Weights used:

Make note that a patched tire does not have the original speed rating.

Mentor approval:

**Rotate tires**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Determine the proper wheel lug nut torque and use it.

Rotate the tires, following one of the approved rotation patterns.

Which one did you use?

Mentor approval:



**Diagnose MIL**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

1. Retrieve all trouble codes.
2. Write down all codes and code history stored in the various modules.
3. Follow published diagnosis to find the root cause.
4. Show your mentor what you found and give a detailed parts list of what is needed to repair the vehicle.
5. If approved, repair the vehicle, clear the codes and retest.
6. The three C's on this particular vehicle?

Mentor approval:

**Battery Load Test.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

- Inspect the battery for leaks, cracks, loose terminal posts, missing hold-downs, or any other physical damage.
- Perform the battery load test, using your shop's equipment, following all the manufacturer and safety procedures.
- Record battery temperature
- Make and model of the tester you are using?
- Install the battery tester and record the OCV (Open Circuit Voltage) reading
- Perform the battery test. Result:
- Describe the procedure you used to perform the battery test:
- Remove the negative battery cable first, then the positive cable.
- Inspect the cable terminals and ends. Result:

- Using a brush and terminal cleaning tools clean the case, tray, and connections thoroughly.
- Rinse off everything with a hose if necessary.
- Replace or reinstall battery and cable connections.
- Reset or re initialize any memories or calibrations lost by the battery disconnect.
- Which ones if so?

Mentor approval:

**Voltage Drop Test.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

In this project you will measure the voltage drop (A) from the positive battery post to the positive terminal on the starter and (B) from the negative post of the battery to the housing of the starter. This will be done while the starter is cranking. You will have to disable the engine so it will not start. You will have to use a multimeter to make this check.

A. Voltage drop on the positive side  volts.

B. Voltage drop on the negative side  volts.

Are these readings ok?

Describe any problems you found:

Mentor approval:

**Generator and Starter Test. Page 1 of 2.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

**Generator output test:**

Is the drive belt worn or loose?

What is the voltage with the vehicle running?

V

Did the voltage go up once the engine was started?

Is the generator overcharging or undercharging?

What was the maximum output of this generator?

A

How did you test the generator's maximum output?

**Generator and Starter Test. Page 2 of 2.**

**Starter Draw Test**

Battery OCV:  V.

Battery voltage while cranking:

Starter Draw:  A

Procedure used to obtain starter draw:

Condition of the starter:

Why?

Mentor approval:

**Replace strut.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Caution! Springs may be under considerable pressure. Be careful when removing! Always follow proper procedures!

Make sure the instructor observes you while you are doing this project for the first time.

McPherson Suspension System

Job Performed:

Published Labor time

Mentor comments:

Mentor approval:

**Replace ball joint.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Caution! Springs may be under considerable pressure. Be careful when removing! Always follow proper procedures!

Make sure the instructor observes you while you are doing this project for the first time.

McPherson Suspension System

Job Performed:

Published Labor time

Mentor comments:

Mentor approval:



**Replace tie rod end.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Job Performed:

Published Labor time

Mentor comments:

Mentor approval:

**Pre alignment inspection. Page 1 of 3.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Test drive the vehicle. Note any problems, alignment or non-alignment related:

Shock absorbers:

Leaking:

Loose:

Worn out:

How did you test them?

Tie rods:

Tie rod ends:

Stabilizer bar:

Links:

**Pre alignment inspection. Page 2 of 3.**

Ball joints:

Tell their location and if they are safe to use.

Load carrying:

UPPER:

LOWER:

Non-load carrying

UPPER:

LOWER:

Steering gear:

Adjustment:

Play:

Wheel bearings:

Loose:

Adjustable?

Measure ride height:

Front Specification:

Rear Specification:

LF:  RF:  LR:  RR:

**Pre alignment inspection. Page 3 of 3.**

Tire Pressure:

Specification: Front:  Rear:

LF:  RF:

LR:  RR:

Tire condition:

LF:  RF:

LR:  RR:

Mentor comments:

Mentor approval:

**Wheel alignment. Page 1 of 3.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Begin alignment:

**Attach and or email before and after alignment machine print-outs for this alignment.**

Mentor comments:

Mentor approval:

**ADAS (Advanced Driver Assistance Systems) calibration/repair. Page 1 of 2.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

Perform a radar and/or camera calibration/repair.

Why is this calibration or repair being performed?

Equipment used to perform the calibration or repair.

**ADAS (Advanced Driver Assistance Systems) calibration/repair. Page 2 of 2.**

What ADAS systems is this particular vehicle equipped with?

Attach or email documentation showing pre-scan, error codes, calibration procedure, result, and the post-scan results. Also attach a photo showing the lay-out used for performing the calibration.

If a repair, also attach a picture showing the faulty component and/or repair performed.

Mentor comments:

Mentor approval:

**Disc brake job. Page 1 of 2.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

If applicable, are there any ABS-related codes stored? And if so, which one(s)?

**Disc Brakes Inspection**

Brake pads removed

Caliper Pistons retracted, following manufacturers procedure.

Self adjuster system working

Parking brake system working (if applicable).



**Disc brake job. Page 2 of 2.**

Brake hoses checked

Have all sliding points been cleaned and lubricated?

Brake fluid level

Brake fluid condition

Inspect the wheel speed sensor(s) and associated wiring (if applicable).

Brake pads installed.

Caliper pistons reseated.

Wheels reinstalled and the lug nuts torqued properly. Write down torque value.

Road test performed, with proper burnishing of the new pads.

Mentor comments:

Mentor approval

**Drum brake job. Page 1 of 2.**

Date:

Your first name:

Your last name:

Owner first name:

Owner last name:

Vehicle make:

Vehicle model:

Vehicle year:

Vehicle engine:

**Drum Brakes Inspection**

Brake shoes removed and installed

Return springs checked and/or replaced.

Self adjuster system inspected and/or replaced/repared.

Parking brake system inspected and/or repaired.

Brake hoses inspected and/or replaced.

Brake lines inspected and/or replaced.

**Drum brake job. Page 2 of 2.**

Wheel Cylinders inspected and/or replaced.

Brake Fluid level

Brake fluid inspected and/or replaced.

Wheels reinstalled and torqued properly. Write down the torque spec.

Road test performed, with proper burnishing of the brake shoes.

Mentor comments:

Mentor approval:

This was the end of your mandated projects. Of course, the more different projects you do, the better you will become at this profession.

Please turn in all your projects to your instructor at the very latest when your internship period ends. The work sheets can be turned in on paper or in the Brightspace drop box for this class.