

## MILEAGE COMPLAINTS

So long as cars are made and sold, the handling of these will be part of the routine of service work. To the progressive shop they are an asset rather than a liability, but are frequently mishandled, resulting in the loss of future new car sales and service work.

Mileage and Performance of any car are sure to become poor unless it receives the benefit of periodic maintenance service at the hands of competent mechanics. However, regardless of the skill of its personnel, no shop should attempt to handle present day cars without the following items:

1. Dash mileage tester for 1/10 gallon tests.
2. Motor Gauge (not essential for all motors).
3. Compression Gauge.
4. Vacuum Gauge.
5. Voltmeter calibrated to 1/10 volts.
6. Fuel Pump Tester.
7. Accurate feeler gauge stock.
8. Carburetor float and metering rod gauges.

The Carter Carburetor Corporation has never received a mileage complaint from a dealer equipped with these essentials.

## WHEN A MILEAGE COMPLAINT COMES IN

1. **Don't** merely adjust the carburetor—it rarely does any good whatever.
2. **Don't** expect too much from the installation of a lean jet or metering rod—the leanest mixture obtainable won't increase mileage 10 per cent, and will often impair performance.
3. **Don't** take the owner's word for it—bring out the facts.

## HOW TO HANDLE A MILEAGE COMPLAINT

1. Test fuel consumption at fixed speeds in both directions, on a hard level road.  
Such checks are a waste of time unless made with an accurate dash tester and with the complaining owner at the wheel. The organization that permits a customer to hold it responsible for fuel wasted by traffic stops, is borrowing trouble.
2. If tests show that too much fuel is being used, proceed as follows:  
Check compression with gauge. If variation between cylinders is as much as 5 pounds when cranked by starter with spark plugs removed, use a gum solvent to free up valves and rings.
3. Tune motor to car manufacturer's specifications.  
The principal settings for Carter equipped motors are obtainable on request, from the Carter Carburetor Corporation, St. Louis. A complete tune-up covers many operations, requiring at least two hours' labor under the most favorable conditions.

A motor that has normal compression and is properly tuned rarely consumes an excessive amount of fuel. If it does, a re-check of the tune-up is in order.

### MILEAGE AND POWER

The following data indicates how the normal economy of a car capable of giving 20 miles per gallon at 20 miles per hour will vary under different driving conditions.

**1. Constant speed tests (fixed throttle).**

20 miles per hour.....	20	miles per gal.
30 " " " .....	19.7	" " "
40 " " " .....	18.3	" " "
50 " " " .....	15.9	" " "
60 " " " .....	12.2	" " "
70 " " " .....	8.0	" " "

**2. Continuous running test.**

Accelerate with wide open throttle from 15 to 30 miles per hour, then close throttle and decelerate to 15 miles per hour, and repeat (average speed 20.2 miles per hour)... 14.7 miles per gal.

**3. Continuous running test.**

Accelerate with wide open throttle from 15 to 30 miles per hour, then slow down rapidly with brakes to 15 miles per hour, and repeat (average speed 20.5 miles per hour)... 8.6 miles per gal.

**4. Traffic stop test.**

Start in second gear and accelerate with wide open throttle to 25 miles per hour, then shift to high gear and run at 25 miles per hour to .2 miles from starting point, then stop and repeat without idling more than enough to shift to second gear ..... 9.9 miles per gal.

**5. Accelerating in high gear (wide open throttle).....**(about) 8.0 miles per gal.

**6. Accelerate in second gear (wide open throttle).....**(about) 4.0 miles per gal.

**OTHER CONDITIONS WHICH IMPAIR THE ECONOMY**

- a. Excessive idling.
- b. Racing motor while standing still.
- c. Excessive choking.
- d. Late spark.
- e. Valve tappets set too close.
- f. Dragging brakes.

The following table shows the increase in the development of power necessary to drive four popular cars at varying speeds from 20 to 73 miles per hour.

20 Mph.	30 Mph.	40 Mph.	50 Mph.	60 Mph.	70 Mph.	73 Mph.
3.8 H.P.	8.6 H.P.	17.1 H.P.	26.7 H.P.	44.5 H.P.	62. H.P.	
4.2 "	9.3 "	18.5 "	30. "	50. "	70.6 "	
4.5 "	9.1 "	17.4 "	31. "	50. "	70.6 "	
4.5 "	9.1 "	17.4 "	31. "	50. "	71.2 "	81. H.P.

It is significant that it requires approximately 10 additional horsepower to increase the speed of a six-cylinder car about 3 miles when it is running at 70 miles per hour.

Among the factors that cause variations between these cars are: frontal area, axle ratio and tire size.

This data was prepared by the engineering department of a leading car manufacturer and is passed along to you so as to put you in a position to enlighten your customers on a subject about which there is much loose talk but little concrete knowledge.