

December 28, 1960.

TO ALL ROOTES GROUP DEALERS

COLD WEATHER STARTING  
EXTREMELY IMPORTANT

With the onset of Winter, we should like to remind all Dealers of the necessity of preparing all vehicles for cold weather driving especially as concerns the cold starting characteristics.

In the event your owners fail to have this servicing done or even the failure of the servicing Dealer to fully carry out this service, it would not be unusual for owners and Dealers to experience difficult cold starting with its attendant dissatisfaction.

In almost every case of difficult cold starting investigated we have found a miscellaneous of winter preparation items unattended to or at least improperly or poorly attended to.

The following are the major offending items and surely attention to each of these on the part of Dealers and owners will certainly minimize cold starting difficulties in almost each case.

ELECTRICAL

(a) Battery:

1. Check specific gravity of the electrolyte in each cell and readings should be:

1)	Full charge	=	1270 - 1290
2)	Half charge	=	1200 - 1210
3)	Discharge	=	1100 - 1120

2. Heavy Discharge Test.  
Should be made as follows:

- 1) Specific gravity of electrolyte 1215 or more
- 2) Electrolyte temp. 70° - 90°
- 3) Discharge rate of 3 ampere hour capacity of  
12 volt battery
- 4) Apply resistance load for 15 seconds.
- 5) Terminal voltage should be 9 volts or more.
- 6) If less than 9 volts battery should be replaced.

3. Battery Charging.

- a) If specific gravity of battery is less than 1215 battery should be charged.
1. Battery should be charged at a low rate (max. 5 amps.)
  2. Completely charge battery.
  3. Electrolyte temperature should not exceed 100° F.
  4. If battery has been in storage for a long period, a charge of one half (1/2) the low charging rate should be used (2.5 amps.)
  5. Charge rate must be reduced if battery gasses excessively.

4. Battery Cable.

1. Terminal clamps should be cleaned.
2. Terminals should be cleaned and lubricated with Vaseline or similar lubricant, and
3. Terminal clamps re-tightened.
4. When broken cable strands or damaged insulation is encountered cables should be replaced.

5. Battery Tops.

- a) Tops of batteries should be cleaned with a soda or ammonia solution and rinsed with clear water and a soft brush to reduce voltage loss.

Note:- Vent caps must be in place and tightened before cleaning.

(b) Charging System

1. Fan Belt.

- a) Belt is correctly tensioned when 5/8" movement is obtained on long run of belt.

2. Generator Armature and Brush circuit test.

- a) Disconnect generator leads.
- b) Place voltmeter between "D" terminal and Ground.
- c) With engine RPM at 3000 reading on voltmeter should be between 2 and 3 volts.

3. Generator Field Circuit Test.

- a) Connect ammeter between "D" and "F" terminals.
- b) Connect voltmeter between "D" terminal and Ground
- c) Increase engine RPM until a reading of 12 volts is obtained.
- d) Ammeter should not read more than 2 amps at 12 volts.

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4. Voltage Regulator Settings (2 Bobbin type) (Standard Transmission)
- a) Connect voltmeter between "D" terminal and Ground and insulate cutout points.
  - b) With engine RPM at 3000 voltage should remain constant. Temp. 50° - 68° C Set Regulator 16.0 - 16.5volts.
  - c) To increase setting turn adjusting screw clockwise.  
To reduce setting rotate adjusting screw counter-clockwise.
  - d) Remove insulating card from between cut-out points.
5. Voltage Regulator Settings (3 Bobbin type - Easidrive)
- a) Current Regulator.
    1. Place crocodile clips across contact plate to frame.
    2. Disconnect "A" terminal.
    3. Increase engine RPM to 3000.
    4. Check current setting. Should be 30 amps.  $\pm$  1.5 amps.
    5. To increase current setting rotate adjusting screw clockwise.  
To reduce current setting rotate adjusting screw counter-clockwise.
  - b) Voltage Regulator.
    1. Remove ammeter and retain "A" terminal lead in disconnected state. Remove clip.
    2. Connect voltmeter between "D" terminal and Ground.
    3. Increase engine RPM to 1000 when voltage will steadily rise.  
50° F Set voltage regulator 15.1 - 15.7 volts.  
68° F set voltage regulator 14.9 - 15.5 volts.
  - c) Points to check during New Car Preparation, 1,000 Mile Inspection and normal Tune-up servicings:
    1. Valve tappet clearances:-
      - a) inlet .012"
      - b) exhaust .014"
    2. Manifold and carburetor flange nut torques.
    3. High tension and low tension connections tight.
    4. Fan belt properly adjusted.
    5. Generator connections tight including mounting bolts.
    6. Starter connections tight and starter drive clean and unobstructed.
    7. Battery connections.
    8. Carburetor choke properly adjusted.
    9. Compression readings of all cylinders to insure balance and within specifications.
    10. Check for fuel leaks at carburetor, fuel pump, fuel line connections.
    11. Spark plug cleanliness and gaps.
    12. Inspection of Distributor cap for cracks, etc.

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13. Inspection of Distributor points for burned contacts, butting squarely and air gapped to specification .016"
14. Inspection of Distributor Rotor contacts.
15. Check Distributor Condenser for excessive leakage.
16. Check for proper ignition settings.
17. Check for proper idle adjustment.
18. Insure owner is using premium grade fuel.
19. Insure owner is using a solution similar to Dry-gas to prevent frozen fuel lines.
20. Insure proper viscosity of engine oil is being used suitable to the prevailing ambient temperature.

It is also essential that the owner be instructed in the proper method of starting a cold engine in low ambient temperature areas with special emphasis on placing the gear selector lever in Neutral - refraining from depressing either the clutch pedal or the accelerator pedal, using only the hand choke control and the ignition starter switch.

We know that all Dealers are fully conversant with the above standard procedures; however, it is felt that possibly by reminding all Dealers of these procedures hard starting problems at Dealer levels will be minimized or at least can be resolved with a minimum of delay.

Kindly bring the above to the attention of all concerned.

ROOTES MOTORS INCORPORATED



F. J. McGettrick  
Manager  
Wholesale Parts & Service Depts.

FJMcG:SO