

BULLETIN:

Shell's research on propeller-icing enables today's Super Shell to check cold-weather stalling —and give your car top performance

Shell's discovery of a new way to keep ice from sticking to metal now lets your carburetor shrug off frosty rime before it stalls your engine—a problem which can occur many degrees above freezing.

Read these little-known facts about this cause of cold-weather stalling—and how it is tackled by one of nine ingredients in today's Super Shell gasoline.

UNDER conditions which occur too often for comfort, the carburetor in your car may make ice faster than the refrigerator in your kitchen.

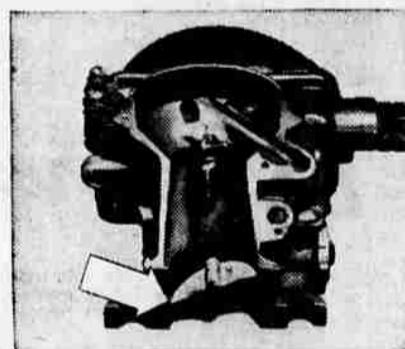
Tiny particles of ice build up till they block the carburetor throat. Then you stall. An annoying phenomenon which can affect two out of three cars on the road.

This problem has bothered automotive engineers and motorists for years. Particularly because it can happen even at forty-five degrees. Shell scientists, looking for a way to prevent the dangerous icing-up of airplane propellers, found the answer.

They discovered a new way to discourage ice from sticking to metal surfaces. Today, this very same principle is applied in Shell's carburetor anti-icer

Why can carburetors ice at 45 degrees?

The air your engine breathes contains moisture. Much of it condenses in the carburetor. There the evaporation of the fuel may quickly drop the temperature to well below freezing—and that means ice.



Arrow shows where ice forms inside your carburetor. Frost particles block the air-intake when the throttle plate is in idling position. Result: your engine suffocates and dies.

Today, the anti-icing ingredient in Super Shell simply coats the vital carburetor parts to help keep ice from sticking. And that's the root of the problem.

Here are a few facts about the jobs done by Super Shell's other ingredients. Read about them to see how they help give your car top performance.

Ingredient #2 is TCP for power, mileage and longer plug-life

Super Shell now contains an even better version of this famous additive. Its chemical name is cresyl-diphenyl-phosphate.

TCP* additive can give your car up to 15 per cent more power; up to 17 extra

miles per tankful; and can make plugs last up to twice as long.

New TCP does this by neutralizing certain harmful effects of combustion deposits. It is scientifically formulated to keep them from glowing when hot—a major cause of power loss. Also to keep them from diverting your spark—a major cause of "missing."

Ingredient #3 is "cat-cracked" gasoline for power with a purr

This is petroleum that has actually cracked under 900-degree heat and catalytic action. Its heavier molecules have been shattered into livelier, lighter ones.

The result is a super-octane ingredient



Shell man checks furnace which pre-heats the petroleum before it is fed into cat-cracker. Stand near by, and the roar sounds like Hades.

that makes your engine purr with power the moment you put your foot down.

NOTE: "Cat-cracking" refers to the use of a catalyst—the mysterious substance that can alter molecules without changing itself.

Ingredient #4 is Alkylate, noted for knock control in hot engines

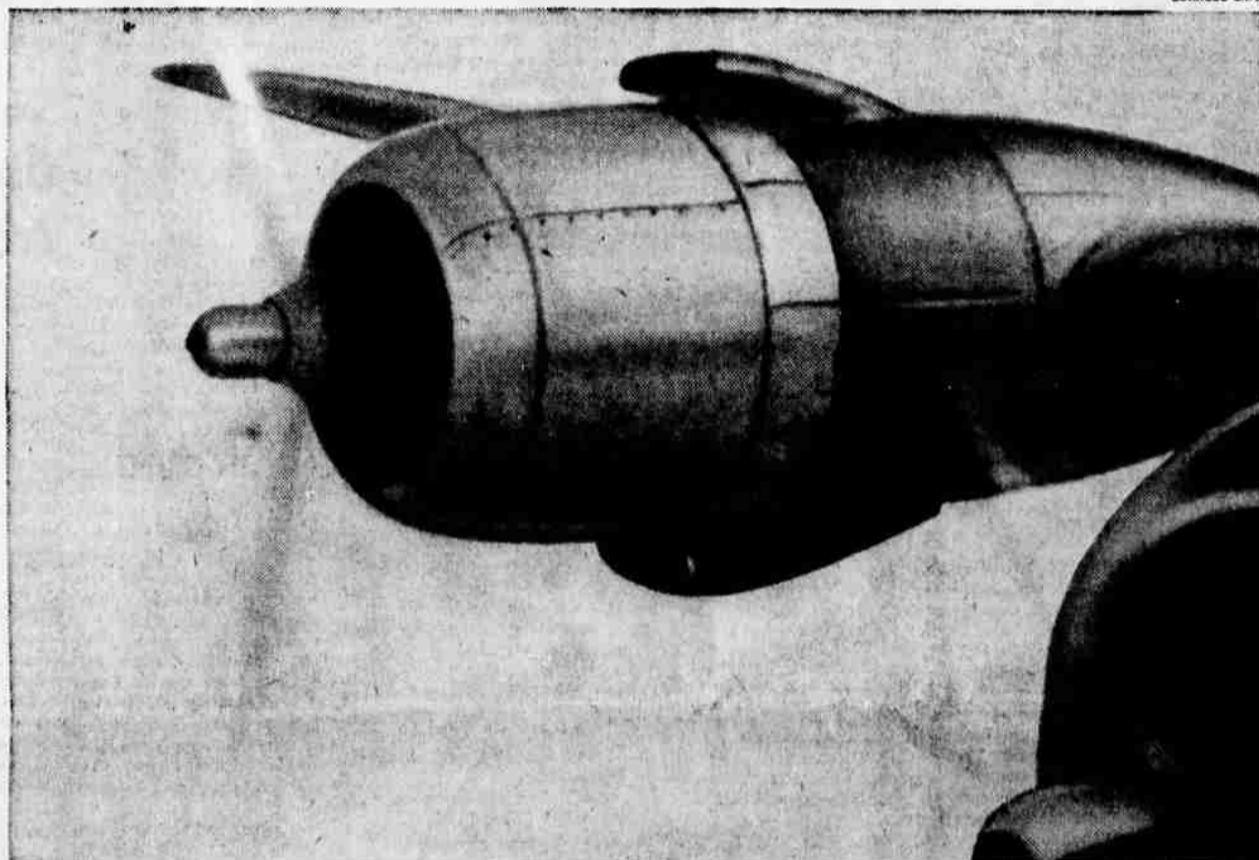
Jimmy Doolittle helped pioneer this outstanding high-octane ingredient for Shell aviation fuel.

Alkylate—the ingredient that took the dream of 100-octane gasoline out of the lab and put it into the skies—is now in Super Shell. It controls knocking in hot engines at high speeds better than anything else yet available.

NOTE: Speaking of controlling knocks at high speeds, remember that car engines frequently turn even faster than the engines of a DC-7. Think of this next time you pass another car.

Ingredient #5 is anti-knock mix for extra resistance to knocks

You might think that two high-octane ingredients are enough for knock-free perform-



It's an ill wind that blows nobody any good. When Shell research scientists were tackling the problem of propeller-icing, they discovered that a "surfactant" film, one ten-millionth of an inch thick, was enough to help prevent ice sticking to metal. This same principle is the secret of the

anti-icing ingredient that goes into today's Super Shell. If you have been bothered with mysterious stalls that often occur even on days when the temperature is well above freezing, you should try a tankful of Super Shell. Chances are your trouble was carburetor-icing.

ance. But Shell's scientists have ears like musicians.

They insist on adding a special anti-knock mix. A mix, so effective, one teaspoon per gallon can boost anti-knock rating by five points.

This mix has the tricky job of regulating combustion so that Super Shell gives each piston a firm, even push—rather than a sharp blow which would cause a knock.

Ingredient #6 is Butane for quick starts on cold mornings

Butane is so eager to get going that Shell keeps it under pressure 400 feet below



Here is the man-made cavern where Shell stores Butane all summer, ready for the wintry months ahead. It holds 22 million gallons.

ground to stop it from vaporizing by itself. Think what this extra volatility means in cold weather. Your engine fires in seconds. There is less strain on your battery. And

there is none on your patience. NOTE: Super Shell is primed with Butane all year round. In winter, Shell scientists simply increase the quick-start dose.

Ingredient #7 is Pentane mix for fast warm-ups on cold days

Pentanes are made by tearing gasoline apart, much as you split kindling to start a log fire.

In this case, the "logs" are petroleum's heavier hydrocarbons. A special process transforms their molecules from slow-burning "logs" into the quicker-firing "kindling."

NET RESULT: Fast warm-up and top performance in a hurry.

Ingredient #8 is gum preventive to keep carburetors clean inside

Even the purest gasoline can form gum when stored. This can clog carburetors and foul automatic chokes. But, with Super Shell, you needn't worry. A special gum preventive does the trick.

It acts like a policeman controlling a mob. Regulates unstable elements to help keep them from clotting. Hence no gum problem.

Ingredient #9 is Platformate for extra energy, more mileage

It takes eight million dollars' worth of platinum catalyst for Shell to produce Platformate. But fortunately for you and for us, this precious stuff can be used over and over again.

The platinum re-forming process, which

gives Platformate its odd name, converts petroleum into super-energy components—such as benzene, xylene and toluene.

These three alone release 11 per cent more energy per gallon than the finest 100-octane gasoline.

But make no mistake. This is not untamed energy. Far from it. The super-energy of Platformate is harnessed by the eight other ingredients in Super Shell, where it behaves so well you scarcely know it's there. That is until you note your extra mileage. After that, there is no doubt.

Test Super Shell for yourself

Try Super Shell next time you fill up. You'll soon feel and hear a difference in the way your engine runs.

That difference is top performance.



A BULLETIN FROM SHELL RESEARCH — where 1,007 scientists are working to make your car go better and better.