



THE MODEL T FORD

ITS REPAIR, SERVICE, & RESTORATION

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From our On-line Readers at www.modelt.org

Starter Bendix will not engage

Website comment from Norman Weber: The starter Bendix will not engage.

Dear Norman:

Thank you for the question on our webpage. Starter problems, with the Bendix failing to engage, may have several causes. One reason is the battery or starter condition, and if there's enough power to turn the Bendix gear hard enough to spin the flywheel gear. The battery should be tested for output and the battery cables cleaned for good contact, both at ground and the starter switch. Battery cables must be 6V style, 1/0 gauge; 12V cables are too small to use. Sometimes the starter switch contacts are poor and can't supply the amps needed to spin the starter.

A good starter will put out sufficient 14-16 ft/lbs of torque, at approximately 175 to 225 amps in cranking. The 6V battery needs to be able to deliver at least 300 starting amps, so it has to be charged well. A correct Group 1, 6V battery is rated over 600 cold amps.

If this is a new development (if the Ford always started well), and the Bendix gear always released after starting, then other causes

may occur. Sometimes the Bendix spring can break or become loose, or the two bolts holding the spring to the Bendix shaft become loose and catch within the walls of the Bendix cover. Other times, the Bendix gear will get stuck to the flywheel and can't retract, which will stick the Bendix gear into the flywheel gear. When that happens, rock the car back and forth in high gear (lever forward). Most of the time that strong action of the rear wheels trying to turn the engine over will provide the rotation needed to disengage the Bendix gear from the ring gear on the flywheel.

Causes of a sticking Bendix could also be loose starter motor fastenings, a bent starter motor shaft, a worn Bendix screw shaft, dirt or debris in the threads, a weak or broken follower spring, (the little part that helps the Bendix gear travel back evenly on the threaded shaft), a weak or broken Bendix spring, loose bolts, a worn Bendix gear, or worn teeth on the flywheel ring gear. The ring gear teeth on the flywheel normally wear at two spots, 180 degrees apart, as the engine usually stops at the same point of travel and the Bendix gear will always start at those same teeth on the ring gear. This causes excessive gear wear over time.

To the right is a typical look at the Bendix (cover removed). Be sure to first remove the complete Bendix assembly before removing the starter motor. The starter motor must not come out of the transmission cover without the Bendix assembly off, or this will result in damage to the field coil windings of the magneto. Follow the instructions in the *Ford Service Manual* to remove the Bendix and starter.



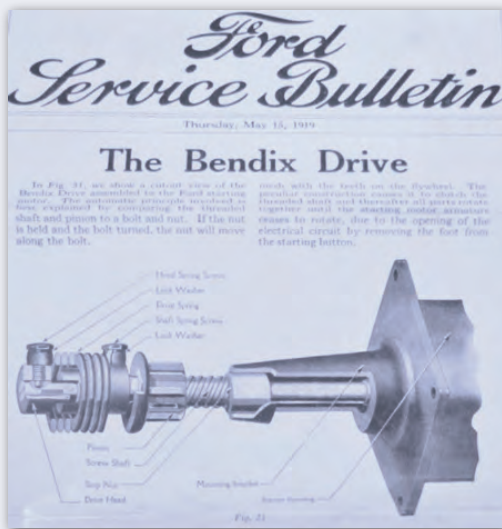
Regards,
Dan Treace

Starter motor torque chart

STARTER:—Type F.A. Starter is connected to the engine through a Bendix drive. The direction of rotation is counter-clockwise, looking at the commutator end. Starter cranks engine at 150 R.P.M., taking 160 amperes at 5 volts.

Starter Data—F.A.			
Torque	R.P.M.	Volts	Amperes
1 lb. ft.	2500	5.5	125
5 lb. ft.	1050	4.4	330
9 lb. ft.	425	3.6	580
13 lb. ft.	Lock	3.0	580

Oiling:—Starter requires no oiling.



What type of battery should I use?

Dear Dan:

I have a 1927 Model T that I am trying to get running. What type of battery voltage do I use? Is it a 6 volt system or a 12 volt system in these T's?

Thank you,
Richard Thorp

Dear Richard,

The Ford Model T is 6V, negative ground. The battery that will fit the battery tray is a Group 1 battery. Most auto parts stores, or farm stores like Tractor Supply or Farm and Fleet, carry these 6V storage batteries. Be sure to use larger 1/0 gauge cables, as modern 12V cables are too small to carry the battery current. It's also good to have a reprint copy of the *Ford Service Manual*. All the Model T parts vendors can supply this book.

Regards,
Dan Treace

Need advice for shifting a Model T

Dear Dan:

I am getting conflicting advice on how to shift from low to high in my 1916 Model T Touring. Some tell me to push the throttle lever up and release the pedal, then bring the throttle lever back down to speed. However, some tell me to push the spark lever up and release the pedal, then bring the spark lever back down to speed. What do you think?

Thank you,
John Polakovic

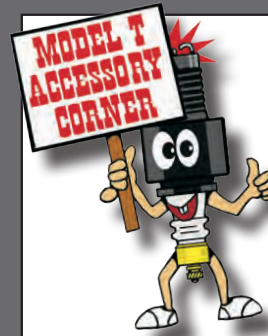
Dear John,

The smoothest shift to high is obtained by matching engine speed (rpm) to road speed. Engage low pedal with throttle to increase your speed to about 8 mph. Close the throttle as you slowly remove your foot from the low pedal to engage the clutch for a less-than-jerky shift to high. Then simultaneously open the throttle to gain road speed in high.

Closing or retarding the spark lever to slow the engine to lower rpm when getting underway can be done, but will only cause the engine to labor. Besides, you normally need to increase your road speed with the throttle lever after going into high. Advance the spark and continue to advance when you're underway to match the throttle advance. Don't advance too much for the given road speed, as spark knock will happen and engine performance is less with too much advance. Retard the spark lever only at times when road speed drops, like in loose, deep sand or on a tough steep hill climb. In those times, pull the throttle lever down to get max engine power. Road speed drops due to engine load, though, so motor rpm's are dropping, requiring the spark retard to match the slower engine speed even as the throttle is still open. If road speed drops too much, like on a steep hill, shift to low and reset the spark and throttle for the slow 8-10 mph climb to the crescent.

Regards,
Dan Treace

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Aftermarket accessories from the past, often found on the Ford. Many thousands of inventive products were sold to dealers and owners to upgrade, customize, or improve over the factory parts...in most cases not so much!

Sterling Magneto Meter

This was a popular early tool for measuring the magnet strength of the magneto. As the hand-held wide band contact on the wood handle rests against the magneto terminal post, the pointed tip presses into the base or cover for ground while the engine is running.



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