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20-40

X-Motor

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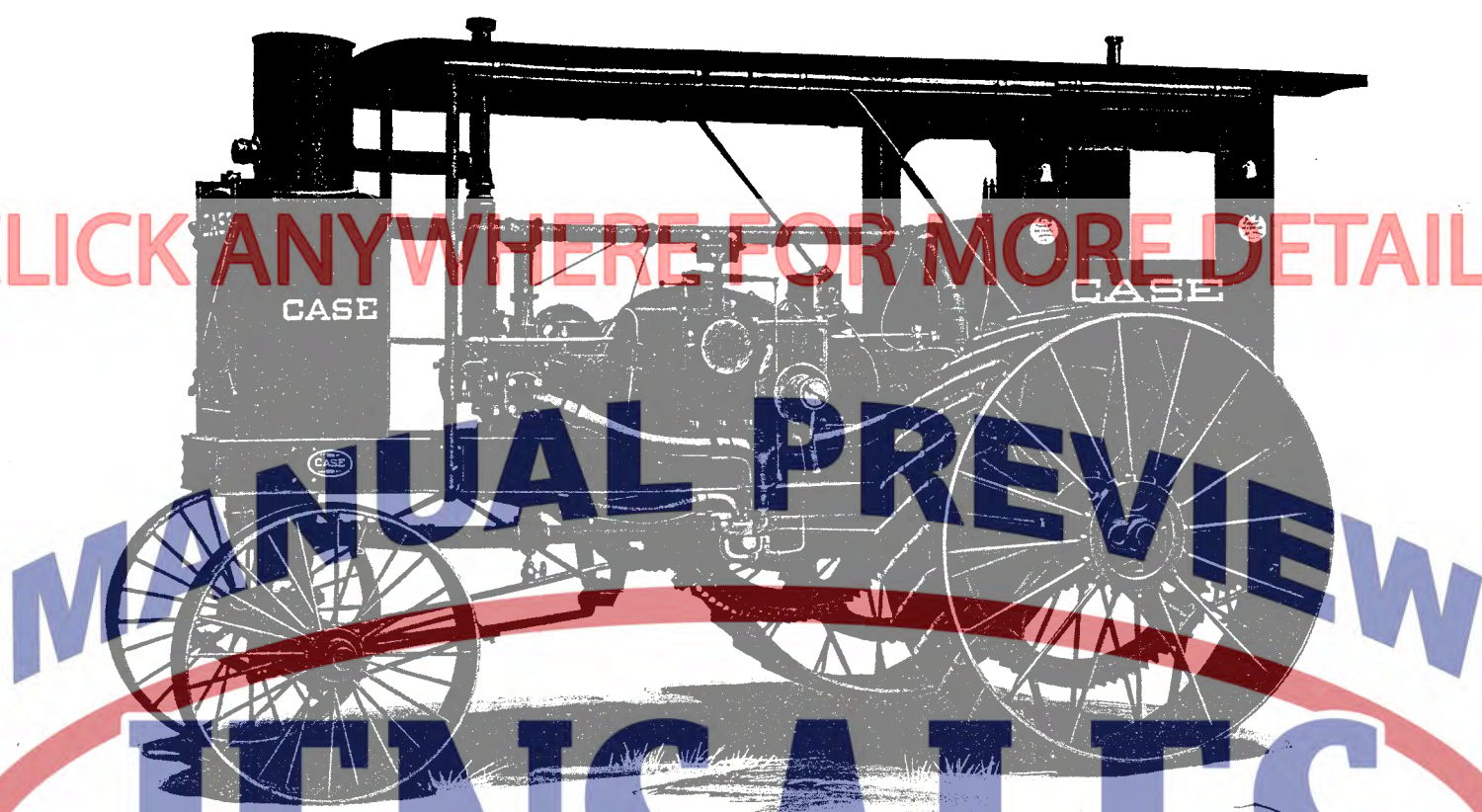
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CA-S-20-40

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CASE 20-40 KEROSENE TRACTOR

INTRODUCTORY

Our extensive tractor experience has shown us that a tractor to be successful and to give satisfactory results must be given the proper care and our first advice to the purchaser is that he read his Instruction Book before starting his tractor. Should there be any additional details of the tractor on which he wishes information and it is not contained in the Instruction Book, a letter or card to the Home Office will secure it for him.

The more thorough knowledge you have of your tractor the greater profit will it give.

The life of any piece of machinery is largely dependent on the care which is given it. You bought your tractor to displace horses and always bear in mind that while the tractor is made of steel and iron, it can be abused and thereby its life shortened the same as can horses.

Form regular habits as to the lubrication of the tractor and see that parts are kept tight and in proper adjustment.

Do not over-load your tractor. This tractor has been tested at the Factory and if it did not develop its rated horsepower and more, it would not have been shipped. This tractor can perform its rated draw bar and belt horsepower without any undue strain on any of its parts and it is capable, for short periods, of carrying loads far above its regular rating, but do not expect it to do this continuously. Its reserve power should be used for only short periods of time, such as in encountering grades or tough spots in the field being plowed.

More work will be accomplished by adjusting the load to the tractor, so that it does it easily than trying to over-load it which means excessive wear and a high repair cost and results in frequent shut-downs. **REGULATE ITS LOAD SO THAT IT IS ALWAYS KEPT GOING.**

DON'T ASK TOO MUCH WORK OF YOUR NEW TRACTOR

All engineers realize that there is nothing so injurious to a new piece of machinery as to over-load when first put to work. There is a tendency on the part of the new purchaser of a tractor to see just how much load he can put on the tractor when first started, and in so doing shortens its life. There is no other line of product that is so subject to abuse in this respect as a tractor.

A high speed passenger locomotive offers an excellent comparison. The locomotive is built to run easily and to pull a tremendous load at a high rate of speed, but is that locomotive put at once into service? The Superintendent or Master Mechanic who would permit such a thing is not fit to hold his position. The locomotive is run dead in a freight train to its point of delivery. Then it is easily and carefully "broken in" by being given slow freight service before it is turned over for passenger service.

A good deal of the same procedure is taken in the case of steamships. No ship-building concern would think of submitting a new boat to a trial run until after its engines had ample time to wear in. The same procedure as outlined above should be taken with a tractor. Work it carefully at first and do not put too great a load behind it, until the motor and the operating parts of the transmission have had sufficient time to run in and find their proper bearing. We would say that a tractor ought to be handled in this manner for at least its first week of operation.

In the following pages we have endeavored to give you instructions, which if followed, will keep your tractor in perfect working condition and at the same time instruct you as to its construction. We believe, that a careful perusal of same will make it unnecessary for you to call for assistance.

Read your Instruction Book carefully. First look up the lubrication of tractor and motor. Then study tractor and motor adjustments. Your tractor has been shipped a greater or lesser distance. The greater the distance shipped the more care should be exercised in looking it over. Cinders from the locomotive and dust will get into every oil hole that happens to be uncovered and around the bearings. Clean and then oil thoroughly and where the paint has to be broken use a mixture of kerosene and gas engine oil until all parts work free, then follow up with good unmixed oil. Fill all grease cups one or more times according to instructions for that part.

Fill lubricator with gas engine tractor oil. Use crank B, Fig. 5, page 8 and work oil pump until you are sure all bearings are getting oil. Watch sight feeds E, Fig. 5, page 8 to see that all feeds are working properly.

Adjust clutch and pulley brake as described and shown in cut. Page 10.

After doing this, fill gasoline section of tank. Close valve K, Fig. 12, page 16 under kerosene section. Always strain all gasoline and kerosene. Kerosene tank can be filled at your leisure. Fill radiator with water. Do not risk starting a new motor until the radiator is filled with water.

Now remove cast plugs from spark plug holes. See Fig. 3 and 4, pages 5 and 7. Pour two or three priming cups full of engine oil into cylinders through priming cup and turn motor over three or four times. This will lubricate the cylinders and pistons, causing the motor to turn over easily and hold compression.

Put in spark plugs, noting the spacing of points. This should not be over 1-32 of an inch. Prime motor, using 2 to 6 priming cups full of gasoline in each cylinder, depending on the temperature. More being used in cold weather.

If the weather should be real cold, see cold weather operating instructions. Page 15.

Set throttle at least 1-3 open—advance spark 1-3. Press ratchet catch holder down S. T. 14, Fig. 14, page 19. Bar over slowly until the exit of air from priming cup stops. Then raise your cranking bar as high as you can and yet have a good grip on it. Now give a quick pull, repeat until motor starts, being careful not to engage ratchet until motor stops each time. Should motor fail to start examine spark plugs to see that they have proper gap. Go over all wiring to see that it is tight and making good contact at plug and magneto. See that high tension lead No. 100, Fig. 14, page 19 is in place. See that you have gasoline in carburetor and that needle valve "A," Fig. 6, page 9 is open 1½ turns. Remember that you must have a spark at plug points, compression, and gasoline in carburetor before motor will run. Note as quick as motor starts that cooling fan is running up to speed. If anything should cause the pulley to slip on fly wheel it would wear a flat place on friction pulley. See that valve A, Fig. 12 and 13, pages 16 and 17 is closed under water tank before filling. Strain all water used in water tank, otherwise any sediment in the water will make the water regulation difficult when using kerosene.

See complete instructions for using kerosene.



FIGURE 1 VALVE TIMING DIAGRAMS

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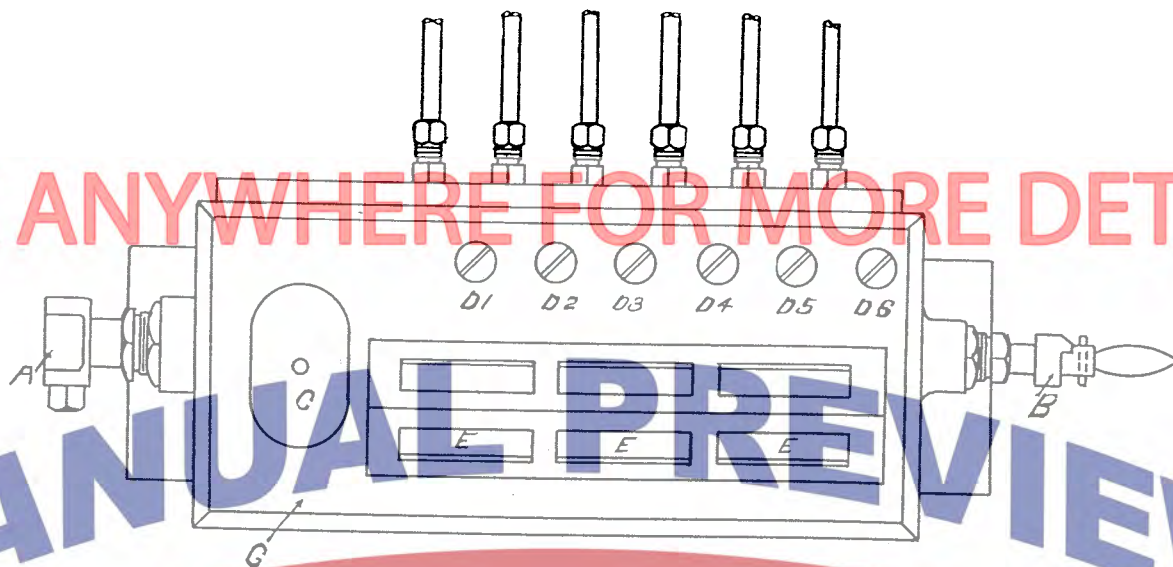


FIGURE 5. FORCE FEED LUBRICATOR

Always use a good grade of oil and in warm weather use Stan-o-lind Gas Engine Tractor Oil made by the Standard Oil Company or Mobile "B" made by the Vacuum Oil Company.

In cold weather use Standard Gas Engine Oil or Mobile BB.

Be sure to use nothing but good gas engine oil in oil pump.

Bear in mind that it is better for each part to receive too much oil than too little oil.

To clean this pump, remove top G and small plug F, Fig. 5, page 8. Wash with kerosene. This should be done each 60 or 90 days.

Refill with oil and work crank B until all feeds are throwing oil and you are sure the oil is getting to all bearings.

Remove small plug F occasionally and drain out of the tank any accumulation of water that might be there.

If one or more of the feeds stop working and you cannot remedy it by washing out the feed, we would advise sending the lubricator to our nearest Branch House.

Wash motor crank case with kerosene to clean out all dirt and gum as often as it accumulates.

Keep sight feed cover clean at all times so you can see at a glance that all the oil feeds are working. This may save much expense and delay by preventing a burned out bearing.

The carburetor has but one adjustment. This needle valve A which controls amount of fuel required for the incoming air. The amount of air supplied is automatic and cannot be changed. Before adjusting carburetor. Caution. Be sure compression is good and alike in each cylinder. Be sure ignition is right. Be sure there is no air leak in carburetor flange where bolted to manifold or where manifold is bolted to cylinder head.

To adjust open fuel needle A $1\frac{1}{2}$ turns from its seat.

After starting motor and it is up to speed and warmed up, then re-adjust needle valve. If spitting back takes place, turn needle A to the left. If black smoke shows at exhaust reduce fuel by turning needle A to the right.

Care of Carburetor. The bowl of carburetor is provided with a drain cock M at the bottom which should be opened frequently as water and other foreign matter will collect in bowl and cause trouble.

Gasoline leaks from any cause should be remedied at once. Should carburetor flood, it is a sure indication that valve J which controls the gasoline to the bowl is off its seat and is probably caused by dirt lodging under the valve. If flooding occurs, remove plug H and by means of a small screw driver give the needle valve J a few turns. The top of valve is provided with a slot so that it can be turned by screw driver. The needle valve is held in place to lever I by means of a ball socket joint and the valve must not bind at this point.

If, after carburetor has been in service a long time, it should flood continually when motor is stopped, it would indicate that float L had become soaked with gasoline and should be taken out and coated with heavy shellac. This will close the pores of the cork and stop the gasoline from soaking into it.

THE CLUTCH

Fig. 7, here shows a view of the clutch pulley. This pulley is bolted onto the flange which is cast as part of crank shaft extension sleeve. The clutch arm C is keyed direct to crank shaft extension which extends through this sleeve.

At B are shown the clutch shoes, which are provided with asbestos brake lining and fastened in place with copper rivets.

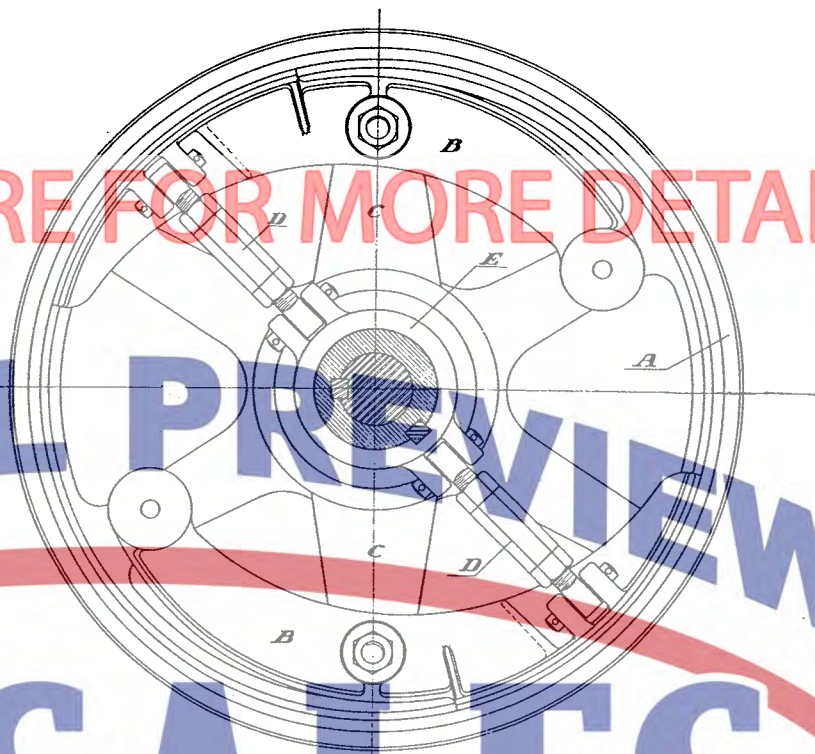


FIGURE 7. CLUTCH ASSEMBLY



FIGURE 8. EXTENSION CRANK SHAFT AND SLEEVE