Ford Service Bulletin

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Keeping Your Owners Sold

A good reputation is an invaluable asset to a Ford Dealer, but let his reputation become ruined, especially through poor service, and he loses favor with the public quicker perhaps than almost any other business man.

A few short weeks of neglect and poor service are sufficient to turn his trade in both service and sales elsewhere and when the public turns it takes more than argument or persuasion to bring it back. It takes months of real service and painstaking effort and in many cases your good money as well.

Keep your trade constantly sold on yourself, by keeping an eye on your Service Department continually.

Do not allow one customer to go away dissatisfied.

Keep in constant touch with your customers, meeting them whenever possible, to determine whether they are satisfied with your service, and to keep them sold on you as a Service Manager, or Superintendent.

If your customers do not know of your efforts in their behalf, tell them about it yourself, through your staff and through your advertising—and then see that your Service Organization lives up to everything you tell them.

Valve Seat Reamers and Pilots

It is important that the Pilot for the Valve Seat Reamers be made of hardened steel, as a soft Pilot will quickly wear, causing the Reamer to cut to one side, ruining the Valve Seat.

Reamers with hardened Pilots are manufactured by Arthur Jobborn, Hamilton, Ont. and may be purchased from your nearest Jobber. The numbers and prices of the Reamers and Pilots are:

No. 21, 45°	Cutter	$1.70
No. 20, 45°	Roughing Cutter	1.70
No. 25, 70°	Cutter	2.25
No. 27, 20°	Cutter	2.50
No. 31, $\frac{5}{16}$	Pilot Stem	1.10
No. 33, .0015 o/s	Pilot Stem	1.10
No. 35, $\frac{1}{64}$ o/s	Pilot Stem	1.10

In case the Cutter Heads become dull, they may be returned to the manufacturers and sharpened free—it will be necessary, however, for the Dealer to pay transportation both ways.

We would suggest that you purchase several Cutter Heads so that you would have a set to use while you were getting the dull ones sharpened.

It is also advisable to have oversize Pilots to use in Valve Guides that have become worn.

Speed Wrenches

We have recently added to our list of approved equipment Speed and Socket Wrenches manufactured by the Gray Ball Bearing Co. Ltd., Toronto, Ontario.

These Wrenches may be purchased from your nearest Jobber.

Lincoln Piston Pins

There seems to be some misunderstanding as to the proper fitting of the piston pin in the holes in the piston bosses

Ideal conditions would be to have the pin full floating, that is, just free and movable in both the holes in the piston bosses and the connecting rod under the working temperature of the piston.

It is not practical to devise a sure method of centering the piston pin, so that it does not have an end thrust tendency to wear the cylinder walls. Thus, we have our design secured the pin at one end to make this endwise location positive.

The reason for the necessity of having this pin float as described above is because the expansion per degree of heat of the alloy in the piston is considerably greater than in the steel of the pin. Therefore, if the pin were a tight fit in the holes in the piston bosses, the expansion of the piston in the direction of the length of the pin would be arrested, with the result that the piston might be forced oval or out of round. This might exert enough pressure to score the cylinder wall.

In manufacturing, we work to extremely close limits both in the diameter of the hole in the piston bosses and the diameter of the pin, so that pins are selected to just press in with the thumb and finger, when the piston is at about 100 degrees temperature. See Fig. 50. In assembling piston pins to pistons in service, mechanics should if possible select parts which

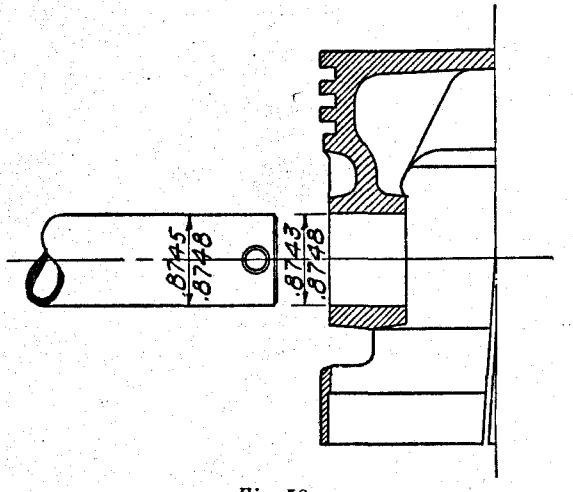

Fig. 50

will give the fit described above. Any fit which is tighter than this is seriously objectionable and should be avoided, because the difference in expansion between the diameters of the pin and hole which at first thought might be assumed to compensate and produce

a loose fit is very slight when compared with the expansion in the length of the pin. A few extra ten thousandths tightness may positively defeat the tendency of the hole in the piston to expand and free itself on the pin with serious consequences as already described.

Further [illegible]acement is not even necessary if the [illegible] can be assembled by hand when cold no disagreeable results will follow use under those conditions. In fact such a condition is much preferable to any tendency in the nature of a drive fit.

As many service men have the idea that the piston pins should be a drive fit in the piston pin bosses when the piston is heated see that all mechanics are thoroughly familiar with the proper fitting of these parts.

New Design Vibrator No. 5008-B

The new design Vibrator with Tungsten point, No. 5008B, is a decided improvement over the old style, in that the steel Vibrator

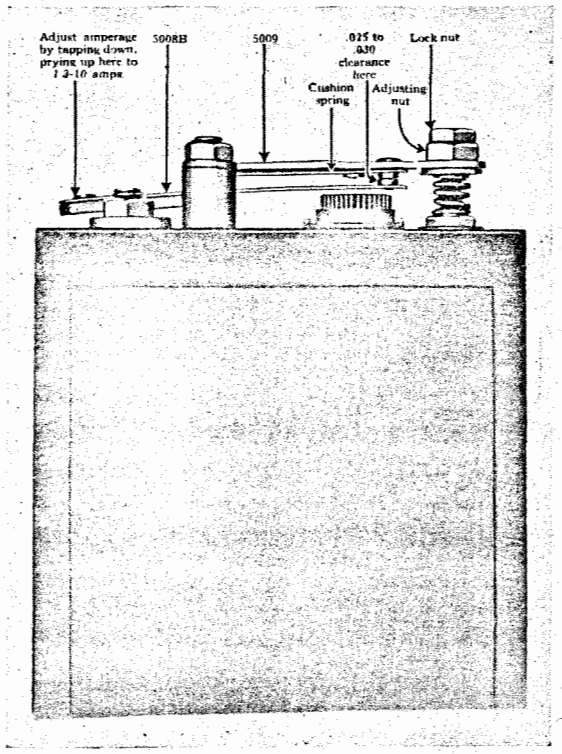

Fig. 51

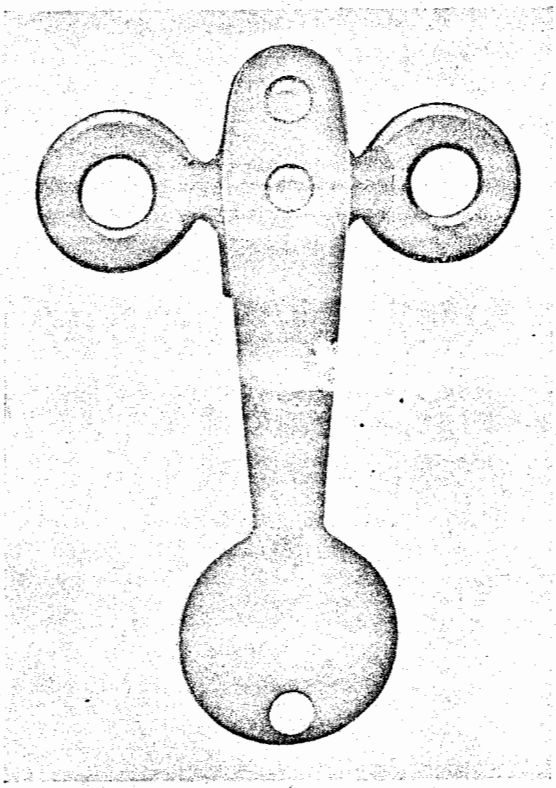

Fig. 52

is rivetted to the bridge instead of being fastened by two screws, as in the old type.

This arrangement makes it much easier and quicker to remove and replace, as the wrench that fits No. 5009 Vibrator Bridge with Tungsten point fits the two nuts that hold No. 5008B in place.

We find that the Stevens Spintite Wrenches Nos. 5 and 6 fit these nuts and are very handy for removing and replacing the points. Fig. 51 illustrates the Vibrator Assembly on the Coil Unit.

Be sure to have the points in alignment and adjust the gap between the upper and lower points to from .025 to .030 apart. Then place in Coil Tester and adjust ampere reading to 1 3/10 amperes by either bending the back of the lower bridge downwards or upwards—downwards increases the ampere reading, upwards decreases it. This operation merely places more or less tension on the spring.

Fig. 52 illustrates the new design Vibrator rivetted direct to the Bridge.

New Method of Merchandising Parts

The Dennis Wire and Iron Works Co. Limited have announced a new method of selling Parts Bins, i.e., direct to Dealers.

In future, when ordering Dennis-Lupton Bins, it will be necessary, therefore, to order direct from the Dennis Wire & Iron Works Company, Ltd., London, Ontario.

This new arrangement affects [illegible] approximately 20% over the [illegible]

Two prices have been [illegible] O. B. Winnipeg and the other [illegible] These prices are as follow[illegible].

Unassembled System Prices

System	Estimated Ship. Wt.	Approx. List Stock Carried	Price F. O. B. London	Price F. O. B. Winnipeg
7	1375	$ 2000.00	$ 204.00	$ 229.00
-10	2135	3500.00	307.00	245.50
13	2880	4500.00	408.00	459.50
16	3590	7000.00	502.00	566.50
19	4265	8000.00	590.00	666.50
32	5940	14000.00	840.00	946.50
50	8600	25000.00	1193.00	1347.00
3	675	1000.00	88.00	100.50
4	790	2500.00	106.00	120.50
T- 2	575	700.00	76.00	86.50
T- 6	1330	1200.00	195.00	219.00
T-10	2120	3000.00	293.00	331.00

Assembled System Prices

System	No. Units	No. Compart-ments	Estimated Ship. Wt.	Approx. List Stock Carried	Price F. O. B. London	Price F. O. B. Winnipeg
7	7	357	1360	$ 2000.00	$ 239.00	$ 275.50
10	10	556	2005	3500.00	353.00	407.00
13	13	812	2665	4500.00	456.00	527.50
16	16	968	3265	7000.00	564.00	651.50
19	19	1097	3825	8000.00	662.00	764.50
32	32	1202	5845	14000.00	922.00	1078.50
50	50	1319	8500	25000.00	1339.00	1566.50
3	3	129	560	1000.00	98.00	113.00
4	4	131	700	2500.00	120.00	139.00
T- 2	2	190	430	700.00	76.00	87.50
T- 6	6	510	1290	1200.00	222.00	256.50
T-10	10	647	1980	3000.00	334.00	387.00
TW-2	2	45	380		66.00	76.50

NOTE: Units in systems are all 3′ wide 12″ deep and 7′ high. Assembled Units are labelled with Ford Parts Numbers. Knocked down systems are furnished with complete erection instructions and with labels.

Descriptions of Systems

7 System—Made up of units 1 to 7 of the ... carrying passenger car assemblies fro... ax... transmission, inclusive.

... of the 7 unit system a... s 10, 12 and 13 of the 16

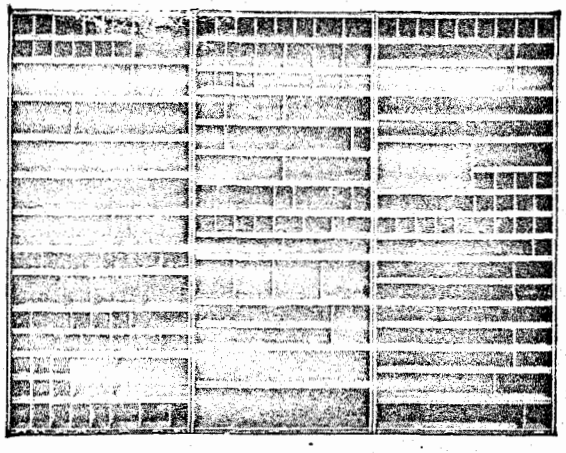

Fig. 53

Illustrates three-unit addition to six units, making total of sixteen units

System carrying carburetor and electrical parts and including battery parts.

13 System—Consists of 13 units and holds a complete stock of passenger car parts excepting horn, lamps, top and windshield. Includes new body parts and battery parts.

16 System—Carries a complete stock of passenger car parts. Includes new body parts, battery parts, one-man top and sloping windshield parts.

19 System—Consists of the 16 System and the three unit truck system.

32 System—Carries all passenger car and truck parts except one-man top and sloping windshield parts. See TW-2 system.

50 System—Carries a complete stock of passenger car and truck parts, except one-man top and sloping windshield parts. See TW-2 system.

3 and 4 Systems—Carry Ford Truck Parts only.

T-2, T-6 and T-10 Systems—Carry selected stocks of Fordson Tractor parts based on dealers' requirements for valuations given.

TW-2 System—A special system for the storage of one-man top and sloping windshield parts to be used with 32 and 50 systems.

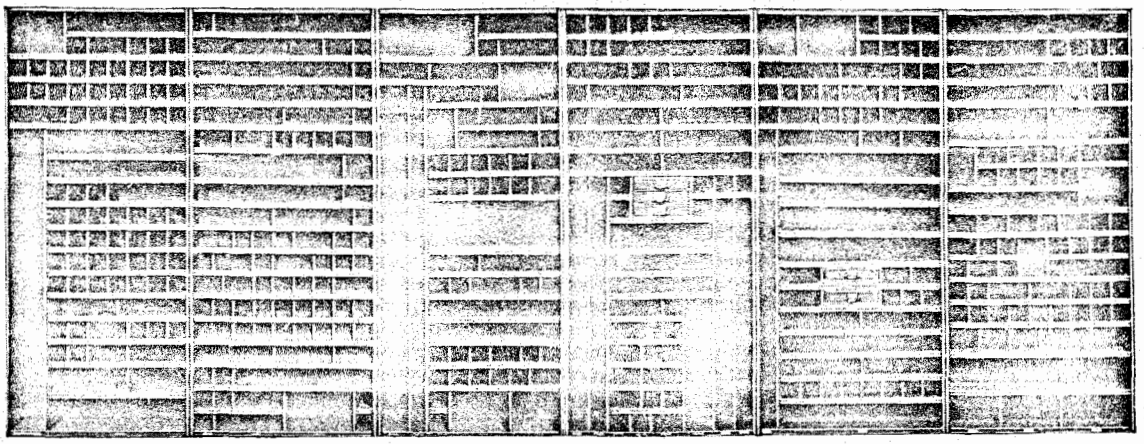

Fig. 54

This illustrates six-unit addition to seven units

Special Units Assembled

Unit	Estimated Ship. Wt.	Price F. O. B. London
Ford Merch. Unit	300	$49.00
Ford Spec. Unit	165	[illegible]
Ford Piston Unit	160	[illegible]
Ford Glass Unit	320	49.00

Display Counter (Unassembled)

Description	Approx. Ship. Wt.	Price F. O. B. London	Price F. O. B. Winnipeg
Single Unit—Arranged for glass front and glass or steel ends	130	$30.50	$33.00
End Unit—Arranged for glass front and end	115	26.50	29.00
End Unit—Arranged for glass front and steel end	115	26.50	29.00
Intermediate Unit—Arranged for glass front	95	22.00	24.00
Steel Doors (including runways) per pair	25	6.60	7.50
Nickel Lined Doors (Including runways per pair)	32	11.00	12.00
Corner Units	95	22.00	24.00
Steel Fronts—For End, Intermediate or Corner Units	18	3.30	4.00
Steel Partitions—For use between units	11	1.65	2.00

NOTE: Glass is not furnished with Counter and it is recommended that customer purchase glass locally. Counter Units except Corner Units are 40 inches high, 24 inches deep and 36 inches long.

Right Angle Corner Units only can be furnished.

Counter can be used either with or without doors. One pair of doors required for each three foot Counter section.

Special Racks

Rack	Ship. Wt.	Price F. O. B. London	Price F. O. B. Winnipeg
Spring Rack (Shipped Assembled)	75	$22.00	$26.00
Ford Radiator Rack (Shipped Knocked Down)	110	25.00	27.50
Ford Dust Shield Rack (Shipped Assembled)	90	25.00	30.00
Ford Fender Rack (Shipped Knocked Down)	255	49.00	54.00
Ford Radius Rod Rack (Shipped Knocked Down)	65	18.50	20.00
Tire Rack—2 Tier High—7′ 6″ high 2′ deep 4′ long			
First Unit		22.00	
Additional Unit		17.50	
3 Tier High—10′ 11″ high 2′ deep 4′ long			
First Unit		34.00	
Additional Unit		25.40	

Garage Equipment

Tool Cabinet (Shipped Assembled)	90	20.50	23.00
Bench Drawer (Shipped Assembled)	...	.....	.....
14″ wide 5″ deep 18″ front to back	15	4.90	5.50
14″ wide 6″ deep 24″ front to back	22	6.00	7.00
Tray for Bench Drawer (Shipped with drawer only)	2	.45	.55
Foreman's Desk	150	31.00	35.50
Bench Leg	25	3.80	4.50
Bench Leg Extension	2	.40	.50

Overseas quotations will be given upon application.

(To be continued)

Tractor Horsepower Rating

In speaking of the horsepower of a tractor one of three things may be meant.

1. Horsepower *available* at the engine crankshaft.
2. Horsepower *available* for belt work.
3. Horsepower *available* for drawbar work

A tractor rating may be determined either by horsepower tests, or by means of a formula. As a matter of information both methods are here described.

Engine Horsepower

Figure 56 shows the horsepower of the Fordson engine at various speeds.

The most common formula used for engine horsepower rating is that given by the National Automobile Chamber of Commerce (formerly A. L. A. M.):

$$\text{Engine Horsepower} = \frac{D_2N}{2.5} \qquad j =$$

Where D = Diameter of Cylinder.
N = Number of Cylinders.

This is the formula used extensively as a basis for computing license fees for motor vehicles. It is supposed to give the horsepower output of engines running on gasoline at 1000 feet per minute piston speed. The formula is not suited for kerosene tractors as these usually have a lower compression than automobile engines. The Fordson engine is rated 25.6 horsepower by this formula at 1000 feet per minute (1200 r. p. m.). By referring to Figure 55 it is seen that the actual horsepower is 23.6 at this speed.

A more suitable formula, perhaps, is that recommended by the Society of Automotive Engineers:

$$\text{Nominal Engine Horsepower} = \frac{0.7854D^2LRN}{13{,}000}$$

Where D = Diameter of Cylinder in inches.
L = Stroke in inches.
R = Revolution per minute of crankshaft.
N = Number of Cylinders.

This formula merely expresses in figures the statement, "A kerosene tractor engine should develop one horsepower for every 6,500 cubic inches of gas mixture entering it per minute."

It is intended by the S. A. E. that this formula shall give a lower horsepower than the actual tested horsepower of an engine. This is to insure a reserve of power for emergencies.

The formula rates the Fordson engine 19.33 H. P. at 1000 R.P.M., while the actual tested horsepower is 20.4 at this speed, as shown in Figure 55.

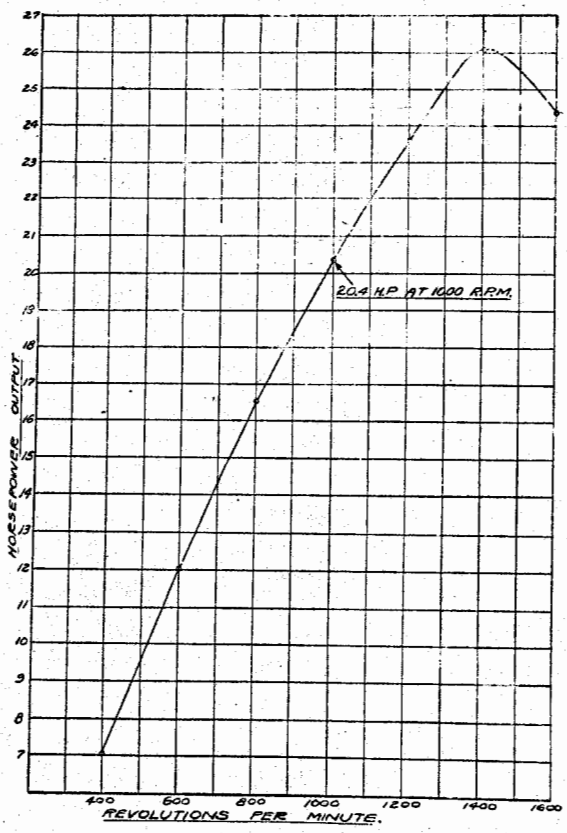

Fig. 55

Belt Horsepower

The Fordson is rated 18 belt horsepower at 1000 R. P. M. by the Ford Motor Co., this being based on actual tests.

The power available at the belt is always less than the engine power. This is due to belt slippage. There is also of course a slight loss in transmitting the power through the bevel pulley gears, but this is very small. The actual belt horsepower output of the Fordson as tested by the University of Nebraska is 18.16 H. P. at 1000 R. P. M. and similar results have been obtained at the factory with an electric dynamometer.

Drawbar Horsepower

The Society of Automotive Engineers recommends, that, if a drawbar rating is desired, one-half the engine horsepower obtained by the S. A. E. engine rating formula should be taken.

According to this the Fordson would be rated 9.66 drawbar horsepower. The S. A. E. points out, however, that this formula gives only a rough estimate, as the mechanical design has much to do in determining how *great* a percentage of the engine power can be delivered to the implement in actual drawbar horsepower.

Since no formula has been invented that considers these mechanical design factors, formula rating of drawbar horsepower is at present impractical.

But supposing the drawbar horsepower, as obtained by tests, was given. This would be of no practical use to the average user as he has no way of knowing just how much power (and reserve for emergencies) is needed for the particular plow or implement he has, and for the soil conditions of his farm and at the speed it is to be pulled by the tractor. The soil conditions alone may cause the pull for a single 14-inch plow to vary anywhere *from 100 to over 2000 pounds.*

We, therefore, do not recommend the use of a drawbar rating with the Fordson.

If it were possible to rate tractors accurately by means of formula, it would be a simple matter to compare various tractors and tests and demonstrations for the purpose would be unnecessary. The formula method is *not* accurate and for this reason the user does not want a formula rating. He wants to know:

First: The actual belt horsepower output so he may buy the proper size of belt-driven machine. This information has been given under the heading of Belt Horsepower.

Second: He wants to know the size and the number of implements that can be pulled by the tractor.

The Fordson w[illegible]nch plows through *stiff soil at 8 inc[illegible]th.* (Other implements usually require l[illegible]ower so it is unnecessary to mention them.

This is a sufficient rating for [illegible]

Mechanics' Winter Cou[illegible]

We are now preparing our students' schedule for a service course in repairing Ford cars, trucks and tractors. This course of training is open to all Ford mechanics regardless of experience. Its duration will depend entirely upon the ability and experience of the student. The course consists of practical work only. The student will have an opportunity to perform the different operations in a systematic and up to date manner and have the theory and operation of each unit thoroughly explained. A course of lectures have been prepared and will be supplied each student for evening study. Each student will be required to pass an examination at the end of the course, the answers being our guide in finishing your instructions as we will know from them what you have learned and what you still need to make your training complete We will also supply each student with numerous charts and blue prints which will be invaluable for future reference.

Our repair shop is fully equipped and each student will have an opportunity to use and get acquainted with the numerous labor saving devices used. The course will take approximately three weeks but can be arranged to suit students who wish to specialize on one or more subjects.

You cannot afford to miss this opportunity to become thoroughly acquainted with your work.

The course is entirely free, we cannot, however, stand any personal expenses of students.

Make your reservations as early as possible, advising us of the approximate date you wish to start.