Minneapolis Moline

Operator's Manual

BF

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MM-O-BF

OWNER'S GUIDE

OPERATION • MAINTENANCE

MINNEAPOLIS-MOLINE-MODEL BF TRACTOR

MINNEAPOLIS—MOLINE MODEL BF TRACTOR

MINNEAPOLIS-MOLINE COMPANY
MINNEAPOLIS 1, MINN.

AVERY COMPANY AND
BENJAMIN FRANKLIN AVERY
MODEL B-F

The Benjamin Franklin Avery, or B. F.. Avery Company, is not to be identified with the Avery Company formed by brothers Robert and Cyrus Avery of Peoria, Ill.

The Avery Company built steam engines that were to become well-known for their massive, heavy, steam engines. They entered the tractor business with a full line of gas traction engines ranging in size from 12-20 to a 40-80.

The latter priced at $2,650 in 1915.

By 1920, the company produced a 45-65 horsepower tractor with their four cylinder engine rated at 634 RPM. It was a well built, big tractor, but the market was rapidly changing to light weight farm tractors. The 45-65 weighed 22,000 lbs.

By 1930 Avery had been through bankruptcy and reorganized. After reorganization, the company produced the Avery Ro-Trak tractor. It was a two-plow tractor with a six cylinder Hercules engine.

It was modern and streamlined. The front wheels had an unusual design. Each of the two front wheels could be pivoted on a support post to provide a wide front or a tricycle front for row crop with adjustments from 10 to 60 inches apart. This was to be the last model built before ending production of the Avery Company about 1941.

B. F. Avery and Sons began as a plow factory in Virginia about the mid-1800's. It first entered the tractor business in 1914 with a two bottom motor plow. The plow was an integral part of the tractor chassis. It was manufactured in Louisville, Ky.

It featured a 10-20 two cylinder engine rated at 675 RPM. The steering mechanism could be disengaged from the operator's seat, and the single front wheel would follow the furrow, thus freeing the operator's hands to adjust the depth of plowing with two levers--one for each plow.

The tractor had only one speed: 2.5 MPH. It was discontinued in 1917.

The B. F. Avery was a manufacturer of farm machinery especially directed to southern farms and much of it horse drawn, or for small farms.

In 1946, this company offered a Model A tractor that was sold through Montgomery Ward. It could be bought by catalog ordering and came equipped with Ward tires. It originally sold for about $500. In 1946 the company added a Model V. It was a smaller one-plow tractor.

In 1950 the B. F. Avery introduced the Model B-F which was a two plow tractor powered by a Hercules engine. The tractor was painted a candy apple red with yellow decals.

The B-F featured a Tru-Draft hydraulic that operated implements by a control push lever located on the right hand side of the tractor. The B-F offered three front end types--the dual front wheel, single front wheel, and adjustable wide front.

The Hercules four cylinder engine was a 133 CID with 1800 RPM. The tractor sold for about $1600 in 1950.

In 1951 Minneapolis-Moline purchased the B. F. Avery, and continued the Model V and the B-F with the Minneapolis-Moline logo until 1953.

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GENERAL DATA

ENGINE

Number of Cylinders	4
Bore	3 1/4"
Stroke	4"
Piston Displacement (Cubic Inches)	133
R. P. M.	1200 to 1800
Firing Order	1, 2, 4, 3
Main Bearings	3
Camshaft Bearings	4

IGNITION

Battery	6 Volt 90 Amp. hr.
Spark Plugs	Champion J-8
Spark Plug Gap	.020 to .024
Distributor Point Gap	.018 to .024

CARBURETOR

Make and Model	Marvel-Schebler TSX-400
Size	7/8"

GOVERNOR

Make	Novi
Type	Flyball

OIL FILTER

Make	Fram
Type	Replaceable Element

AIR CLEANER

Make	Vortox
Type	Oil Bath

COOLING SYSTEM

Type	Pressure
Pressure Cap Setting	4 Lbs.
Circulation	Pump
Fan	4 Blade-15" dia.

CLUTCH

Type	Single Plate Dry Disc.
Diameter	9"
Operation	Foot

TRANSMISSION

Type	Selective Sliding Gear
Speeds Forward	4

Speed Ranges with rated load

Engine	1200 R.P.M. to 1800 R.P.M.
1st Gear	1.6 M.P.H. to 2.4 M.P.H.
2nd Gear	2.5 M.P.H. to 3.7 M.P.H.
3rd Gear	3.2 M.P.H. to 5.2 M.P.H.
4th Gear	8.5 M.P.H. to 13. M.P.H.
Reverse	2.8 M.P.H.

FOOT BRAKE

Type	Contracting
Operation	Separately or together

STEERING

Type	Worm

TIRE SIZE

Rear Wheels	10-28
Single Front Wheel	6.00-16
Dual Front Wheel	5.00-15
Wide Front Axle	5.00-15

GENERAL DIMENSIONS

Overall Length	
BF-Single Front Wheel	166 3/4"
BF-Dual Front Wheel	115 1/2"
BF-Wide Front Axle	118 1/8"
Overall Width	
52" Rear Tread	63"
76" Rear Tread	87"
Height to Top of Radiator	59"
Overall Height	76"
Wheel Base	
BFS-Single Front Wheel	79"
BFD-Dual Front Wheel	79 3/4"
BFW-Wide Front Axle	82 1/2"
Tread, Rear (adj.)	52",56",60",64",68",72" or 76"
Tread, Front (adj.)	52",56",60",64",68" or 72"
Cultivating Clearance	
Rear Axle	26"
Wide Front Axle	22"

SHIPPING WEIGHT (Approx.)

BFS-Single Front Wheel	2725 lbs.
BFD-Dual Front Wheel	2735 lbs.
BFW - Wide Front Axle	2900 lbs.

DRAWBAR

Height-Adj.	12 1/2", 14", 15 1/2" and 17"
Lateral Swing	20"

FUEL

Gasoline	70 octane

CAPACITIES (U.S. Measure)

Cooling System	11 qts.
Engine Crankcase	5 qts.
Fuel Tank	12 gals.
Transmission and Differential	9 qts.*
Final Drives	1 1/2 qts. each
P.T.O. and Belt Pulley	2 qts.
Hydraulic System Pesco	2 qts.
Hydraulic System (Uni-matic)	7 qts.

POWER TAKE-OFF AND BELT PULLEY

Belt Pulley Dia.	10"
Width of Face	6 1/2"
Pulley Speed	1160 R.P.M.
Belt Speed	3038 R.P.M.
P.T.O. Speed	559 R.P.M.
(Size)	1 3/8"
P.T.O. Connection (Type)	6 Spline

*Add 2 qts. when P.T.O. is installed

12. OIL PUMP

1. The oil pump is a gear type mounted on the engine block adjacent to the center main bearing. The pump is driven by a gear forged integral with the camshaft and is of ample capacity to meet the requirements of the engine.

2. If the pump should fail to function, it is recommended that it be replaced rather than attempt to repair it.

13. OIL PRESSURE REGULATOR

1. The oil pressure regulator is located in the engine block near the oil filler pipe and is covered with an acorn nut.

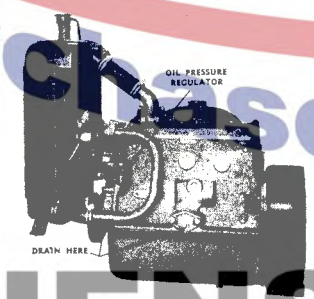
2. To change oil pressure remove acorn nut from regulator screw. After loosening lock nut, screw in to increase pressure or out to decrease pressure. After obtaining correct pressure tighten lock nut and replace acorn nut.

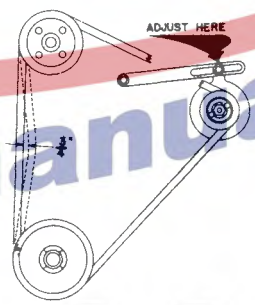
3. Do not change adjustment until the cause for increase or decrease in pressure has been determined. It is not advisable to increase pressure when the decrease has been caused by worn bearings. Chances are the cylinder walls are already being over-oiled and any increase in pressure will place an additional load on the piston rings. The result will be increased oil consumption.

14. OIL PRESSURE GAUGE

1. The oil pressure gauge does not indicate the amount or condition of the oil in the crankcase. The gauge only indicates whether or not the pump is operating. Observe the gauge when the engine starts and if it does not register after a few seconds, stop the engine and determine the cause.

2. At 1,000 R.P.M. or higher the engine oil pressure should be 15 pounds. At slower speeds the pressure will be less and at idle speed should be about 5 pounds.





FAN BELT ADJUSTMENT

15. COOLING SYSTEM

1. Capacity of the cooling system is 11 quarts. Always use clean water free from dirt or other foreign matter that might clog the cooling system. It is also recommended that only soft water be used to prevent the formation of scale. The formation of scale will clog the radiator and insulate the engine block, preventing the dissipation of heat.

2. Drain, flush and refill the system several times each season to remove any dirt or loose scale that may have collected.

3. Use a radiator cleaner, available at your Avery dealer or automotive supply store to remove loose scale or sediment.

4. The cooling system is a pressure type and positive circulation is insured by the centrifugal type water pump. The pump is permanently lubricated and sealed around the shaft with a regular pump seal.

INSTALLATION. Replace the internal parts in the reverse order that they were removed. For proper adjustment the eyebolt must be positioned so that the locking mechanism can be installed by slipping the pins in place easily with approximately 1/32" play. The pin through the eyebolt must be put in first, then the pin through the brake anchor and finally the pin through the links and brake rod. After installing the locking mechanism pull up on the brake lock until the notches in the lock are slightly above the pin. Next tighten the adjusting nut until the bands are snug against the drums. Release the brake lock and install the return springs, both in the housing and at the pedal. Install the top cover and check brakes. The brakes should not drag on the drums when they are disengaged.

NOTE: All adjustments of the brake bands must be done with the adjusting nut at the top.

To lock the brakes depress pedal and pull up on the locks. To release the brakes push the locks down with your heel.

31. REAR WHEELS AND WHEEL WEIGHTS

The rear wheel tread is adjustable from 52" to 76" by 4" steps.
Keep the wheel lug bolts tight and also the hub bolts that hold rear wheels to rear wheel shaft.
The arrows on the tires should point in the same direction as the forward rotation of the tires.
Wheel weights are available as extra equipment and weigh approximately 150 pounds each. When it is desirable to increase traction one weight is added to each rear wheel. Always keep the wheel weight bolts tight.

32. TIRES

The tires are inflated to higher than normal pressure at the factory for shipping purposes. The tire pressure should be checked and reduced as sollows:

Front tires	28 pounds
Rear tires	12 pounds

Always have valve stem at the top when checking to prevent the loss of calcium chloride solution.

When plowing the furrow wheel will have more traction than the land wheel and it is advisable to increase the air pressure in the furrow wheel to 16 pounds to equalize the traction. The pressure in the land wheel should not be reduced to equalize the traction since low pressure frequently results in tire failures.

Check air pressure frequently to prevent premature tire failures.

The rear tires are filled approximately 3/4 full (26 gal.) with a calcium chloride solution to provide the additional weight needed for better traction. The 5.50 - 16 front tires contain 4.1 gallons and the 6.00 - 16 front tires contain 5.2 gallons. The specific gravity of the solution is 1.075 and will prevent freezing to 0°.

The calcium chloride solution is not dangerous but may irritate the skin of some people, especially if contact is made with an open cut. Should unavoidable contact be made wash with clean water.

Service stations have been instructed in servicing tires loaded with calcium chloride solution and have the necessary facilities for doing so. If the solution is lost through accident or other means take the tire to a service station to be refilled.

Never use calcium chloride solution as anti-freeze in the cooling system.