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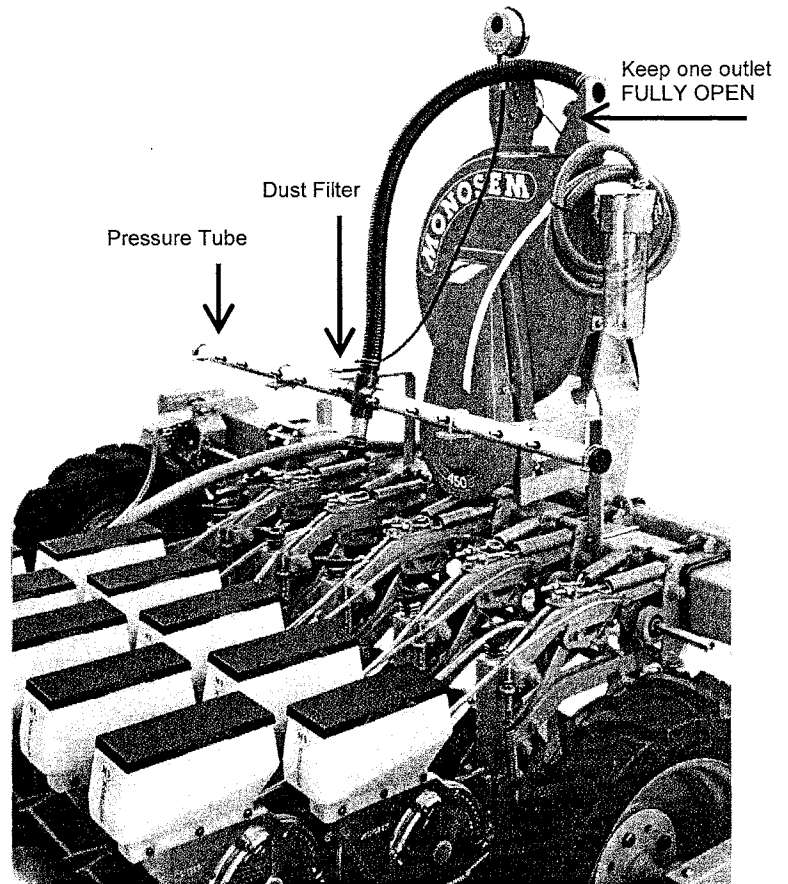
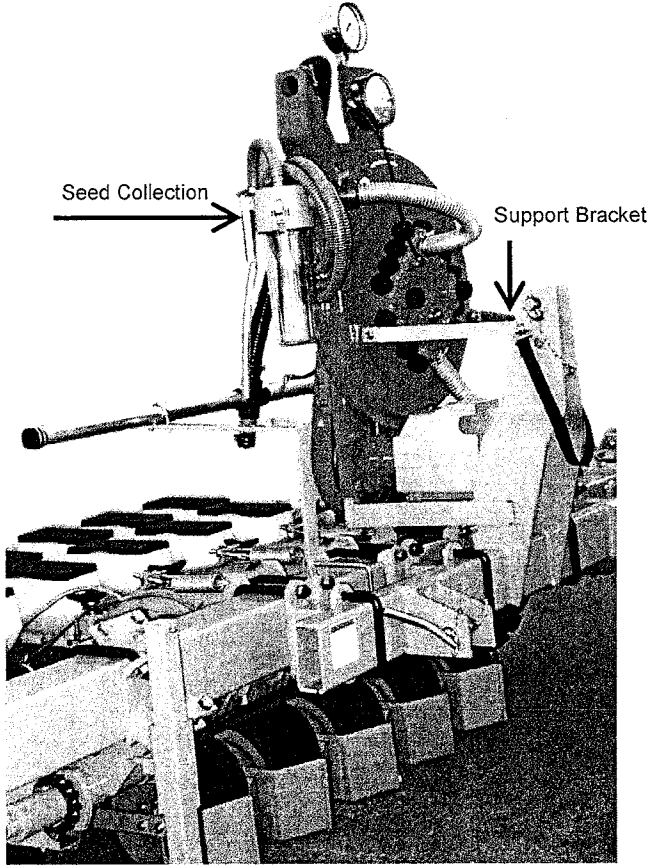
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DRIVE

MS Mini Seed Planter



STANDARD TURBOFAN

The standard turbofan used for a Mini Seed planter is a 540 rpm. A special pump pulley is available as optional equipment for the 450 and 1000 turbofans. It is recommended to use a 450 rpm turbofan when using a hydraulic drive.

The turbofan is equipped with a 16 outlet manifold with an adjustable air shutter.

TO OBTAIN SUFFICIENT AIR AND PRESSURE, THE SHUTTER MUST BE FULLY OPEN.

The vacuum hose is attached to the outlets on the back of the turbofan and they deliver suction to the metering box of each unit. An arrow decal sticker on the back of the turbofan indicates that the turbofan blade runs in a counter clockwise direction. A protection shield against the rain is located at the top of the turbofan, and when in a raised position, indicates that the turbofan is operating.

Note: Before planting, make sure that the support brackets are tightly secured to the frame to eliminate any vibrations of the turbofan.

A vacuum gauge may also be mounted to the turbofan.

ATTENTION: The feeder manifold has 2 outlets. One is to be used to connect the air pressure tube. The other one, however **MUST ABSOLUTELY REMAIN FREE AND OPEN**

PTO (Power Take Off)

The PTO connects the tractor to the turbofan.



Make sure you connect the proper end of the PTO to the tractor. An arrow on the PTO indicates the end that is attached to the tractor.

The following warning is placed on your PTO shaft for your safety.



DANGER Rotating drive line contact can cause death – keep away. Do not operate without all driveline, tractor and equipment shields in place, without drivelines securely attached at both ends, and without driveline shields that turn freely on driveline.



MS Mini Seed Planter

SECONDARY AIR SYSTEM

The turbofan is also equipped with a secondary air system consisting of an air feeder manifold and an air pressure tube. This system feeds pressurized air to the base of each metering unit. A nozzle blows air against the back side of the seed disc in order to clean out any plugged holes of light and sharp pointed seeds. The pressure tube is provided with a filter whose purpose is to catch any dust blown through the system. This particle trap should be filled with about 1 ¼" of oil.

NOTE: Inspect the filter daily and service as needed, especially in dusty conditions.

Only use the secondary air system for seeds whose holes are smaller than 1.2mm. It is indispensable when planting small sized and light seeds (carrot, lettuce, endive...) however it becomes useless when planting with bigger seed such as cabbage or coated seed. When planting with bigger seed, it is necessary to disconnect or remove the feeder manifold and close the shutter so that the turbofan gives the maximum air vacuum.

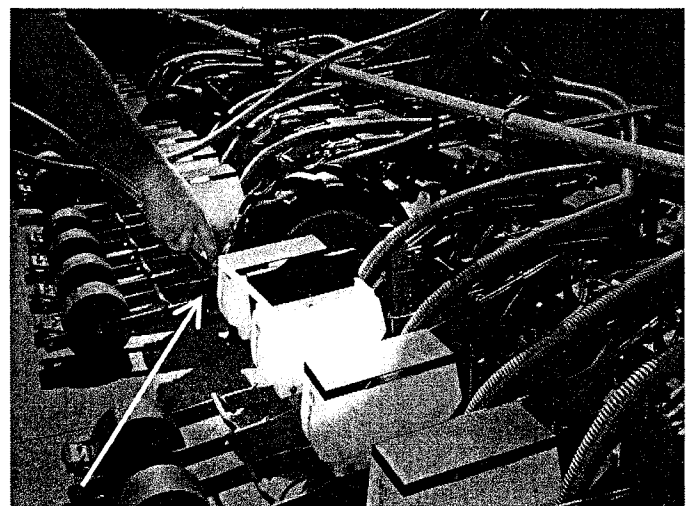
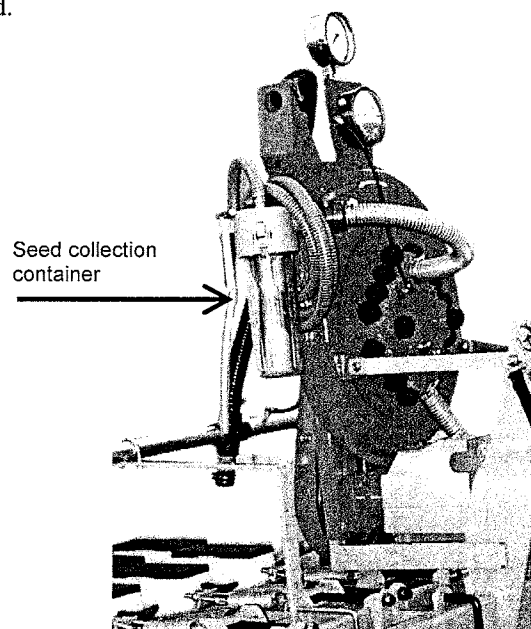
IMPORTANT: To achieve a good distribution with a vacuum planter, it is necessary to use top quality, properly sized, clean seed.

If you are using seed lots containing dust and impurities, the secondary air system will not be sufficient for cleaning the seed holes, the discs will have to be checked more often

VACUUM SEED EMPTYING SYSTEM

The seed collection container is mounted to the turbofan by means of a mounting bracket and is connected to one of the outlets of the manifold. To suck out the remaining seeds of each hopper and the seed meter, simply insert the flexible hose into the bottom of the hoppers and meter. The suction unit of the turbofan will collect the seed in the plastic collection container.

IMPORTANT: Empty the container by untightening its 2 clips as soon as it is half full to avoid the seed being sucked into the turbofan, especially with light seed.



Use Flexible hose attached to seed collection container to clean out hoppers

DRIVE

MS Mini Seed Planter

OPTIONAL HYDRAULIC DRIVE

An optional hydraulic drive for the turbofan is available. If a hydraulic drive is used, it is recommended to use a 450 rpm turbofan. You must then double check that there is adequate oil flow for the turbofan to run at 450 rpm. Use an rpm gauge to check, placing it at the center of the lower pulley.

A vacuum gauge may also be mounted to the turbofan. (The vacuum gauge is standard equipment when ordering the hydraulic drive.) Vacuum settings for Hydraulic Drive shown below in inches of water column.

Carrots (Raw)	10 – 12”
Onions (Raw)	10 – 12”
Lettuce (Raw)	10 – 12”
Lettuce (Pelleted)	15 – 17”
Broccoli	10 – 12”

Mounting Hydraulic Drive on a 450 Turbofan Single Mounted Toolbar

Tools needed:

13-17-19-22-30 mm wrench or socket

11/16 wrench or socket

5/32 Allen wrench

The desired vacuum is dependent on the correct amount of oil flow to the hydraulic motor. Starving the motor of oil will cause the vacuum to drop. An excessive amount of oil flowing into the motor can result in damage to the motor or the fan blade. When attempting to shut off the turbofan the blade must be allowed to “wind down” slowly. If the flow of oil stops abruptly, the bypass block on the motor will recirculate the oil already in the motor helping to prevent damage to the blade and motor. Still, you should not allow the flow of oil to stop suddenly. This is accomplished with the tractor’s hydraulic controls. Refer to your tractor’s operators manual for further information.

Controlling oil flow to the motor can be done in one of two ways:

1. with the flow control valve included with the hydraulic motor
2. with the tractor hydraulic system controls.

If your tractor has flow control capabilities, then it is recommended that you use this method and remove the in-line flow control valve. Failure to do this will cause the hydraulic oil to overheat, damaging the motor.

Oil requirements are as follows:

Regular & high output turbofan -

6 to 7 gallons per minute

Extra high output turbofan -

7 to 8 gallons per minute

To set the vacuum level:

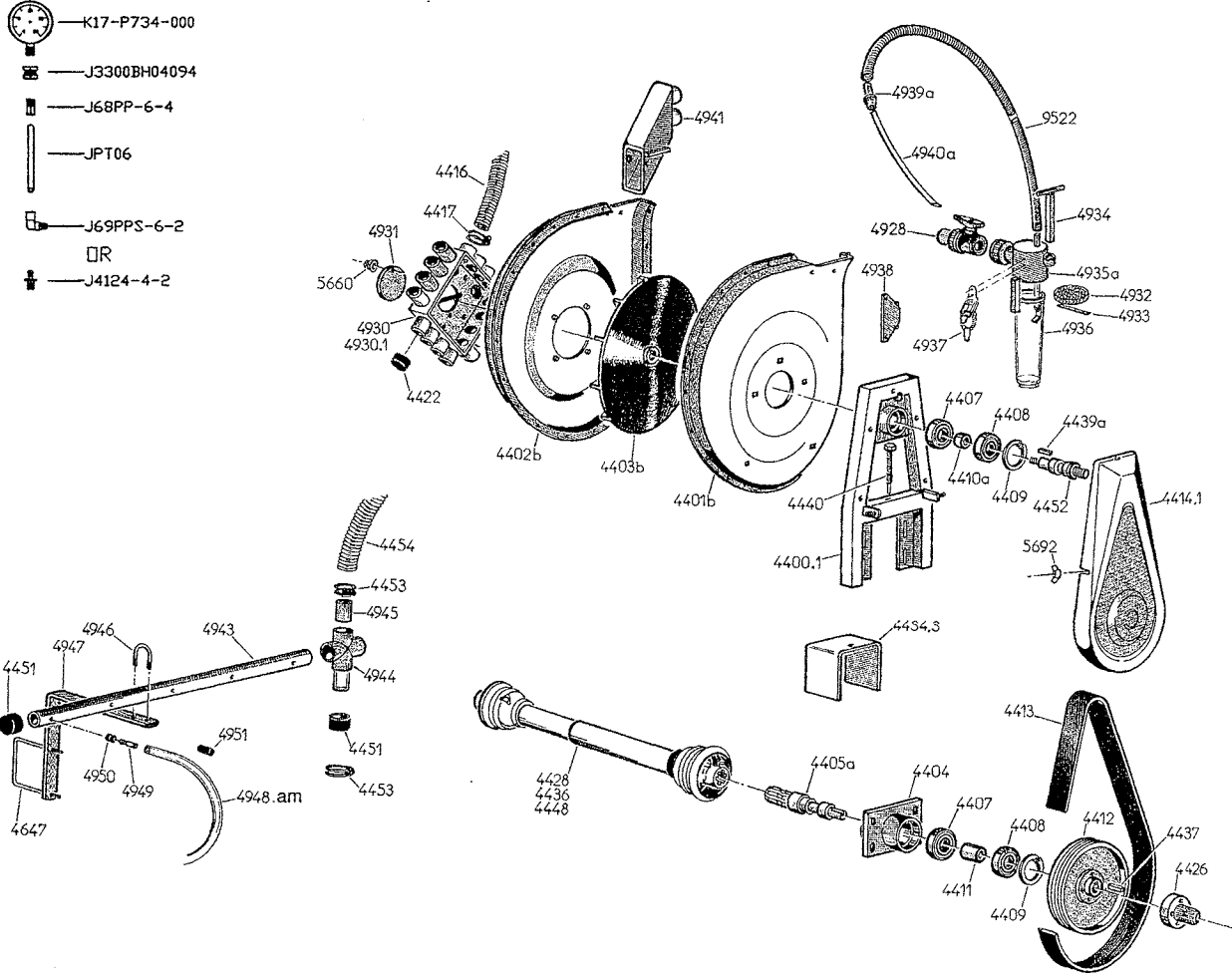
1. See operator’s manual for recommended vacuum settings or consult your local dealer.
2. Push tractor lever/switch to start oil flow to hydraulically driven turbofan and let oil warm up.
3. With some seed in the hoppers, turn drive wheels by hand or lower planter to engage drive wheels and drive forward a short distance to fill cells on seed discs with seed. This will result in a more accurate setting of the vacuum.
4. Readjust the oil flow, if necessary, until the desired vacuum level is obtained on the vacuum gauge.
5. It is not necessary to have to reset vacuum levels daily. Vacuum levels will be slightly lower during tractor and pump start up.

DRIVE

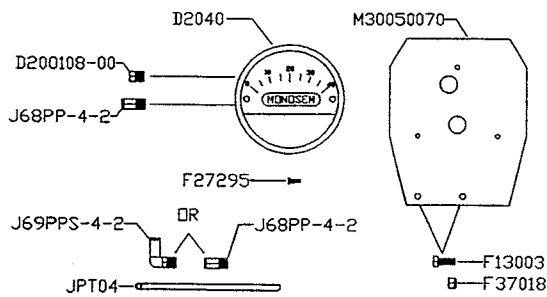
MS Mini Seed Planter

STANDARD TURBOFAN ASSEMBLY

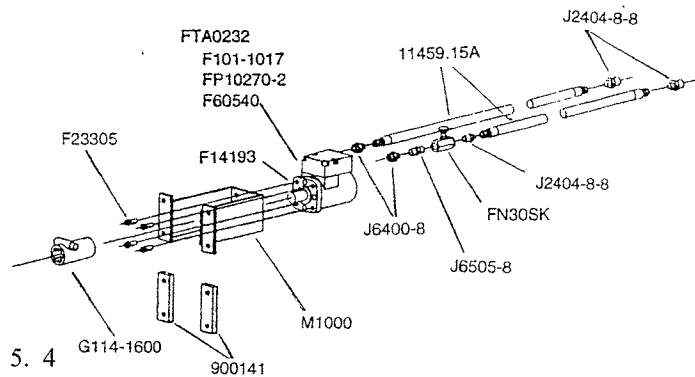
2041.asy Secondary Air Pressure System
Gauge Assembly



Turbofan Vacuum Gauge Assembly



**HYDRAULIC DRIVE
F1017VMT**



DRIVE

MS Mini Seed Planter

STANDARD TURBOFAN ASSEMBLY

4400.1	Turbofan support frame	2041.asy	Secondary air system gauge complete
4401.b	Turbofan housing, drive belt side	K17-P734-000	Pressure gauge
4402.b	Turbofan housing, manifold side	J3300BH04094	Bulkhead connector
4403.b	Turbofan wheel	J68PP-6-4	Hose end
4404	Turbofan support bracket	JPT06	3/8" tubing
4405.a	Spindle with adaptor (A230A)	J69PPS-6-2	Poly push swivel fitting
4407	Bearing 62 mm (62062RS)	J4124-4-2	Blow off fitting NPT pushlock
4408	Bearing 72 mm (63062RS)		
4409	Snapring (large) (72T)		
4410.a	Bushing for upper shaft	Hydraulic Drive	
4411	Bushing	F1758-VMT	Hydraulic drive w/manifold & vacuum gauge complete
4412	Pulley - 450/540 RPM (S193)	11459.15A	Hydraulic hose assembly
4412.3	Pulley -1000 RPM	FTA0232	Hydraulic motor complete with bypass block
4413	Pulley belt -450/540 RPM	F101-1017	Hydraulic motor only
4413.1	Pulley belt - 1000 RPM (1168J19/1)	FP10270-2	Bypass block only w/hardware
4414.1	Cover shield	F14193	Woodruff key
4416	Vacuum hose for PNU, MS	F60540	Seal kit
4416.130	Hose, length 1 m 3	FN30SK	Flow control valve 1/2" NPT
4416.200	Hose, length 2 m	F221461	Z16-14x2 carriage bolt
4416.285	Hose, length 2 m 85	F23305	3/8-16x1 Socket head cap screw
4417	Hose clamp	F33624	7/16 lock washer
4422	Plastic cap (C37)	F36108	7/16-14 hex nut
4426	Pump pulley	G114-1600	Spline adapter
4428.B	PTO shaft complete, Bondioli	J2404-8	Hydraulic fitting
4428.W	PTO shaft complete, Walterscheid	J6400-8	Hydraulic fitting
4428.B21	PTO shaft complete, 1000, 21 spline, 24" Bondioli	J6505-8	Hydraulic fitting
4428.W21	PTO shaft complete, 1000, 21 spline, 24" Walterscheid	M1000	Hydraulic motor bracket
4429.a	Outlet shield	900141	Spacers for standard turbofan
4434.3	Safety shield		
4437	Key, lower shaft, 8x7x40		
4439.a	Key, upper shaft, 6x6x45		
4440	Belt for adjustable belt tension		
4451	Plastic cap		
4452	Upper spindle, turbofan		
4452.1	Shaft 450 RPM		
4453	Hose clamp		
4454	Vacuum hose, black, specify length		
4647	U-bolt (12 mm)		
4930	Manifold, 18 outlet, MS		
4931	Rotating shutter, manifold		
4930.1			
4932	Filter		
4933	Filter clip		
4935.a	Canister lid		
4936	Canister		
4937	Spring latch		
4938	Mounting bracket, air clean out		
4939.a	Tube connector		
4940	Clean-out tube		
4941	Upper collector, MS turbofan		
4942	Tube end		
4943	MS secondary-air tube, specify length		
4944.1	Connector, secondary-air		
4945	Connector extension		
4946	U clamp, secondary air		
4947	Support bracket, secondary air		
4948.am	Transparent air tube		
4949	Tube end cap		
4950	Grommet		
4951	End , diameter 10		
5660	Tapered spring		
5692	Wing nut, 10mm		
9522	Hose, microsem, ms		
D2040.asy	Vacuum gauge complete w/mounting bracket & hardware		
D2040	Vacuum gauge only		
D200108-00	Filter vent plug		
F13003	1/4-20 x 3/4 Z5 (use 2)		
F37018	Nylock 1/4-20 lock nut (use 2)		
J68PP-4-2	Poly-push fitting		
J69PPS-4-2	Poly-push swivel fitting		
JPT04	Tubing, 1/4" PE		
M30050070	Vacuum gauge mounting plate		