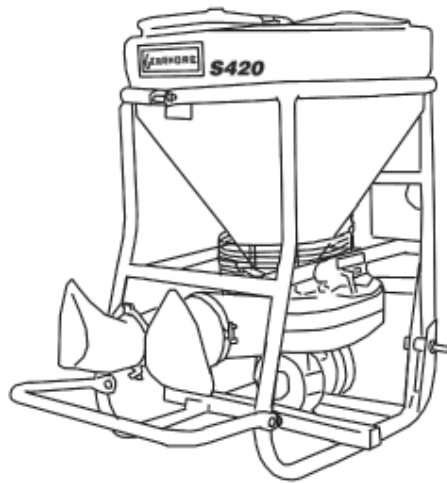




# DUSTER



## Operation, Service & Parts Manual For Model # S420

January 2000

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MODEL #: \_\_\_\_\_

DATE OF PURCHASE: \_\_\_\_\_

SERIAL NUMBER: \_\_\_\_\_

# INTRODUCTION

We welcome you as an owner of a Gearmore duster. Please read the following instructions and refer to them when required.

- APPLICATION RATES:** Adjustable from 12 to 80 pounds per acre.
- HOPPER:** The tank is thick walled polyethylene. (*See Note*)
- BLOWER:** Dynamically balanced steel fan in an aluminum housing.
- DISTRIBUTORS:** Two completely adjustable 360° nozzles.

# DUSTER INSTALLATION

The Duster should be mounted on a flat surface, always clear away all people not involved in the operation, including children and animals.

1. With tractor engine off and key out of the ignition, hook the tractors lower lift arms to the duster lower lift pins. (S420 comes with Cat. 1 pin as standard equipment.)
2. Remove tractor top link and install on duster.
3. Mount other side of top link back on the tractor.
4. P.T.O. Installation:

First, connect the P.T.O. shaft to the tractor. With the shaft in its shortest position, there should be about a 2" clearance between the end of the gearbox shaft and the end of the P.T.O. shaft. Should it be necessary to shorten the P.T.O. shaft, shorten both male and female shafts equally, keeping the protective tube covers 1" shorter than the steel tubes.

Particular attention should be given to carefully removing all burrs and to clean and lubricate the steel tubes and protective covers. There must be sufficient telescopic movement so that the two tubes do not touch the end of the P.T.O. shaft.

It is most important to carefully raise and lower the duster with the tractor hydraulic system, making sure that the P.T.O. shaft does not bottom or disengage the telescopic shaft tubes, otherwise damage may occur.

**NOTE:** Driveshaft angle should not exceed 15° when in operation.

# BEFORE OPERATING YOUR DUSTER

1. Inspect for damage and loose or missing parts. Make sure all fittings and drive components are secure.
2. Lubrication: *See Lubrication Section.*
3. Check hopper for any foreign objects.

## TO OPERATE DUSTER

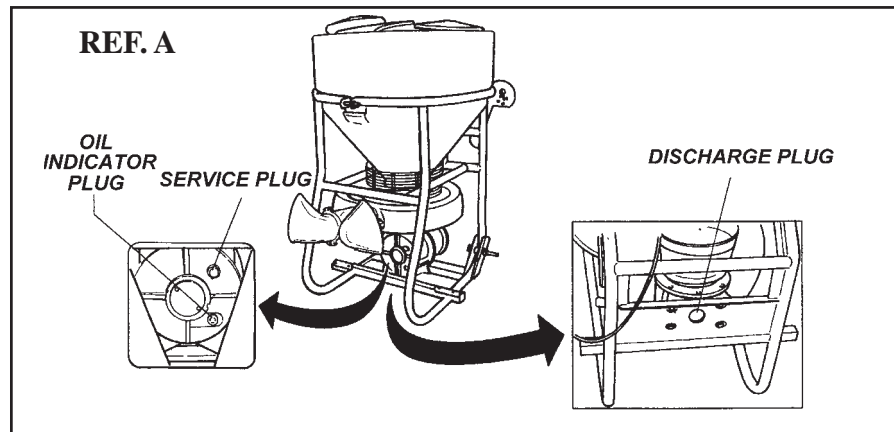
1. Calculate the exact amount of sulfur needed for the treatment.
2. Carefully read the instructions for the manufacturer's use of the sulfur, check the conditions for use, the correct dosage and the expiration date.
3. Push flow adjusting lever away from the tractor, which is the closed position.
4. Fill hopper with material being used. (*Note: Sulfur Powder Only*)
5. Due to the inconsistency of sulfur, it is almost impossible to set a true rate chart. For this reason, Gearmore can only recommend an average start rate at 1 1/2 on control lever for 15 lbs. of sulfur per acre at 4 M.P.H. Adjust lever up or down from there.
6. Start engine and engage tractor P.T.O. at engine idle.
7. Pull lever toward the tractor, which increases the powder flow.
8. After locating the delivery position that meets your required application rate, disengage P.T.O. and turn tractor engine off. Set the adjustable gray handle so the operator can easily return to that position.
9. Restart engine and engage P.T.O., gradually increase engine R.P.M. and start dusting.

**NOTE:** Small gray plastic handle is only a "stop set", thus little locking pressure is required.

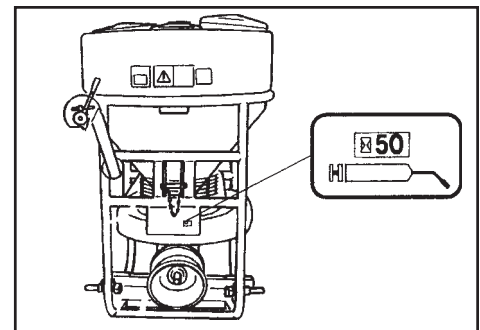
# LUBRICATION

**DRIVESHAFT:** The driveshaft must be lubricated before the duster is put into use. After that, grease when needed. It is also necessary, from time to time, to untelescope the driveshaft to clean and re-grease tubing.

**GEARBOX:** Check gearbox oil level through sight gauge with machine on flat ground. If oil level is low, lay machine on ground and add SAE 90 weight oil through filling plug (*See Ref. A*).



**AGITATOR:** Under hopper and above blower is an extended grease zerk for lubricating agitator. Grease at the beginning of the season and **every 50 hours** of work (*See Ref. B*).



# CLEANING & STORAGE

1. Do not let dust build up on blower fan.
2. Do not leave material in hopper for long periods of time.
3. Clean duster thoroughly before storing.
4. Check duster for needed repairs before time to dust again.
5. Always store machine where children and unskilled people can not get to it.

# SAFETY TIPS

1. **NEVER** run PTO at speeds exceeding 540 R.P.M.
2. Duster should be operated only by qualified personnel.
3. **ALWAYS** fill duster slowly to avoid spillage.
4. When starting duster, maintain a safe distance from moving parts.
5. **NEVER** leave duster unattended while it is running.
6. Keep hands, feet and clothing away from moving parts.
7. Handle powders carefully. Follow manufacturer's directions for application and rates.



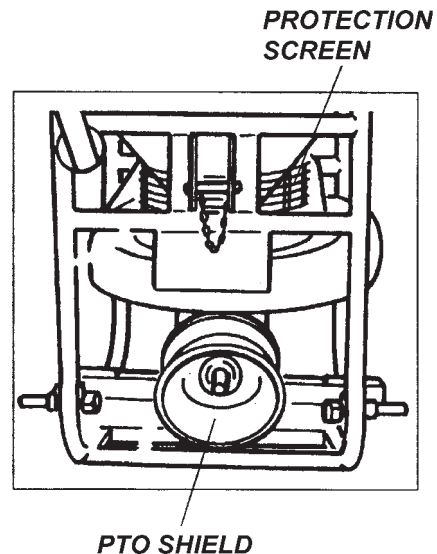
## WARNING!!

**OPERATING THE TRACTOR PTO AT OVER 540 R.P.M. OR APPLYING RATES OF LESS THAN 8 POUNDS OF SULFUR PER ACRE COULD CAUSE THE SULFUR TO MELT.**

**SAFETY WARNING!** All of the preparation, use, maintenance, handling and transport operations should be carried out only after having acquired the perfect understanding of all instructions contained in this publication and the ability of interpreting the symbols applied on the machine in the correct way.

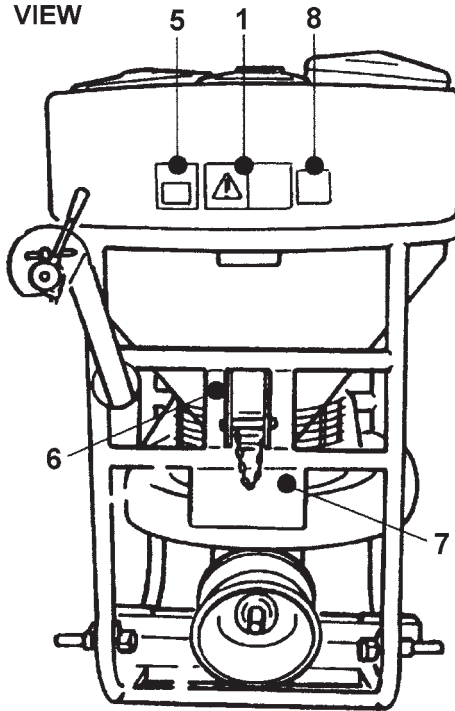
### Safety Shields:

Make sure all safety shields are secure before operating duster.

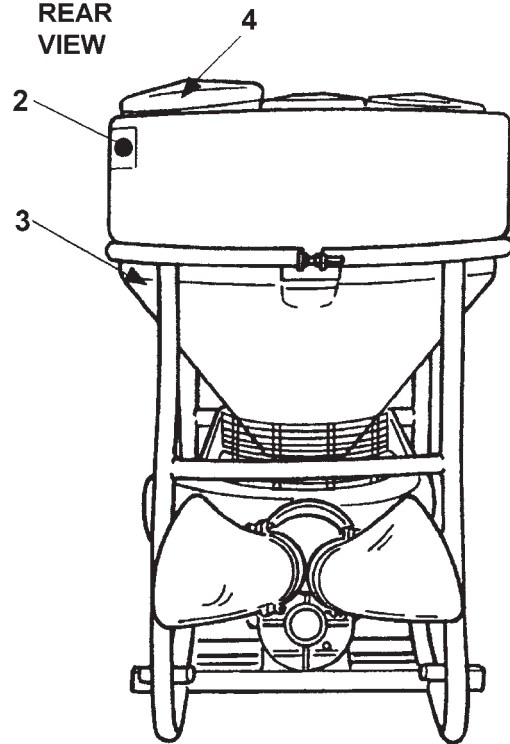


# SAFETY DECALS

FRONT VIEW



REAR VIEW



① 95001

1. Stop the engine and take the key out before doing maintenance or repairs to the duster.



② 95011

2. **DANGER:** Rotating components. Before lifting the lid, stop the engine and remove key, then make sure all components have stopped before continuing.



③ 95005

3. **DANGER:** Rotating components. Before removing shield, stop the engine and remove key. Make sure all components have stopped before continuing.



④ 95006

4. **ATTENTION:** Read the maintenance section of book before using or working on the machine.



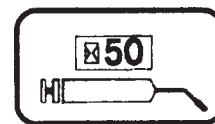
⑤ 95010

5. **ATTENTION:** Maximum working speed of the tractor PTO must not exceed 540 R.P.M.



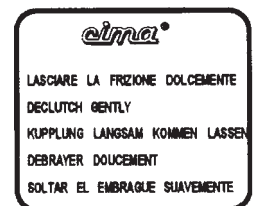
⑥ 95059

6. Hooking point for lifting the duster.



⑦ 95053

7. **ATTENTION:** Grease before the season and every 50 hours after.



⑧ 95068

8. **ATTENTION:** Disengage the clutch gently. Fan start-up must be gradual.

# SAFETY Continued

## PERSONAL SAFETY WEAR:

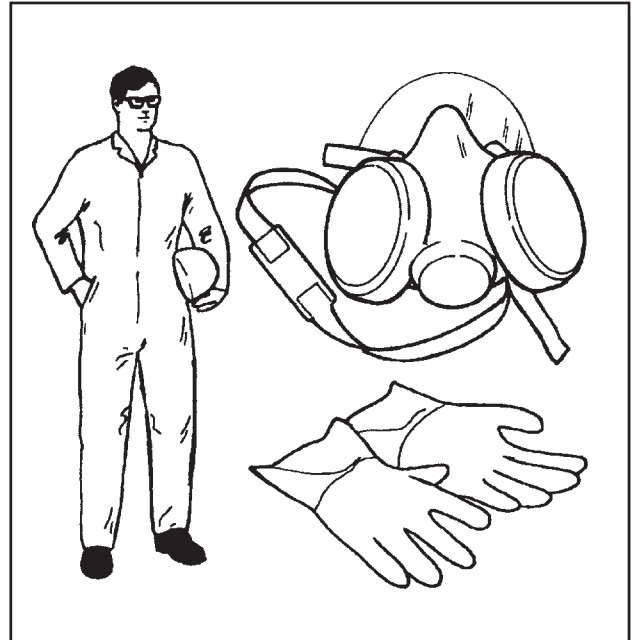
The toxicity of phytopharmaceuticals compels the people using them to wear adequately protective clothing and accessories to avoid the risks of contamination by contact or inhaling the sulfur.

## THE OPERATORS MUST WEAR:

Polyethylene or polyvinyl gloves.

Complete overalls, in waterproof cotton, to guarantee transpiration, with side polypropylene coating. It is **IMPORTANT** to find disposable overalls with these materials so that after use they are disposed of in the same way as the toxic waste.

Half-size masks in neoprene rubber with one or two filters. It is **IMPORTANT** to use filters designed for gas or organic vapors combined with filters against powder for mists and irritating powders or for mists of harmful or toxic powders.



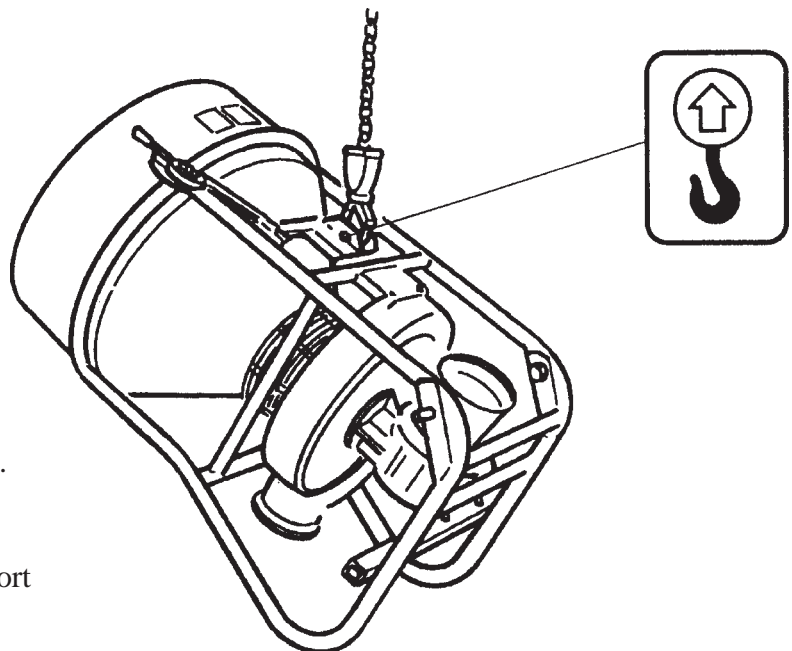
# LIFTING DUSTER



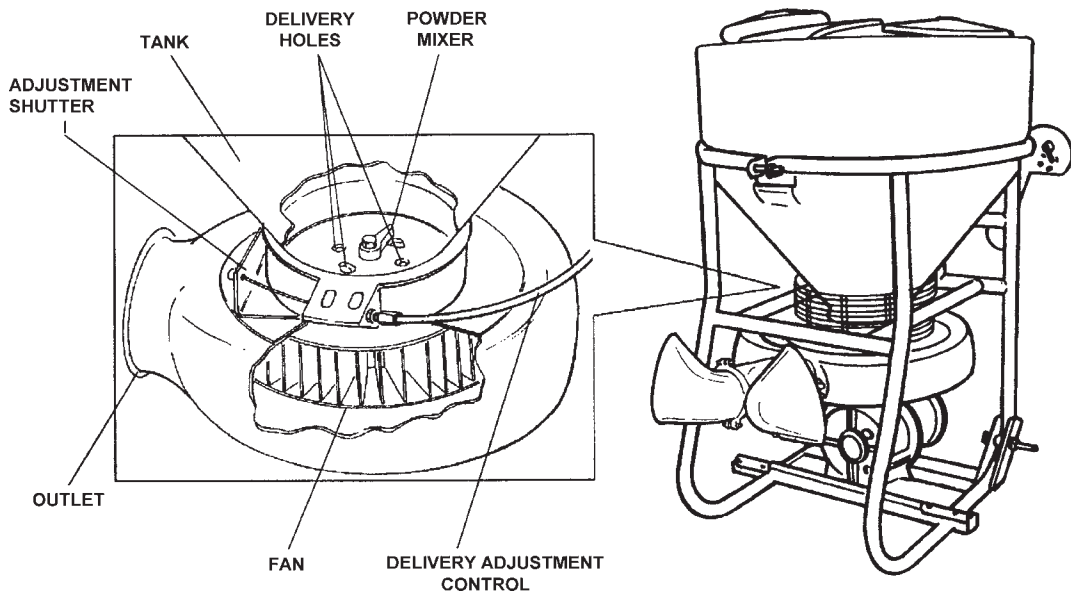
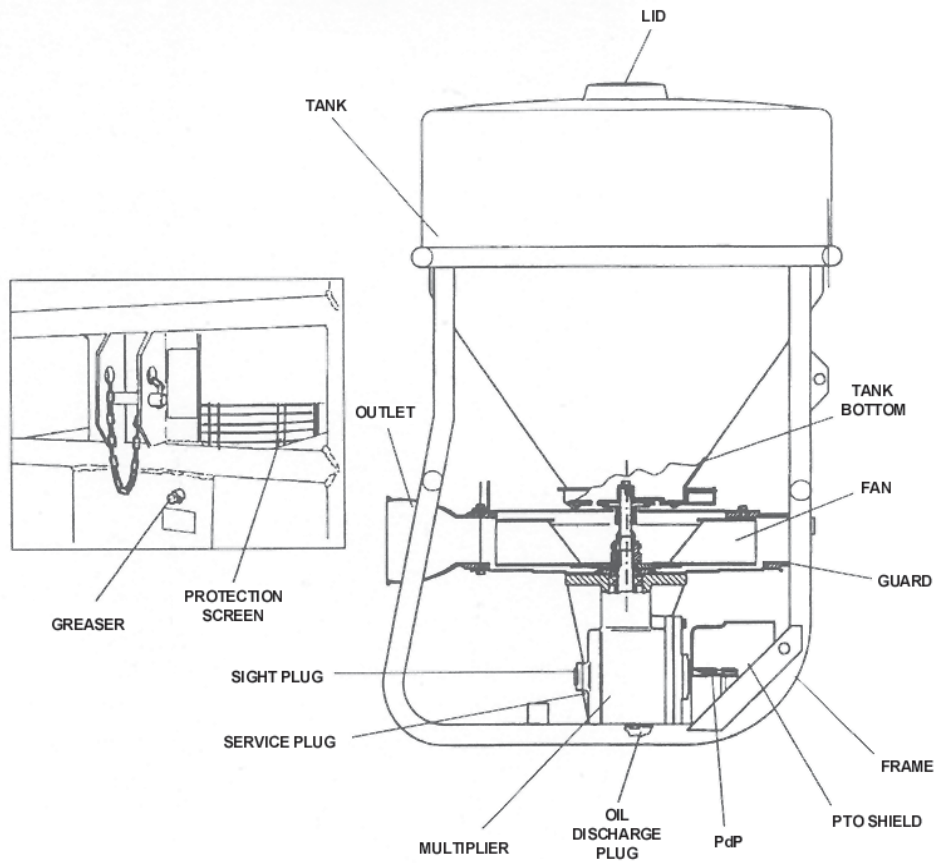
Remove the head before lifting the duster.

All operations should be carried out with the tank completely empty.

1. Check that the cables or the chains are sufficient enough for the weight to be lifted.
2. Hook the machine in the supporting point indicated on the frame by the decal and check the tightening of all of the parts involved in the operation.
3. Lift the machine, placing it on the means of transport, which must be perfectly stable.
4. During the transport, the machine should be tied and fastened to the means of transport by an appropriate harness.



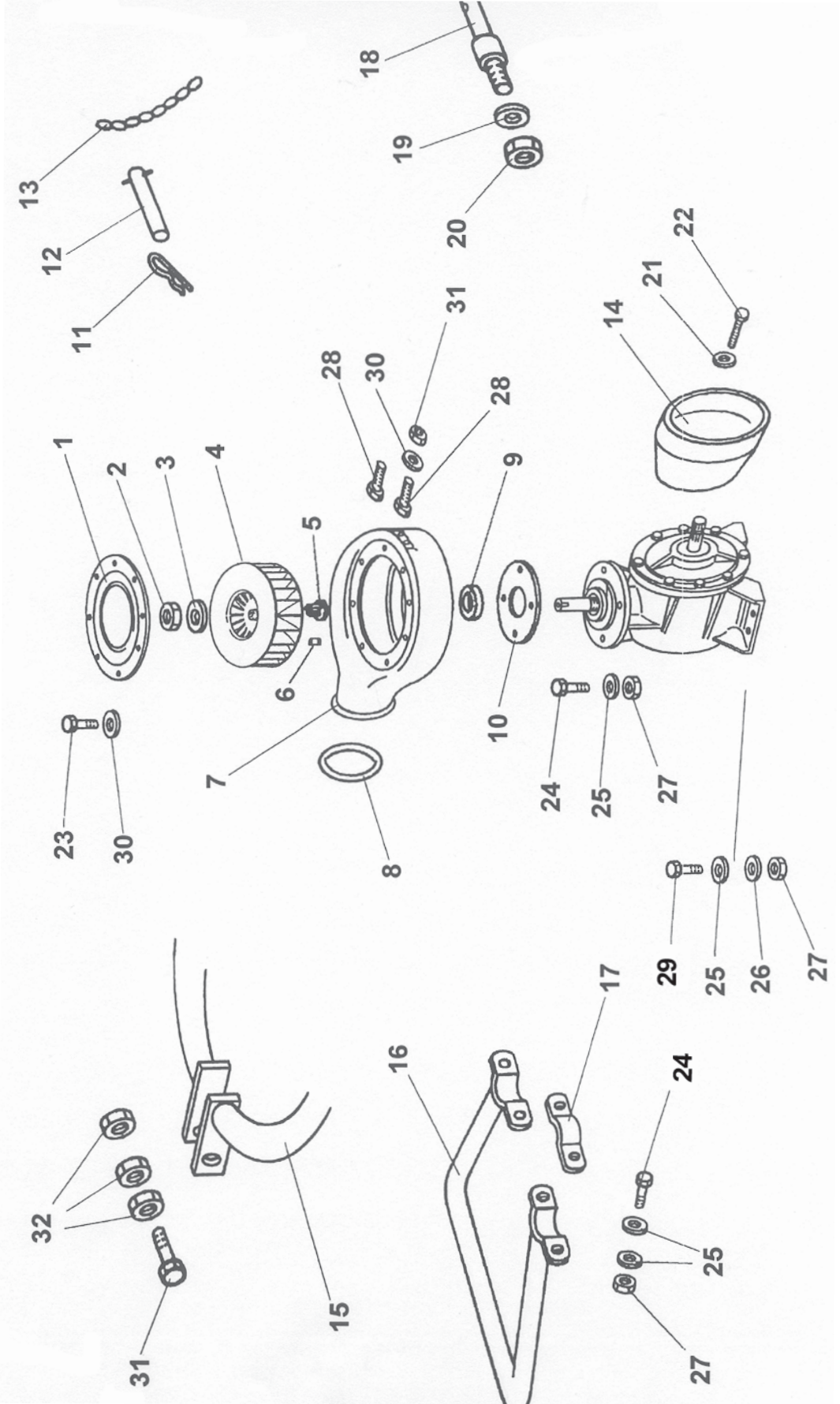
# DIAGRAM OF THE DUSTER



# TROUBLESHOOTING CHART

PROBLEM	CAUSE	SOLUTION
Oil Leakage	The input shaft seal is defective.	Replace input shaft seal.
	The gasket on the gearbox cover is defective.	Replace gearbox cover gasket.
Vibration in fan	The fan is caked with sulfur.	Clean sulfur build-up off.
	The fan is out of balance.	Check fan blades, if damaged or broke, replace fan.
Continuous noise	Bearings in gearbox dry or damaged.	Check bearings in gearbox, if bad or damaged, replace.
Sulfur not being delivered	The feeding holes on the tank bottom are clogged.	Clean the bottom feeding holes.
	Bottom of tank caked with sulfur.	Clean caked sulfur off the tank bottom.
Sulfur delivery not uniform	Nozzles caked with sulfur.	Clean caked sulfur off nozzles.
	Nozzle end damaged or bent.	Open damaged or bent nozzle back up.

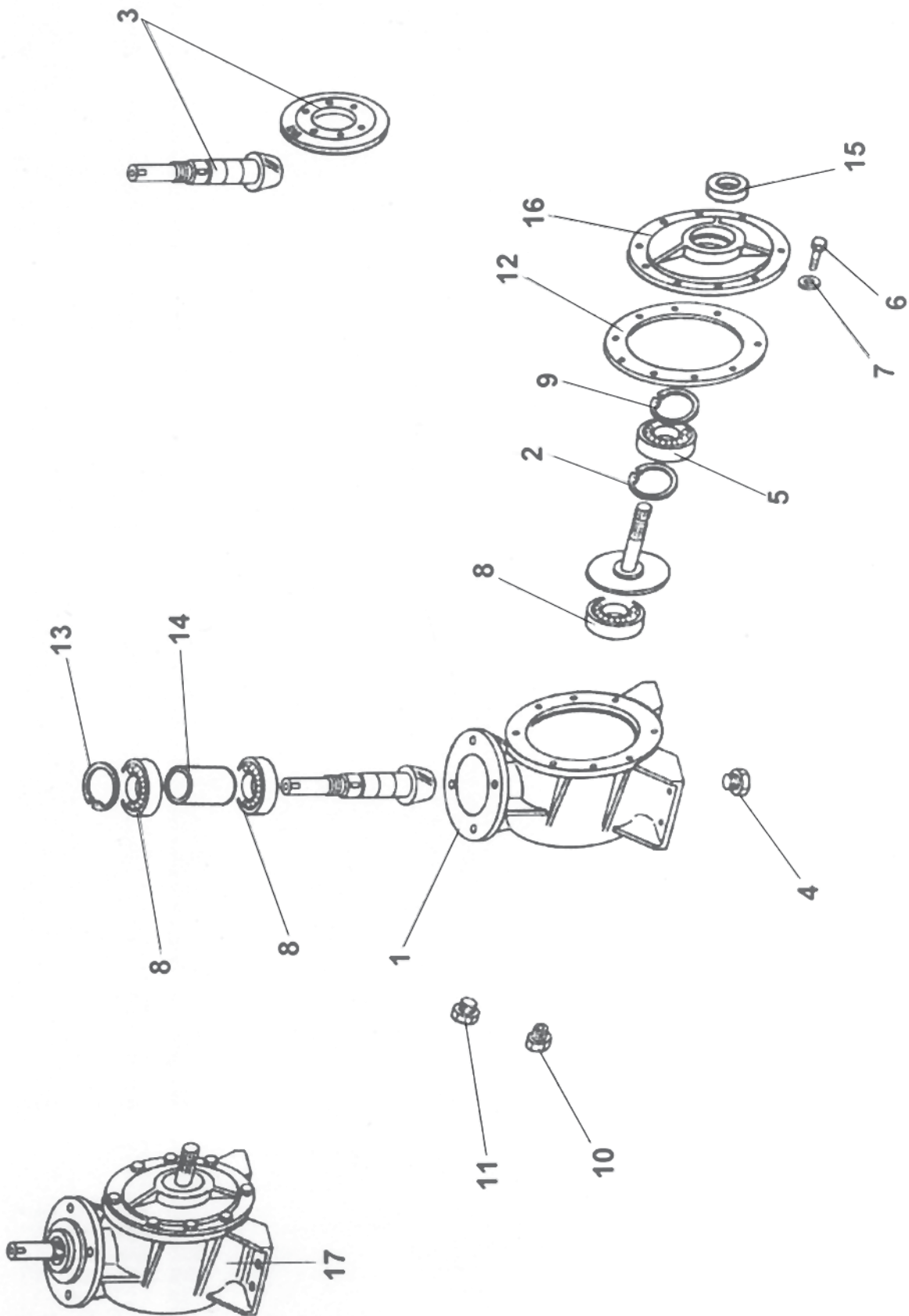
# FRAME & FAN ASSEMBLY



# FRAME & FAN ASSEMBLY

<u>REF #</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	S0.203.000	Fan Cover
2	1	DA.022.0BF	Nut M22
3	1	S0.363.000	Washer, Special
4	1	S0.202.000	Fan
5	1	S0.358.000	Hub, Fan
6	1	S0.092.000	Rubber Lug Set - 6
7	1	S0.201.000	Blower Body
8	1	OR.004.700	O-Ring D.177.39 x 3.53
9	1	30X47X7	Oil Seal
10	1	S0.332.005	Gasket
11	1	00.100.004	Hair Pin
12	1	04.076.000	Pin, Top Link
13	1	02.278.040	Chain D.2.2 L=400
14	1	02.444.000	Shield, PTO
15	1	S0.378.000	Main Frame
16	1	S0.483.000	Rear Bumper
17	2	S0.493.000	Clamp
18	2	S0.481.000	Pin, Lift Cat. 1
19	2	RP.027.000	Washer D.27
20	2	D0.27.5588G	Nut M27
21	3	RP.006.000	Washer D.6
22	3	TE.006.020T	Bolt M6 x 20
23	8	TE.008.016T	Bolt M8 x 16
24	9	TE.010.035T	Bolt M10 x 35
25	16	RP.010.000	Washer D.10
26	4	RP.010.030	Washer D.10 x 30
27	12	D0.10.5588G	Nut M10
28	1	TE.010.040T	Bolt M10 x 40
29	2	TE.010.030T	Bolt M10 x 30
30	8	RP.008.000	Washer D.8
31	1	TE.012.090T	Bolt M12 x 90
32	3	D0.12.5587G	Nut M12

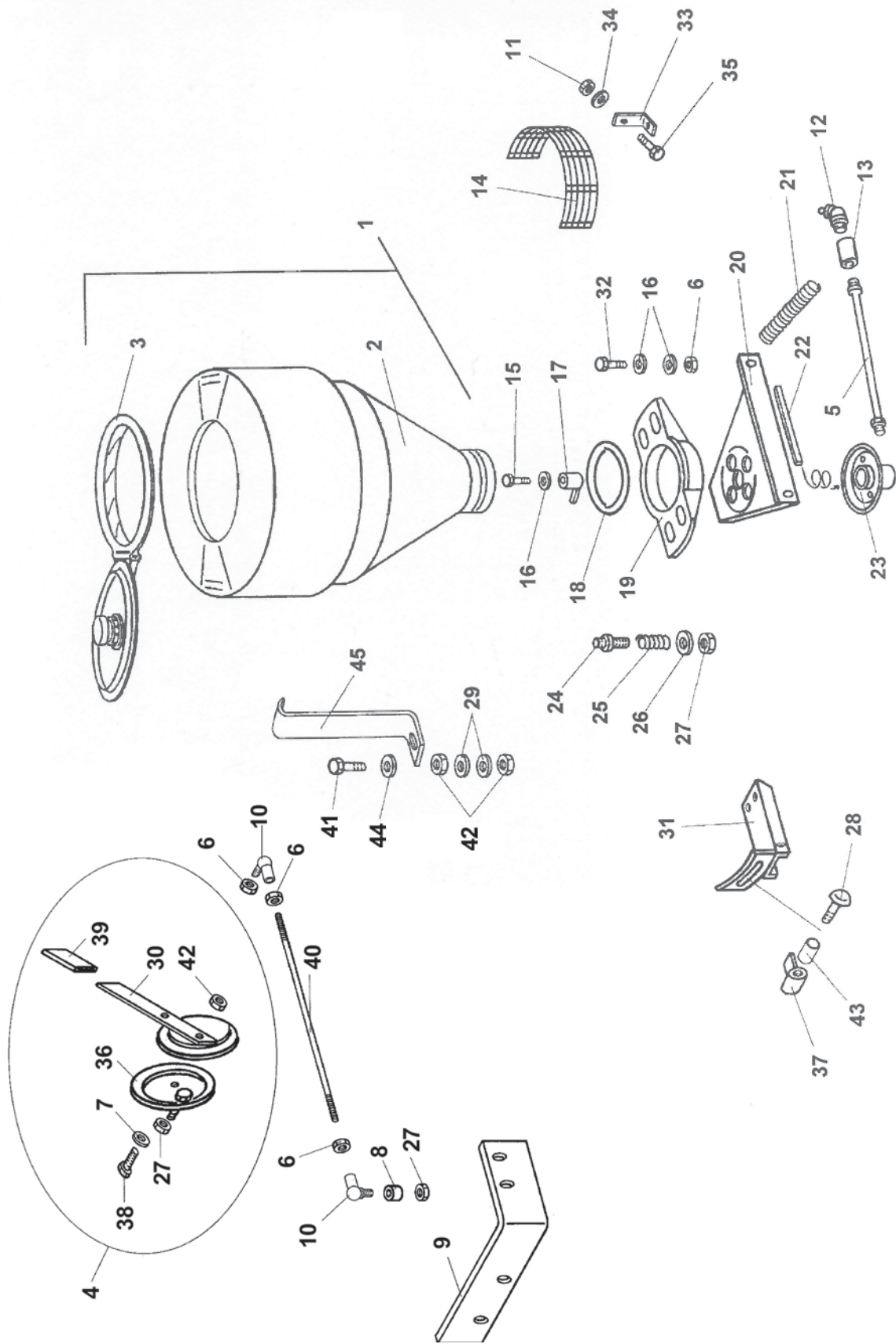
# GEARBOX ASSEMBLY



# GEARBOX ASSEMBLY

<u>REF #</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	S0.306.000	Gearbox Housing
2	1	I0.072.000	Circlip I.72
3	1	S0.330.000	Ring & Pinion
4	1	TM.038.000	Plug
5	1	6207	Bearing
6	6	TE.008.025T	Bolt M8 x 25
7	6	RD.008.000	Washer D.8
8	3	6206	Bearing
9	1	E0.035.000	Circlip E.35
10	1	S0.087.000	Oil Level Plug
11	1	TM.012.000	Fill Plug
12	1	S0.320.003	Gasket
13	1	E0.030.000	Circlip E.30
14	1	S0.305.000	Spacer
15	1	35X52X7	Oil Seal
16	1	S0.307.000	Cover
17	1	S0.350.000	Gearbox Complete

# HOPPER & CONTROL ASSEMBLY



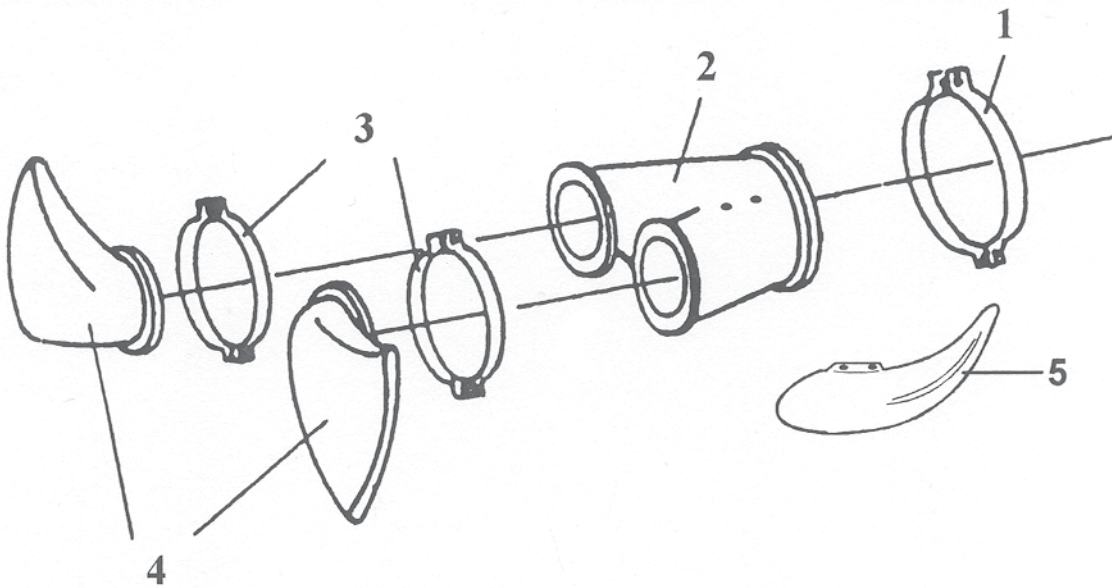
# HOPPER & CONTROL ASSEMBLY

<u>REF #</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	S0.496.100C	Hopper Assembly
2	1	S0.496.100	Hopper Only
3	1	02.405.100	Lid Assembly
4	1	S0.214.100	Handle Assembly
5	1	02.738.040	Extension M10 x 1 L=400
6	7	D0.08.5588G	Nut M8
7	1	RP.010.000	Sheath Washer D.10
8	1	S0.243.000	Bushing
9	1	S0.517.000	Bracket
10	2	S0.212.000	Swivel
11	4	DA.006.0AG	Nut M6
12	1	IS.010.001	Grease Zerk M10 x 1
13	1	02.737.000	Adapter M10
14	2	S0.488.000	Wire Screen
15	1	TE.008.025T	Bolt M8 x 25
16	10	RP.008.024	Washer D.8 x 24
17	1	S0.076.000	Agitator
18	1	S0.492.000	Gasket
19	1	S0.475.000	Support, Hopper
20	1	S0.476.000	Metering Plate
21	1	S0.480.000	Spring
22	1	S0.239.000	Felt Strip
23	1	S0.219.010	Bushing, Agitator
24	2	S0.083.000	Bolt M8 x 42
25	2	S0.211.000	Spring D.2.3 L=22
26	2	RP.008.000	Washer D.8
27	3	DA.008.0AG	Nut M8
28	1	02.496.000	Carriage Bolt M8 x 20
29	4	RP.010.000	Washer D.10 x 30
30	1	S0.214.001	Control Handle
31	1	S0.502.000	Support Bracket Handle
32	4	TE.008.025T	Bolt M8 x 25
33	4	S0.489.000	Support Bracket
34	4	RP.006.024	Washer D.6 x 24
35	4	TE.006.020T	Bolt M6 x 20
36	1	S0.214.004	Inner Handle Control
37	1	S0.216.000	Locking Handle
38	1	TE.010.050T	Bolt M10 x 50

# HOPPER & CONTROL ASSEMBLY Continued

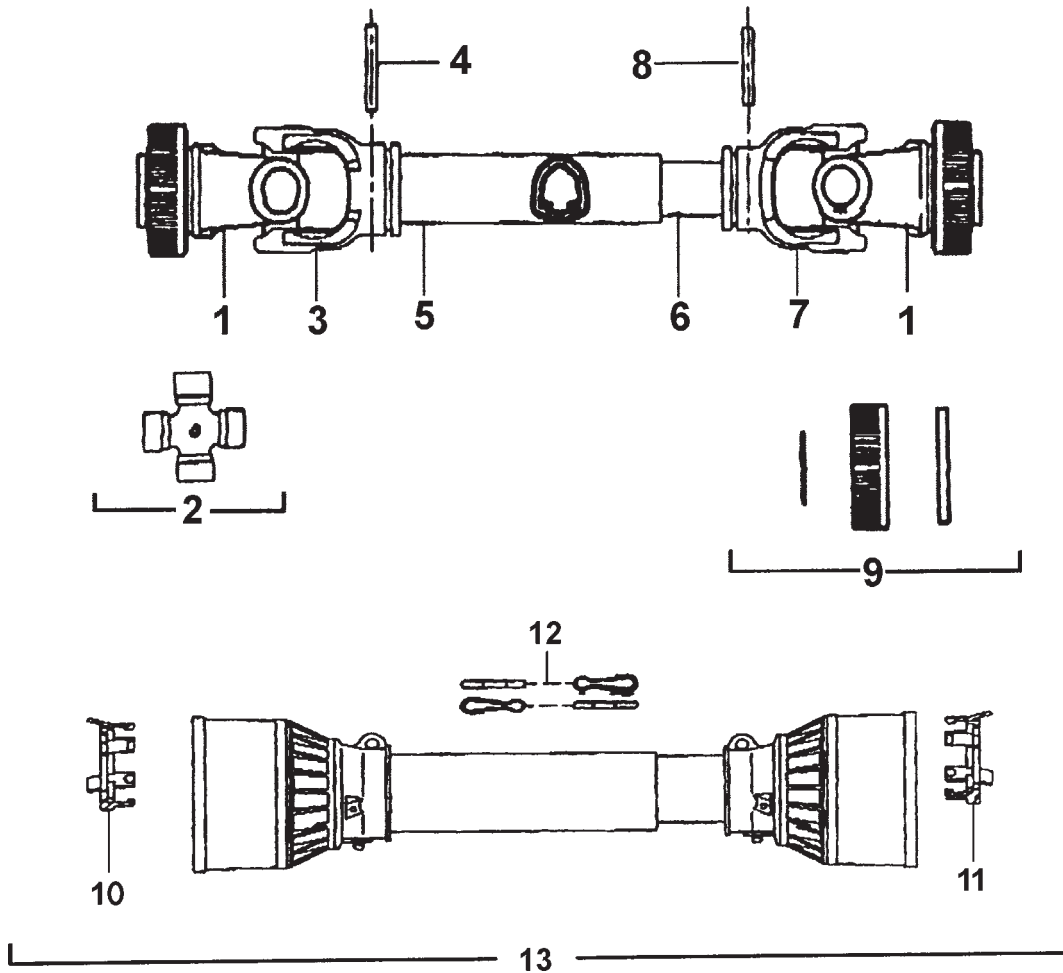
<u>REF #</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
39	1	S0.215.000	Grip
40	1	S0.521.000	Threaded Rod
41	2	TE.010.090T	Bolt M10 x 90
42	5	D0.10.5588G	Nut M10
43	1	S0.508.000	Bushing
44	2	RP.010.030	Washer D.10 x 30
45	2	S0.511.000	Support Bracket

# NARROW ROW DISTRIBUTOR



<u>REF #</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	05.616.000	Clamp D.190
2	1	20.204.000S	Y Body Poly
3	2	04.027.000	Clamp D.150
4	2	S0.205.000	Nozzle Metal Elbow
5	1	S0.515.000	Deflector

# DRIVELINE 710456FFT077



<b>REF #</b>	<b>QTY.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>
1	2	572040351	RS Collar Yoke 1- <sup>3</sup> / <sub>8</sub> , 6-Spline
2	2	41204	Cross Kit Assembly #4
3	1	204046851	Outer Tube Yoke
4	1	341038000	Roll Pin O.T.
5	1	225120860	Outer Drive Tube
6	1	225100860	Inner Drive Tube
7	1	204046852	Inner Tube Yoke
8	1	341048000	Roll Pin I. T.
9	2	240002451	RS Collar Kit
10	1	255040005	Shield Bearing Outer
11	1	255040006	Shield Bearing Inner
12	2	252000001	Safety Chain
13	1	5F04086F6	Complete Shield w/Bearings

# LIMITED WARRANTY



GEARMORE, INC., warrants each new Gearmore product to be free from defects in material and workmanship for a period of twelve (12) months from date of purchase to the original purchaser. This warranty shall not apply to implements or parts that have been subject to misuse, negligence, accident, or that have been altered in any way.

Our obligation shall be limited to repairing or replacement of any part, provided that such part is returned within thirty (30) days from date of failure to Gearmore through the dealer from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render us liable for injury or damages of any kind or nature, direct, consequential or contingent, to person or property. This warranty does not extend to loss of crops, loss because of delay in harvesting or any other expenses, for any other reasons.

Gearmore in no way warrants engines, tires, or other trade accessories, since these items are warranted separately by these respective manufacturers.

Gearmore reserves the right to make improvements in design or changes in specification at any time, without incurring any obligations to owners or units previously sold.

GEARMORE, INC.  
13477 Benson Ave.  
Chino, CA 91710

Always refer to and heed machine operating warning decals on machine.

The serial number of this product is stored in our computer database, thus submitting a warranty registration card is not required.