# **OWNER'S MANUAL** D)\'(C ECONO-MIZER **GRAIN SPREADERS MODELS** 982, 986 & 996 ( (

DAVID MANUFACTURING COMPANY 1600 12th Street NE, Mason City, Iowa 50401 USA

### TABLE OF CONTENTS

ICAUTION! Maintenance and Service				
ICAUTION! Operation				
EC Declaration of Conformity				
Decal Placement.				
Electrical Wiring 1				
Installation				
Adjustment & Operation of Cone Hopper Baffle				
Wiring Diagrams Single Phase Control Circuit				
Three Phase Control Circuit				
Parts Listing				
Trouble Shooting				
Warranty				

CAUTION

#### **Maintenance and Service**

It is essential in undertaking any maintenance or servicing of the Grain Spreader that a safe system of work is strictly followed. Failure to do so may result in serious injury to the operator. Before carrying out any work on the Grain Spreader:

Stop the Grain Spreader and all other machines operating in the bin.

Ensure the isolator switch is locked into the "off" position, with the only key in your possession.

Due to the position of the Grain Spreader in a bin, access to it for maintenance may be hazardous.

If access to the Grain Spreader is required when the bin is completely empty, always lower the Grain Spreader to the bin floor to perform maintenance and repair.

Caution needs to be exercised when using a ladder to perform service work in a partially filled grain bin. The ladder can sink into the grain allowing it to fall. Secure the top of the ladder to the bin. Notice of Noise and Dust Hazard: The Grain Spreader runs at noise levels below 70 db and should not present any problems.

Decals indicating the possibility of dust are provided in the owners manual bag and should be installed per the diagram shown on page III. Dust may be created as a normal part of the spreading function of the Grain Spreader ,and although no person should be in the bin during the spreading operation, some residual dust may remain in the air after the Spreader has been turned "OFF". The level of dust will vary depending on the condition of the grain. Operators should assess the risk to themselves and others, as required in the EU under the Control of Substances Hazardous to Health Regulations. They should then implement appropriate control measures to reduce the risks to health.

Before starting the Grain Spreader, ensure that there is no one remaining in the bin and that the bin access door is locked closed.

OPERATION

CAUTION

Before operating, familiarize yourself with the machine. It will help you operate your Grain Spreader more efficiently, with better quality returns to you.

#### FOR SAFETY SAKE

- 1. Read and understand the owner's manual
- 2. Keep all safety shields in place.

- 3. Prior to inspecting, servicing, lubricating or adjusting the Grain Spreader, ensure the isolator switch is locked in the "OFF" position, with the only key in your possession.
- 4. Before operating your Grain Spreader, familiarize yourself with the machine. Know how to operate and adjust it. This will enable you to get maximum efficiency from the equipment, plus better quality grain as a result.
- 5. All electrical wiring should be in accordance to BS7671:1992. Be sure equipment and bins are properly grounded.
- 6. The 982, 986 and 996 Grain Spreaders are designed to distribute grain in round bins. Contact DMC for recommendations on using these Spreaders for other materials and conditions

# EC DECLARATION OF CONFORMITY

David Manufacturing Company 1600 12th Street NE Mason City, Iowa 50401 USA

Declares that:

Machine Name: Grain Spreader

Type/Model: Econo-Mizer 982/986/996

#### Machine description/uses:

The primary function of the Grain Spreader is to distribute grain as evenly as possible across the diameter of a grain bin during the filling process.

Conforms to the EC Directive 89/392/EEC, (amended by Council Directive 91/368/EEC), the Machinery Directive, and in particular, the Essential Health and Safety Requirements that apply to it. Specifically to:

**Schedule 1: General Points** 

Signed

Keith Bram

Keith Braun for David Manufacturing Company



# **ELECTRICAL WIRING**

The DMC Grain Spreader is shipped without wiring installed in the machine. A qualified electrician should install wiring that complies with standard BS-7671:1992.

Electrical power to the Stir-Ator should be supplied through a single lockable switch. A magnetic "ON/OFF" switch that defaults to "OFF" with a power interruption should be installed outside of the bin as the start switch for the Grain Spreader. *These items are not furnished by DMC.* A wiring diagram of a recommended example of the control circuit is shown on *pages 26 and 27.* 

#### INSTALLATION

#### Figure 1: Hanger Brackets and Chains

The hanger brackets should be positioned equally spaced around the outer fill hole lip of the bin. Do not tighten the bracket hardware until the spreader has been installed and leveled. Hang the spreader from these brackets by hooking the two chains that are attached to each of the spreader support arms to two adjacent hanger brackets. When properly hung, each set of chains will form a "V" and will restrict random movement of the spreader.

The spreader can be installed at various heights the bin depending on the bin diameter and roof angle. The spreader should be installed as level as possible by checking with a level and adjusting the position of the hanger brackets and/or the lengths of the chains.

Finish the installation by securely tightening the hanger brackets.

Wiring: Refer to the Wiring Diagram and Tables A & B on the next page.

# Fig. 4 Fig. 2

**ADJUSTMENT & OPERATION** 

#### Figure 2: Slide Gate Adjustment

The slide gates are provided in the pan to allow grain to be spread in the center of the bin. These are usually open wider for smaller diameter bins.

#### Figure 3: Center Hopper Baffle Adjustment

It is important that the incoming grain be directed onto the center of the hopper baffle in order to disperse the grain evenly in the hopper. This baffle functions as a flow control and can be adjusted by lifting it from the spreader and placing the hairpin clip in one of the holes in the baffle post. The baffle needs to be adjusted higher above the spreader pan for greater capacities and lower for lesser rates. Best spreading results are obtained when the baffle is adjusted to maintain a cushion of grain in the hopper.

#### Item 4: Adjustment Slinger

982, 986 & 996 Econo-Mizers have slingers that can be adjusted to accommodate various sizes of bins and grain densities. The slingers will throw grain farther when in the most advanced position (hole #1) and will not throw as far when in the swept back position (hole #3). A guide line to use for adjusting is to use the third hole for 18 foot diameter bins, the middle hole for 24 - 30 foot bins and the first hole for 33 foot and larger bins.

# ADJUSTMENT & OPERATION OF CONE HOPPER BAFFLE

The cone hopper baffle is used to restrict the entering grain and slow it down enough to ensure that the cone will always be full and overflowing with grain. The cone baffle should be adjusted high enough above the spreading pan to allow the overflowing grain to flow between the hopper and the cone baffle and to not flow over the sides of the main hopper. Entering grain should be directed onto the expanded metal restrictor on top of the cone baffle.



**ECONO-MIZER** 

#### **Spreading Capacities**

Econo-Mizer	982	986
Heavy Grain 2500 BPH	18' - 30'	31' - 48'
Heavy Grain 3500 BPH	18' - 27'	28' - 42'
Light Grain 3500 BPH	18' - 24'	25' - 36'



#### GRAIN SPREADER WIRING DIAGRAM - SINGLE PHASE CONTROL CIRCUIT

#### **GRAIN SPREADER**

WIRING DIAGRAM - THREE PHASE CONTROL CIRCUIT



**MODELS 982, 986 & 996 ECONO-MIZER GRAIN SPREADERS** 



#### **Routine Maintenance & Inspection**

*NOTE:* It is easier and safer if this is done with the Spreader lowered to the bin floor. Make sure all power to all bin machinery is "OFF"!

- A. Check pan bearing for wear (item #14).
- B. Check rubber drive wheel for wear (item #2)
- C. Check pan for cracks & wear (item #8)
- D. Check motor mount pivot bolts (item #30) for wear
- E. Check motor wire & connections (item #12)

## Models 982, 986 & 996 Econo-Mizer Grain Spreaders Parts List

Ref. No.	Part No. 982	Part No. 986	Part No. 996	N 982	lo R 986	eq. 8 996	Description
1	301A0110	301A0110	301A0110	2	1	1	Slide Gate
2	301A0122	303A0001	303A0001	1	1	1	Rubber Drive Wheel
3	301B0220	301B0220	301B0220	3	3	3	Hanger Bracket
4	301B0221	301B0221	301B0221	3	3	3	Hanger U-Bolt Hook
5	302A0304	302A0304	302A0304	1	1	1	Motor Mount Plate
6	302A0311	302A0311	302A0311	1	1	1	Torsion Spring
7	304A0002	305A002	305A002	1	1	1	Hopper Base & Braces
8	304A0005	305A005	305A0005	1	1	1	Pan with Slingers
9	304A0015	305A012	305A012	1	2	2	Adjustable Slinger
10	304B0001	304B0001	3061010	1	1	1	Hopper
11	304B0006	305B004	305B004	6	6	6	Support Chain
* 12	304N0004			1	-	-	115V Power Cord with Loose Clips
		305N005	305N005	-	1	1	220V Power Cord with Loose Clips
13	305B007	305B007	3061001	1	1	1	Hopper Baffle
14	PT0106	PT0109	PT0109	1	2	2	1" Bearing with Cast Housing
15	PT0202	PT0215	PT0215	1	2	2	1" Bearing with Locking Collar
16	PT0401	PT0401	PT0401	1	2	2	1" Locking Collar
17	PT0415			1	-	-	Bearing Housing-2 Hole
18	1EL0530	1EL0530	1EL0530	2	2	2	Flag Quick Disconnect Clip
19	3EL5055			1	-	-	1/3 Hp 115V
		***	3EL 5088	-	-	1	1 1/2 Hp 230V TENV Motor
		3EL5082		-	1	-	1HP TENV Motor
20	1FH0579	1FH0579	2FH0579	2	1	1	1/4" Wingnut
21	1FH0736		1FH0736	3	-	1	3/8" Hex Lock Nut
22		1FH0736		-	1	-	3/8" Hex Lock Nut
23	1FH0764	1FH0764	1FH0764	10	10	10	5/16" Hex Lock Nut
24		1FH0765	1FH0765	-	2	2	3/8" Hex Nut
25	1FH0983	1FH0983	1FH0983	6	6	6	5/16" Hex Flange Lock Nut
26	2FH0502	2FH0502	2FH0502	2	2	2	1/4" x 1/4" Socket Hd Set Screw
27	2FH0631	2FH0631	2FH0631	2	1	1	1/4" x 3/4" Carriage Bolt
28	2FH0828	2FH0828	2FH0828	4	4	4	5/16" x 3/4" Hex Hd Bolt
29	2FH0853			2	-	-	3/8" x 3/4" Hex Hd Bolt
00		2FH0857	2FH0857	-	2	2	3/8" x 1" Hex Hd Bolt
30	2FH0870	2FH0870	2FH0870	1	1	1	3/8" x 5 1/2" Hex Hd Bolt
31	2FH0988	2FH0988	2FH0988	5	1	/	5/16" X 1/2" Hex Flange Whiz Lock Screw
3Z 22	2500260	2FH0989	2FH0989	3	3	3	5/16" X 3/4" Hex Flange Whiz Lock Screw
33	3500709	3FH0769	3FH0769	1	1	1	.08" x 1 5/8" Hair Pin
34 05	3FH0789	3FH0789	3FH0789	2	1	1	1/4" Lockwasher
30	3FH0790	3FH0790	3FH0790	10	10	10	5/16" Lockwasher
30	3FH0863	3FH0863	3FH0863	6	5	5	1/4" Flat Washer
ა/ ვი	35110947	3FHU94/	3570947	0	1	1	
30	3610340		2540701	2	-	-	3/8 SAE Flat Washer
30	2541011	3500/91	3500/91	-	2	2	
29	561011	2541015		I	-	-	
		3611015	3511013	-	1	2	I X 3/ 10 Square Key

\* Not Provided by DMC.

# **TROUBLE SHOOTING**

PROBLEM		CORRECTION				
Grain is high on one side of bin.		<ul> <li>a. Spreader is not hung level.</li> <li>b. Grain is not hitting the center of the baffle</li> <li>c. The baffle is too high causing the grain to slide off one side.</li> <li>d. The flow of grain is not adequate to fill the center hopper, see instructions for cone baffle hopper.</li> </ul>				
Grain is high at the center of bin.	8	<ul> <li>a. Slide gate is open too far.</li> <li>b. Check to make sure spreader is running.</li> <li>c. Grain is overflowing the main hopper - raise center baffle or slow grain flow rate.</li> </ul>				
Grain is low at the center of bin.		a. Slide gate is not open enough. b. Slingers on pan are set too far out.				
Grain forms "donut" a few feet from wall.		<ul> <li>a. Slingers on pan are set too far out (grain is hitting the wall and bouncing back).</li> <li>b. Open slide gate to fill center of bin.</li> <li>c. Spreader model is not adequate for bin size.</li> </ul>				
Grain not getting all the way to wall.	\$	<ul> <li>a. Spreader pan is turning the wrong direction: Pan should turn clockwise when viewed from the top.</li> <li>b. Rubber drive wheel is slipping - replace if badly worn.</li> <li>c. Spreader is hanging too high in the center of the bin.</li> <li>d. Spreader model is not adequate for bin size.</li> </ul>				
Spreader swings when starting.		<ul> <li>a. Hanging chains are not installed correctly - they should be equally spaced and positioned as in Figure 2 of instructions.</li> </ul>				
Spreader does not run.		<ul> <li>a. Rubber drive wheel may be slipping due to excessive moisture or broken motor mount spring.</li> <li>b. Motor overload may have tripped.</li> <li>c. Blown fuse or circuit breaker.</li> <li>d. Too much voltage drop. Motor may have failed.</li> </ul>				
Spreader pan slows down when loaded.		<ul> <li>a. Spreader pan is turning the wrong direction: Pan should turn clockwise when viewed from the top.</li> </ul>				

# WARRANTY

The Econo-Mizer Grain Spreader is guaranteed for one year from date of purchase to be free of defects in materials or workmanship when properly serviced and operated in accordance with the instructions. Warranted parts will be exchanged FOB Mason City, Iowa without charge to the user. Damage resulting from negligence voids the warranty. Warranty does not include labor, installation or the delivery of replacement parts.

Electric motors are covered by the warranties of the respective manufacturers. Electric service centers are located in all regions. Consult with your dealer.

The manufacturer reserves the right to make changes in specifications or prices without incurring obligation on previously produced merchandise.

# ECONO-MIZER GRAIN SPREADER OWNERS MANUAL

This product conforms to the EC Directive 89/392/EEC (amended by Council Directive 91/368/EEC), the Machinery Directive, and in particular, the Essential Health and Safety Requirements that apply to it, specifically, **Schedule 1: General Points.** 

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