

STATIONARY MASS-TER MOVER

OWNER'S & OPERATOR'S MANUAL

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Hutchinson/Mayrath/TerraTrack

A Division of GLOBAL Industries, Inc.

P.O. Box 629 • 514 W. Crawford • Clay Center, KS 67432
Phone 785-632-2161 • 1-800-523-6993 • FAX 785-632-5964

GENERAL SAFETY STATEMENT

This manual was written with the safety of the operator and others who work with the equipment as our prime concern. The instructions presented will help the reader learn SAFE day to day work practices. We want you as our partner in safety.

It is your responsibility as an owner, operator or supervisor to know what specific safety requirements and precautions exist and to make these known to all other personnel working with the equipment or in the area, so that they too may safely perform their duties and avoid any potentially hazardous situations.

Please remember safety equipment provides important protection for persons around a grain handling system that is in operation. Be sure that ALL safety shields and protection devices are installed and properly maintained. If any shields or guards are damaged or missing, contact your dealer to obtain the correct items.

Avoid any alterations of the equipment. Such alterations may create a dangerous situation where serious injury or death may occur.

SAFETY ALERT SYMBOL

The symbol shown below is used to call your attention to instructions concerning your personal safety. Watch this symbol - it points out important safety precautions. It means "ATTENTION! Become alert! Your personal safety is involved!" Read the message that follows and be alert to the possibility of personal injury or death.



BE ALERT! YOUR SAFETY IS INVOLVED.



WARNING

Anyone who will operate or work around this machine shall first read this manual! This manual must be delivered with the equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.



Hutchinson/Mayrath/TerraTrack

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POLICIES AND PROCEDURES

- PRICES:** Prices in effect at time of shipment will apply. Prices are subject to change without notice. All prices are F.O.B. Clay Center, Kansas. Orders shipped from locations other than Clay Center, Kansas will be subject to additional charges, such as back freight and/or additional freight.
- SERVICE CHARGE:** A service charge will be assessed on all past due balances as permitted by state law not to exceed 1-1/2% per month.
- MINIMUM ORDER:** Processing and handling costs necessitate a minimum charge of \$15.00 net on all orders.
- BACK ORDERS:** Back orders will be shipped as they become available. Contact Hutchinson/Mayrath/TerraTrack Customer Service for alternative shipping options or if cancellation is desired.
- DAMAGED GOODS:** It is the consignee's responsibility to check all shipments thoroughly upon receipt of goods. If any damage is discovered, it must be noted on the freight bill of lading before signing. The consignee must make necessary claims against the respective freight line. All damage claims must be submitted within 30 days of delivery receipt.
- SHORTAGES:** All shortages must be noted at time of delivery receipt. Shortages must be noted on the freight bill of lading before signing. Hutchinson/Mayrath/TerraTrack must be advised of all concealed shortages upon discovery. Once notified of concealed shortages Hutchinson/Mayrath/TerraTrack will advise corrective action to be taken.
- RETURN OF GOODS:** All returns must be approved by Hutchinson/Mayrath/TerraTrack prior to shipment. All return requests will be issued a return authorization number. **NO RETURNS WILL BE ACCEPTED WITHOUT A RETURN AUTHORIZATION NUMBER AND PRIOR AUTHORIZATION FROM THE FACTORY.** All returns must be shipped prepaid. A 15% restocking charge will be applied to all returned merchandise. Custom products may not be returned for credit. Only current products in new and saleable condition may be returned. No safety devices may be returned for credit.
- MODIFICATIONS:** It is the policy of Hutchinson/Mayrath/TerraTrack to improve its product whenever possible and practical to do so. We reserve the right to make changes, improvements and modifications at any time without incurring the obligation to make such changes, improvements and modifications on any equipment sold previously.
- LIMITED WARRANTY:**
- (a) For a period of (1) year after receipt of goods by the original consumer buyer, Hutchinson/Mayrath/TerraTrack will supply free of charge replacement parts for parts that prove defective in workmanship or material. Defective parts must be returned freights prepaid to a specified Hutchinson/Mayrath/TerraTrack location. Only Hutchinson/Mayrath/TerraTrack original repair parts may be used for warranty repairs.
- (b) This limited warranty does not extend to parts designed to wear in normal operation and be replaced periodically, or to damage caused by negligence, accident, abuse or improper installation or operation.
- (c) **GOODS NOT MANUFACTURED BY HUTCHINSON/MAYRATH/TERRATRACK CARRY ONLY THE MANUFACTURER'S WARRANTY.**
- (d) **THIS UNDERTAKING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**
- FAILURE TO FOLLOW THE INSTRUCTIONS CONTAINED IN THE OWNER'S & OPERATOR'S MANUALS AND THE ITEMS LISTED BELOW WILL RESULT IN THE VOIDING OF THIS LIMITED WARRANTY.**
- (1) Improper assembly, including failure to properly install all safety equipment.
 - (2) Improper installation (power & wiring included)
 - (3) Unauthorized alterations of goods.
 - (4) Goods operated when obviously in need of repair.
 - (5) Use of unauthorized repair parts.
 - (6) Irresponsible operation.
 - (7) Used to handle materials other than free flowing, non-abrasive and dry materials, as intended.
 - (8) Damaged through abusive use or accident.
- LIMITATION OF LIABILITY:** BUYER AGREES THAT IN NO EVENT SHALL HUTCHINSON/MAYRATH/TERRATRACK HAVE LIABILITY FOR DIRECT DAMAGES IN EXCESS OF THE CONTRACT PRICE OF THE GOODS IN RESPECT TO WHICH CLAIM IS MADE. BUYER FURTHER AGREES THAT IN NO EVENT SHALL HUTCHINSON/MAYRATH/TERRATRACK ON ANY CLAIM OF ANY KIND HAVE LIABILITY FOR LOSS OF USE, LOSS OF PROFITS, OR FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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SAFETY INFORMATION

Watch This Symbol. It Points Out Important Precautions.
It means "ATTENTION - Become Alert! Your Safety Is Involved."

GENERAL SAFETY STATEMENT

Occupational safety is of prime concern to Hutchinson. This Mass-Ter Mover Manual was written with the safety of the operator and others who come in contact with the equipment as our prime concern. The manual presents some of the day to day work problems encountered by the operator and other personnel. We wrote this manual to help you understand safe operating procedures. We want you as our partner in safety.

It is your responsibility as an owner or operator or supervisor, to know what specific requirements, precautions and work hazards exist and to make these known to all other personnel working with the equipment or in the area, so that they too may take any necessary safety precautions that may be required. Avoid any alterations of the equipment. Such alterations may create a dangerous situation where serious injury or death may occur.

OPERATOR QUALIFICATIONS AND RESPONSIBILITIES

Operation of this MASS-TER MOVER shall be limited to competent and experienced persons. In addition, anyone who will operate or work around a MASS-TER MOVER must use good common sense. It is your responsibility as an owner or operator or supervisor, to know what specific requirements, precautions and work hazards exist and to make these known to all other personnel working with the equipment or in the area, so that they too may take any necessary safety precautions that may be required. In order to be qualified, they must also know and meet all other requirements, such as:



1. Some regulations specify that no one under the age of 16 may operate power machinery. This includes Mass-Ter Movers. It is your responsibility to know what these regulations are in your own area or situation.



2. Current OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved."*



3. It shall be the duty of all operators to see that children and/or other persons stay out of the work area! Trespass into the work area by anyone not involved in the actual operation, or trespass into a hazard area by anyone, shall result in an immediate shutdown by the operator.



4. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine.

*Federal Occupational Safety & Health Standards for Agriculture Subpart D, Section 1928.57 (a) (6).

START-UP AND BREAK-IN OPERATIONS

Any conveyor, when it is new or after it sits idle for a season, should go through a "break-in" period. It should be run at partial capacity at full-speed until the inside of the housing becomes polished, before attempting full capacity. A failure will most likely occur when it is run at full capacity before it has a chance to get shined up.

If a unit is permitted to "load up" at low speed, increased stress is put on the drive components and damage to the Mass-Ter Mover can result. Use control gate on hopper to regulate the amount of grain fed into the unit. If at all possible, do not start the Mass-Ter Mover under load, especially before the housing becomes well polished, as this may cause the unit to stall.

During the initial start-up and break-in period, the operator should be aware of any unusual vibrations or noises.

FULL LOAD OPERATING PROCEDURES

During the regular operation of your Mass-Ter Mover, one person shall be in a position to monitor the operation.

It is also good practice to inspect the unit periodically during the actual operation. You should be alert for unusual vibrations, noises, and the loosening of any fasteners.

SHUTDOWN

A. Normal Shutdown

1. Make certain that the hopper and conveyor are empty before stopping unit.
2. Before the operator leaves the work area, the power source shall be locked out.

B. Intermittent Operation Shutdown

1. Consideration should be given to the proper size machine for a batch drying or any intermittent type operations. For start-stop operations, select a Mass-Ter Mover that will operate at 1/2 or 3/4 of full load. When the Mass-Ter Mover is stopped and restarted under full load, damage may result.
2. In situations where a unit will be pressure-fed, a control gate must be used to restrict the flow. This will keep the unit from filling so full that it tends to jam. Examples of situations where this can occur are formed hopper pits under storage bins; dump pit to wet holding tank; bulk (hopper bottom) tank unloading.

SHUTDOWN

C. Emergency Shutdown

1. Should the machine need to be immediately shut down under full load, disconnect and lock out the power source. Clear as much grain from the hopper and conveyor as is possible.
2. Never attempt to restart when full. Starting the unit under full load may result in damage. Such damage is considered abuse of the equipment.



Whenever you must service or adjust your equipment, make sure you stop motor and lock out your power source!

POWER SOURCE

Always use a motor with required horsepower suggested in the "Horsepower Recommendations" chart on pages 8 and 9. Use a motor that operates at 1750 R.P.M.

The horsepower recommendations are for conveying reasonably dry grain at varying angles. High moisture grain (above 15%) will require greater power and maximum possible capacity will be less with high moisture grain than with dry grain.



1. Electric motors and controls shall be installed by a qualified electrician and must meet the standards set by the National Electrical Code and all local and state codes.



2. A magnetic starter should be used to protect your motor when starting and stopping. It should stop the motor in case of power interruption, conductor fault, low voltage, circuit interruption, or motor overload. Then the motor must be restarted manually. Some motors have built-in thermal over-load protection. If this type motor is used, use only those with a manual reset.



3. Disconnect power before resetting motor overloads.



4. Reset and motor starting controls must be located so that the operator has full view of the entire operation.



5. Make certain electric motors are grounded.



6. Shut off power to adjust, service, or clean.



7. Keep all guards and shields in place.

Lock Out



A main power disconnect switch capable of being locked only in the off position shall be provided. This shall be locked whenever work is being done on the Mass-Ter Mover.

MASS-TER MOVER

MODELS 50

The horsepower shown is for dry grain of 15% moisture or less. When handling high moisture grain, greater horsepower will be required. In some cases 50% additional horsepower may be needed, but do not exceed the largest motor size shown on the applicable horsepower chart.

Capacity will reduce somewhat with high moisture grain primarily due to the decreased flowability and greater volume.

HORSEPOWER CHART

Length	2500 BPH						3300 BPH						4100 BPH						5000 BPH					
	150 FPM						200 FPM						250 FPM						300 FPM					
	Hor.	15°	30°	45°	60°	90°	Hor.	15°	30°	45°	60°	90°	Hor.	15°	30°	45°	60°	90°	Hor.	15°	30°	45°	60°	90°
10'	.44	.68	1.01	1.35	1.66	1.95	.58	.90	1.33	1.79	2.19	2.58	.72	1.12	1.65	2.22	2.73	3.20	.88	1.37	2.02	2.71	3.33	3.91
20'	.88	1.37	2.02	2.71	3.33	3.91	1.16	1.81	2.66	3.58	4.39	5.16	1.44	2.25	3.31	4.44	5.46	6.41	1.76	2.75	4.04	5.42	6.66	7.82
30'	1.32	2.06	3.03	4.06	4.99	5.87	1.75	2.72	4.00	5.37	6.59	7.75	2.17	3.38	4.96	6.67	8.19	9.62	2.65	4.13	6.06	8.13	9.99	11.74
40'	1.76	2.75	4.04	5.42	6.72	7.88	2.33	3.63	5.33	7.16	8.87	10.4	2.89	4.51	6.62	8.89	11.02	12.93	3.53	5.50	8.08	10.85	13.44	15.76
50'	2.2	3.44	5.05	6.85	8.4	9.97	2.91	4.54	6.66	9.04	11.09	13.16	3.62	5.64	8.28	11.23	13.77	16.35	4.41	6.88	10.10	13.7	16.8	19.94
60'	2.65	4.13	6.14	8.22	10.22	11.96	3.50	5.45	8.11	10.85	13.49	15.8	4.34	6.77	10.07	13.48	16.76	19.63	5.30	8.26	12.29	16.44	20.44	23.93
70'	3.09	4.82	7.16	9.75	11.92		4.08	6.36	9.46	12.88	15.74		5.07	7.90	11.75	16.0	19.56		6.18	9.64	14.33	19.51		
80'	3.53	5.5	8.19	11.15			4.66	7.27	10.81	14.72			5.79	9.03	13.45	18.29			7.07	11.01	16.38	22.3		
90'	3.97	6.32	9.43				5.25	8.35	12.45				6.52	10.37	15.46				7.95	12.65	18.86			
100'	4.41	7.02	10.47				5.83	9.27	13.83				7.24	11.52	17.18				8.83	14.05	20.95			
110'	4.86	7.73	11.52				6.41	10.2	15.21				7.97	12.68	18.9				9.72	15.46	23.05			
120'	5.3	8.43					7.00	11.13					8.69	13.83					10.60	16.86				
130'	5.74	9.44					7.58	12.46					9.42	15.49					11.48	18.89				
140'	6.38	10.17					8.42	13.42					10.47	16.68					12.76	20.34				
150'	6.84	10.89					9.03	14.38					11.21	17.87					13.68	21.79				
160'	7.29	11.62					9.63	15.34					11.96	19.06					14.59	23.25				
170'	7.75	12.35					10.23	16.3					12.71	20.25					15.5	24.70				
180'	8.20						10.83						13.46						16.41					
190'	9.11						12.03						14.95						18.23					
200'	9.59						12.66						15.73						19.19					
210'	10.07						13.3						16.52						20.15					
220'	10.55						13.93						17.31						21.11					
230'	11.03						14.56						18.09						22.07					
240'	11.51						15.2						18.88						23.03					
250'	11.99						15.83						19.67						23.98					
260'	12.47						16.46						20.45						24.94					

Add 3/4 HP to the horizontal and incline HP when using a corner section.

MASS-TER MOVER

MODELS 85

The horsepower shown is for dry grain of 15% moisture or less. When handling high moisture grain, greater horsepower will be required. In some cases 50% additional horsepower may be needed, but do not exceed the largest motor size shown on the applicable horsepower chart.

Capacity will reduce somewhat with high moisture grain primarily due to the decreased flowability and greater volume.

HORSEPOWER CHART

Length	4100 BPH					5500 BPH					7000 BPH					8500 BPH				
	150 FPM					200 FPM					250 FPM					300 FPM				
	Hor.	15°	30°	45°	60°	Hor.	15°	30°	45°	60°	Hor.	15°	30°	45°	60°	Hor.	15°	30°	45°	60°
10'	.64	1.03	1.55	2.1	2.6	.88	1.42	2.13	2.89	3.57	1.12	1.81	2.71	3.68	4.55	1.36	2.2	3.29	4.47	5.52
20'	1.28	2.07	3.10	4.21	5.2	1.76	2.85	4.26	5.79	7.15	2.25	3.63	5.43	7.37	9.1	2.73	4.41	6.59	8.95	11.05
30'	1.92	3.11	4.65	6.35	7.84	2.65	4.28	6.4	8.73	10.78	3.37	5.45	8.14	11.12	13.72	4.1	6.61	9.89	13.5	16.66
40'	2.57	4.15	6.25	8.47	10.53	3.53	5.7	8.6	11.65	14.48	4.5	7.26	10.94	14.82	18.43	5.46	8.82	13.29	18.0	22.38
50'	3.21	5.19	7.82	10.69	13.16	4.42	7.13	10.75	14.7	18.1	5.62	9.08	13.68	18.7	23.04	6.83	11.03	16.61	22.71	27.98
60'	3.85	6.3	9.5	12.82		5.3	8.66	13.06	17.64		6.75	11.02	16.63	22.45		8.2	13.38	20.19	27.26	
70'	4.5	7.35	11.08			6.19	10.1	15.24			7.87	12.88	19.4			9.56	15.61	23.56		
80'	5.14	8.4	12.67			7.07	11.55	17.42			9.0	14.7	22.17			10.93	17.85	26.93		
90'	5.78	9.63				8.2	13.24				10.13	16.85				12.3	20.46			
100'	6.55	10.7				9.0	14.71				11.46	18.72				13.92	22.73			
110'	7.2	11.77				9.9	16.18				12.61	20.59				15.31	25.01			
120'	7.86	12.84				10.8	17.65				13.75	22.47				16.7	27.28			
130'	8.51	13.91				11.71	19.12				14.9	24.34				18.09	29.55			
140'	9.45					12.99					16.53					20.08				
150'	10.12					13.92					17.72					21.51				
160'	10.8					14.85					18.9					22.95				
170'	11.47					15.78					20.08					24.38				
180'	12.15					16.7					21.26					25.82				
190'	12.82					17.63					22.44					27.25				
200'	13.5					18.56					23.62					28.69				
210'																				
220'																				
230'																				
240'																				
250'																				
260'																				

Add 1 HP to the horizontal and incline HP when using a corner section.

MASS-TER MOVER

DRIVE CALCULATION

Use the chart on page 8 and 9 which provides the actual horizontal and incline horsepower requirements. When using a corner section, total the horizontal horsepower, the incline horsepower, and add the appropriate corner horsepower requirements.

THE CORNER SECTION HORSEPOWER REQUIREMENTS ARE:

3/4 HP for Model 50
1 HP for Model 85

EXAMPLE

MODEL 50	5,000 BPH	MODEL 85	8500 BPH
47' Horizontal	4.41	47' Horizontal	6.83
15' Incline at 30°	4.04	15' Incline at 30°	6.59
30° Corner Sect.	.75	30° Corner Sect.	1.00
Actual HP	9.20	Actual HP	14.42

CA550 Chain is required

CA557 Chain is required

CHAIN CALCULATION

Use the actual maximum chain horsepower chart below. To calculate the proper chain, determine the capacity that is required and select the chain with a maximum horsepower rating equal to or greater than the horsepower requirements.

ACTUAL MAXIMUM CHAIN HORSEPOWER

	CAPACITY	CA550 CHAIN	CA557 CHAIN	CA551X CHAIN
MODEL 50	2500	6.10	8.60	12.50
	3300	8.00	11.30	16.50
	4100	10.00	14.10	20.50
	5000	12.20	17.70	25.00

	CAPACITY	CA550 CHAIN	CA557 CHAIN	CA551X CHAIN
MODEL 85	4000	5.90	8.70	14.10
	5500	7.40	12.00	19.40
	7000	10.40	15.30	24.70
	8500	12.60	18.50	30.00

LUBRICATION & MAINTENANCE

Gear Reducers

Important: Because the Gear Reducer is shipped without oil, it is necessary to add the proper amount of oil before running. Use a high grade petroleum base, rust and oxidation inhibited (R & O) gear oil. Follow the instructions on the reducer nameplate, warning tags, and in the installation manual.

Under normal industrial operating conditions, the lubricant should be changed every 2500 hours of operation or every 6 months, whichever occurs first. Drain the reducer and flush it with kerosene, clean the magnetic drain plug and refill to it's proper level with new lubricant. **CAUTION: TO MUCH OIL WILL CAUSE OVERHEATING AND TOO LITTLE WILL RESULT IN GEAR FAILURE. CHECK OIL LEVEL REGULARLY.**

Under extreme operating conditions, such as rapid rise and fall of temperature, dust, dirt, chemical particles, chemical fumes, or oil sump temperatures above 200° F., the oil should be changed every 1 to 3 months depending on severity of conditions.



Never clean, adjust or lubricate a machine that is in operation.

All head shaft, tail shaft, and jack shaft bearings are supported by self-aligning, sealed ball bearings, which have been packed at the factory, but operator should lubricate at approximately fifty (50) hour intervals. Lubricate lightly with SAE multipurpose type grease.

Head Drive Chain DRIVE HEADS WITH JACK SHAFT DRIVES

Every Mass-Ter Mover has a roller drive chain at the discharge end. This chain requires no lubrication, although it should be kept tight to reduce wear on chain and drive sprockets.

TROUBLE SHOOTING

1. **Extreme noise from trunking.**
 - (A) Conveyor chain is too loose. Check chain tension and adjust if necessary. See Page 19.
 - (B) Improper assembly or misalignment of trunking. Loosen trunk connection(s) that are source of noise and disassemble. Check for end smoothness and grind if necessary. Check for correct alignment of center divider. See "Trunking Assembly" on Pages 15 and 16.
2. **Belt slippage on electric drive.**
 - (A) Incorrect belt tension. For Jack Shaft Drive units, turn the adjustment bolts on the motor mount end until proper tension is reached.
 - (B) Unit is plugged. Clean the grain and any obstructions from the machine as is possible.
3. **Grain returning to the intake end through the top of the trunking.**
 - (A) The discharge spout may be mounted backwards. Spout must be mounted so that it slopes back towards the main body of the unit. Refer to Page 32.
 - (B) Partially blocked discharge; remove obstruction.
4. **Unit not running to full capacity.**
 - (A) Grain is high in moisture. A low capacity will likely be achieved with high moisture grain. Excessive feeding of high moisture grain can cause plugging.
 - (B) Chain speed is too slow. See recommended chain speed on horsepower charts.
 - (C) Obstruction at intake.
5. **Paddle breaking or bending.**
 - (A) Paddles may be coming loose from the chain. Keep paddles securely connected to chain. See Pages 16 thru 19.
 - (B) Trunk misalignment. See Problem 5-B.
 - (C) Frequent starts under loads. Allow machine to clean out before shutting down.
 - (D) Sprockets at intake or discharge may be off center. Align in center of trunking.
 - (E) Overfeeding; adjust the feeding of the unit to allow less grain to enter while maintaining full speed.

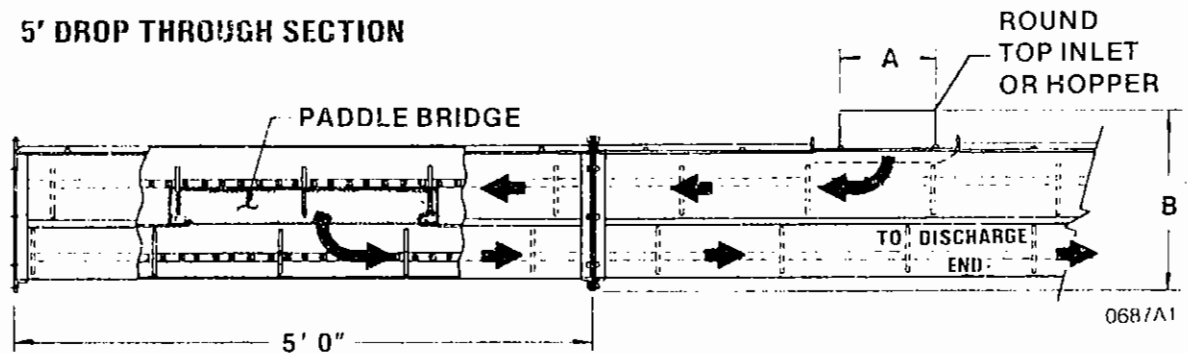
MASS-TER MOVER DESIGN IDEAS

1. Grain is carried in the bottom section. Chain travel is toward the intake end in the top section.
2. A completed conveyor has a fixed grain flow. The trunk sections must be assembled with the center dividers overlapped at the various section connections for the correct flow direction. The conveyor should not be operated in reverse direction.
3. Mass-Ter Movers must be adequately supported to be rigid and straight. Supports should be adequate on 20' centers. A maximum span is 30'
4. The Mass-Ter Movers will handle a wide range of free flowing grains. It should not be used with highly corrosive material such as fertilizer.
5. Both gear reducer and jack shaft drives are available. The jack shaft drive is a lower priced drive and is available only up to 7½ H.P. and only for the higher speed units. Generally, the gear reducer will provide longer and more dependable service.
6. The capacity charts on the Mass-Ter Mover reflect actual achievable results. However, good design generally will suggest using the next higher speed-capacity rate. This assures capacity without requiring absolute full 100% output.
7. Do not exceed maximum lengths listed in the horsepower charts.
8. Conveyor sections are available in solid, welded top construction or a bolt-on cover. The bolt-on cover is convenient for service or inspection. Units must not be run without the cover. Customer preference will govern the style of cover choice. However, when a 15°, 30° or 45° section is used, the first section after it (toward discharge) must be the solid top style.
9. A 15°, 30° or 45° incline section can be used with any unit. However, the horizontal portion should not exceed 40'. See horsepower charts for design limits on the incline section.
10. On Mass-Ter Movers with an inclined section, back-up plates must be used with regular paddles. They are installed back of the paddles. See page 17.
11. Chain tension can be checked by attempting to tilt one paddle from the vertical plane. When the chain tension is proper, the paddle will rotate to a 45° plane from the chain. Chain tension is adjusted by dual take-ups which are located at the discharge end. See page 19.
12. Overfeeding a Mass-Ter Mover may cause plugging. Intake rate should not exceed the particular capacity of the drive and chain travel.
13. For intermediate inlets, you must use the optional units provided in this catalog. They contain necessary chain and paddle guides and inlet flow control. Do not cut random inlets without using these inlet adapters and/or inlet hopper. See page 33 for inlet adapters and inlet hoppers.

MASS-TER MOVER DESIGN IDEAS (CONTINUED)

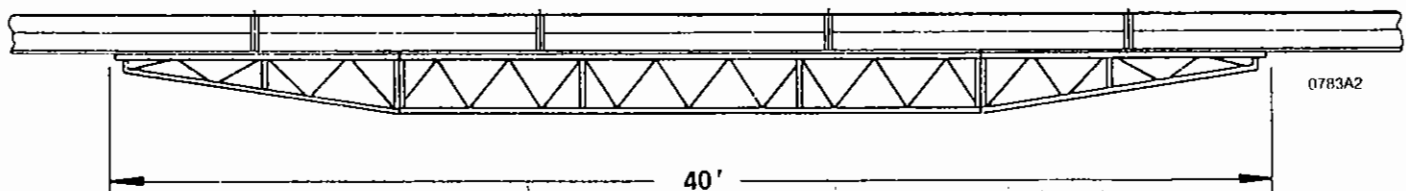
- 13A. When intermediate inlets are a significant distance from the inlet, you may wish to use a drop through section. This will allow grain to drop through to the lower section without having to go to the boot end. The inlet must be located in the first section toward the discharge end from the drop through section. An inlet will not perform satisfactorily if it is located in the drop through section. The distance that grain is conveyed "Backward" to a drop through or to the boot end, should be added to total length to properly determine horsepower requirements. Use different length of conveyor sections to adjust outlet to desired location.

5' DROP THROUGH SECTION



14. The standard boot contains an inlet cover located approximately 5' from the end. If you use this as an inlet, add the inlet adapter. The inspection cover, which is located at the extreme end, may also be used as an inlet.
15. Center and intermediate bin well inlets allow grain flow directly into the lower grain conveying section. As a result, it is not necessary to use an inlet adapter or drop through section with them.
16. If Mass-Ter Mover is installed out of doors, we recommend trunk flange joints & bolt-on covers be sealed with liquid-tight sealant (such as caulking) to prevent moisture from entering. Check seals periodically.
17. 40' Truss for Models 50, 51, 85 & 86 Mass-Ter Mover.

For support of spars up to 50 feet on permanently installed Mass-Ter Mover systems see pages 30 and 31.



NOTE: Support rails for the truss must be welded to the Mass-Ter Mover. These rails can be factory installed if their location is specified.

ASSEMBLY INSTRUCTIONS








Assembly of a stationary Mass-Ter Mover Conveyor System is unique with each and every situation. Some systems may be comprised of a number of trunk sections (covered or solid) with a variety of inlets and outlets, including hoppers, pit hoppers, spouts and inclined sections with accompanying hardware and supports. Other systems may be extremely simple, comprised of only a hopper, one trunk section and a discharge.

The Assembly Instructions in this manual offer information as how to assemble all possible components in any given system, simple or complex. Specific, detailed instructions are given for motor mounts due to the many variations in their assembly.

BOLT INFORMATION

All bolts should be tightened to the recommended torques shown in the table below.

NOTE: When hardware is plated, reduce torque values by 25%.

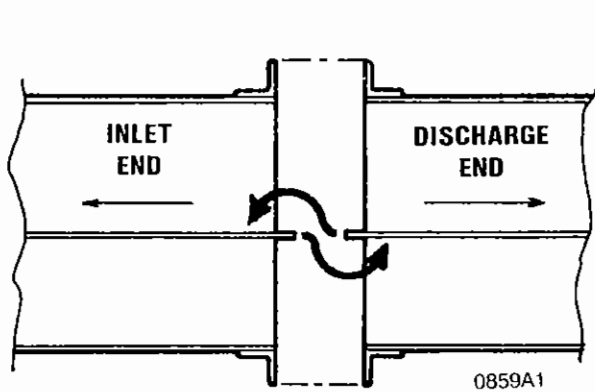
GENERAL TORQUE SPECIFICATION TABLE (Revised 2-74)													
USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN													
NOTE: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly-disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.													
SAE Grade No		2				5				8 *			
Bolt head identification marks as per grade NOTE: Manufacturing Marks Will Vary						  				  			
Bolt Size		Torque				Torque				Torque			
Inches	Millimeters	Foot Pounds	Newton-Meters	Foot Pounds	Newton-Meters	Foot Pounds	Newton-Meters	Foot Pounds	Newton-Meters	Foot Pounds	Newton-Meters	Foot Pounds	Newton-Meters
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1/4	6.35	5	6	6.8	8.13	9	11	12.2	14.9	12	15	16.3	20.3
5/16	7.94	10	12	13.6	16.3	17	20.5	23.1	27.8	24	29	32.5	39.3
3/8	9.53	20	23	27.1	31.2	35	42	47.5	57.0	45	54	61.0	73.2
7/16	11.11	30	35	40.7	47.4	54	64	73.2	86.8	70	84	94.9	113.9
1/2	12.70	45	52	61.0	70.5	80	96	108.5	130.2	110	132	149.2	179.0
9/16	14.29	65	75	88.1	101.6	110	132	149.2	179.0	160	192	217.0	260.4
5/8	15.88	95	105	128.7	142.3	150	180	203.4	244.1	220	264	298.3	358.0
3/4	19.05	150	185	203.3	250.7	270	324	366.1	439.3	380	456	515.3	618.3
7/8	22.23	160	200	216.8	271.0	400	480	542.4	650.9	600	720	813.6	976.3
1	25.40	250	300	338.8	406.5	580	696	786.5	943.8	900	1080	1220.4	1464.5
1-1/8	25.58					800	880	1084.8	1193.3	1280	1440	1735.7	1952.6
1-1/4	31.75					1120	1240	1518.7	1681.4	1820	2000	2467.9	2712.0
1-3/8	34.93					1460	1680	1979.8	2278.1	2380	2720	3227.3	3688.3
1-1/2	38.10					1940	2200	2830.6	2983.2	3160	3560	4285.0	4827.4

* Thick nuts must be used with Grade 8 bolts

TRUNKING ASSEMBLY

Assemble on a level surface spacious enough to accommodate the unit when laid out full length. It is recommended that the unit be elevated 3 - 4 feet above ground level during assembly. Make sure support stands or blocks are well anchored to prevent tipping. Assembly area should have access to a chain hoist or other lifting device.

Use 3/8" x 1" grade 5 bolts with lockwashers and nuts to join trunking and to attach head to trunking. Each connection on Model 50 trunking requires ten bolts; Model 85 trunking requires twelve bolts.



IMPORTANT
OVERLAP CENTER PARTITION
AS SHOWN

FIG. 2

ASSEMBLY OF TWO "SOLID COVER"
TRUNK SECTIONS.

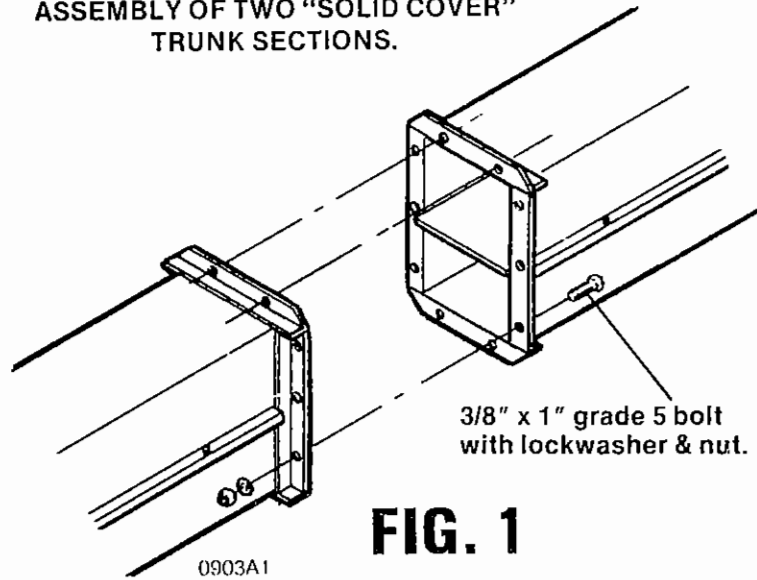


FIG. 1

ASSEMBLY OF TWO "BOLT-ON COVER"
TRUNK SECTIONS.

NOTE: If Mass-Ter Mover is installed out of doors, we recommend trunk flange joints and bolt-on covers be sealed with liquid-tight sealant (such as caulking) to prevent moisture. Check seals periodically.

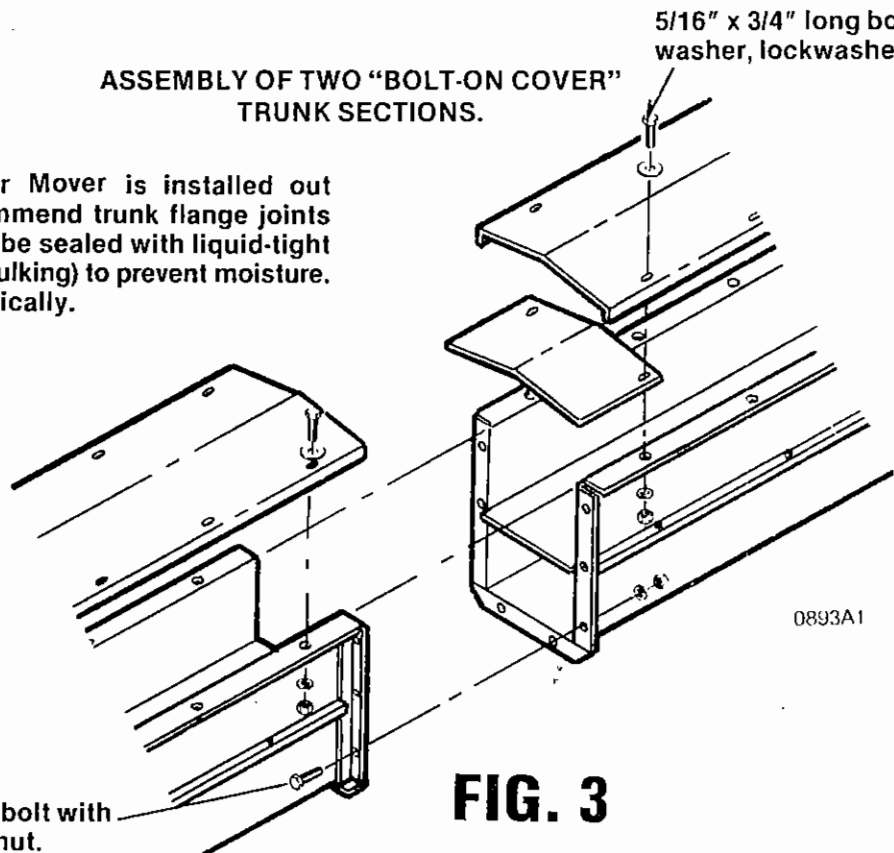


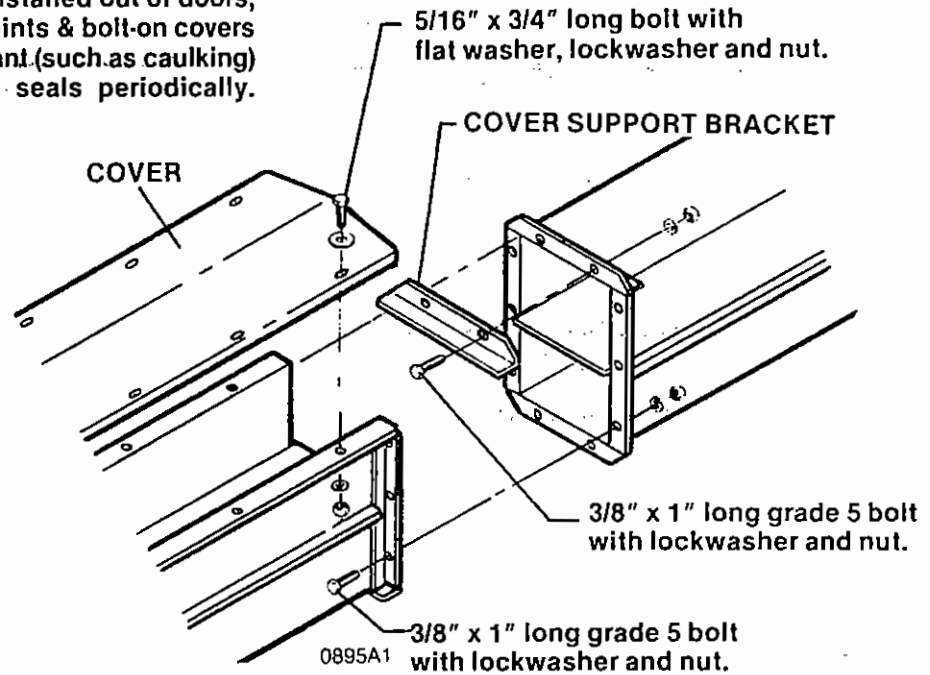
FIG. 3

TRUNKING ASSEMBLY (CONT'D)

ASSEMBLY OF A "SOLID COVER" TRUNK SECTION AND A "BOLT-ON COVER" TRUNK SECTION.

NOTE: If Mass-Ter Mover is installed out of doors, we recommend trunk flange joints & bolt-on covers be sealed with liquid-tight sealant (such as caulking) to prevent moisture. Check seals periodically.

FIG. 4



CHAIN

Conveyor Chain and Paddles

It is important to install chain so that the paddle mounting brackets will be behind the paddles as grain is moved up the trunking. See Figure 6.

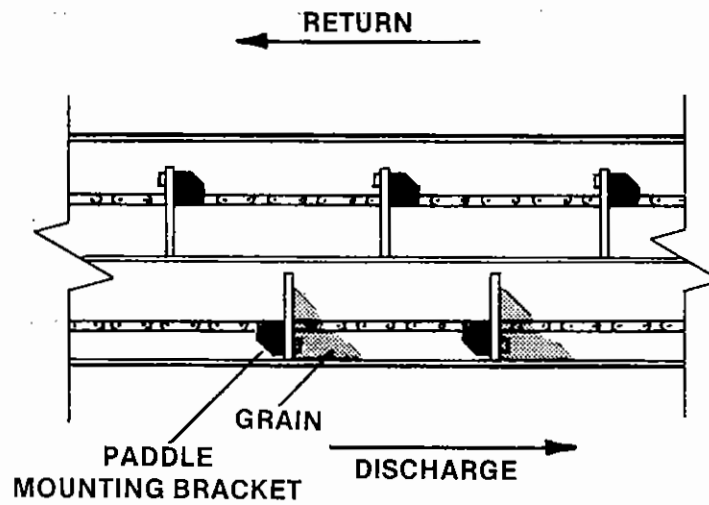


FIG. 6

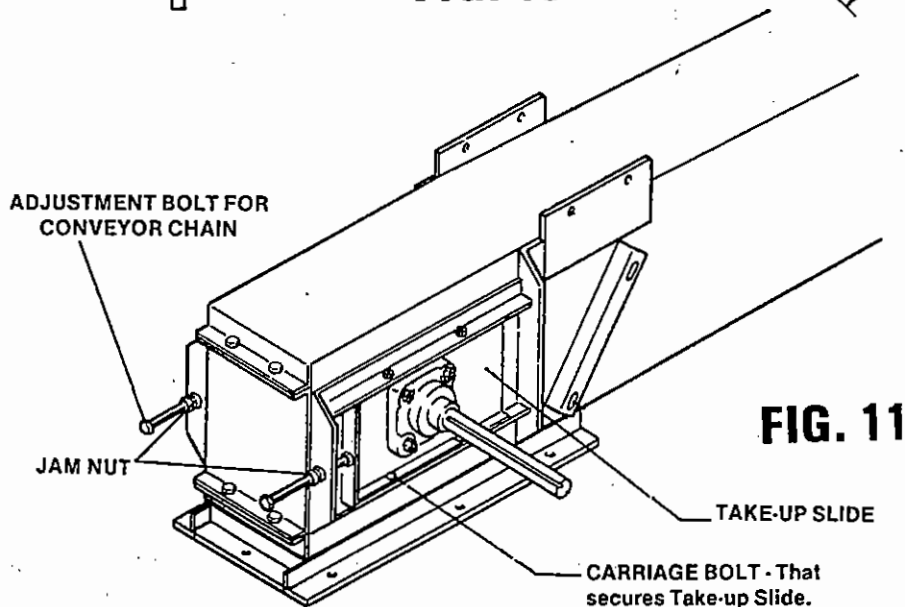
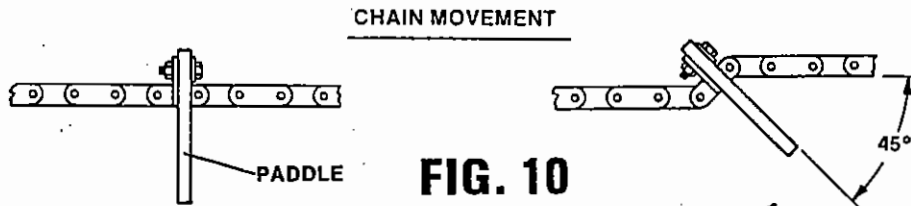
0708A1

NOTE: UNIT SHOWN WITH PARTIAL LOAD

CHAIN

Conveyor Chain Adjustment

1. To check conveyor chain tension, grasp one of the paddles at the intake end and rotate it up toward the chain. See figure below. Proper chain tension should allow the paddle to rotate to a 45° position before chain resists. If paddle will not rotate to that position (chain too tight) OR rotates past that position easily (chain too loose), adjustment is necessary. To adjust, go on to Step 2.
2. Loosen the bolts supporting the motor mount, loosen belts or drive chain.
3. Loosen the four carriage bolts on each take-up slide at the discharge end of the unit (see figure 11). Move jam nuts on conveyor chain adjustment bolts in direction desired to either loosen or tighten chain. Jam nuts should be moved equal amount so that head shaft remains straight. Check it by measuring from the shaft at each bearing to the head end.
4. If chain is still too loose after these adjustments, it may be necessary to remove one or more links from the chain.
5. Tighten carriage bolts on take-up slides. Make sure main shaft is square with chain and trunking.



IMPORTANT:

The life of the conveyor chain will be shortened when the chain is allowed to set in water or is operated in acidic conditions, so avoid these situations.

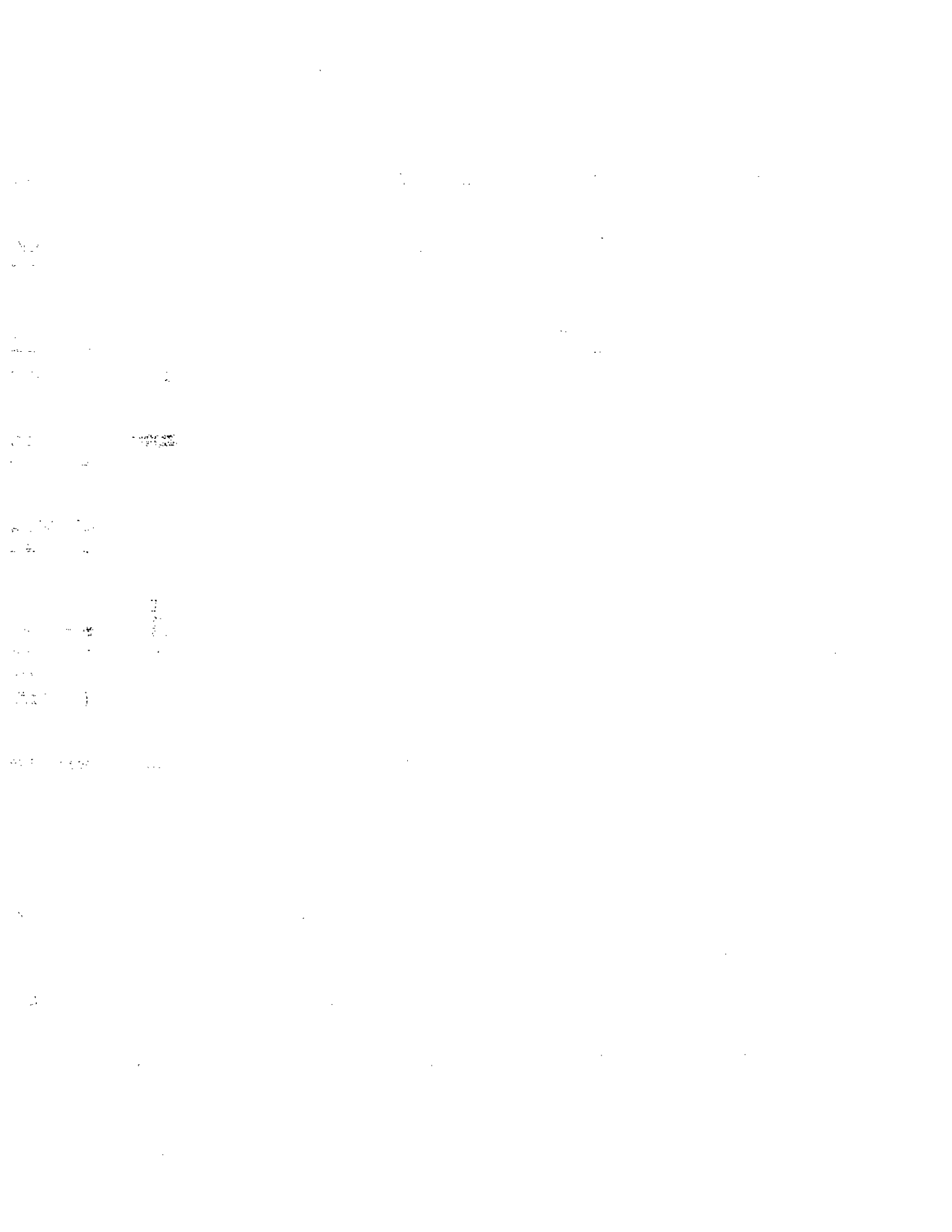
To extend chain life, spray a light coat of oil on the chain after each season's use. Use extreme caution; keep away from moving chain and paddles.

Regular inspections should be established in order to ensure that the conveyor chain is in good operating condition at all times.

1. Inspect the conveyor chain for loose bolts, missing chain parts, missing or damaged chain paddles and the overall chain condition.
2. Check chain tension;
3. Check conveyor sprocket to see that it is centered and setscrews are tight.



Whenever you must service or adjust your equipment, make sure you stop the machine and lock out your power source!



NOTICE:

Pages 20 through 29 were removed from this book.

The drive components will be assembled to the head at the factory. The motor and motor sheave will need to be installed.

IMPORTANT: Use the proper size and speed motor to ensure satisfactory conveyor operation. Too small of a motor will not supply the horsepower required to achieve capacity and possible damage to the motor will occur.

Too large of a motor may cause high stress on conveyor components resulting in shorter life for those components.

IMPORTANT: Use the size of sheave furnished in burlap bag. If another size of sheave is used or substituted, improper chain speed and unsatisfactory conveyor operation will result.

Mount the sheaves as close to the belt guard back as possible. Align sheaves by using a straight edge, place across the outer faces of both sheaves. Be sure drive keys are properly installed. Secure in place using taper lock bushing. Check sheave alignment again after sheaves are secure to shafts.

Install the belts onto the sheaves and set belt tension. To tighten belts, use the reducer torque arm.

Check all fasteners to see if they are tight.

Close and latch belt guard.



Keep all safety shields and devices in place.

IMPORTANT: Because the gear reducer is shipped without oil, it is necessary to add the proper amount of oil before running. Use a high grade petroleum base, rust and oxidation inhibited (R & O) gear oil. Follow the instructions on the reducer name plate, warning tags and in the installation manual supplied in the reducer box.

40' STATIONARY TRUSS ASSEMBLY

MODEL 50 and MODEL 85

1. If your 10' trunk sections (solid or bolt-on cover types) do not have the mounting plates (A) (4" x 116-3/4" long) attached, see Figure 22.

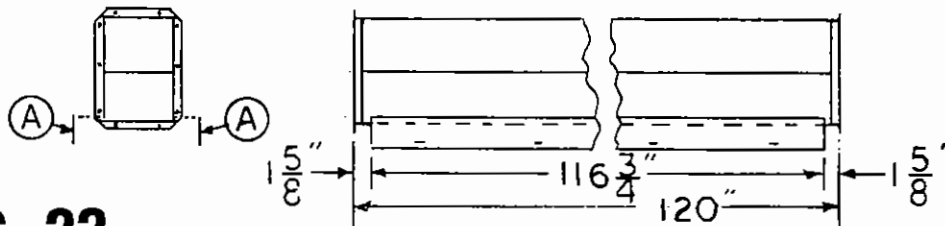


FIG. 22

2. Weld mounting plates to side of trunk sections with 1/8" fillet weld (1-1/2" long) centered on every eight inches. Bottom of trunk section should be welded the same way with welds centered in between welds on sides. **NOTE: Location of mounting plates in Figure 22.** Keep mounting plates (with holes down) 3-1/2" below bottom of trunk sections and centered between end flanges. Paint welds with a good grade of exterior type paint.

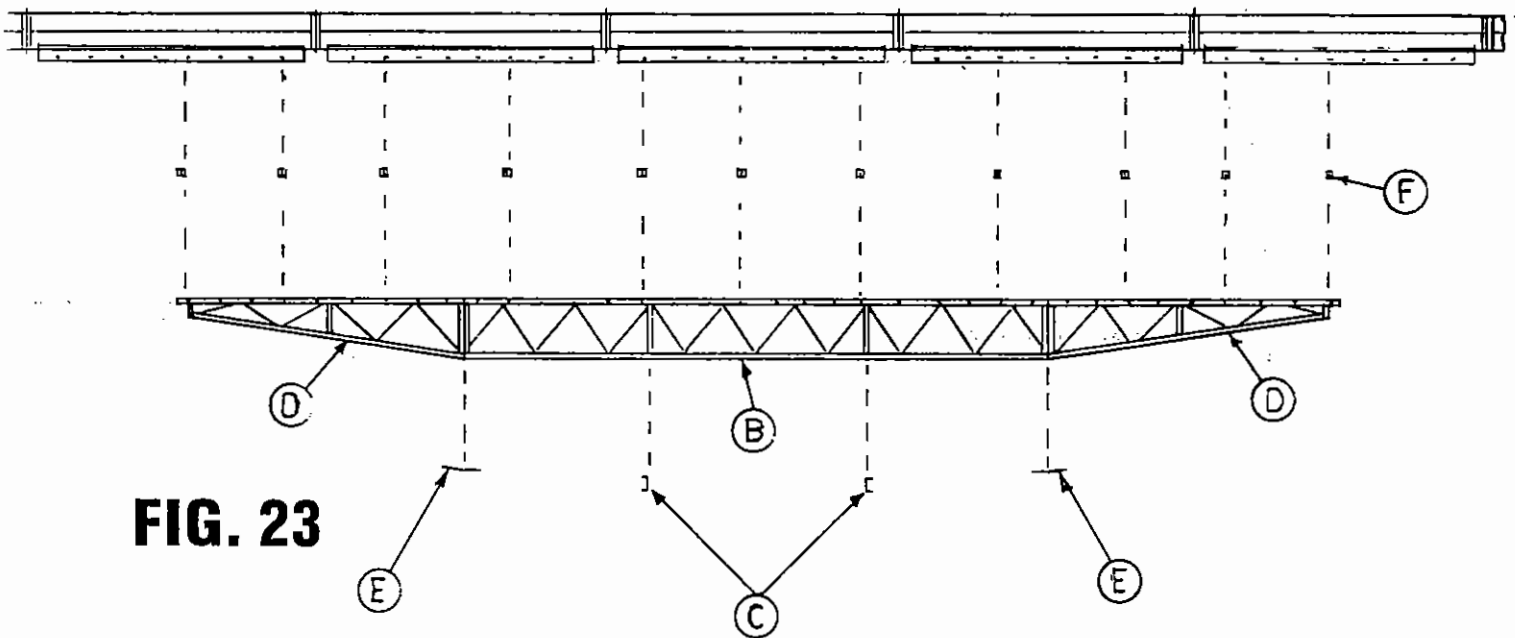


FIG. 23

3. See Figure 23 for proper size and location of trusses required for assembly. 20' trusses are identical. Tapered trusses (9' 5-1/2" long) are made with two right and two lefts. Connect both tapered trusses (D) and main truss (B) end vertical angles together with three 3/8" x 1" hex head bolts, lock washers and nuts (12 required). Tighten these bolts now.

NOTE: Leave all other bolts loose until complete truss is assembled to trunk sections.

4. Position truss sides as shown in Figure 23. Align holes of the truss sides to mounting plate on trunk section and bolt together using 3/8" x 1" hex head bolts, flat washers (2 per bolt), lock washers and nuts (42 required).

40' STATIONARY TRUSS ASSEMBLY (CONT'D.)

- Slide spacer bars (F) (On Model 50 use 9-5/16" long spacer and on Model 85 use 13-5/16" long spacer) in between mounting plates (A) and truss sides and bolt together using 3/8" x 1-1/4" (grade 5) hex head bolts, flat washers and nuts (22 required). See Figure 24.

NOTE: Location of spacer bars (F), they should be installed in the vertical position. (Narrow part up and down.)

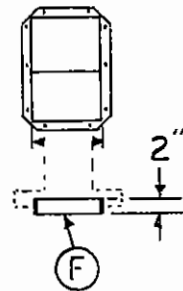


FIG. 24

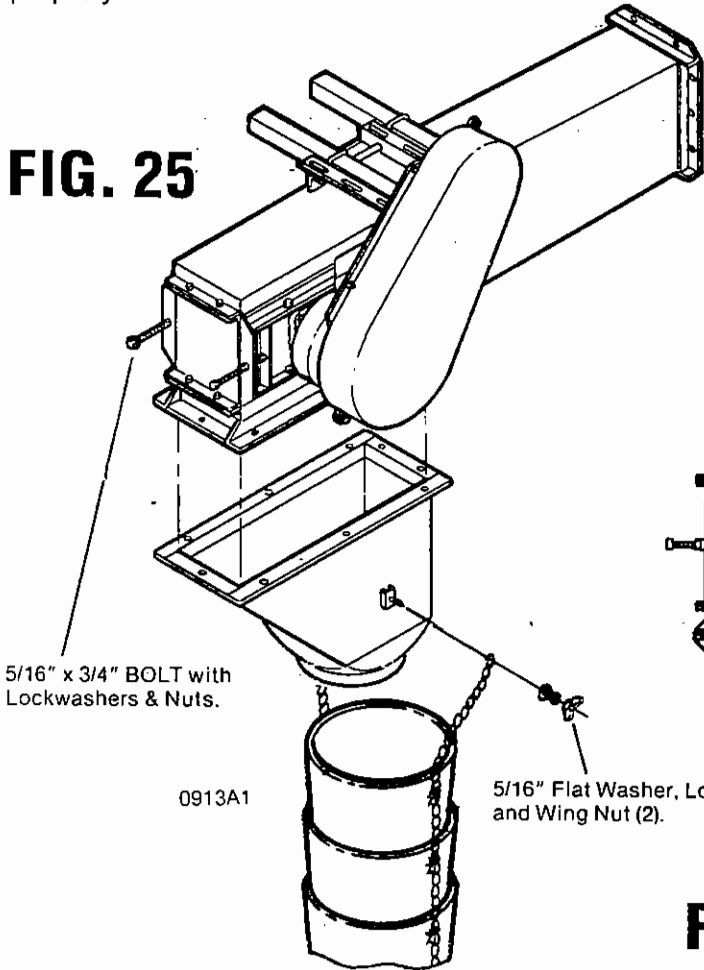
- Connect both main trusses (B) together at bottom of both vertical angles (except angles under connecting plates) using two cross braces (4" x 13" on Model 50 or 4" x 17" on Model 85) (C) and four 3/8" x 3/4" long hex head bolts, lockwashers and nuts per cross brace.
- Attach lower connecting plates (E) (On Model 50 - 13" x 13-1/2" or On Mode 85 - 13" x 17-1/2") to bottom of tapered truss and main truss sides where end vertical angles have been joined together. See Figure 23. Use eight 1/2" x 1-1/4" hex head bolts, lockwashers and nuts to secure each lower connecting plate in place.
- Tighten all bolts installed in Steps 4 through 8.

OUTLETS ASSEMBLY

Adaptor Spout

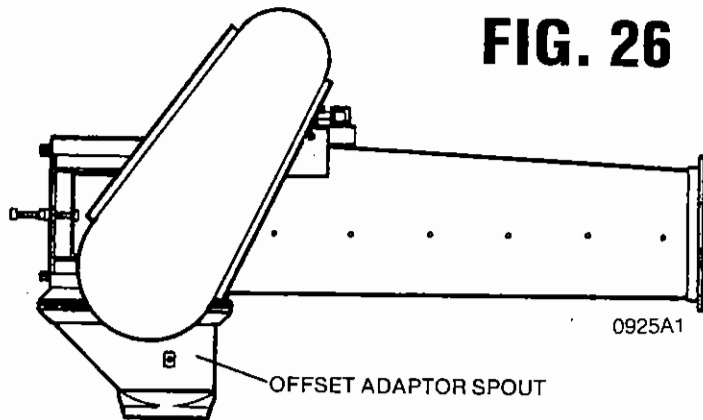
Use 5/16" x 3/4" bolts with lockwashers and nuts to attach adaptor spout to head assembly. See Fig. 25. **IMPORTANT:** On inclined units, the adaptor spout must be attached as shown for grain to discharge properly.

FIG. 25



NOTE:
If adaptor spout needs to be mounted in another direction than what is shown, the customer will need to drill additional holes in adaptor spout flange. This should only be done on horizontal units, not on inclined units.

FIG. 26



Optional Bucket Spout

Place optional bucket spout snugly around adaptor spout. Slip chain links over studs on adaptor spout and secure with 5/16" flat washers, lockwashers and wing nuts. See Figure 27.

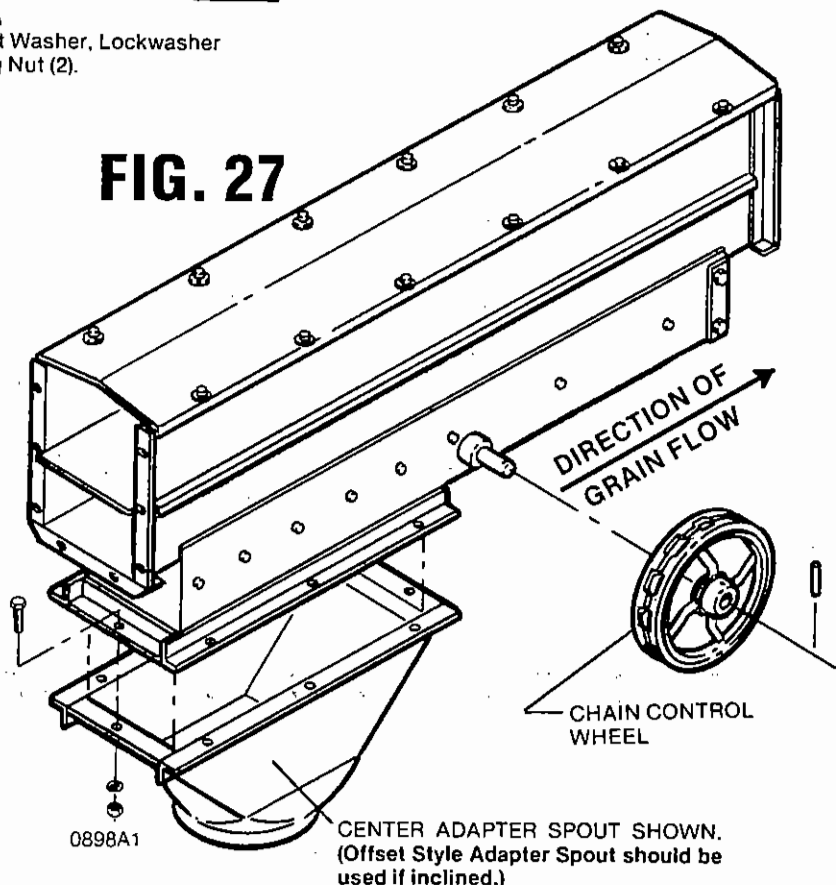
Rack & Pinion Controlled Outlet

An Intermediate Outlet operated by a rack and pinion control device can be used in horizontal and inclined positions.

IMPORTANT: When installed on an incline, the outlet should be at the lower end of the conveyor section to insure proper operation of rack and pinion gate control.

Offset style adapter spout can be used when trunking is horizontal to achieve desired outlet location.

FIG. 27



INLET ASSEMBLY

Top Inlet Hopper with Cover

Top inlet hopper can be installed anywhere along a "Bolt-on Cover" trunk section. Top covers will need to be cut to length after hopper is located.

NOTE: When intermediate inlets are a significant distance from the boot, a drop through section should be considered. See Page 13.

When drop through sections are used they should be installed next to intermediate inlets on the side toward the boot. This allows grain from the inlet to drop through to the lower grain carrying chamber at that point rather than the grain moving to the boot end before dropping through.

Sealant should be used where covers are attached to the inlet hopper. Sealant is also recommended around openings cut in hopper covers for entry of grain from other conveyors or down spouts.

NOTE: Opening for Spouts will need to be cut by customer.

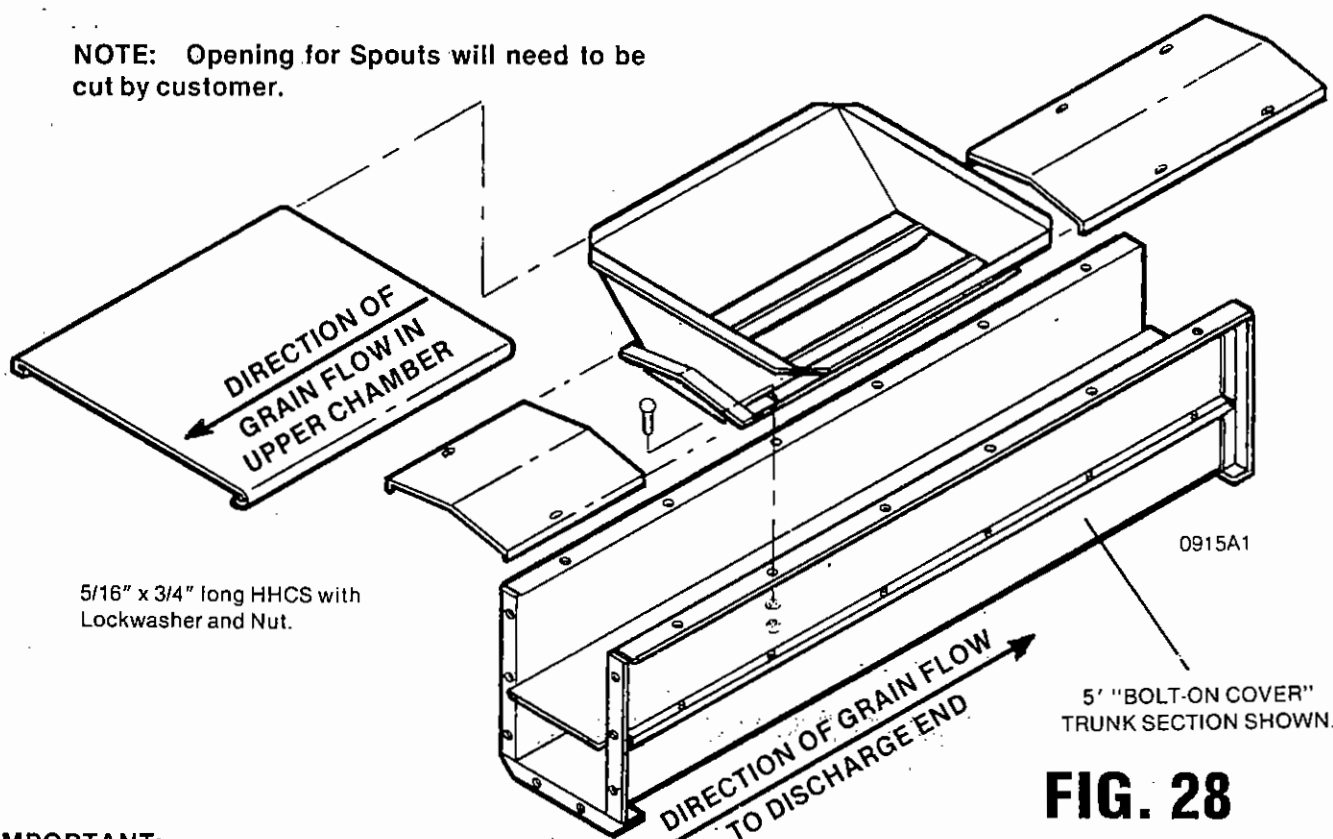


FIG. 28

IMPORTANT:

The beveled end on paddle guides on the bottom of the inlet needs to be properly installed to avoid paddle damage. See Figure 29.

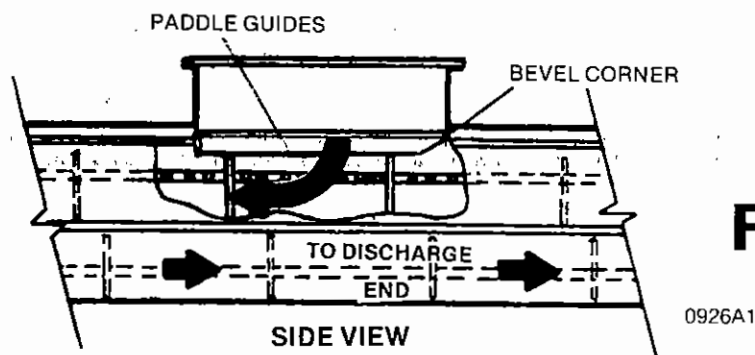


FIG. 29

INLET ASSEMBLY (CONT'D)

Top Inlet with Round Opening

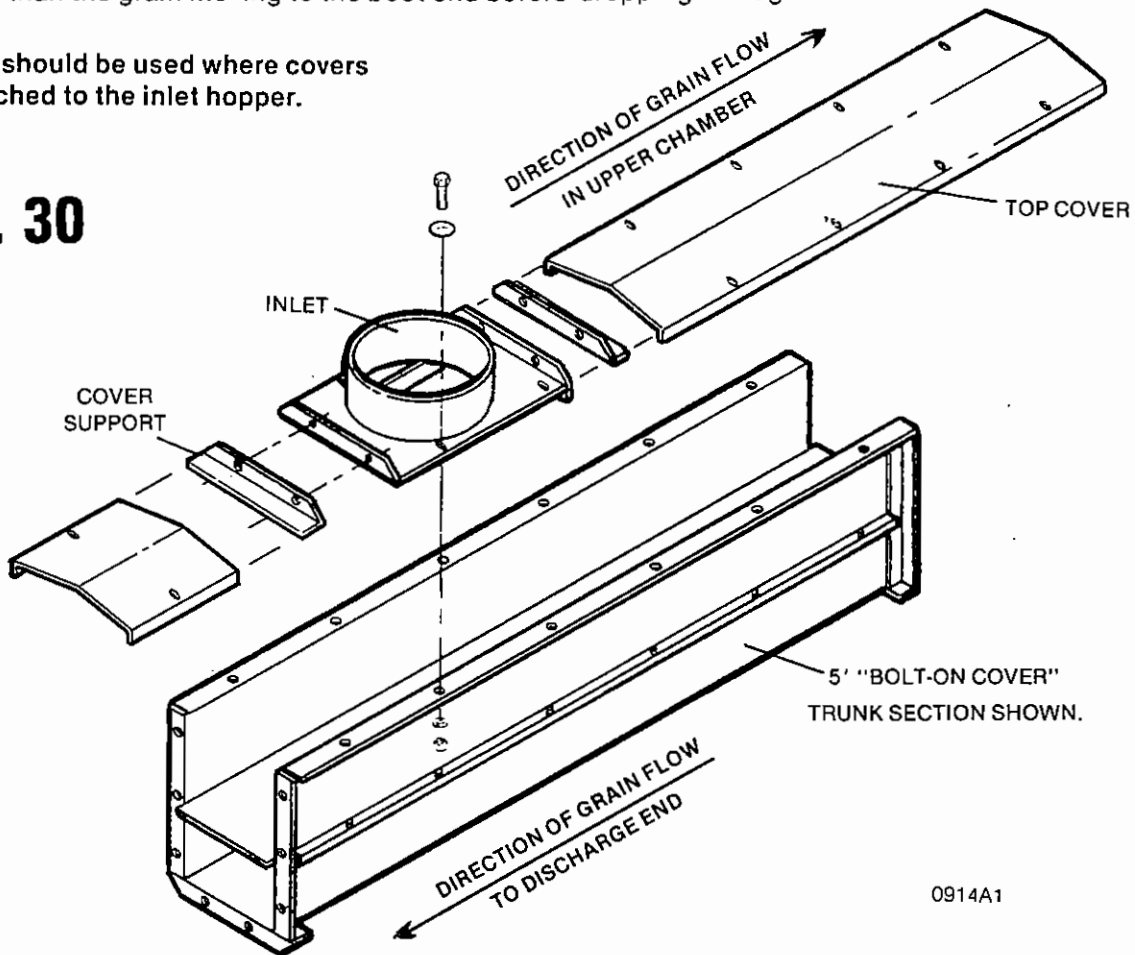
This top inlet can be installed anywhere along a "Bolt-on Cover" trunk section. If bolted next to trunk flange a cover support is not required. Top covers will need to be cut to length after inlet is located.

NOTE: When intermediate inlets are a significant distance from the boot, a "drop through" section should be considered. See Page 13.

When drop through sections are used they should be installed next to intermediate inlets on the side toward the boot. This allows grain from the inlet to drop through to the lower grain carrying chamber at that point rather than the grain moving to the boot end before dropping through.

Sealant should be used where covers are attached to the inlet hopper.

FIG. 30

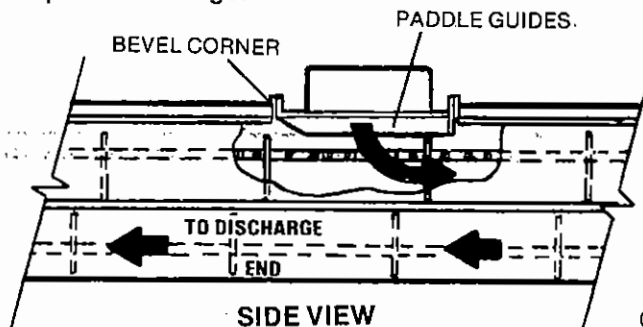


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IMPORTANT:

The beveled end on paddle guides on the bottom of the inlet needs to be properly installed to avoid paddle damage.

FIG. 31



0926A1

INLET ASSEMBLY (CONT'D)

Standard Boot with Inlet

Top inlets can be installed on a boot section.
 Round inlet can replace bolt-on cover.

HINGED COVER
 IMPORTANT: Keep closed
 during operation

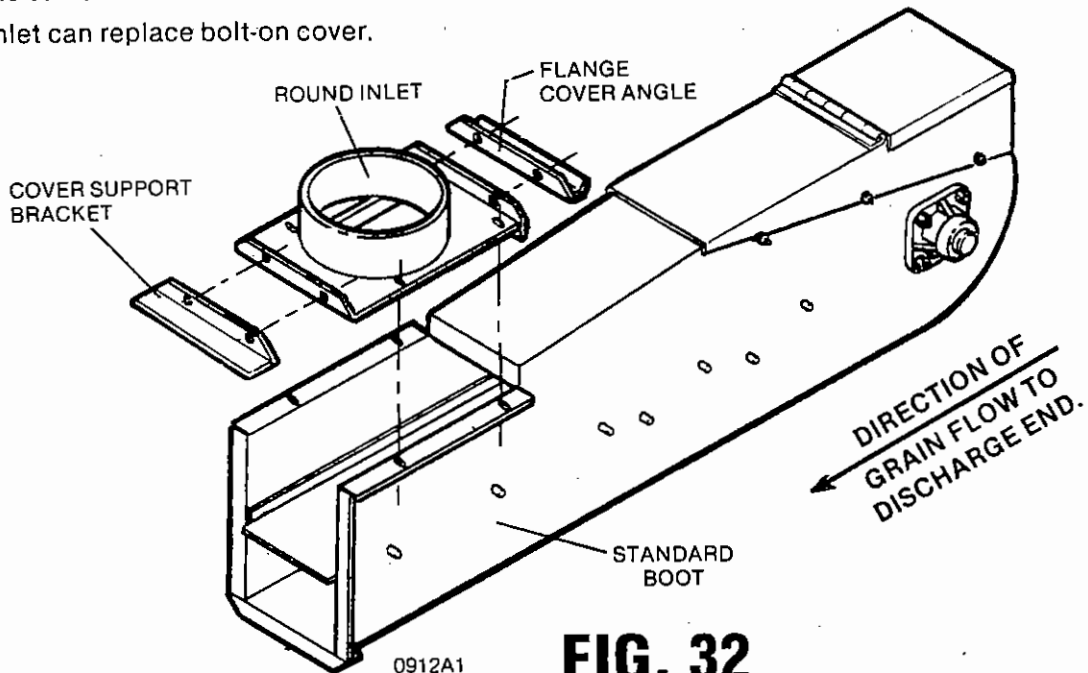


FIG. 32

⚠ DANGER

MOVING CHAIN & PADDLES

KEEP HANDS, FEET, HAIR AND CLOTHING AWAY FROM INTAKE.
 KEEP ALL SAFETY SHIELDS AND DEVICES IN PLACE.
 KEEP CHILDREN AWAY.
FAILURE TO DO SO WILL RESULT IN SERIOUS INJURY OR DEATH!

34218

IMPORTANT:

The beveled end on paddle guides on the bottom of the inlet needs to be properly installed to avoid paddle damage. See Figure 33.

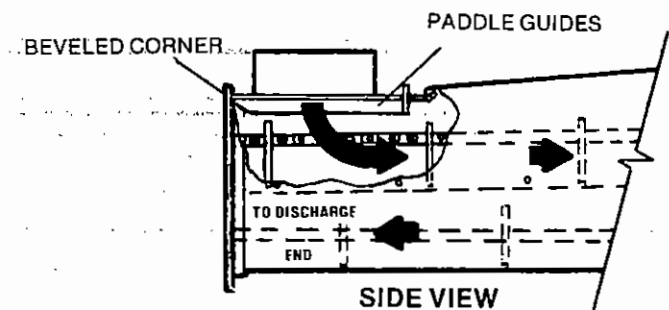


FIG. 33

IMPORTANT:

Danger signs are included on each boot and each section of conveyor. During installation notice their location and see that they are in good condition and visible. If additional signs are needed, please order sign #34218.

After installation make sure all inlets have covers and the covers are properly installed.

INLET ASSEMBLY (CONT'D)

Flow Through Hopper

Use this hopper at the inlet end of a conveyor when that end is directly over the first discharge point. The bottom gate can be opened for grain flow without running the conveyor. This method will likely be more convenient than alternative bypass valves and spouts.

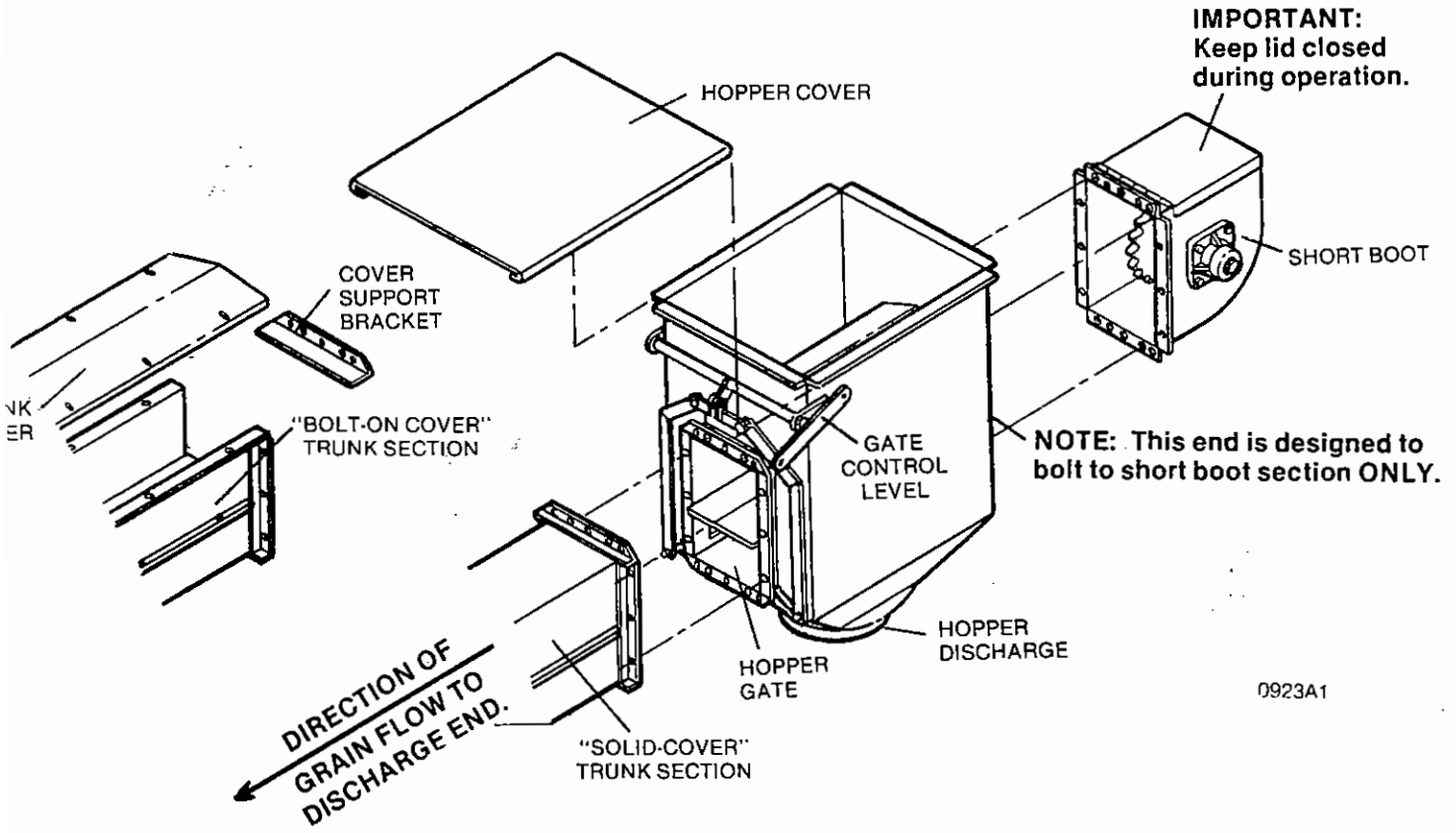


FIG. 34

INLET ASSEMBLY (CONT'D)

Pit Hoppers

Pit Hoppers are available for drive-over pits.

IMPORTANT:
Keep lid closed during operation.

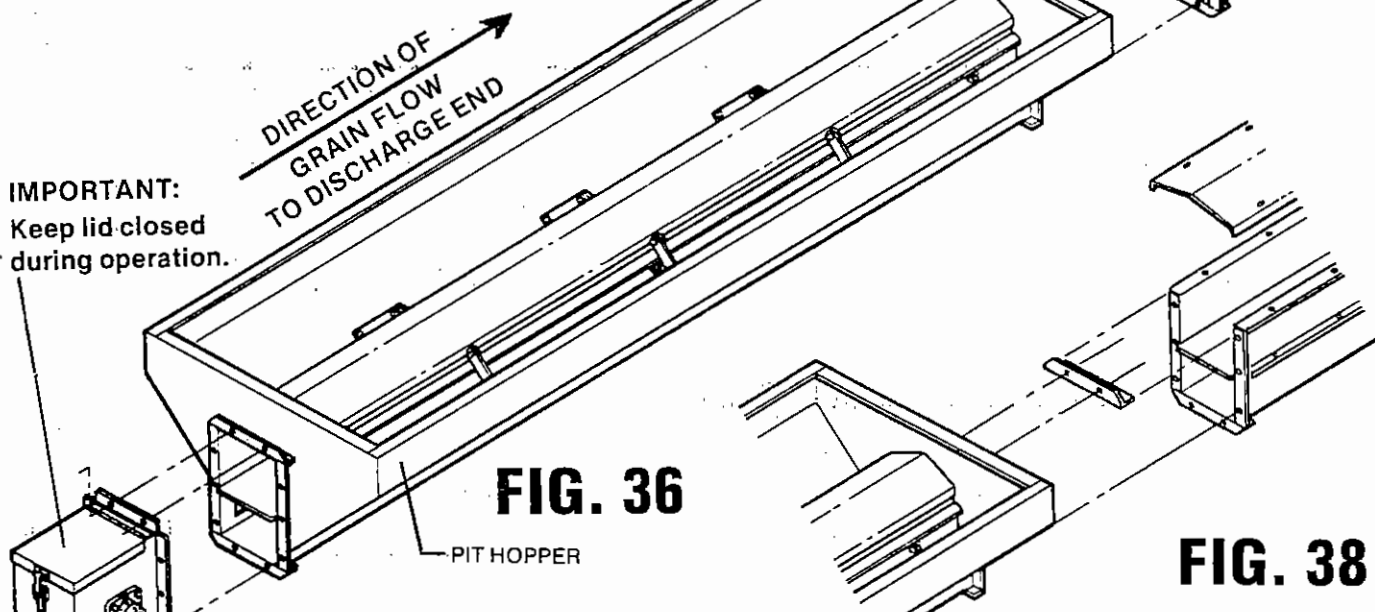


FIG. 36

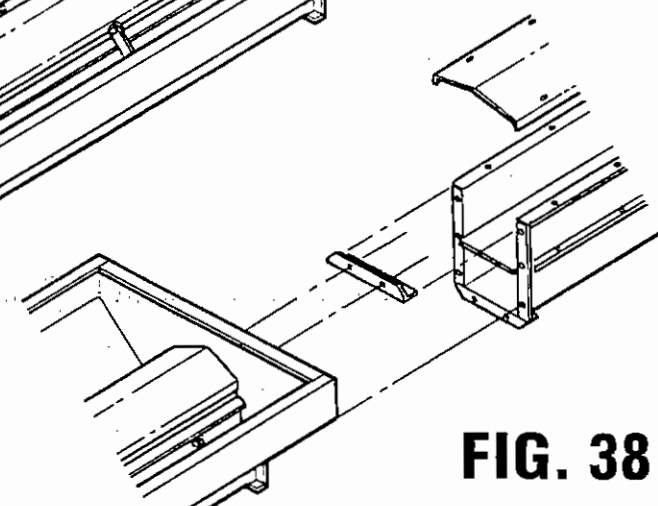


FIG. 38

NOTE: This end has a larger trunk flange for bolting on a short boot. For bolting a standard trunk section a special flange bracket is required. (Not illustrated.)

See chart for proper part number.

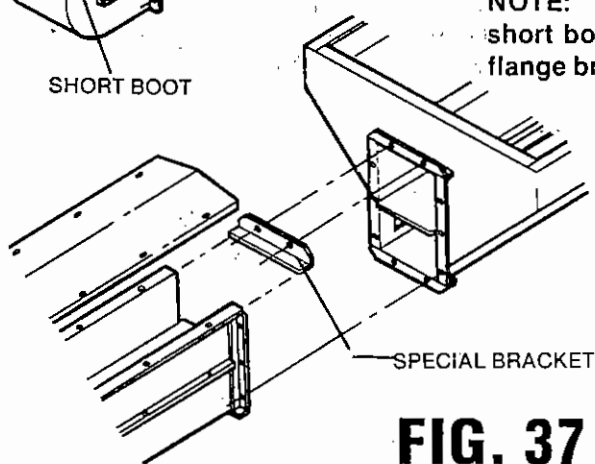


FIG. 37

	FLANGE BRACKET PART NO.	
	Model 50	Model 85
Bolt-On Lower Trunk Section	52637	52639
Solid Cover Trunk Section	Not Required	52541

CONCRETE PIT DIMENSIONS

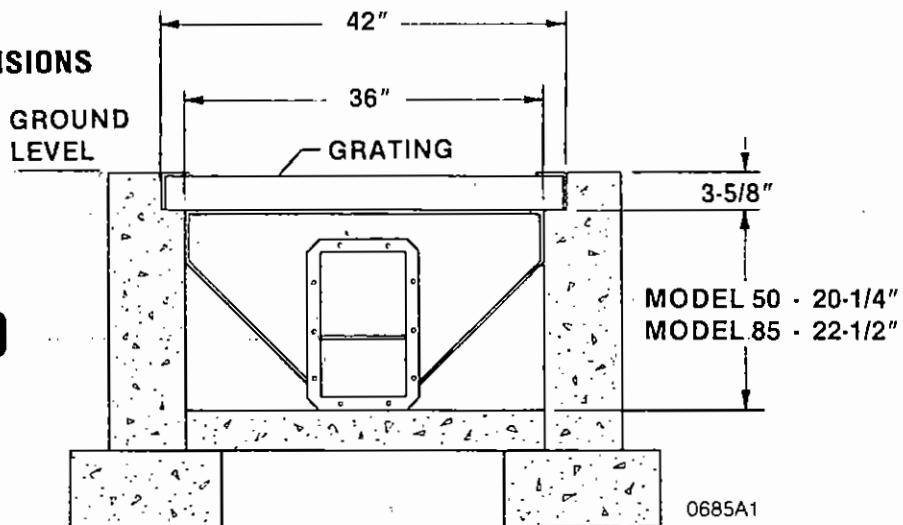


FIG. 39



Hutchinson/Mayrath/TerraTrack

A Division of GLOBAL Industries, Inc.

P.O. Box 629 514 W. Crawford Clay Center, KS 67432
Phone 785-632-2161 1-800-523-6993 FAX 785-632-5964