

Introduction

This manual contains complete instructions for the installation, operation, and maintenance of Prater equipment. Reliable operation, safety, and long service life of this equipment depends on 3 important considerations:

- A. The care exercised during installation.
- B. The quality and frequency of maintenance and periodic inspection.
- C. A common sense approach to its operation.

Safety

Safety is basic, and must be considered through all facets of the operation and maintenance on any mechanical device. Using proper tools and methods can prevent serious accidents, which might result in serious injury to you or your fellow workers.

Proper operating procedures and safety precautions are listed throughout this manual. Study them carefully and follow instructions; insist that those working with you do the same. Almost all accidents are caused by someone's carelessness or negligence

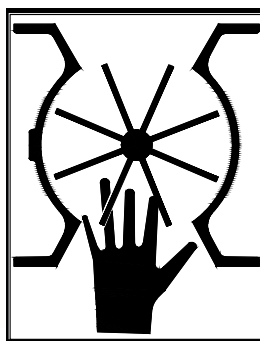
The precautions listed may not necessarily be all-inclusive and others might occur to the user, which are peculiar to a particular operation or industry. In addition, nearly all employers are now subject to the Federal Occupational Safety and Health Act of 1970, as amended, which require that an employer be kept abreast of the myriad of regulations, which will continue to be issued under its authority.

At all times – this equipment must be operated in accordance with the instructions and precautions in this manual and on the caution plates attached to the equipment. Only persons completely familiar with the instructions and precautions in this manual should thoroughly understand these instructions and precautions before attempting to operate this equipment

FAILURE TO OBSERVE AND FOLLOW THE PRECAUTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE.

SAFETY CHECKLIST

- **ALWAYS** operate Rotary Airlock Feeder in accordance with instructions in this manual.
- **ALWAYS** have a clear view of unit loading and unloading points and all safety devices.
- **ALWAYS** allow unit to stop naturally. **DO NOT** attempt to artificially brake or slow motion of unit.
- **KEEP** area around unit, drive and control station free of debris and obstacles.
- **AVOID** poking or prodding into unit openings with bar or stick
- **DO NOT** open inspection doors while unit is in motion.
- **DO NOT** use the Rotary Airlock Feeder for processing of material other than the specific application for which it was designed.
- **NEVER** work on unit and related components unless electric power and motor drive have been locked out and tagged.
The National Electrical Code requires a manually operable disconnect switch located within sight of motor, or a controller disconnecting means capable of being locked if not within sight of the motor.
- **NEVER** operate unit without guards and all safety devices in position and functioning.
- **NEVER** put your hand near, on, or in the inlet or outlet of the airlock while it is operating or stalled.



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INTRODUCTION

This manual has been prepared to assist in the installation, operation and maintenance of your Prater Mixer. Please consult this manual before beginning installation, and review it occasionally to insure the best results from your operation.

Carefully following the instructions listed for installation, operation, safety, and maintenance will keep operating costs down and profits up.

UPON RECEIPT: Inspect all equipment. List on the bill of lading or freight bill any shipping damage, and have the driver sign, for possible claim against delivering carrier. It will be the receiver's obligation to file such claim.

INSTALLATION: Be sure the installation crew or millwrights are aware of installation requirements. If they have any questions or are unsure of proper procedures, the matter should be clarified to avoid improper installation.

CHECK UNIT

FOR START UP: After installation is complete, carefully inspect all work before installation crew leaves to see that all instructions have been properly followed.

INSTRUCT OPERATING

PERSONNEL IN: Proper operating procedure

Safety procedures

Proper maintenance

OPERATION & MAINTENANCE:

Compliance with the instructions listed in this manual will keep your mixer in top operating condition at the lowest possible cost. This instruction manual should be available at all times to personnel working on the mixer.

YOUR SUPER TWIN SPIRAL MIXER

Your Super Twin Spiral Mixer was manufactured in one of the most modern plants and every care has been taken to supply you with equipment to give complete satisfaction for a long time to come.

The information in this manual covers every part, its care, and adjustment from the start of the installation through future years of operation. Replacement parts have been designed and produced with the one idea to give you dependable performance and at the lowest possible cost. In other words, no other source can supply parts properly fitted or material equal to Prater Standard Equipment.

This manual should be given to and read by the individual responsible for the operation of your mixer. If the instructions are followed and the mixer receives reasonable care, you will continue to receive satisfactory service for many years to come.

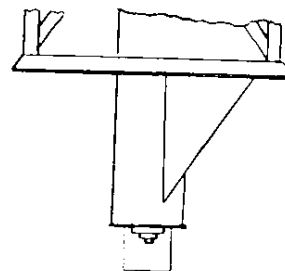
SAFETY

The grate at the top of the intake MUST be kept in place at ALL times for the protection of the operator and to prevent objects such as bags, etc., from entering the intake and damaging the spirals. The grate is hinged for cleaning and inspection, but should be used only when unit is NOT in operation.

Each mixer (other than the Ceiling Type) is equipped with an intake gate at the bottom of the lower tubes. The intake gate should only be raised to allow loading of the mixer. At ALL other times, the gate MUST BE in the lowered position.

MIXER CLEANOUT

Cleaning of the lower tubes is done by disengaging the rod (normally located to the left of the intake) and pulling up. Allow sufficient time to complete the total cleaning of product from the lower tube area.



Clean-out gate is shown

Release and re-engage rod to prevent product leakage during normal operation.

Some type of container should be placed under the cleanout door to prevent product build-up under the mixer.

Safety requires that someone be present to see that the intake grate is in the proper position and the intake gate is lowered after the material has been added. The drop bottom cleanout door should be kept closed when the mixer is operating.

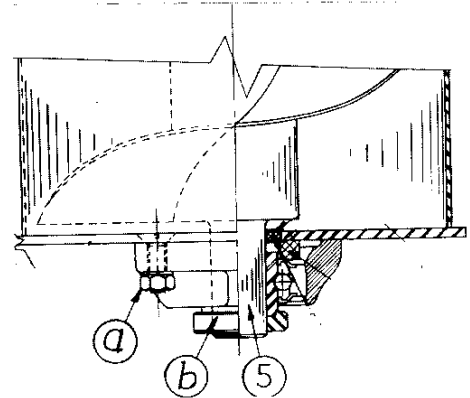
NEVER insert any object like; (brooms, broom handles, rods, wooden sticks, etc.) into the mixer intake or inspection ports.

The mixer should always be started empty and not stopped until empty again. Stopping and restarting the mixer when full, places unnecessary stress on the augers, bearings, stubs, belts and motor. Continued operation in this manner will result in premature failure of any of the above.

LOWER BEARING ASSEMBLY FOR MODEL ST MIXER

TO REPLACE LOWER BEARING

Remove four nuts (A), loosen set screw on collar (B), and let bearing drop from stub shaft (5). Put new bearing on shaft (5) and draw nuts (A) tight. These bearings are prelubricated and no further greasing is required

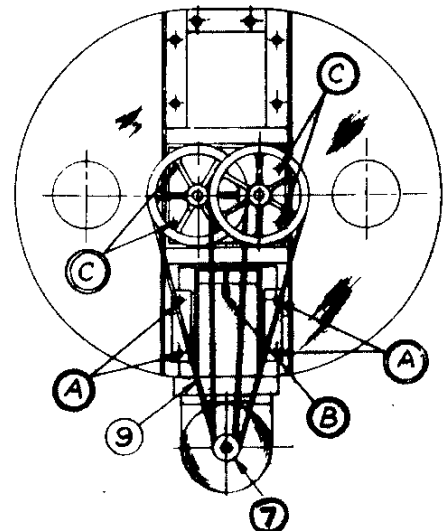


MOTOR AND PULLEY INSTALLATION

The motor is normally mounted on the front of the mixer which has the inspection door and/or inspection windows, making the mixer auger with the longest stub shaft run faster. The motor pulley (7) is to be mounted with the small end toward motor when in this position

If it is desired to mount the motor opposite the intake, then the motor pulley must be reversed and the large diameter of the pulley installed toward the motor.

When installing the motor, loosen four bolts (A) and slip angle base between mixer angle and plate. Unscrew adjusting bolts (B) far enough to be able to place all belts (9) on motor and mixer pulleys (C). Place motor approximately in center between rails and tighten adjusting screw until equal tension is secured in all belts. If one set of belts is tighter than the other move,



motor sidewise toward tight belts until equal tension is secured. Then tighten four motor bolts (A).

BELT TAKE UP

Dyna Vee Belts should be adjusted every two or three days for the first two weeks after original installation to take up initial stretch, and should be checked every three or four months thereafter. Be sure to keep proper tension on belts.

Belts are matched by code numbers such as 49, 50, or 51. Be sure that belts having the same code numbers are installed on either pulley. DO NOT install belts with different code numbers on the same pulley. It is recommended that an extra set of belts be kept on hand at ALL times.

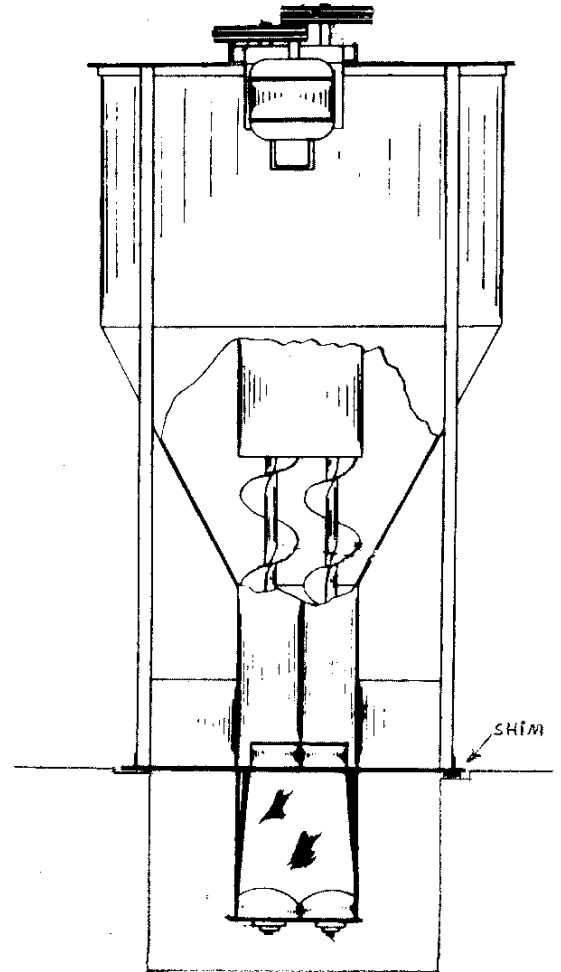
If the mixer is installed in a manner where the belt drive is easily accessible to operating personnel or passers by, a belt guard should be provided for safety. Also, protection should be provided against foreign material coming in contact with belts which would cause excessive wear.

LUBRICATION

Flanged ball bearings on top and bottom of mixer are pre-lubricated and no further greasing is required. Lubrication of motor bearings should be in accordance with the motor manufacturers' recommendations.

SPIRAL REPLACEMENT

Remove belts (9) (see sketch on Page 5) by loosening bolts (A) and adjusting screw (B). Remove motor and sliding base. After removal of the mixer pulleys, loosen the locking collars on the top and bottom bearings. Remove all bolts (C) holding the top bearing plate. Lift off this section in order to remove the augers.



If floor is not perfectly level, shim under base before tightening base bolts.

HOW TO ORDER PARTS

When placing an order for parts for your Super Twin Spiral Mixer, give the serial number of the mixer and then list the number of each part and also the routing for the shipment, Parcel Post, Truck or United Parcel Service and also the point of destination when indicating manner of shipment.

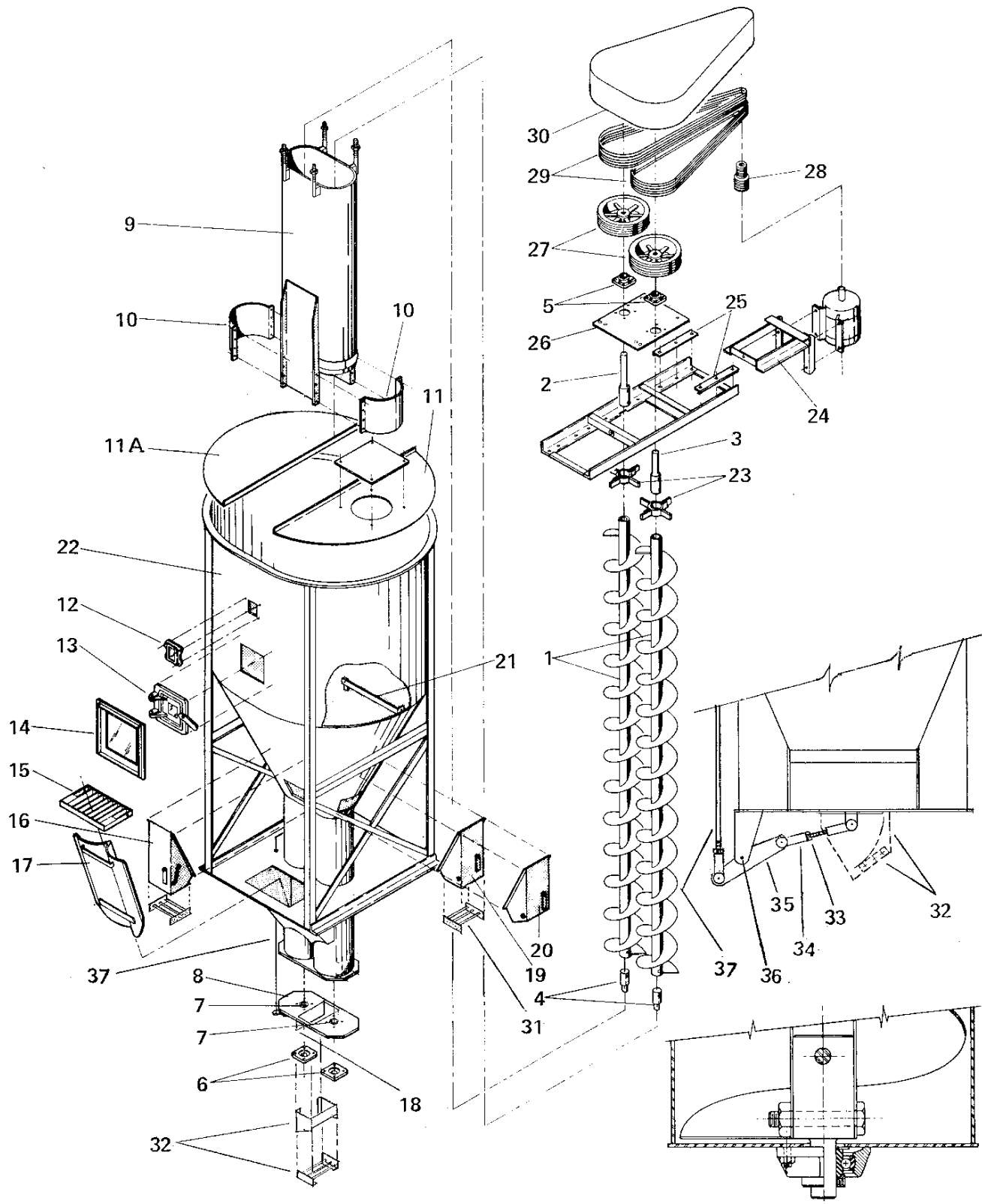
Even when your new mixer order has been completed, PRATER INDUSTRIES, INC. interest continues. Satisfied owners are very important to us.

Before any inspection or maintenance is started NOTE: DANGER, do not open mixer or attempt any form of inspection until mixer has stopped all motion, electrical disconnect has been placed in open position and locked in safe position with a key lock.

PARTS LIST FOR MODEL ST MIXER

NO.	DESCRIPTION	QTY.	12 ST 100	12 ST 160	14 ST 250
1.	SPIRALS	2	3VM-1000-01	3VM-1200-01	3VM-1400-02
2.	TOP STUB SHAFT - LONG	1	3VM-1001-01	3VM-1201-03	3VM-1403-01
3.	TOP STUB SHAFT - SHORT	1	3VM-1002-01	3VM-1201-04	3VM-1404-01
4.	BOTTOM STUB SHAFT	2	3VM-1201-02	3VM-1201-02	3VM-1402-01
5.	TOP BEARINGS	2	1-103-2728-0	1-103-2728-0	1-103-2235-0
6.	BOTTOM BEARINGS	2	1-103-2720-0	1-103-2720-0	1-103-2720-0
7.	FELT WASHERS	2	1-603-1810-3	1-603-1810-3	1-603-1810-3
8.	BOTTOM BEARING PLATE	1	5VM-1007-01	5VM-1007-01	5VM-1410-02
9.	INNER MIXING CHAMBER	1	5VM-1016-01	5VM-1216-01	5VM-1418-01
10.	ADAPTORS (OPTIONAL)	2	3VM-1035-01	3VM-1235-01	3VM-1418-06
11.	TOP COVER	1	4VM-1213-02	4VM-1213-02	4VM-1413-02
11A.	TOP COVER	1	4VM-1213-01	4VM-1213-01	4VM-1413-01
12.	INSPECTION WINDOW	2	3VM-1226-3A	3VM-1226-3A	3VM-1226-3A
13.	HINGED INSPECTION DOOR (OPTIONAL)	1	5VM-1427-01	5VM-1427-01	5VM-1427-01
14.	BOLTED INSPECTION DOOR (OPTIONAL)	1	5VM-1426-01	5VM-1426-01	5VM-1426-01
15.	GRATE	1	5VM-1220-01	5VM-1220-01	5VM-1220-01
16.	BAGGER	1	5VM-1225-03	5VM-1225-03	5VM-1225-03
17.	SLIDE GATE	1	5VM-1210-02	5VM-1210-02	5VM-1210-02
18.	CLEANOUT DOOR	1	3VM-1007-02	3VM-1007-02	3VM-1007-02
19.	SIDE BAGGER (OPTIONAL)		5VM-1225-04	5VM-1225-04	5VM-1225-04
20.	SIDE BULK SPOUT (OPTIONAL)		5VM-1225-06	5VM-1225-06	5VM-1225-06
21.	MIXING CHAMBER SUPPORT	3	3VM-1217-01	3VM-1217-01	3VM-1419-01
22.	MIXER BODY	1	5VM-1004-01	5VM-1203-01	5VM-1406-01
23.	LUMP BREAKERS (OPTIONAL)	2	5VM-1042-01	5VM-1242-01	5VM-1442-01
24.	MOTOR BASE	1	7½HP 5VM-1230-01 10HP 5VM-1230-01 15HP 5VM-1230-01 25HP	10HP 5VM-1230-01 15HP 5VM-1230-01	20HP 5VM-1430-01 25HP 5VM-1431-01
25.	BASE CLAMP	2	5VM-1234-01	5VM-1234-01	5VM-1415-01
26.	TOP BEARING PLATE	1	3VM-1211-01	3VM-1211-01	3VM-1412-01
27.	MIXER PULLEYS	2	7½HP 1-804-1903-0 10HP 1-804-1904-0 15HP 1-804-1904-0 20HP 1-804-1906-0 25HP 1-804-1910-0	10HP 1-804-1904-0 15HP 1-804-1906-0	20HP 1-804-1908-0 25HP 1-804-1910-0
28.	MOTOR PULLEY	1	7½HP 3VM-1028-01 10HP 3VM-1227-01 15HP 3VM-1227-01 20HP 3VM-1428-01 25HP 3VM-1429-02	10HP 3VM-1227-01 15HP 3VM-1228-01	20HP 3VM-1428-01 25HP 3VM-1429-02
29.	V BELTS		7½HP (6 REQ.) 1-154-1180-0 10HP (8 REQ.) 1-154-1180-0 15HP (12 REQ.) 1-154-1180-0 20HP (16 REQ.) 1-154-1320-0 25HP (20 REQ.) 1-154-1320-0	10HP (8 REQ.) 1-154-1180-0 15HP (12 REQ.) 1-154-1180-0	20HP (16 REQ.) 1-154-1320-0 25HP (20 REQ.) 1-154-1320-0
30.	DRIVE GUARD (OPTIONAL)	1	5VM-1049-02	5VM-1049-02	5VM-1449-02
31.	DISCHARGE SAFETY GRATE	2	5VM-1225-07	5VM-1225-07	5VM-1225-07
32.	CLEANOUT SAFETY CHUTE	1	5VM-1052-01	5VM-1052-01	5VM-1443-01
33.	SELF LOCKING JAM NUT	2	1/2-20	1/2-20	1/2-20
34.	CLEVIS ASSEMBLY	3	5VM-1007-10	5VM-1007-10	5VM-1007-10
35.	HANDLE	1	3VM-1007-07	3VM-1007-07	3VM-1007-07
36.	CLEVIS PIN	4	1/2 SAE	1/2 SAE	1/2 SAE
37.	THREADED ROD - 1/2-20	1	3VM-1007-11	3VM-1007-11	3VM-1007-11

SUPER-TWIN SPIRAL MIXER



**FINE GRINDERS
HAMMERMILLS
FLAKE/LUMP BREAKERS
COMPACTORS/BRIQUETTERS
AIR CLASSIFIERS
CENTRIFUGAL SIFTERS
VIBRATING SCREENS
ROTARY FEEDERS
QUICK-TAKE-APART AIRLOCKS
MINI-SIFTERS
BATCHING SYSTEMS
MODULAR WEIGHING SYSTEMS
BAGGING CONTROLS**

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