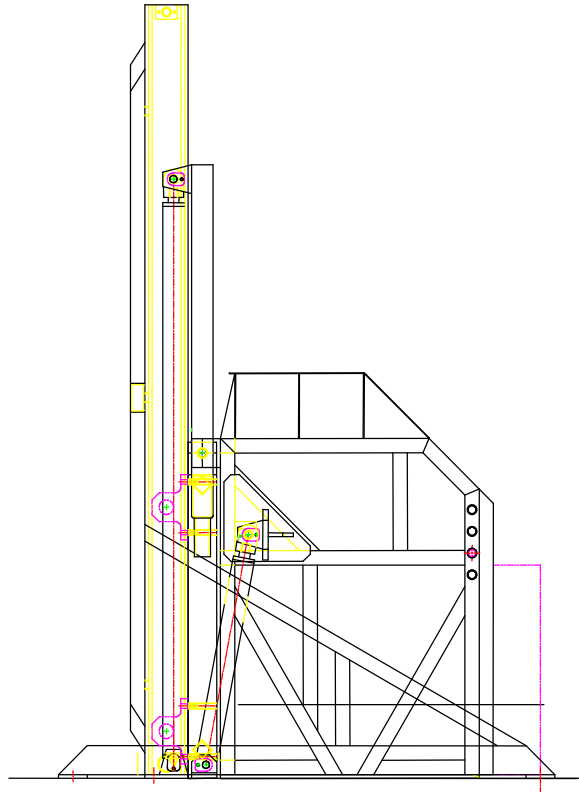


**OPERATING AND MAINTENANCE
MANUAL FOR
PPM
TOTE DUMPER**



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PPM Technologies LLC reserves the right to make changes to the design, materials, and specification of the equipment described in this document without obligation to notify any person or organization of the revision of change. PPM Technologies further reserves the right to discontinue the manufacture and sale of any components described in this document.

INTRODUCTION

This manual contains operating instructions and preferred maintenance procedures for PPM Tote Dumpers. Read it completely before attempting to operate an PPM Tote Dumper.

WARNING

Failure to follow the operation and maintenance procedures contained in this manual could result in unsatisfactory tote dumper performance or serious personal injury.

WARNING

In the event that repair to the tote dumper is necessary, take immediate corrective action to avoid possible injury to personnel and further damage to the tote dumper.

1.1 PPM TOTE DUMPER OPERATION

PPM tote dumper is operated by an electrical motor driving a hydraulic pump which provides hydraulic line pressure to operate the hydraulic lift or pivot cylinders.

Electrical or manual style control valves are utilized to raise or lower the tote into the dumping and tote removal or loading positions.

Some units have optional tote lifts up to the dumping height. Tote lifting units will utilize a mechanical cable or chain lifts which operate with an electrical motor coupled to an appropriate gear reducer, through a simple chain drive to the drive shaft. The drive then winds or unwinds the cable or chain to lift or lower the tote.

Another lift mechanism utilized to lift the tote to its dump height is through a larger hydraulic lift cylinder, this style is commonly utilized on short lift dumpers.

1.2 WARRANTY INFORMATION

PPM Technologies' warranty is available only to the original purchaser of this equipment and applies only to defects in material and workmanship for a period of one (1) year from the date of shipment. There are no other warranties, which extend beyond the description of the goods at the time of sale, and no other warranties may be deemed made by or implied against PPM Technologies. In addition, PPM Technologies' liability is limited to the repair or replacement, at its option, of any defective goods F.O.B. its place of business at Newberg, Oregon. PPM Technologies shall in no event be liable for any special, incidental or consequential damages, or loss of product/production resulting from any defect in goods sold by it. Unauthorized modifications or the use of unauthorized replacement parts may damage the machine. Use only PPM Technologies approved replacement parts. PPM Technologies will not assume responsibilities for equipment performance subsequent to unauthorized modifications or the use of unauthorized replacement parts.

1.3 GENERAL PRECAUTIONS

- 1 Before working on any part of the tote dumper, always ensure that the electric power supply is disconnected and locked out. Before connecting the power supply, make sure that the supply voltage and frequency correspond to the equipment nameplate ratings, the equipment is properly grounded, and all conductors are adequately sized to carry the nameplate voltage and current.
- 2 Before operating any tote dumper, make sure all required guards are in place, emergency stop switches are installed and clearly visible, and moving parts are free to move, all bolted connections are tight, and all personnel, tools, and debris are clear of the conveyor. Never allow personnel to stand on a tote dumper.
- 3 Never rigidly attach pipes, chutes, sheet metal, or other equipment to any moving part of a tote dumper.
- 4 Investigate any new noises that may develop during operation and correct any abnormal condition promptly.
- 5 Follow a regular maintenance routine as shown in the maintenance section. Also inspect the tote dumper for cracks or other structural problems which may develop.
- 6 Never lift any tote dumper by the cradle. Always use the lifters provided.
- 7 Unauthorized modifications to the tote dumper or the use of unauthorized replacement parts may damage the unit. Use only PPM approved parts. PPM Technologies will not assume responsibility for Tote Dumper performance subsequent to unauthorized modification or the use of unauthorized parts. When ordering replacement parts, include all information shown on Tote Dumper nameplate.
- 8 If bolts need to be replaced anywhere on the conveyor, never use replacement bolts with a strength less than SAE Grade 5. When replacing bolts, always replace at the same grade. For a list of acceptable bolts, refer to Appendix A.
- 9 Never operate a Tote Dumper with any loose fittings or parts, such as loose cylinders or pivot bearings.
- 10 Check hydraulics for any obvious leaks and, fluid level in tank prior to start-up.

2 INSTALLATION

Before installing equipment, carefully inspect the entire unit. Document and notify both the Freight Company and PPM Technologies of any damage.

Study all sections of this manual before installation.

Electrical power supply must be the same as the voltage printed on the conveyor nameplate. Any other voltage may cause damage to conveyor or personnel. The electrical connection to the motor must be of flexible conduit to allow movement. If any pneumatic equipment is mounted on the Tote Dumper (slides, chutes, etc.) connect all air hoses to fittings, valve assembly, and air supply. Inspect all tube connections for tight fit.

2.1 FLOOR MOUNT

- 1 Locate and fasten conveyor supports securely to deck or floor. Measure all supports to insure uniform height. The height of the supports should not vary more than $\pm 1/8$ " from those given on drawing.
- 2 Connect power and air supply (if required) to machine. The Tote Dumper should now be ready to start.

2.2 START-UP

Before start-up, all guards must be in place and all moving parts must be free to move. With all personnel, tools, and debris clear of the tote dumper, the unit can now be turned on.

Check for the cause of any noises and correct promptly (loose bolts, pivot pins etc.).

After (8) hours of operation, check all bolted connections for correct torque settings as shown in the recommended torque values chart (Appendix B).

PPM Technologies should be consulted prior to performing any modifications not explained in this manual to any part of the conveyor.

3 MAINTENANCE

A regular maintenance schedule should be implemented to prolong the life of the tote dumper. The schedule should include daily cleaning of the Tote Dumper and regular inspection of all safety guards, sheave alignment, belt tension, hydraulic and air hoses (if applicable), loose mounting bolts or cracked welds, and any abnormal noises. Any abnormal conditions should be corrected before running machine.

3.1 HYDRAULICS

Check unit for any hydraulic oil leakage, do not operate a unit which is leaking.

If leakage occurs tighten or replace components and correct all leakage areas, check and maintain proper fluid level in hydraulic tank or reservoir.

Adjust flow control valves for a smooth operation, under no circumstances jerk totes to empty them.

Jerking totes can cause severe damage to the structural integrity of the tote dumper and will void your warrantee.

3.2 LUBRICATION

The pivot bearings and cylinder clevis pins are greased during assembly at the factory and should require no additional grease prior to start-up.

In most applications, one pump of a standard grease gun every (1) week to each bearing or bushing should be sufficient to maintain smooth operation.

3.3 RECOMMENED SPARE PARTS

To prevent expensive down time, the following parts should be kept in stock at all times:

PART	QUANTITY
Hydraulic power package	(1) Per (5) Machines
Dump cylinders	(2) Per (5) Machines

***NOTE:** OPTIONAL LIFT TO DUMP; Tote Dumpers require a lifting cylinder, mechanical chain, and/or cable lift system. See engineering prints for parts listing of these components.

4 RETURN MERCHANDISE PROCEDURE:

- 1) Have part number and purchase order ready.
- 2) **Call PPM Parts Department at 1-503-538-3141 obtain a RMA#.**
 - a. PPM Parts Department will not be able to tell you if the parts are under warranty, as they need to inspect the parts.
 - b. Although your parts may be less than one year old, it depends on the type or cause of failure and may not be under warranty.
 - c. PPM Technologies reviews failures and determines if the parts are under warranty.
- 3) Send parts back to: **PPM Technologies LLC**
500 E. Illinois St.
Newberg, Oregon 97132
RMA#
 - a. Items returned w/o an RMA # will NOT BE ACCEPTED and will be sent back to customer.
- 3) Once parts are repaired they will be sent back to our customer VIA:
 - a. **UPS ground (5 days) unless otherwise arranged.**

The information in this publication is intended to cover a variety of installations and requirements. It is to be expected that situations will arise that have not been adequately covered by the foregoing data and should difficulties arise please contact your local representative of PPM Technologies who will assist you to obtain a satisfactory installation or contact the PPM Service Department at the above number.

4.1 LOST OR DAMAGED GOODS:

THOROUGHLY INSPECT AND COUNT ALL SHIPMENTS IMMEDIATELY UPON ARRIVAL. OUR RESPONSIBILITY FOR ALL SHIPMENTS IS CEASED WHEN THE CARRIER SIGNED THE BILL OF LADING.

If goods are received short or in a damaged condition, it is important that you notify the carrier and insist on a notation of the loss or damage across the face of the freight bill; otherwise no claim can be enforced against the transportation company.

If concealed loss or damage is discovered, notify your carrier at once and request an inspection. This is absolutely necessary. A concealed damage report must be made within 15 days of delivery of shipment. Unless you do this, the carrier will not entertain any claim for loss or damage. The agent will make an inspection and grant a concealed damage notation. If you give the Transportation Company a clear receipt for goods that have been lost in transit, you do so at your own risk and expense.

We are willing to assist you to collect claims for loss or damage, but this willingness on our part does not make us responsible for collection of claims or replacement of material. The actual filing and processing of claims is your responsibility.

* If your shipment is crated or wrapped, you should sign the Bill of Lading noting "subject to Concealed Damages".

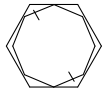
To protect your warranty contact our factory prior to any modifications.

APPENDIX A

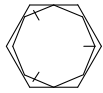
CAPSCREW IDENTIFICATION



SAE Grade 1 / SAE Grade 2 / ASTM A307 (unacceptable)



SAE Grade 3 (unacceptable)



SAE Grade 5 / ASTM A449 (acceptable)



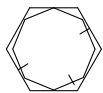
ASTM A325 (acceptable)



ASTM A354 Grade BB (acceptable)



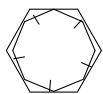
ASTM A354 Grade BC (acceptable)



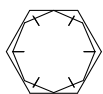
SAE Grade 5.1 (acceptable)



ASTM A193 Grade B7 (acceptable)



SAE Grade 7 (acceptable)



SAE Grade 8 (acceptable)



ASTM A490 (acceptable)

APPENDIX B

RECOMMENDED TORQUE VALUES

BOLT SIZE	S.A.E. GRADE 5 TORQUE		S.A.E. GRADE 8 TORQUE	
	DRY (FT. LBS.)	LUBRICATED OR PLATED (FT. LBS.)	DRY (FT. LBS.)	LUBRICATED OR PLATED (FT. LBS.)
1/4-20	8	6	12	9
1/4-28	10	8	14	10
5/16-18	17	13	24	18
5/16-24	19	15	27	20
3/8-16	30	23	45	34
3/8-24	35	27	50	38
7/16-14	50	38	70	53
7/16-20	55	42	80	61
1/2-13	75	57	105	80
1/2-20	85	65	120	91
9/16-12	110	84	155	118
9/16-18	120	91	170	129
5/8-11	150	114	210	160
5/8-18	170	129	240	182
3/4-10	270	205	375	285
3/4-16	300	228	420	320
7/8-9	430	327	610	464
7/8-14	475	361	670	509
1"-8	645	490	910	692
1"-12	705	535	1000	760
1"-14	720	547	1015	771