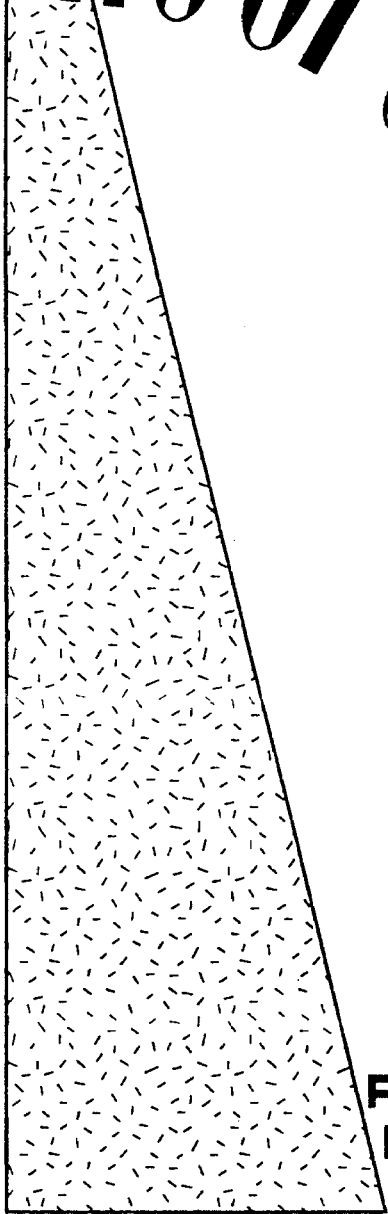


 **SHIMPO**

INSTRUCTIONS



Pug Mill
Models NVA-07B
NVA-15B

NVA-07B and NVA-15B

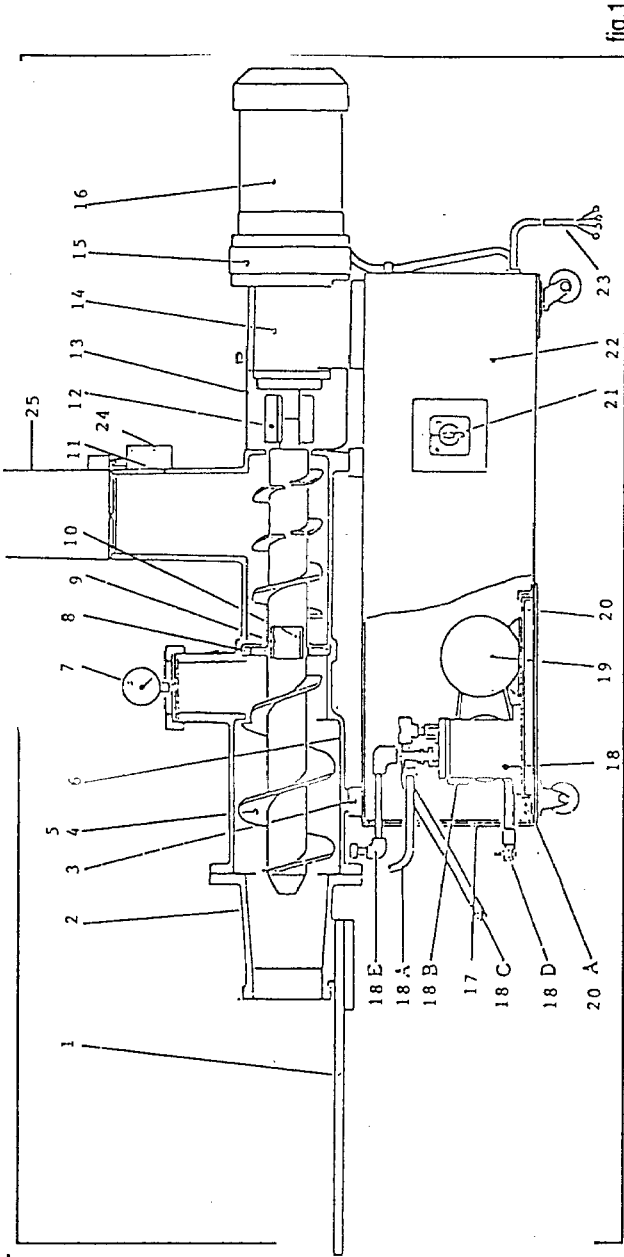


fig.1

Part Number

- 1 Clay rest
- 2 Nozzle
- 3 Base B
- 4 Screw A-short screw
- 5 Screw B-long screw
- 6 Screw case A
- 7 Pressure gauge
- 8 Vacuum plate A
- 9 Plastic bushings
- 10 Vacuum plate B
- 11 Screw case B
- 12 Cylindrical separate coupling
- 13 Screw cover
- 14 Base
- 15 ER speed reducer
- 16 Motor for pug mill
- 17 Front cover
- 18 Vacuum pump
- 18A Air intake opening
- 18B Oil level confirming
- 18C Air release opening
- 18D Oil and water drain
- 18E Oil inlet opening
- 19 Vacuum pump motor
- 20 Pump base
- 20A Pump fixing bolt
- 21 Switch
- 22 Frame
- 23 Power cord
- 24 Limit switch
- 25 Hopper
- 25A Safety extension hopper
- 26 Vacuum chamber

Specifications

Model	NVA-07B	NVA-15B
Main Motor	1HP, 750W, 230V, 60Hz, AC	2HP, 1500W, 230V, 60Hz, AC, 3-phase
Vacuum pump motor	1/3HP, 100W, 60Hz	1/3HP, 100W, 60Hz, 3-phase
Capacity	1100 lbs/hr.	1320 lbs/hr.
Tube opening	4" diameter	4 ³ / ₈ " diameter
Hopper size	4 ¹ / ₂ " x 4 ¹ / ₂ "	5 ¹ / ₄ " x 4 ⁷ / ₈ "
Dimensions (LxWxH)	70 ¹ / ₄ " x 16 ¹ / ₄ " x 53 ¹ / ₄ "	75 ¹ / ₄ " x 16 ¹ / ₄ " x 54 ¹ / ₂ "
Weight	287 lbs	353 lbs
Shipping weight	320 lbs	400 lbs
Accessories	Clay rest, clay cutter, hopper cover and nozzle cover	
Safety device	Safety extension hopper, key-operated on/off switch	

Preparation

1. Fill vacuum pump with hydraulic oil #68 (provided) to center of oil gauge.
2. Attach clay rest with bolts (part #1).
3. Plug in power cord (part #23).

For NVA-15B:

- To connect with knife switch: Connect red, white and black wires to knife switch. Green wire is ground/earth.
- To test: Turn pug mill switch to "1". Screws should turn forward. If they turn in reverse, reconnect two of three wires (not ground/earth) (fig. 2).

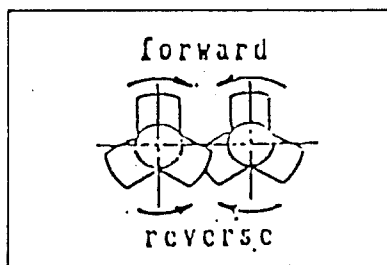


fig. 2

- To connect using plug: Connect green (earth) wire to prong (see arrow in fig. 3). Connect red, white and black wires to other prongs. Test as above.

For NVA-07B:

Simply plug in power cord.

4. Mount safety extension hopper (part #25A) onto hopper (part #25) by using four fixing bolts.

Note: Pug mill motor will not work without safety extension hopper.

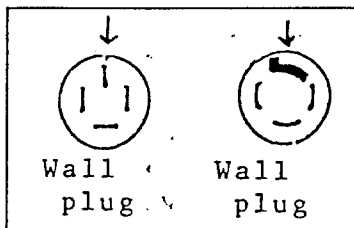


fig. 3

Operation

1. To rotate screws, turn switch to "1". To operate vacuum pump, turn switch to "2". Vacuum will not work until clay enters nozzle (part #2).
2. Close valve at side of vacuum chamber (fig. 4).
3. Add clay. Pressure gauge (part #7) must read more than 70cm/Hg for clay to be de-aired and pugged.

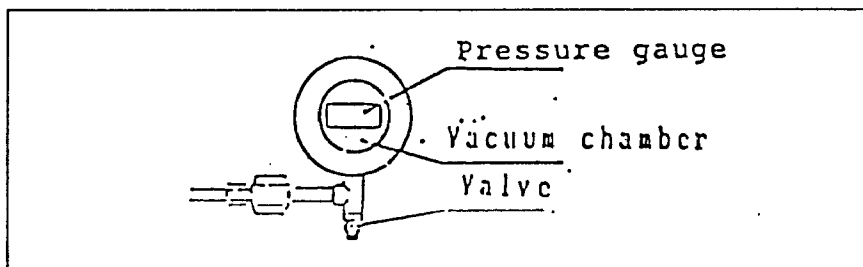


fig. 4 (top view)

To stop:

- Turn switch (part #21) to "0".
- Open valve at side of vacuum chamber (fig. 4).

Note: This step is essential so that oil in vacuum pump will not flow into vacuum chamber.

4. Release water. If pug mill will not be used for a long period of time, open oil and water drain (part #18D) to release water.

Cleaning

1. Remove pressure gauge (part #7).
2. Pull out the hose from half union (fig. 5). Push at point "a" of half union in direction of arrow and pull out hose.
3. Remove screw cover (part #13) by removing two knob screws from base (part #14).
4. Position cylindrical separate coupling (part #12). Turn switch to "1". Turn screw until the allen bolt that tightens the cylindrical separate coupling comes to the top. Turn switch to "0".
5. Remove clay rest (part #1), nozzle (part #2), screw case B (part #11), vacuum plate A (part #8). Remove two stainless allen bolts.

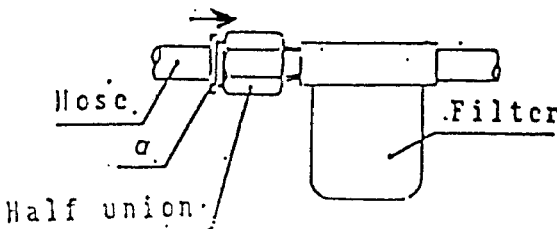


fig. 5

6. Remove plastic bushings (part #9). If worn, replace to avoid air from leaking into vacuum chamber.
7. Remove cylindrical separate coupling (part #12) (fig. 6).
8. Lift screws A and B (parts #4 and #5) and remove vacuum plate B (part #10) (fig 7).
9. Clean clay from all parts of the pug mill with water.

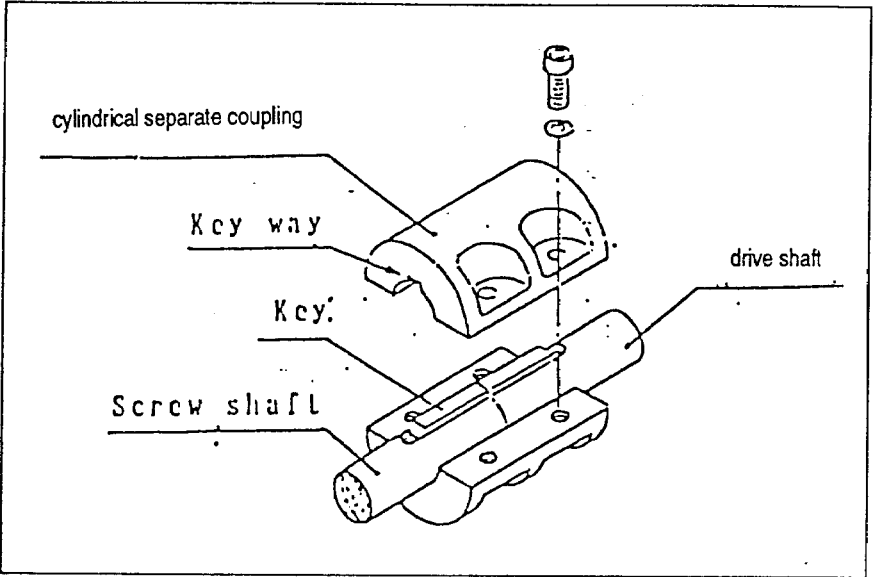


fig. 6

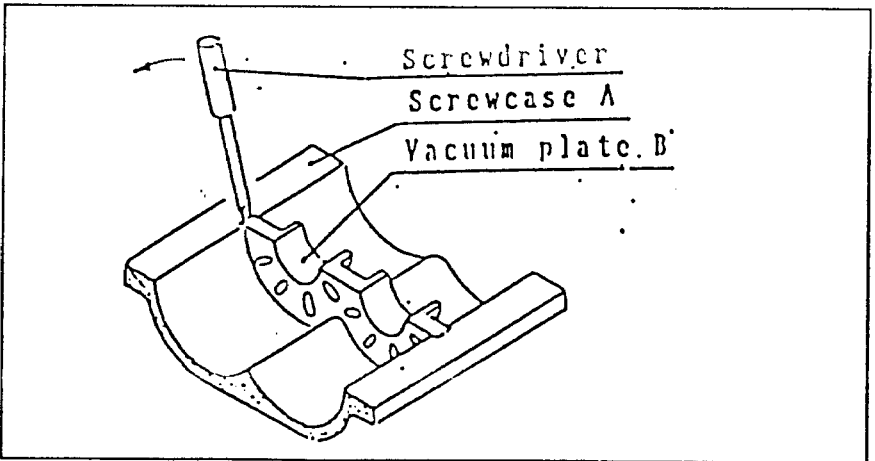


fig. 7

To Reassemble

1. Put vacuum plate B (part #10) into screw case A (part #6). Boss will be on motor side. Female screw is on the vacuum plate B (fig. 8).
2. Place one half of the plastic bushings (part #9) on vacuum plate B (part #10).
3. Mount screws A and B (parts #4 and #5). Put screw shaft onto drive shaft, match screw shaft and key of drive shaft (fig. 6).
4. Hold screw shaft and drive shaft tightly with cylindrical separate coupling. Keep even distance on both sides of coupling (approx. 1mm). Marks A and B are engraved on couplings. Match "A" to "A" and "B" to "B" of the couplings and tighten. Hammer lightly key into keyway of the coupling (figs. 6 and 9).

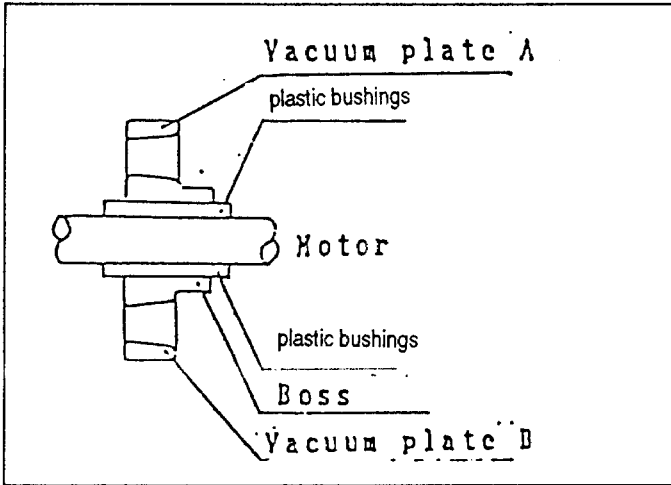


fig. 8

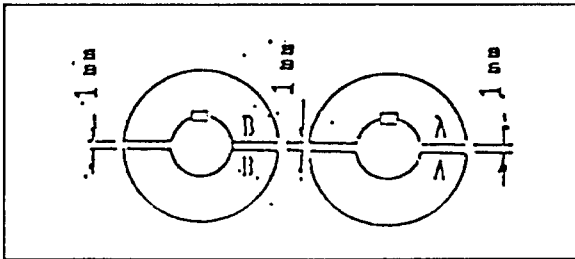


fig. 9

5. Place the second half of the plastic bushing (part #9) onto screws A and B (parts #4 and #5.)
6. Fasten vacuum plate A (part #8) onto vacuum plate B (part #10) with allen bolts.
7. Place screw case B (part #11) on screw case A (part #6) and tighten lightly by hand. Clean all dirt on the interfacing surface to avoid air leakage.
8. Mount nozzle on screw case A and B (parts #6 and #11). Tighten all bolts and nuts. Loosen two upper bolts and nuts (fig. 10).
9. Tighten the ten bolts that were tightened by hand in Step 8 (bolt B in fig. 10).
10. Tighten two bolts loosened in Step 9 (bolt A in fig. 10).
11. Mount clay rest (part #1) and screw cover (part #13).
12. Set hose into half union (fig. 5).
13. Mount pressure gauge (part #7).

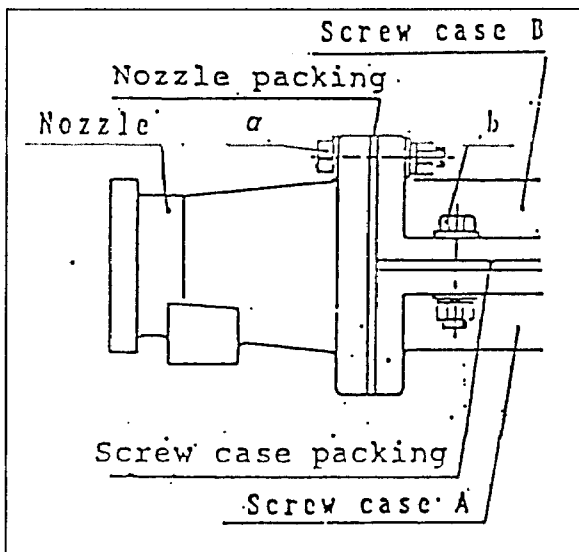


fig. 10

Maintenance

■ After operating, cover pug mill:

1. Place rubber cover onto nozzle (part #2).
2. Mount pressure gauge (part #7).
3. Put wet cloth into hopper, cover hopper opening with nylon and place aluminum lid on.
4. Pour a small amount of water into hopper periodically if it will be unused for a long time.

■ If clay enters vacuum chamber:

1. Turn off unit.
2. Remove pressure gauge.
3. Remove clay stuck in vacuum chamber.

■ To release water from filter, push protruding pin on filter (fig 11).

■ To replace clay cutter stainless wire (fig. 12):

1. Remove broken wire and fasten wire on a-side.
2. Bend cutter in direction of arrow "P".
3. Fasten other end of wire onto b-side while cutter is bent.

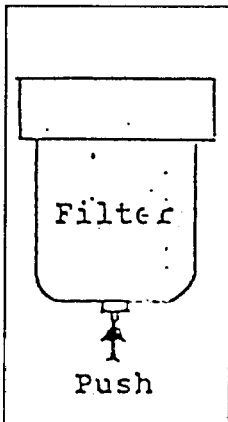


fig. 11

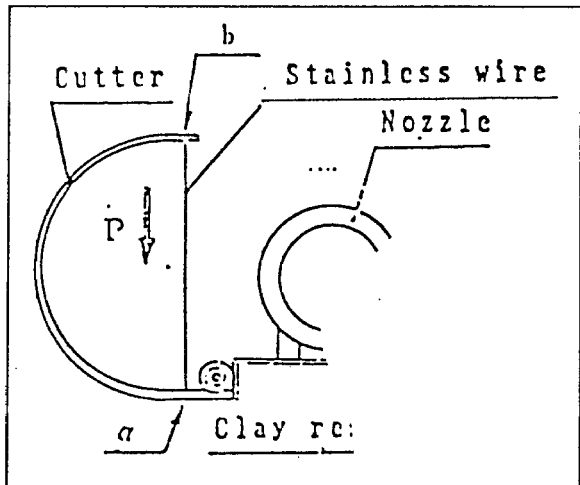


fig. 12

Lubrication

For gear box: The gearing has been permanently lubricated with Shell Darina Grease EP.0, Mobil Mobilax EP No. 1 or equivalent. Re-lubrication is required only if repairs are needed.

For vacuum pump: The vacuum pump has been lubricated with Esso Teresso 68, Shell Vitrea 68 or equivalent. Oil change is recommended every 125 hours.

Troubleshooting

■ Clay is not taken in smoothly:

1. When soft clay is to be pugged, mix with a small quantity of harder clay. When it runs smoothly, soft clay can be added.
2. If clay is too hard, pour in a small amount of water and let sit for several days until it becomes soft. If clay still does not go in, disassemble pug mill and thoroughly clean all clay.
3. Extruded clay: If the surface of clay extruded appears as in fig. 13, remove nozzle and clean.

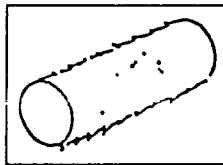


fig. 13

■ Vacuum pump belt needs to be replaced:

1. Remove front cover (part #17).
2. Remove pump fixing bolt (part #20A).
3. Pull out hose from half union (fig. 5). Push at point "a" of half union in direction of arrow and pull out hose.
4. Remove the connector attached to the vacuum pump motor cord (part #19). Lift the tip of hook and open both sides of connector to remove the connector (fig. 14).
5. Pull out pump base (part #20).

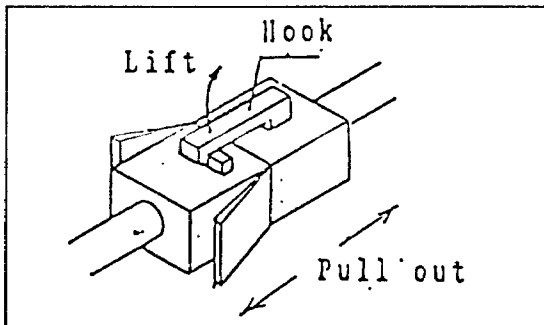


fig. 14

6. Replace belt (fig. 15). Place screwdriver between vacuum pump pulley and belt. Rotate vacuum pump pulley by hand in direction of arrow. Remove belt. Place new belt on motor pulley. Slip belt onto vacuum pump pulley by again rotating pulley in direction of arrow.

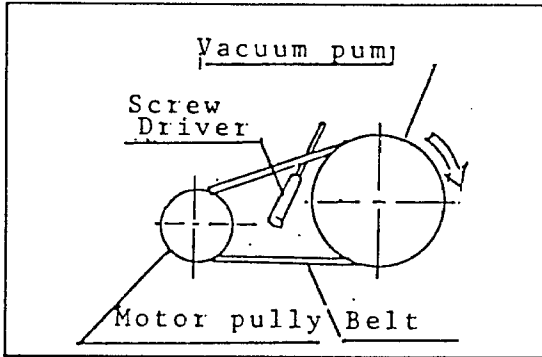


fig. 15

Warnings

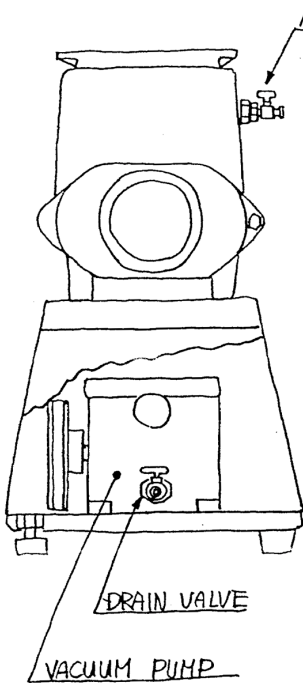
- Do not operate with wet hands.
- When cleaning or unloading, unplug power cord.
- Keep hands, apron, clothes, etc. away from hopper and rotating parts.
- Do not remove safety hopper until pug mill motor stops running.



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To maintain the characteristic of the vacuum pump, follow the notes described below.



< VIEW FROM NOZZLE >

A) Avoid running the vacuum pump with the air inlet valve open.
Bad circulation of oil in pump causes damages of internal parts.

B) When stop the pump,
a) Open the air inlet valve and let air go into the pump.
b) Turn off the switch for the vacuum pump.

c) Drain water after using.
(Wait until oil and water separate. (2-3 hours required))

