

## MORGAN-PRESS

### ANTI-DROOL NOZZLE #11

#### A. Usage and Function

The Anti-Drool Nozzle is a spring-loaded, shut-off nozzle intended for use with free-flowing thermoplastic resins. It is used for positive material shut-off during specialty short-run production where the mold is mounted in the machine. It permits "packing the barrel" of a Morgan-Press between shots when necessary to make a maximum size single-shot or squeeze out trapped air in the material. Refer to Appendix III of the engineering manual, "Cutting Costs in Short-Run Plastic Injection Molding," as a guide to determine when a shut-off nozzle is required and for other material handling requirements.

NOTE: PROPER MATERIAL HANDLING PROCEDURES, ESPECIALLY THE DRYING AND MELT TEMPERATURE REQUIREMENTS, MUST BE OBSERVED TO ATTAIN GOOD PROCESSING RESULTS AND TO HELP PREVENT INJURY FROM HOT THERMOPLASTIC.

The nozzle functions as follows:

1. When a mold is clamped against the nozzle, the sliding nose section is pushed up into the barrel bore. This opens the material flow passages which allow material injection into the mold.
2. When a mold is unclamped, the mold moves away from the nozzle. The return spring then pushes down on the nose section thus shutting-off the material flow passages. (Note: there may be slight material excess between the shut-off point and nozzle orifice. Occasionally between shots it is necessary to scrape off this excess as it extrudes from the nose.)

#### B. Purging

**DANGER: ALWAYS WEAR SAFETY GLASSES NEAR MACHINE, ESPECIALLY DURING A PURGE. LOWER TABLE SAFETY GUARD TO PREVENT INCIDENT SPLASHING OF VERY HOT THERMOPLASTIC WHICH IS UNDER HIGH PRESSURE.**

For purging the barrel with the Anti-Drool Nozzle a purging mold with a large volume is recommended to open the nozzle. A Purging Mold is available from Morgan Industries, Part Number PM-11AB, or see attached drawing if you prefer to make it. When the purging mold is clamped against the nozzle (thus opening the flow passages), the molten plastic can then be free extruded from the barrel.

**WARNING: ALWAYS OBSERVE STANDARD SHOP SAFETY PROCEDURES WHEN WORKING ON OR WITH MORGAN-PRESS EQUIPMENT.**

### C. Cleaning and Replacing Nozzle Seals and Return Spring

1. Remove the nozzle with a 1-1/8" wrench or deep hex socket. When removing nozzle first purge as much material from the barrel as possible. Then loosen the nozzle about ½ turn while barrel is still hot (processing temperature of the resin in the barrel) to break the threads loose. If possible allow the barrel and nozzle to cool down so that remaining material solidifies. (This helps minimize excess mess.) Finish unscrewing the nozzle and remove from barrel.

WARNING: NOZZLE AND MATERIAL MAY BE EXTREMELY HOT DURING THIS PROCEDURE. HEAT PROTECTIVE GLOVES AND APPROPRIATE CAUTION ARE RECOMMENDED TO AVOID BURNS.

2. Nozzle may be cleaned when out of machine. Secure the nozzle in a bench vise and remove large chunks of plastic by chipping them off with a mallet and chisel-type implement. Be sure to clean the head of the retainer screw for disassembly. Appropriate techniques to finish clean-up are the following: a) deburring wheel (grinder mounted), b) wire brush (either hand or grinder mounted), c) appropriate solvents for some resins, and d) fluidized bed or molten salt bath furnaces.
3. Clamp parallel flat portions of nozzle nose in a smooth jaw bench vise. Unscrew and remove the retaining screw with a 5/32" hex key. Remove the nozzle nose retaining ring from the back of the nozzle body. If the retaining ring sticks, gently pry it loose with a lever.
4. Disassemble the rest of the nozzle. It may be necessary to use a punch or drift pin to separate the nozzle nose from the body.

CAUTION: Use a 3/8" to ½" diameter punch or drift pin to prevent damage to nozzle nose threads.

(At this point additional clean-up, if necessary, may be done prior to re-assembly.)

5. Examine the aluminum nozzle seal. If not re-usable, remove it and press fit a replacement into the recess. A bench vise may be useful for this task.
6. Examine the nozzle return spring. If it is not usable (collapsed length), replace it with a new one. Then reassemble the Anti-Drool Nozzle as shown in the diagram "Anti-Drool Nozzle #11 Assembly Drawing." Make sure the retaining screw is tight. Do not use a thread sealing compound on the retaining screw during assembly: it may melt and contaminate the plastic during processing.

7. You are now ready to replace the Anti-Drool Nozzle in your Morgan-Press and resume molding. Nozzle must be same temperature as barrel for final tightening. It should be very tight so that the aluminum seal forms a complete seat. Proper installation prevents plastic from pushing out between threads and stress-relieves the clamp force exerted on the nozzle threads. Always re-tighten nozzle three or four times after putting it in. Do so after clamp force has pressed against it.

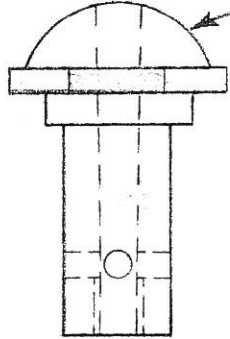
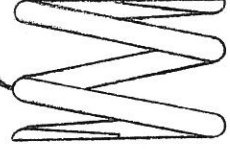
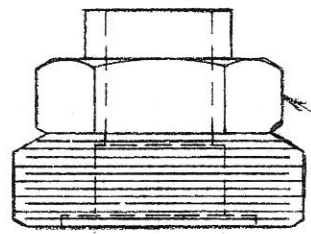
WARNING: DO NOT TIGHTEN A COLD NOZZLE INTO A HOT BARREL

NOTE: CORRECT TIGHTENING IS ESSENTIAL IN PREVENTING  
DAMAGE TO BARREL OR NOZZLE THREADS.

NOZZLE RETURN SPRING  
(INCONEL ALLOY)

ALUMINUM NOZZLE SEAL

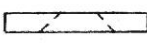
RETAINER SCREW  
10-32 x 1/2



NOZZLE NOSE RETAINER  
AND SHUT-OFF RING

NOZZLE BODY  
1-1/2"-12 THREAD  
W/1-1/8" HEX

NOZZLE NOSE  
1/2" SPHERICAL RADIUS  
1/8" OR 3/16" ORIFICE



# ANTI-DROOL NOZZLE #11 ASSY. DWG.

SCALE: 1/1  
DATE: 12/74

APPROVED BY AGJ

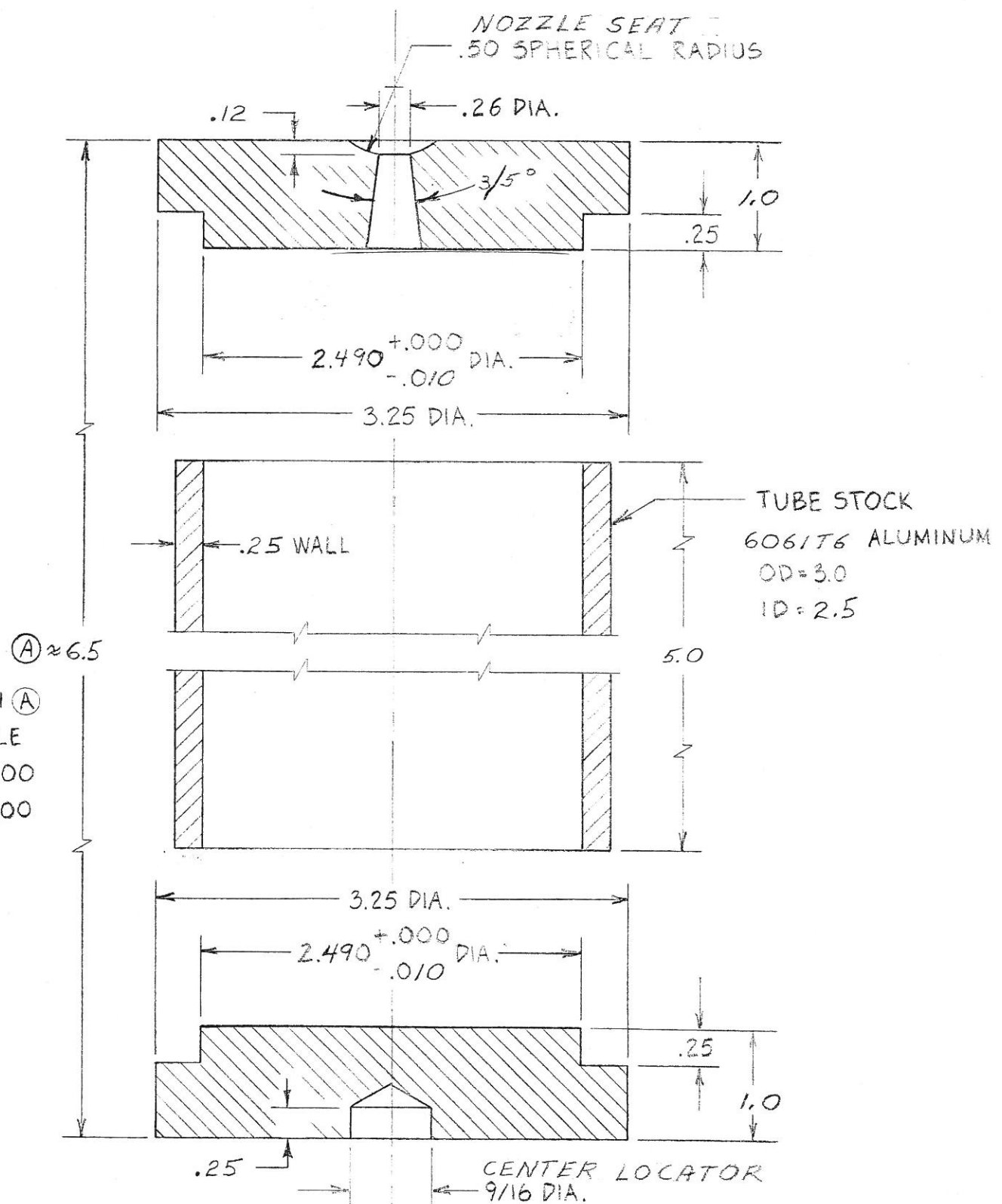
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REV: 10/13/81  
REV: 10/9/90

MORGAN INDUSTRIES, INC.

DRAWING NUMBER

SKETCH OF PURGING MOLD FOR MORGAN-PRESS WITH ANTI-DROOL NOZZLE

MATL: ROUND AND TUBE STOCK 6061 T6 ALUMINUM OR EQUIVALENT



10/9/06