Troubleshooting Guide for Pumps

ATD5217 - ATD5219 - ATD5289

PROBLEM:	SOLUTION:		
WARNING:	***THINK SAFETY FIRST!!!! THINK SAFETY ALWAYS!!!***		
Your pump does not work? There are Three Basic Problems!	**Air Motor Operates but nothing comes out. This is the most common problem.**	**Air Motor Operates; Grease comes out but there is no pressure. 2nd Common Prob.**	**Air Motor does not operate. This is a less common occurrence.**
We will deal with all 3 of these problems and step you through a troubleshooting sequence so ***you can solve the problem on your own without our intervention and be on your way***. All of the pumps undergo 2 types of stringent tests at the factory; The first is a cycle test in grease with the pump pumping a certain amount of grease per cycle over a stated time period. The second test is a pressure test with a meter to hold grease pressure at 5000 psi at 100 psi of air pressure for a stated period of time before they leave the factory. This ensures that your pump will work out of the box.			
WARNING:	**If the Air is connected to the pump, *consider the pump to be live*. Do not attempt to work on the pump or the system without disconnecting the Air Inlet and relieving pressure in the system, both air pressure and lube pressure. Make sure there are no live air pockets in the air motor and all air has been bled from the Air Motor before working on the pump.**		
WARNING: (Again!)	**Ensure that all of the Air Pressure and Lubrication Pressure has been bled out of the system and there is no Residual Lube Pressure or Air Pressure in the System before you disassemble the pump!! (VERY IMPORTANT!!!!)**		
WARNING:	Do not stick your finger into the bottom of the Pump Downtube or 61275 Priming Tube. This could result in amputation!!		
WARNING:	Do not stick any type of blunt instrument into the bottom of the Pump Downtube or 61275 Priming Tube as this could ruin or bend the precision parts such as the 11723 Plunger Rod.		

Question	Yes	No
Does the Air Motor Operate?	Next Section	Check In-Line Air Pressure to the pump. Recommended Air Pressure is 80 PSI – 100 PSI.
		Check Air Compressor and FRL for obstructions or blockage
Is the Air Motor is Leaking Air?	Check the Inlet Air Nipple. Use Teflon tape to seal the threads at the Air Inlet. Silicon is not recommended since it can escape into the interior of the Air Motor and cause damage to the valves. Check the Quick Disconnect Coupler connection to the Air Hose. Use Teflon tape to seal the threads at the Connection	
The Air Motor blows air through the Muffler / Exhaust Port	Check to see that the Air Inlet Nipple is installed in the correct location. Check that the Brass/Steel Plug is installed in the Air Motor head and is not leaking air. If there are no air leaks and Air is fully engaged at least 80 psi, then sometimes in RARE CASES the slide valve will stick in the neutral position: take the rubber part of a mallet and **lightly tap** the top of the Air Motor or the cover of the Air Motor (41202) with the rubber part only. Did we say **"LIGHTLY TAP" Yes, we did. Don't pound it and Don't beat it!!! It is a casting and It will dent or Crack!** Sometimes and very rarely the slide Valve sticks in the neutral position and needs to be prodded off of the neutral position. It also indicates that the Air Motor might have water damage or the damage is starting or there is water present in the air line.	
Question: Are you using a FRL (Filter / Regulator/Lubricator) on the pump?	**Answer:** We strongly suggest the use of a Filter / Regulator/Lubricator (FRL) on the pump. The Filter should be a moisture evaporator with an automatic dump on it so water is eliminated and purged from the air before entering the pump. If you do not have a FRL on the pump, chances are the pump head could be accumulating water and this will corrode the inside of the pump and moving parts, thereby reducing the life of the pump.	
Pump does not pump material	Check to see if there are any blockages in the Lubricant lines. If all lines are secure: disconnect the Grease Hose from the pump.	

Pump operates, pumps material but does not shut off.	Reason: Pump is not reaching stall pressure. 1: Check that all hoses, lubricant lines and controls valves are connected and the connections are tight. There should be no leaks. 2: Check that the hoses are **SAE approved Grease Hoses** and made for pumping High Pressure Grease. **Don't use Oil Hose or Garden Hose for pumping High Pressure Grease.** 3: Go to Step #2; Downtube Blockage. 4: If that does not solve the problem go to Step #4	
Air Motor on Pump operates but no material comes out	1: Check the follower plate. Make sure there are no air pockets in the grease underneath the follower plate. Push down lightly on the follower plate to ensure a positive prime. 2: Check that all hoses and control valves are fully connected 3: Check to see that there are no blockages in the lines, hoses or control valves. 4: Go to Step #2; Downtube Blockage below. 5: If that does not solve the problem go to Step #4 below	
Air Motor still Operates but no Material comes out.	Your pump has picked up some foreign debris or materials such as rocks, stones, dirt, sand, plastic or metal. Follow instructions for Lower Downtube Disassembly and Cleaning below.	
Pump, hoses and valves are Connected and pump does not Pump when I pull the trigger on The control valve	**See Trouble Shooting Sequence Below: Question / Answer Period.**	
Warning: (Again!!!)	**If the Air is connected to the pump, *consider the pump to be live*. Do not attempt to work on the pump or the system without disconnecting the Air Inlet and relieving pressure in the system, both air pressure and lube pressure. Make sure there are no live air pockets in the air motor and all air has been bled from the Air Motor.**	
QUESTION???	**YES!!!**	**NO!!!**
Does the pump Air Motor operate when it is removed from the Grease?	**Yes:** Then put the pump back in the grease. Remove the hose from the pump	**No:** Then check Air Inlet for Pressure, and check Air Motor for Leaks at the Air Nipple, Muffler or Seals. If there are no air leaks and Air is fully engaged at least 80 psi, take the rubber part of a mallet and slightly tap the front cover of the Air Motor (41202) with the rubber part only. Sometimes and very rarely the Toggle Valve sticks and needs to be prodded off of the neutral position.
Does the Air Motor have water in the Casing?	If water is in the Air Motor Casing (41245), The slide valve 45605 could be sticking because it is corroded or rusted. Sometimes injecting 4-8oz of SAE 30 Motor Oil into the air Inlet will lubricate the air motor parts enough to get the air motor operating. This is a temporary fix.	
Water Continued: Oil Solution	Do not use Marvel Mystery Oil or any synthetic oil as this will swell the Buna N Packings of the pump and render the pump useless.	
Does the Air Motor Operate Now?	**Yes:** check to see it will pump grease. In the future keep the air motor well oiled. You need to check the water and air quality in your air line. Insert pump into grease and see below **Step 5.**	**No:** This could be due to 2 problems; We will deal with each independently. **See Step #1 below and then see Step #2.**
Step #1: Water in the Air Motor **Step #2: Downtube Blockage.**	**Yes:** Remove Air Motor Cover 41202 and inspect the inside of the Air Motor Casing. There should be NLGI#1 grease packed into the air motor casing. If there is no grease in the air motor casing, the grease	**No:** We did not find water in the Air Motor Casing when we removed the Air Motor Cover 41202**. Go to Step #2 below.** **Step #2:** It is possible your pump has picked up some foreign materials or debris such as

	is white or the parts are corroded and rusted you have a moisture problem in your air line that needs to be corrected. Try soaking the Air Motor Casing in SAE 30 Motor Oil to free up the moving parts. If this does not solve the problem the pump needs to be rebuilt preferably by an Authorized ATD Service Center.	rocks, stones, dirt, sand, plastic or metal. This could block the down tube plunger 11724 from being able to freely move up and down. Follow instructions for Lower Down tube Disassembly, Inspection and Cleaning.
Step 3: Did this solve the problem?	**Yes**: Please think of using a Strainer (ATD5356) See Note on the Strainer Below.	**No:** If this did not solve the problem with the pump, then we have covered blockage in the downtube, corroded or non-function parts in the air motor, blockage in the hose and control valve, and air motor air leaks.. This covers approximately 99% of the problems. Continue to Step #4 if the pump does not build or hold pressure or continue onto step #6 for unusual problems.
Step 4: Pump not holding or building Pressure:	**Yes:** The pump holds pressure fine. Then you solved the problem?!?!	**No:** It operates but does not hold or build pressure in the system or line. **Follow instruction for Lower Downtube** Disassembly, Inspection and Cleaning. Chances are foreign material is lodged in the lower downtube. In addition, it is possible that the packing 35073 needs to be replaced in the Lower Downtube section. This is a wear part and not covered by warranty. Consult your service manual for the location of the 35073 and instructions for replacement are in the Downtube Disassembly instructions. In some cases, we have seen paper and bubble gum that get stuck up inside the plunger bushing 90554ME between the two check balls, check seats and ball stop. This part is a precision lapped part and if that is the case, it will need to be cleaned out. **See note below on types of foreign materials.**
Step 5: Does it pump grease now when inserted in the drum?	**Yes:** There is a blockage in the Hose or the Control Valve. Remove the Control Valve from the hose and connect the hose to the pump. Or Yes, but it does not seem to hold or build pressure. **See note below on types of foreign materials.**	**No:** See Step # 1 followed by Step #2
Does the grease pump through the hose?	**Yes:** Then the blockage is in the Control Valve. Attach the control valve to the hose. Remove the coupler from the Control Valve. Most likely the blockage is at the control valve.	**No:** Then the blockage is in the hose.
Does the grease pump through the Control Valve?	**Yes:** there was blockage in the coupler of the control valve. Clean the Coupler out with Mineral Spirits.	**No:** There is a blockage in the main body of the Control Valve. Control Valve needs to be disassembled and cleaned.
Is there Blockage in your Lubricant Lines, Hoses, Pumps and Control Valves Common?	**Yes:** we suggest the use of a foot valve strainer: **ATD5356**	

Step #6: Are there Dents in the Air Cylinder?	**Yes:** Look on the outside of the air cylinder 61041. Are there any dents. The smallest dent will stop the operation of the pump. You need to replace that part and order a repair kit as well. Or Contact an Authorized ATD Service Center. Also see warning note below on the use of Hammers!	**No:** There are no dents or cracks on the outside. Go to step #7:
Step #7: Any Synthetic Oil?	Has anyone injected marvel mystery oil or any synthetic oil into the air inlet of the pump? Synthetic Oil will swell the Buna N Packings especially part # 34090. The Air Motor will not operate and will need to be rebuilt.	
Note: Strainer ATD5356	To prevent Blockage in the pump, hose, lubricant lines or control valve with contaminated grease, or to prevent contaminated grease from entering your bearings, we suggest the use of a Grease Strainer: ATD5356	
Has your Pump been Outside in the elements? Has water entered the Air Motor?	**Yes:** there is a possibility that water has accumulated inside the Air Motor. Over time this can cause damage to the Air Motor. All pumps are packed at the factory with a water repellent NLGI #1 grease. Over time with water accumulating inside the Air Motor, the grease can be flushed out.	
Note: FRL	To ensure the proper operation of your Pneumatic pump, we suggest a **Filter, Regulator, Lubricator (FRL)** on each Pump OR at the very least a Filter /Regulator with an automatic dump mechanism on it to purge water out of the air.	
Note: Hammer Fix!!	Don't Bang on the pump with a hammer or blunt instrument. The pumps are rugged and made for professional and industrial use but are made of Aluminum and if any parts are dented, it will affect the operation of the pump.	
Note: Types of Foreign Materials:	Some foreign materials such as adhesives, caulks, anything w/ sugar, bubble gum, abrasive materials can ruin or severely block part # 90554ME. This is a precision lapped bushing and plunger assembly that can wear excessively when it is exposed to abrasive materials such as sugar, dirt and sand. If this does occur, you will probably have to replace part # 90554ME.	
Note: Plastic Liner Issues	If the Grease Drum/Pail has a Plastic Liner and your pump operates but no grease is delivered, the downtube of the pump could be trying to pick up the plastic liner and the downtube is blocked: ***SOLUTION:*** 1: You can try reseating the pump by lifting the pump approximately 6-12 inches above the drum / pail and reseating it on top of the drum / pail. 2: You can try raise the pump up at least 1-2" out of the drum on blocks but might introduce contamination in the grease with blowing dirt etc…. ; Also you will leave 1-2" of grease in the bottom when you change containers. 3: Install a grease strainer (ATD5356) on the downtube to prevent the liner from being picked up. 4: In recent years, manufactures have made their liners with a heavy plastic and this has not been an issue.	
Final Warning on a Live Pump:	**If the air is connected to the pump, *consider the pump to be live.* Do not attempt to work on the pump or the system without disconnecting the Air Inlet and relieving pressure in the system, both air pressure and lube pressure. Make sure there are no live air pockets in the air motor and all air has been bled from the Air Motor.**	
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Lower Pump Tube Disassembly and Cleaning Instructions

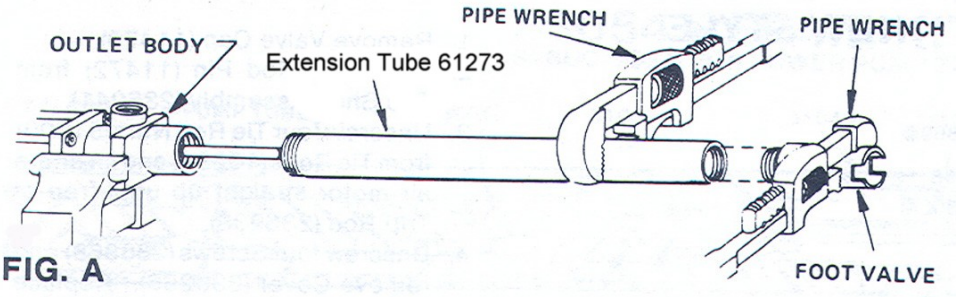

FIG. A

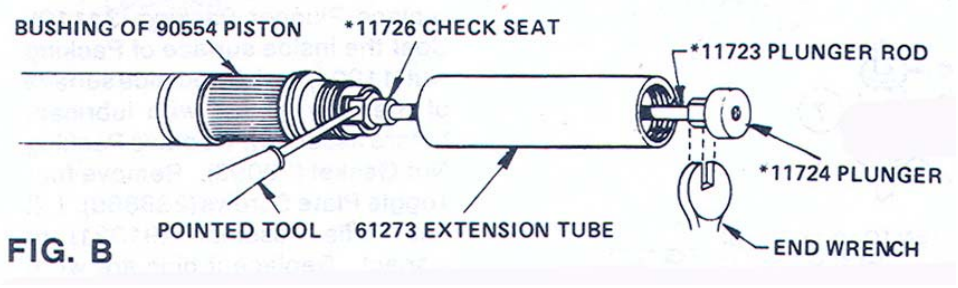

FIG. B

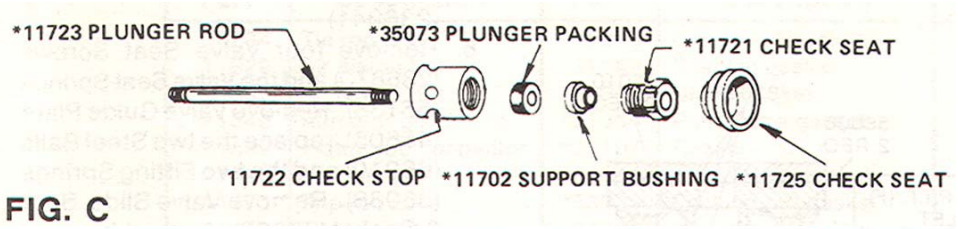

FIG. C

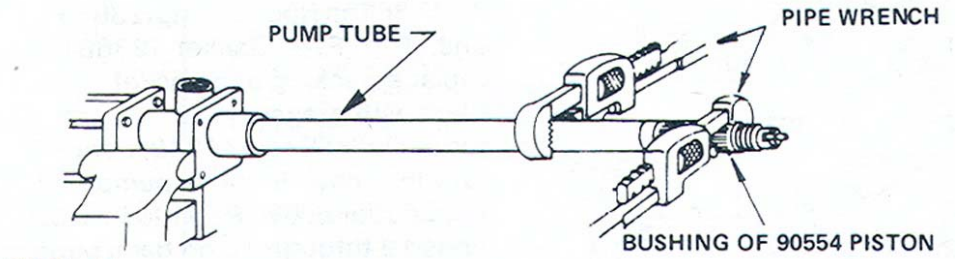

FIG. D

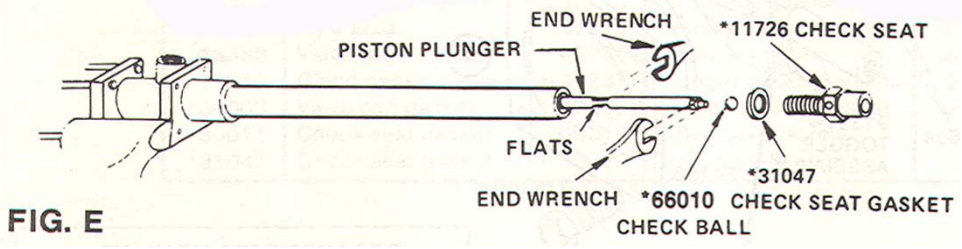

FIG. E

Cleaning: Use Mineral Spirits and a Brush to Thoroughly Clean all Debris out of the Foot Valve 61275 and Extension Tube 61273; Thoroughly inspect all parts for wear or damage; Clean all Parts

Tentative Check List

1: Is the Plunger Rod 11723 bent?

2: Is the Packing 35073 excessively worn?

3: Is the Check Seat 11725 worn or have abrasions or cuts?

4: Is the plunger 11724 bent or broken?

5: 95% of the problems with the pump not pumping material; not holding pressure or not operating have to do with foreign Material such as Rocks, Stones, Metal, Nuts, Bolts, Plastic, Paper, Gum and other materials being picked up by the downtube and getting caught in the extension tube or the down tube. When Changing Lube Containers, Watch where you lay the pump and what the downtube touches. Anything will stick to the grease on the end of the downtube.

95% of the problems that occur with the pump not pumping material; not holding pressure or not operating at all have to do with foreign Material such as Rocks, Stones, Metal, Nuts, Bolts, Plastic, Paper and other materials being picked up by the downtube and lodging themselves in the extension tube or the down tube.

To avoid this, use a strainer for the downtube, if in a difficult environment. In rare cases with paper and bubble gum, the material can work its way up into the bushing and plunger assembly (90554) and therefore this part needs to be disassembled and cleaned as well. If sand or dirt is a constant problem, you will find that the bushing and plunger assembly will wear excessively. These two pieces are lapped and fitted together as one. Constant Sand or Dirt passing through the part 90554 Bushing and Plunger can ruin the tight fit.

Procedure

Fig A. (See Fig. A) Lay pump horizontal in vise and grip outlet body tightly in vise jaws. Hold Extension Tube (61273) and unscrew Priming Tube (61275).

Fig B. (See Fig. B) Pull Plunger (11724) straight out until Plunger Rod (11723) is extended as far as possible out of the Extension Tube (61273). Hold bushing of Piston (90554) and unscrew Extension Tube (61273).

Center Extension Tube (61273) between end of piston bushing and Plunger (11724). Insert any pointed tool in through hole at Base of Check Seat 11726.

Note: Plunger may unscrew from Plunger Rod (11723) or plunger rod may unscrew from Check Seat (11726). Extension Tube (61273) can be removed from free end of Plunger Rod (11723).

Fig C: (See Fig. C) When you remove the Extension Tube (61273) this exposes the Check Seat (11725), Priming Check (11721), Check Stop (11722), Support Bushing (11702) and Plunger Packing (35073).

Note: Unscrew Priming Check Seat (11721) from Check Stop (11722) to remove Support Bushing (11702) and Plunger Packing (35073); To do this you will have to put Check Seat (11721) in a vise and insert a point tool such as a punch through the holes in Check Stop (11722) to unthread Check Stop (11722) from Check Seat (11721).

Plunger Packing (35073) incurs heavy wear and it is advisable to replace this part if worn.

Perform this only if you need to remove Bushing and Plunger Assembly; Otherwise Reassembly Pump Tube

Fig D. (See Fig. D) Removing Bushing and Plunger Assembly (90554ME); Hold pump tube and unscrew bushing of Piston (90554). Bushing should slide off once unthreaded from the Pump Tube.

Fig E. Grip two flats at top of piston plunger with an end wrench and remove Check Seat (11726).

Note: Check Ball (66010) may remain in plunger after Check Seat (11726) is removed. To remove check ball tilt pump in vise and gently tap top of plunger at location of two flats.