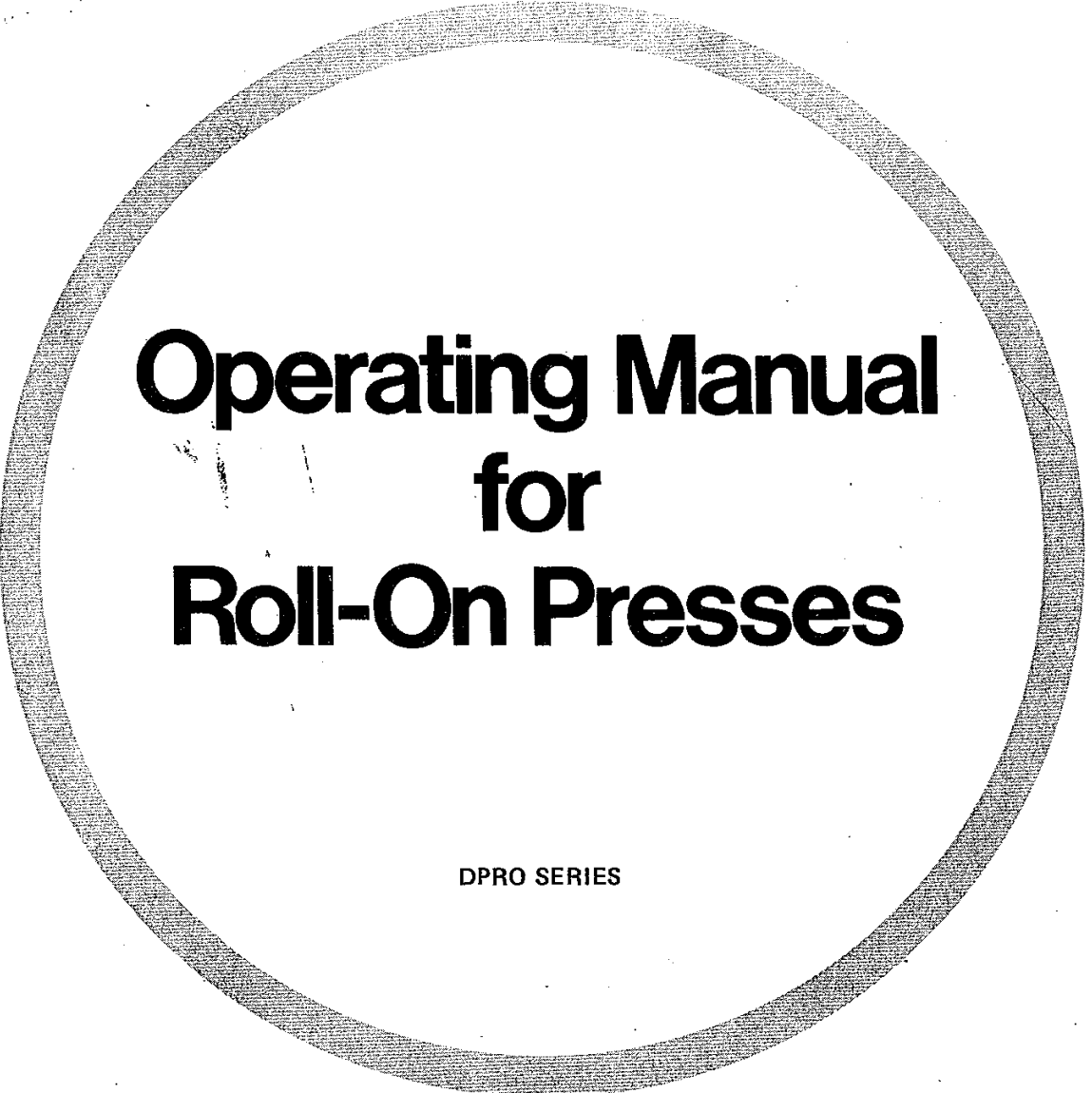




Operating Manual for Roll-On Presses

DPRO SERIES

Reprinted by
AFM Engineering, Inc.
1313 E. Borchard Ave.
Santa Ana, CA 92705

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1. Limited Warranty

A. Quality

Dri-Print Foils, a unit of Beatrice Chemical, a division of Beatrice Foods Co., warrants that this equipment has been manufactured in accordance with all applicable standards.

B. Component Parts

Dri-Print Foils has made every reasonable effort to ensure that component parts of this equipment such as electrical motors, hydraulic mechanisms, gauges and the like, purchased by Dri-Print Foils from other manufacturers of such component parts, meet the same quality standards as set forth in "A" above, however, Dri-Print Foils does not warrant, in any respect, such component parts. Component parts purchased by Dri-Print Foils carry the original manufacturer's warranty and any warranty on said component parts is limited thereto.

C. Warranty Periods

Parts and workmanship, other than as excepted herein, supplied by Dri-Print Foils in machines, are warranted against defects for a period of either 3,000 operating hours or a period of one year of normal use from date of delivery of the machine, whichever event shall first occur, ("normal use", as defined herein, shall be taken to mean **60** hours per week of operation), provided, however, that reasonable and proper maintenance has been done on said machine, and that air pressure recommendations furnished by Dri-Print Foils have not been exceeded, and further provided that only OEM parts meeting Dri-Print Foils' specifications have been used in any repairs to the machine and that no unauthorized (by Dri-Print Foils) modifications to the machine have been made.

D. Replacement Parts

The within warranty is limited only to the cost of and furnishing of replacement parts for this machine. Labor or the cost of labor for the installation of replacement parts is not included in the within warranty.

Dri-Print Foils shall, at the purchaser's option, supply the necessary labor for the installation of the warranted replacement parts at Dri-Print's standard rates prevailing at the time of the installation of replacement parts, together with the cost of travel and related expenses for the personnel of Dri-Print Foils installing said replacement parts at the purchaser's facility. Dri-Print Foils shall install any replacement parts included in this warranty free of charge, providing that the purchaser of this machine, at the purchaser's sole cost and expense, delivers the machine to Ur-Print Foils' factory at #329 New Brunswick Avenue, Rahway, New Jersey, and provided that the purchaser, subsequent to the installation of said replacement parts, promptly thereafter, at its cost and expense, removes the machine from Dri-Print Foils' facility. Should the purchaser of this machine desire, pursuant to this warranty, that Dri-Print Foils furnish replacement parts for this machine, the purchaser shall forward to Dri-Print Foils by Certified Mail, Return Receipt Requested, notice and request for Dri-Print Foils to furnish said parts; and said parts must be identified by part number from the parts design furnished with the machine, together with model and serial number of the machine. Subsequent to the receipt of the aforementioned notice by Ur-Print Foils, Dri-Print shall forward the replacement part to the purchaser of this machine free of charge, providing the then list price of said part does not exceed Five Dollars (\$5.00), and the purchaser of this machine shall be obligated to return to

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Dri-Print Foils the defective part within thirty (30) days of purchaser's receipt of the replacement part. In the event purchaser fails to forward within said time limit to Dri-Print Foils the defective replacement part, then the purchaser shall be obligated to pay Dri-Print Foils the cost of said part as aforementioned in the event the then list price of the replacement part exceeds Five Dollars (\$5.00), Dri-Print Foils automatically will invoice the purchaser of this machine for the cost of said part, and a credit against said invoice will be issued to the purchaser by Dri-Print upon Dri-Print's receipt of the defective part. All incoming shipping charges for the said defective replacement part shall be prepaid by the purchaser of this machine. Ur-Print Foils shall absorb all outgoing shipping charges under Two Dollars (\$2.00) for the shipment of replacement parts, and the purchaser shall pay to Ur-Print Foils all outgoing shipping charges in excess of Two Dollars (\$2.00).

Dri-Print Foils shall not be responsible for any damages, liquid or unliquid, for lost production time in the event replacement parts are not available at the time of the receipt by Dri-Print Foils of the notice from the purchaser in accordance here with. Dri-Print Foils shall make every reasonable effort to provide said replacement parts should they be available at the time of its receipt of the aforementioned notice; and in the event said replacement parts must be fabricated by Dri-Print Foils, On-Print Foils shall, in accordance with the terms herewith, ship said replacement parts as soon as said replacement parts have been manufactured.

Dri-Print Foils does not, under any conditions, warrant this machine with respect to damage or the replacement of defective parts, should said damage to this machine or damage to any parts of this machine have been caused by either the misuse or improper maintenance of this machine, or damage during shipping or installation of replacement parts, should said installation be done by the purchaser of this machine or as set forth in Paragraph A above.

E. Limitation of Warranty

This warranty is limited specifically to the language contained herein and as set forth herein, and there are no oral warranties expressed, implied, or otherwise, and any warranties with respect to this machine are only as set forth herein.

2. Safety Precautions

AT NO TIME SHOULD AN OPERATOR PLACE ANY PART OF HIS OR HER HANDS DIRECTLY UNDERNEATH THE TRANSFER ROLLER.

1. In order to apply any hot stamping foil, high heat and pressures must be applied. These pressures, exerted through an air-operated cylinder, can cause severe injury if a hand or finger is placed underneath the transfer roller or brought into contact with heater unit.

2. If, for any reason, your On-Print roll-on machine does not appear to function normally, shut it off at once and call your supervisor.

3. All electrical power should be shut off and the airline to the cylinder should be disconnected whenever a new roller is being set up or the machine is being repaired, serviced or cleaned.

3. Installation

The machine should be set on a firm, level base, so as not to induce a twist or a strain in the printing head. This could cause a bind or excessive wear.

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A. Electrical Supply

110 VAC - Control panel and drive

220 VAC - Connected to the cut-off box provided on the rear of the machine for the heater.

This connection should have an adequate ground.

B. Air Supply

This connection may be made to the air/ filter regulator using a 1/4 inch hose no more than 15 feet in length. Air pressure should be set at 70 to 80 psi which will give positive action to the printing head, and any floating action of the roller will be taken up by the springs instead of the air cylinder. This floating action will be caused by slight variations in the surface of the article being decorated. When these basic installations are completed, the press is ready to run.

4. Start-Up Procedure

A. 110 VAC Drive Unit

1. Put the "Main Power" switch to "ON".
2. Turn the "Armature" switch to "ON".

The conveyor and printing roll should now start and the indicator light will glow.

3. Turn "Air Safety Device" to "ON".

4. Put the "Heater" switch to "ON". Then set temperature dial to desired degrees. Allow sufficient time, about 10 to 15 minutes, for temperature to reach desired setting.

B. 220 VAC Drive Unit

1. Put the "Main Power" switch to "ON", and the indicator light will glow.
2. Push the Green button on the panel, and the conveyor and roll will start to move.
3. Turn "Air Safety Device" to "ON".
4. Put the "Heater" switch to the "ON" position. The red light on the meter will come on and the heater will start to warm up.

5. Shut Down Procedure

A. 110 VAC Drive Unit

1. Put the "Heater" switch to the "OFF" position. The indicator light on the meter will go out. Air will start to blow out of the heater support bar. Allow machine to run for about 20 minutes to cool down the heater and roller.
2. Put the "Armature" switch to the "OFF" position.
3. Put the "Main Power" switch to the "OFF" position, and the machine will stop.
4. Turn the "Air Safety Device" to the "OFF" position.

B. 220 VAC Drive Unit

1. Put the "Heater" switch to the "OFF" position and allow machine to run about 20 minutes.
2. Push the Red button on the control panel, and the conveyor and roller will stop.
3. Put the "Main Power" switch to the "OFF" position.
4. Turn off "Air Safety Device" to the "OFF" position.

The above procedures should be run through several times to ensure that they are familiar to the operator.

6. Set-Up Procedures

A. Setting the Foil on Stripper Rollers

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These are the two rollers immediately in front and back of the silicone roll. With air pressure to the machine and all switches off, place the item to be decorated on the belt (with the fixture if required) to determine the proper height. Adjust the first stripper roll in front by placing the item under it and lowering the roll, by means of the knurled knob on the rack and pinion, until it just touches the work. Now, back off to about 1/32 inch clearance and lock in place. Pass the item completely under the roller to make sure it clears all the way. The roller assembly, after the silicone roll, consists of two rollers, one rigid and one suspended on two pivot arms. The rigid roller is set the same way (1/32 inch clearance) as the first one. The roller on the pivot arms should be about 114 inch below the rigid roller. When the printing roller is down in the imprint position, this arm keeps the foil below the heated silicone roller so it does not burn or wrinkle. As the work passes through the machine, this arm is raised out of the way by the work and, immediately after, drops down again.

B. Setting the Silicone Roller

Place the item under the silicone roller and move the roller up or down to attain about 1/8 inch clearance.

C. Start the machine according to the "Startup Procedure", with the exception of the heater switch. With a setting of about 10 on the speed control, place the item to be decorated on the belt and push the Green button on the remote station by the conveyor. This will bring the printing roller down into position. As the item passes beneath the printing area, turn the height adjustment handle (on the top plate) to bring the silicone roller in contact with the surface to be decorated. After just touching the surface, allow the work to pass completely through. Then, push the Red mushroom button on the remote station, and the head will rise to the idle position. This will also serve as a double check on the foil roller settings.

D. Bring the machine up to speed (about 20 on the speed control) set the correct temperature (about 400°), At this point turn "Heater" switch and "Air Safety Device" to "ON".

NOTE: The speed and temperature settings are only approximate. These will vary from job to job, but these settings offer good starting points.

While the machine is coming up to the operating temperature, string the foil on the machine. Center the foil on the let-off bar and move the stationary flange against it and lock the set collar. Move the other flange into contact, tension the spring about half-way and lock the thumb screw. Pull the foil under the stripper rolls (the one in front and the two in back) and up between the drive and pinch rollers on the take-up end. Also, wrap a few turns on the scrap rewind bar. Now push the "Foil Jog" button on the control panel a few seconds. This will set the tracking and tension on the foil. As soon as temperature setting is reached, run a trial piece through the machine. Place the part on the conveyor belt and, as soon as it reaches the first stripper roller, push the Green button on the remote station. This will bring the silicone roller down into position. At the same time the foil will start to advance. As soon as the part clears the stripper rollers after the silicone roller, push the Red mushroom button on the remote station and remove the part from the conveyor belt. You will notice that as the head raises to the idle position, the foil ceases to advance. This is controlled by a micro switch on the foil feed arm on the front of the machine.

Now check the part for appearance and adhesion. If it lacks either or both, increase the heat slightly (about 15 degrees) and increase the pressure slightly (about 1/8 of a turn).

After a few trial and error set-ups, the whole procedure is pretty straight forward. When raising the heat, be sure not to exceed 450 degrees. Beyond that point, the life of the roller starts to deteriorate more rapidly than from just normal wear. Also be aware of excessive pressure which will also shorten the normal life of the silicone

roller. As the part passes through the machine, the silicone roller should raise approximately 1/16 inch, which is normal. If the above step-by-step procedure is followed and the results are unsatisfactory, check for contamination on the part, such as oil, mold release agents, finger prints, etc. If none of these are present, then the formulation of the foil should be checked either with the salesman in the area, or with our Technical Service Center at the main plant in Rahway.

7. Maintenance

As with any fine machine, good maintenance is a prime factor in eliminating most down time and extending the normal operating life.

A. Lubrication

1. The silicone roller shaft bearings should be greased every two days or twenty hours of operation. Use a high temperature grease (such as Lubriplate or equivalent) through the grease fittings on the castings.

2. The support roller shaft bearings should be lubricated once a week or 40 hours of operation (Lubriplate or equivalent).

3. The drive shaft (vertical) in back of machine should be lubricated once a week or forty hours of operation (Lubriplate or equivalent). At this time, a light film of grease may be applied to the bevel gears with a brush. This applies to the bevel gears on the support roller, silicone roller, and the foil feed.

4. The bearings on the conveyor, the counter shaft and on the foil feed assembly are sealed, and require no lubrication.

5. The roller chains that drive the conveyor and the foil feed assembly should receive a light coating of oil (#30) once a week, applied with a small brush. (CAUTION: When applying the oil to the chains in the foil feed assembly make certain none of it gets into the torque limiter or the electric clutch. This will cause slippage in the foil advance.)

6. The two threaded sleeves that support the elevating screws should also be brushed with #30 oil every two days.

NOTE: The guards that are removed for lubricating purposes should be replaced immediately. Also wipe off any excess lubricant. Periodically, the machine should be wiped down (to prevent a build-up of dust, dirt and other forms of contamination. The belt may be cleaned with a damp cloth dipped in detergent. Solvents should be avoided.

NOTE: All of the above maintenance procedures should be done while the heater is cold, and the machine stopped, otherwise a painful burn could result.

B. Maintenance of the Silicone Roller

The silicone roller is really the "heart" of the machine, and should be treated as such.

1. The operating temperature should not exceed 450 degrees. Higher temperatures are detrimental to the silicone.

2. Excessive pressure should be avoided. Flexing of the roller shaft 1/16 inch or less against the springs is normal and should be sufficient to stamp most jobs.

3. Mold "flash" should be removed as this will tend to cut into the die. Very sharp corners will have the same effect. Where sharp corners cannot be avoided, a little extra care should be taken with the pressure during the set-up.

4. Foil build-up on the roller should be avoided also. This will usually happen if the foil breaks for some reason during the decorating cycle. It should be removed immediately. If it hardens on the roller, it may be removed with fine sandpaper while running the machine at high speed. It is important to go completely across the roller to keep the surface as level as possible. It may also be placed in a lathe and resurfaced with a small grinder held in the tool post. However, no more than .020" or .030" should be removed. Any more than that will disturb the synchronization between the belt and the roller. If much more has to be removed, a new roller is necessary. It is good practice to wipe the roller with a cloth dampened in alcohol before each day's production. This should be done with the roller running but the heat off. Spare rollers should be stored on end, not lying flat which could cause a flat spot to develop across the roller.

C. Thermocouple

This is the sensing device that controls the temperature on the roller. The tip of the thermo-couple should lightly touch the surface of the roller. If it bears with too much pressure, it will gradually wear a groove. If it does not touch the roller, it could result in a false reading. This has to be checked usually only when a new roller is installed or when the roller is cleaned by sanding. The tip is spring loaded, so it will make up for slight variations. The probe should be removed periodically and the tip cleaned. Alcohol or very fine sandpaper may be used. To avoid damage, the probe is always removed when the roller is being changed. When it is put back on the machine, make certain that it is in the center of the roller to avoid uneven wear and scoring of the silicone roller.

D. Changing the Silicone Roller

1. Remove the thermocouple.
2. Loosen the two set screws on the roller, one in each hub. One hub also contains a machine screw holding the key and should not be touched at this time. The roller should now slide freely on the shaft.
3. Loosen the set screw in the hub of the bevel gear that is in mesh with the gear on the drive shaft. Again, this also contains a machine screw holding a key and should not be touched. A piece of wood may be inserted between the bottom casting and the hub of the bevel gear to hold it in place when the shaft is removed. The best way to do this is to have the wood about 4 inches long, stand it on end against the bottom casting and lower the head until the hub of the gear just touches.
4. Pull the shaft out through the front casting and the roller will drop out. A tapped hole is provided in the shaft, and a bolt may be partially screwed in to aid in this procedure.
5. To replace with a new roller, simply reverse the procedure. Remove the key from the old roller and attach it in the new one. Insert the shaft in the front casting until it is just through. With the roller held between the castings, insert the shaft through the roller into the other casting, with the key riding in the keyway and the set screws lined up with the flat on the shaft.

NOTE: It is very important that the set screws are lined up on the flat area machined on the shaft. If not, the screws when fastened down will cause a burr on the shaft making the next change very difficult.

With the shaft resting in the other casting, rotate the shaft slowly in both directions until it picks up the key in the bevel gear. At that point, push the shaft all the way home and fasten the set screw. Now remove the block of wood and fasten the two set screws in the silicone roller. Replace the thermocouple, observing the procedure outlined in the previous section. A light coating of high temperature grease on the roller shaft before replacing will aid in its removal next time.

NOTE: The roller should be changed when the machine is cold. The shaft can be removed when hot, but, due to expansion, will be very difficult going into the new roller which is cold. Also, the bearings should be greased before start-up.

E. Air Safety Device

This device was developed to protect the silicone roller from damage in the event of a power failure. The bar, on which the heater shield rests, is perforated with a series of small holes and is connected to a straight-through air valve. When the coil in this valve is de-energized, as in the case of a power failure, the valve opens and the air flows freely between the heater shield and the roller to cool it down. It also incorporates a pneumatic pressure switch in the system which is normally set for 70 psi. It is tied in with the heater switch on the control panel which will not operate unless the system is pressurized. This makes certain that the "Air Safety" is activated before current starts flowing to the heater. If there is a considerable drop in air line pressure while the machine is operating, the control meter will shut down automatically, indicating a problem.

Used in conjunction with the dual set-point control, it also provides another feature. Sometimes, after continuous running for a few hours, a brief halt in production will cause the temperature to rise above the setting. This is caused by the heat-build-up in the ceramic blocks in the heater, and the amount of "over shoot" depends on the speed of the machine, the temperature setting, and the nature of the parts being decorated (size, material, etc.). The first set-point on the control meter controls the operating temperature and the second controls the "over shoot". This is usually set (at the factory) for ten or fifteen degrees. When this point is reached, it automatically activates the "Air Safety" to cool the silicone roller and bring the temperature back to the original setting. At that point, it automatically shuts off the air.

F. Proper Size Silicone Rollers

It is important to use the proper size roller for each job. Proper size refers to the width, which should be about 1/2 inch wider than the substrate being decorated, allowing 1/4 inch on each side. If the overhang is excessive, the unused portion of the roller will develop cracks over a period of time. This is because, as the substrate passes beneath the roller, heat is removed from that area, and the temperature control turns on the heating system to compensate for the drop in temperature. However, since heat is not being removed from the overhung portion, it will build up in temperature to the failure point of the silicone.

G. Torque Limiter or Foil Advance

Immediately behind the electric clutch in the foil advance assembly is the torque limiter. The purpose of this unit is to make certain that the proper tension is exerted on the foil during the advance. The advance mechanism is designed to run slightly faster than the belt, and during the decorating cycle, the setting on the torque limiter determines the amount of tension on the rewind side. This is set originally at the factory, but after a period of time, it may have to be reset.

With the foil removed from machine, press the "Foil Jog" button on the control panel, and the clutch will engage the pull rollers. Grasp the aluminum drive roller with two fingers, and, with very little pressure, it should stop because of slippage in the torque if it seems to be too firm, remove the guard on the assembly and turn the hex nut counter-clockwise to the next flat from where it is locked in place by the retainer. Move one flat at a time until the correct tension is established. If the tension is very loose, repeat same procedure as above, only turn the nut clockwise. Once the adjustment has been completed, replace the guard.

8. Trouble Shooting Symptoms/Remedies

Symptom 1. Heater does not come on.

Remedy

A. If meter does not come on when heater switch is in "ON" position, depress the heater switch in the "OFF" position as far as it will go and hold for a few seconds to reset the thermal overload. Put to "ON" position and, if meter does not go on, check fuses.

- B. If meter is on (indicator light), check heater relay. Coil may be defective and not pulling in.
- C. If relay is closing, check continuity of wires leading to heater.
- D. Be sure "Air Safety Device" is "ON" and air pressure gauge reads a minimum of 80 psi.

NOTE: Do this with power turned off. If wires are intact, heater is probably defective and should be replaced.

Symptom 2. Heater gets warm but does not come up to temperature.

Remedy

- A. Check fuses in the 220 VAC circuit. One leg is probably blown.

Symptom 3. Foil does not advance with printing head in down position.

Remedy

- A. Check to see if electric clutch activates when head is down. If it does not, remove cap on top of Warner rectifier inside of control panel and check fuse. If defective, replace with equivalent.

NOTE: Whenever the panel is opened, power should be shut off. If necessary to have on for testing purposes, exercise CAUTION.

- B. If fuse is all right, check micro switch on foil feed arm. This is wired N.O. With the head down, it should power the electric clutch. Check for broken wires at the switch and the two leads that extend to the clutch.
- C. If, when the head goes down or when the jog button is pressed and the armature on the clutch engages, then the problem is probably slippage. Check for oil on the faces of the clutch or in the torque limiter. If none is present, then reset the torque limiter as described previously.

Symptom 4. Foil wrinkles or burns.

Remedy

- A. Check tension on unwind side of machine. Vary the spring tension slightly (both ways) and try again.
- B. Check height of stripper rollers for proper clearance from part and, if wrong, reset.
- C. Make sure that part is presented square to the printing roller (as much as possible). If leading edge contacts the roller at an angle, this could cause wrinkling.
- D. If part has a large opening in the center, it should be filled with a fixture to about .015" below the surrounding area to present a continuous surface for the roller. However, this is usually true only for large parts and does not pertain to small parts.
- E. Check for excessive pressure or heat, especially if foil is burning or being cut off under the printing head.
- F. Check the stripper roller on the pivot arms after the printing roller. It should move up and down freely. This may be adjusted with the adjusting screws to move down further to give more clearance between the foil and the silicone roller. However, if this adjustment is made, the center of this roller should never fall more than 1/4 inch higher than the item being decorated. Otherwise, a jam may result.
- G. Check tension on torque limiter.

Symptom 5. Head will not stay down.

Remedy

If the printing head releases by itself during the printing cycle, several things could be at fault.

- A. Defective relay in the holding circuit, such as worn or pitted contacts.
- B. A large voltage drop. Check for voltage fluctuation.
- C. Short circuit in remote station. Turn off power and remove cover to check connections.

Symptom 6. Erratic behavior in the drive system. Speed varies, and operator is unable to control or vary speed with control knob.

Remedy

The service manual from the manufacturer of the drive unit was included with the machine and should be consulted. However, if the answer to the symptom is not readily found, please call DR1-PRI NT FOILS (Machinery Division) for a remedy. If necessary, we will arrange for a field service man from the manufacturer of the drive unit to inspect and service the component.

Symptom 7. Indicator hand goes up to full scale on the control meter.**Remedy**

This is a safety feature built into the control meter. It is caused by a break in the lead (leads) to the thermocouple. The effect is to go full scale and shut the heat off.

A. Remove cap from thermocouple and check for broken or loose wires. If both wires have to be re-moved to repair, make sure to maintain polarity. One of the connections is marked plus (+), and the other minus (-). The white covered wire is plus (+) and the red covered wire is minus (-). If these are mixed up, the meter will read down scale.

A symptom might appear that seems a bit different than those mentioned here. However, a little experience will demonstrate that they are related, and the answer is probably in one of the "Remedies". If one of the stripper rollers is not adjusted properly, for instance, it could cause wrinkling and burning of the foil. It could also manifest itself in blushing of the part being decorated. If the temperature is properly set, blushing is usually caused by the foil coming into contact with the silicone roller before making contact with the part. This is often true when using metallic foils.