

OWNER'S MANUAL

NON-POROUS WPNP-400NI-12 & WPNP-400NI-12-T WEB PRINTERS

INSTALLATION - OPERATION - MAINTENANCE



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WPNP12-22291

IMPORTANT NOTE

UNIVERSAL products are manufactured to exacting standards and every available step has been taken to assure your complete satisfaction. It is most important, however, that the instructions contained in this manual are read and carefully followed for best results. Failure to do so may result in unsatisfactory performance, damage to the equipment and personal injury.

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- LIMITED WARRANTY -

UNIVERSAL WPNP-400NI-12 & WPNP-400NI-12-T Web printers are guaranteed to be free from defects in materials and workmanship for a period of 90 days from the date of purchase. Components found to be defective during this time will be repaired free of charge if returned to the factory. Damage resulting from use of improper inks, improper installation, or operation is not covered under the scope of this warranty. For warranty service please contact our Customer Service Department.

PREFACE

The Universal WPNP-400NI-12 & WPNP-400NI-12-T Non-Porous Web Printers meet the requirements for printing on non-porous continuous web materials. A 4" print width capacity and a 37.7" circumference print drum easily accommodates large logos and text messages. These printers are designed for top mount installations and are only available in a non-indexing (continuous print) model.

After many months of design engineering and field testing, these Non-Porous Web Printers are both simplistic in design and extremely effective in operation. A modular version of Universal's patented Non-Porous Inking System effectively eliminates the rapid evaporation of the ink solvents from the ink roll and additionally can be removed from the machine in seconds without the use of tools for off-line ink roll replacement. The relatively low cost of this system makes in-plant printing of all types of non-porous continuous web materials a practical reality.

PRINTER SPECIFICATIONS

The specification section includes drawings with the basic dimensions of the printers, the net weights, maximum die capacities, maximum print width and print drum circumferences. This section also lists the specifications for the printing dies and an explanation of the Non-Indexing models.

QUICK START

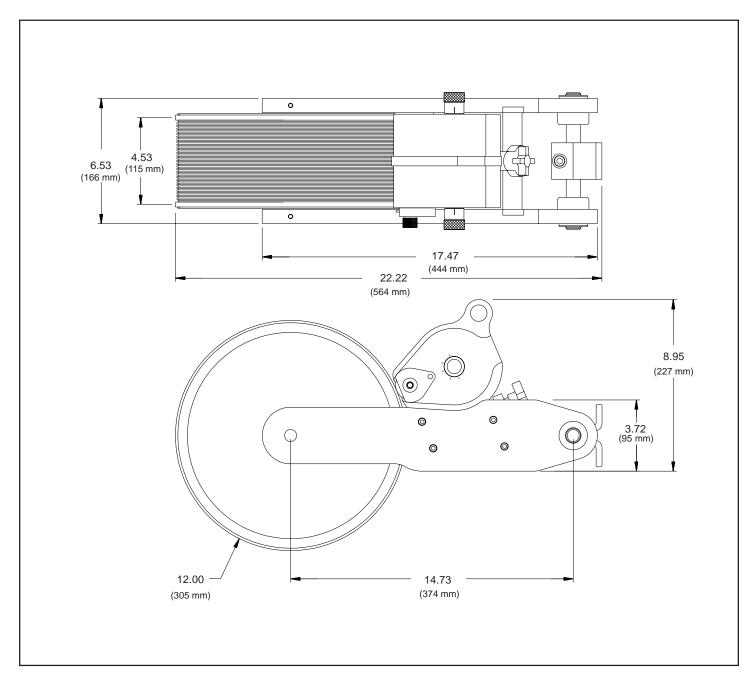
With a full understanding that very few people like to read manuals or have the time to do so, we have created a Quick Start manual which will get your printer operating in just a few minutes.

To keep your printer operating properly, it is important to read and understand this manual which explains the installation, basic operation and maintenance of the WPNP-400NI -12 & WPNP-400NI -12-T Non-Porous Web Printers.

SPECIFICATIONS

WPNP-400NI-12 & WPNP-400NI-12-T SPECIFICATIONS

Model Shown: WPNP-400NI-12



NET WEIGHT: MAXIMUM DIE SIZE - US STANDARD: MAXIMUM DIE SIZE - METRIC PRINTERS ONLY: PRINT DRUM CIRCUMFERENCE: 36 LBS. - 4.5 OZS. (16.46 KG.) 3-7/8" (30 RIBS) X 37" LENGTH 98.4 MM (28 RIBS) X 939.8 MM LENGTH APPROXIMATELY 37.7" (958 MM) MEASURED AT DIE FACE

SPECIFICATIONS

RIBtype® PRINTING DIES

Universal Non-Porous Printers are designed to use RIBtype® printing dies which have a molded rib backing. The ribs on the back of the die snap into mating ribs in the Drum Cover on the print drum. The printing dies are produced in many standard character styles and sizes and are available in sets containing a combination of individual alphabetic and numeric characters or in sets containing numeric characters only. These character sets or "sorts" can be used to make up text messages and code numbers as necessary.

Dies are also available in "logo" form in which a complete text message is produced on a single piece of rib backed rubber. Logo dies are much faster to change and generally produce better print quality due to their unitized construction. Custom type styles, company logos, and trademarks can also be photographically reproduced from black and white art work.

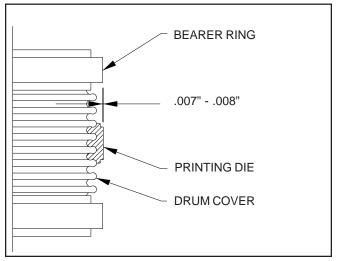


FIGURE 1

Printing dies are manufactured to precision thickness tolerances which are very critical to the performance of these printers. When installed, the face of the printing die should extend only .007" - .008" beyond the radius of the Bearer Rings as shown in Figure 1. Using dies that do not meet the design specifications will result in poor print quality and possible damage to the transfer roll.

Although there are several competitive rib backed die systems available, it is very important to note that they are not all made to the same rib spacing or thickness specifications and they are not interchangeable.

PRINTER MODELS DESIGNED FOR METRIC RIBtype® PRINTING DIES

Universal also offers Metric RIBtype® Die Systems for use in countries where metric character sizes are the standard. The Metric dies are thicker and the rib spacing differs slightly from the standard printing dies therefore the two versions are not compatible. To accommodate the differences, the print drums for Metric dies are machined to a slightly different diameter from the U.S. versions.

The printer model numbers on Metric printers will have a "-T" suffix and the Metric Drum Covers have a distinct pink color.

SPECIFICATIONS

INK ROLLS

Universal offers two ink roll options for the WPNP-400NI-12 Printers. Each roll has unique characteristics which will help determine the suitability for a specific printing application. The printers are designed to accommodate both types of ink rolls without modification. A detailed review of your printing requirements will determine the best choice of ink rolls for your particular application.

XF NEOPRENE INK ROLLS

Universal's XF Neoprene Ink Rolls are a re-inkable roll which can be used with a variety of alcohol or glycol base inks. These rolls are normally supplied in a dry condition with the printer and require *pre-inking* prior to installation. Pre-inked rolls are available from the factory and are recommended for first time users.

In high speed web printing applications, Universal's #100 Inks provide drying times of approximately 2 seconds at 75 Degree F. (24 Deg. C) ambient temperature. Many other inks, both dye and pigment based, can be used in these ink rolls to meet the specific application requirements.



FIGURE 2

TYPE MT INK ROLLS

Universal's Type MT Ink Rolls are disposable pre-inked rolls which are available in a variety of fast drying colors. The MT Ink Rolls provide excellent color density and adhesion on most materials and an average yield of just under 500,000 impressions before replacement is necessary.

The Type MT Ink Rolls provide drying times between 4 - 7 seconds at 75 Degree F. (24 Deg. C) ambient temperature. The added convenience and simplicity of using the Type MT Ink Rolls make them an ideal choice when production operators have little time to monitor the inking system.



FIGURE 3

PREPARING THE WPNP PRINTER FOR INSTALLATION OF THE INK ROLL

The WPNP-400NI-12 & WPNP-400NI-12 -T Non-Porous Web Printers are designed for top mount installation to print on continuous non-porous web materials. These WPNP Web printers have been designed with an easily removable inking system. The Ink Rolls can be installed with the inking system on or off the printer. To prepare the printer for use, the following steps should be followed.

1 - Loosen the Inking System Locking Knob by turning the knob counterclockwise approximately 1 revolution.



FIGURE 4

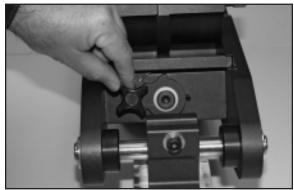


FIGURE 5

FIGURE 6

2 -Swing the Inking System Locking Assembly to the left (counterclockwise) as shown.

3 -For off-line installation of the lnk Roll, remove the lnking System by grasping the lnking System Assembly by the lifting tab and pulling the lnking System out of the machine.

4 -Remove the Knurled Retaining Nut by turning it in a counterclockwise direction.



FIGURE 7

5 -Remove the Drive Wheel Cover by lifting it straight off the axle and locating pin.



FIGURE 8

6 -Remove the Knurled Drive Wheel.

Note: The Knurled Drive Wheel is installed on the top of the Anilox Roll and is engaged by 3 stainless steel drive pins.



FIGURE 9

7 -Remove the Inking System Cover by carefully pulling the Cover straight off the axle. Be very careful not to let the cover drag across the surface of the Anilox Roll during removal.

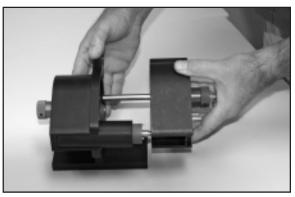


FIGURE 10

PREPARING THE INK ROLL FOR INSTALLATION

It is imperative that the ink roll installed on this printer is properly inked and prepared for installation. If you ordered a pre-inked roll with your printer, the following steps will guide you through the preparation and installation of this roll. If you have a dry roll, see page 15 for inking instructions.

1 -To prepare the pre-inked roll for installation, you will need a clean piece of cardboard, a pair of rubber gloves, a pair of scissors or razor knife and a round metal rod approximately 1/4"- 3/8" (6mm - 9mm) diameter by at least 6" (150mm) long. A round shank Phillips screwdriver will work nicely.

Note: Ink will stain clothes and other materials so careful handling is required during this procedure.

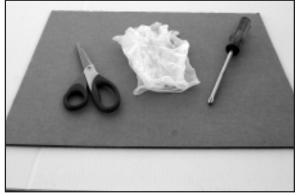


FIGURE 11

2 -Put on the rubber gloves and carefully cut the end of the bag open and remove the lnk Roll using the rod or screwdriver.

Pre-Inked Rolls are intentionally oversaturated to prolong storage life. There may be a small amount of liquid ink in the bag when it is opened so be careful handling the opened bag after the roll is removed. Ink may run out.

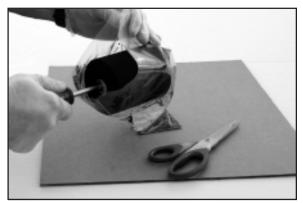


FIGURE 12

3 -Holding each end of the screwdriver or round rod, roll the lnk Roll several times across the piece of cardboard while applying light pressure to remove the excess ink.

> You want the roll to be fully saturated but not dripping wet. If in doubt about the proper saturation level of the roll during this process, it is better to remove a bit more ink than not enough. Installing a roll with too much ink will cause dripping inside the inking system housing.

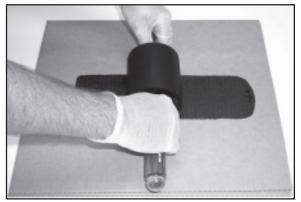


FIGURE 13

INSTALLING THE INK ROLL

1 -Rotate <u>both</u> the Ink Roll Eccentric Knobs on the Inking System Covers to the "MIN" position.

In this position, the ink roll will not touch the Anilox Roll when the cover is reinstalled.

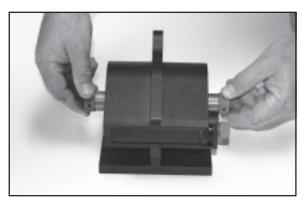


FIGURE 14

2 -While holding the Inking System Cover in one hand, slide the Ink Roll onto the Ink Roll Axle.

Use the round rod or screwdriver used during the ink roll preparation procedure to position the roll and slide the roll onto the ink roll axle.

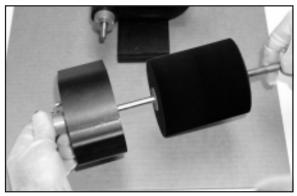


FIGURE 15

3 -Carefully guide the Cover Assembly onto the Inking System being careful not to scratch the surface of the Anilox roll in the process.

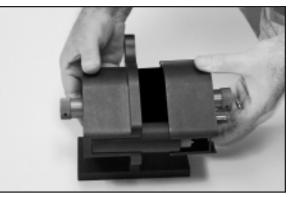


FIGURE 16

4 -When the cover assembly is properly positioned against the Inking System Assembly, replace the Knurled Drive Wheel.

Carefully align the 3 stainless steel pins on the top of the Anilox Roll with the 3 holes in the Knurled Drive Wheel. When the Knurled Drive Wheel is properly engaged, the top of the stainless steel pins will be approximately even with the top surface of the Knurled Drive Wheel.

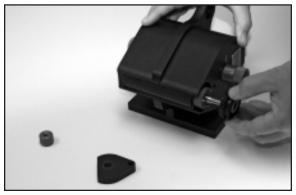


FIGURE 17

5 -Replace the Drive Wheel Cover by aligning the two holes in the cover with the Anilox Roll Axle and the Stainless Steel Locating Pin. Ensure that the cover is positioned completely against the Inking System Cover.



FIGURE 18

6 -While holding the Drive Wheel Cover in position, replace the Knurled Retaining Nut. The Knurled Nut should be just tight enough to hold the Drive Wheel in place.





FIGURE 19

The inking system is now ready for final adjustment and use.

REINSTALLING THE INKING SYSTEM ON THE PRINTER

1 -Align the Inking System baseplate with the two slots on the inside of the Printer Side Frames and slide the Inking System into the printer.



FIGURE 20

2 - Rotate the Inking System Locking Assembly to the vertical position and lightly tighten the Locking Knob.



FIGURE 21

INSTALLING THE PRINTING DIES

1 - To install Printing Dies on the Print Drum, first mix a solution of water with a small amount of liquid dishwasher detergent to serve as a lubricant. This will make the installation of the die much easier. Using a sponge saturated with this mixture, moisten the ribs on the back of the Die.

Do not use any other lubricants such as silicone or oil on the Printing Dies.

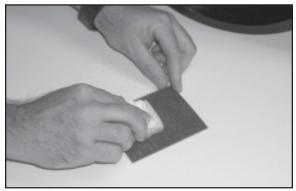


FIGURE 22

2 -Align the ribs on the back of the printing die with the grooves in the Drum Cover. Starting with one end, firmly press the die into the drum cover until fully engaged. Continue pressing the ribs together, working from one end of the die towards the other.



FIGURE 23

3- While rotating the Print Drum by hand or under power, slowly rotate the lnk Roller Eccentric Knob from the "MIN" towards the "MAX" position and observe the face of the printing dies for ink. Proper adjustment should be reached at a position between the "2" and "3" reference numbers.

> The Ink Roller Eccentric moves the Ink Roll into contact with the Anilox Roll. The Eccentric should not be turned any more than necessary to apply a uniform coating of ink to the die face.



FIGURE 24

INKING SYSTEM POSITION ADJUSTING KNOBS

The Position Adjusting Knobs serve two functions. First, they provide adjustment for the contact pressure between the Anilox Roll and the face of the Rubber Printing Dies. The Anilox Roll should contact the face of the printing dies with just enough contact pressure to properly transfer ink. Second, the Adjusting Knobs allow for a small degree of angular alignment between the Anilox Roll and the face of the printing dies. The surface of the Anilox Roll must be adjusted exactly parallel with the face of the Printing Dies in order to ensure uniform transfer of ink across the full width of the Print Drum. If adjustment is required, loosen the Inking System Locking Knob and make small adjustments to the Position Adjusting Knobs. Retighten the Inking System Locking Knob and check the print quality. After the adjustment has been made, the Position Adjusting Knobs should require no further adjustment.

1 - There are 2 Position Adjustment Knobs on the Joining Bar at the bottom of the slots with threaded shafts which contact the front of the Inking System Baseplate. These knobs have been roughly set at the factory but may require fine adjustment when the system is first used.

Do not adjust these Knobs unless the print quality indicates a need to do so.



FIGURE 25

INSTALLING THE PRINTER

When choosing a location for the installation of the printer, several issues should be considered:

- 1 Find a location free from dust and contaminates. Fast drying Non-Porous inks can become tacky as they dry causing them to pick up dust particles. This can cause degredation of the print quality and will require more cleaning.
- 2 If possible, install the printer in a location that provides for easy access. Although the inking system on these printers can be removed in seconds, changing the printing dies require easy access to the print drum.
- 3 The WPNP Printers should be mounted at an angle of 15 to 30 degrees from horizontal, as indicated in Figure 26.

Use two 3/8" diameter bolts to attach the printer's mounting bracket to a rigid mounting plate. Ensure that the printer is aligned to track parallel with the web material and that both Bearer Rings on the Print Drum contact the web with equal pressure.

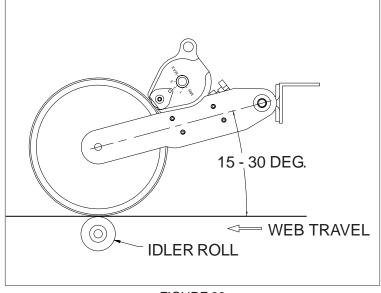


FIGURE 26

When printing on thin materials, it is imperative that the print drum is supported by an idler roll or a flat platen under the web as indicated.

PRE-INKING THE XF NEOPRENE INK ROLL

Note: Dry rolls must be pre-inked before installation on your WPNP Printer.

Warning: Non-Porous Inks contain flammable solvents. Do not smoke or handle these rolls in the presence of sparks or open flames. These inks will also stain clothing, furniture, carpeting and your hands. We recommend wearing rubber gloves and an apron during the following procedures.

The XF Neoprene Ink Rolls used on the WPNP Printers are manufactured from an extra firm density neoprene foam material. The extremely fine cell structure of this foam gives it the capacity to hold and evenly distribute a large volume of ink which migrates through the foam by capillary action. The ink roll relies on capillary action to draw ink from the center of the roll and evenly distribute it to the surface where it is applied to the transfer roll. The capillary action of ink in a dry foam material is rather poor, much like when you submerge a dry sponge in water. When the roll is initially pre-inked, it must be thoroughly saturated to ensure all of the cells in the foam are wetted with ink. Even if all of the ink is squeezed out of the roll after the initial inking, the capillary action of the roll is dramatically increased.

Please follow the guidelines below to properly pre-ink your roller:

1 - Wearing a pair of rubber gloves and an apron, pour approximately 1" of printer ink into the bottom of a clean container large enough to hold approximately 14 ozs. of ink and the 4" roll on it's side.

A 4" XF Neoprene Roll will hold approximately 14 fluid ounces of ink.

2 - Carefully place the roll into the container as shown in fig 28. Hold the roller and firmly press down on the foam side of the ink roll and then release the pressure. Rotate the roll and repeat this process several times pressing on different areas. This will force the air out of the roll and the voids will be filled with ink.

> Repeat the process above until all the ink in the container has been absorbed into the roll. Add more ink to the container and repeat the process until the roll will absorb no more ink.

3 -Insert a round metal rod or screwdriver through the Ink Roll Core and roll the roller several times across a scrap piece of cardboard while applying light pressure to remove the excess ink.

You want the roll to be fully saturated but not dripping wet. If in doubt about the proper saturation level of the roll during this process, it is better to remove a bit more ink than not enough. Installing a roll with too much ink will cause dripping inside the inking system housing.



FIGURE 27



FIGURE 28

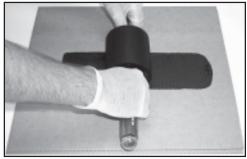


FIGURE 29

MAINTENANCE

CLEANING THE PRINTER

The surface of the transfer roll is made from DuPont Delrin material and the O.D. of the roll is finely engraved which enables it to hold a uniform film of ink. This surface material is very fragile and under no circumstances should you attempt to clean it with anything abrasive.

Warning: Most of the ink solvents used for cleaning are flammable liquids. Follow all safety precautions recommended by the manufacturer during this process.

 Periodically, the inking system should be disassembled and inspected for ink residue and dust contamination. To remove ink contamination from the surface of the machine, moisten a soft cotton cloth with the appropriate ink solvent and rub it across the contaminated area.

> The frequency of required cleaning can be greatly reduced if the inking system is kept in proper adjustment during normal operation and if the ink roll does not become over saturated with ink.



FIGURE 30

CLEANING THE TRANSFER ROLL

NEVER SUBMERGE THE TRANSFER ROLL IN SOLVENT!

1 - To clean dust and ink residue from the surface of the transfer roll, first remove it from the printer. Lightly saturate a soft cotton cloth with the appropriate ink solvent and gently rub the surface of the roll until it is clean.

If the transfer roll is submerged in solvent, the bearings will be permanently damaged.



FIGURE 31

MAINTENANCE

CLEANING THE PRINTING DIES

All inks which are formulated for printing on non-porous surfaces contain a resin binder which bonds the dye or pigment in the ink to the surface of the material being printed. As the ink begins to dry, this binder becomes "tacky" or "sticky". While in this stage of the drying process, the tack on the dies will tend to pick up both airborne dust and any dust or dirt on the surface of the material being printed. When this happens, the dies should be cleaned or replaced. The easiest method of cleaning the dies requires the appropriate solvent for the ink being used, a pair of rubber gloves, safety glasses, an apron to protect your clothing is recommended, a toothbrush, some clean paper towels and a plastic bag to protect your workbench from staining. (Naturally, the toothbrush will never be suitable for oral hygiene use after this process.)

After some period of use, the accumulation of contaminates on the dies will cause degradation of the print quality; cleaning the printing dies, excluding excessive wear to the die face, will restore the print quality of the printer.

1 - Place the contaminated Die on top of several layers of paper towels to absorb the excess solvent. Pour just enough solvent on the face of the printing die to cover the die face.



FIGURE 32

2 -Using the toothbrush, carefully scrub the face of the die to remove the contamination and old ink. Add more solvent as necessary and repeat the process until the die is clean.

> Do not submerge or soak the dies in solvent as this may cause swelling of the rubber compound.



FIGURE 33

3 - Blot the surface of the die with a clean paper towel to dry and reinstall the clean dies on the printer.

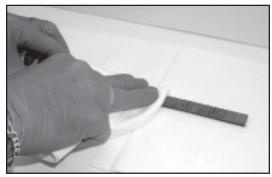
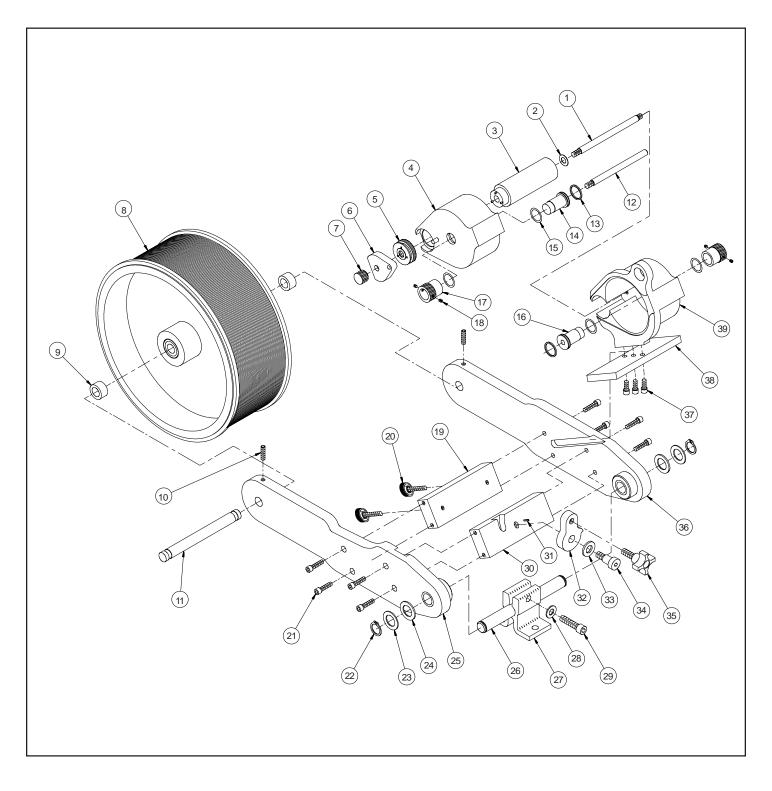


FIGURE 34

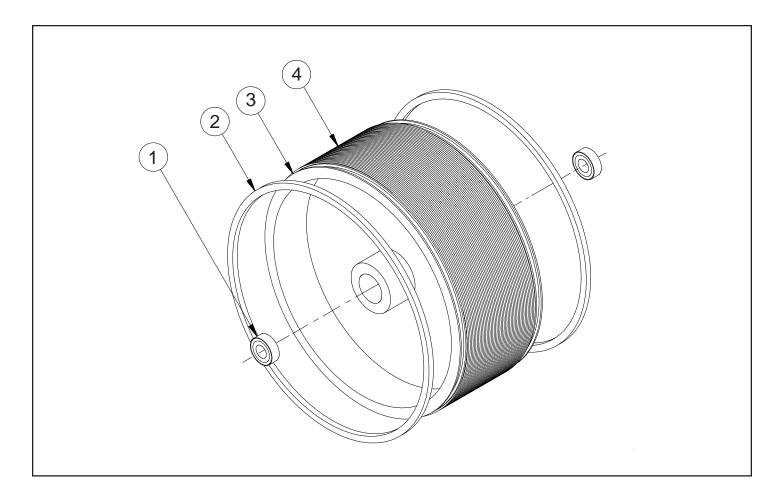
WPNP-400NI-12 & WPNP-400NI-12-T NON-POROUS WEB PRINTER



KEY NO.	PARTNUMBER	QTY. REQD.	DESCRIPTION
1	WPNP-009	1	4" TRANSFER ROLLAXLE
2	HP-04	1	3/8" BRASS, FLAT WASHER
3	WPNP-TRA-4	1	4" TRANSFER ROLLASSEMBLY
4	WPNP-CA2	1	NP COVER ASSEMBLY

KEY NO.	PARTNUMBER	QTY. REQD.	DESCRIPTION
5	NP-14	1	KNURLED DRIVE WHEEL W/DELRIN WASHER
6	WPNP-011	1	DRIVE WHEEL COVER
7	NP-17	1	COVER RETAINING KNOB
8	WPNP-400NI-12-PDA	4	PRINT DRUMASSEMBLY
0	WPNP-400NI-12-PDA-T	1	PRINT DRUMASSEMBLY, METRIC
9	WPNP-022	2	PRINT DRUM DELRINAXLE SPACER
10	WPNP-020	2	SET SCREW - 1/4-20 X 1.00" LG.
11	WPNP-021	1	4" PRINT DRUMAXLE
12	WPNP-038	1	4" INK ROLLAXLE
13	NP-21	2	O-RING, ECCENTRIC
14	NP-20C	1	ECCENTRIC, INK ROLL
15	HP-42	4	DELRINWASHERS
16	WPNP-039	1	ECCENTRIC, INK ROLL (MODIFIED)
17	NP-19	2	ECCENTRIC KNURLED KNOB
18	HP-06	4	SET SCREW, 8-32 X 3/16"
19	WPNP-014	1	JOINING BAR "A"
20	WPNP-PAK	2	POSITION ADJUSTING KNOB
21	CR-13	8	SCREW, 1/4-20 X 1.0" SHC
22	CF-13	2	SNAP RING FOR 3/4" SHAFT
23	CW-01	2	3/4" STEEL FLAT WASHER
24	CW-05	2	3/4" NYLON FLAT WASHER
25	WPNP-SFA-12	1	SIDE FRAME "A"
26	WPNP-025	1	MOUNTING SHAFT
27	CM-17	1	BRACKET, MOUNTING COLUMN
28	CW-02	1	3/8" STEEL FLAT WASHER
29	CF-09	1	SCREW, 3/8-16 X 1-1/2" SHC
30	WPNP-015	1	JOINING BAR "B"
31	CR-16	1	COMPRESSION PIN
32	WPNP-016	1	PIVOT LOCK
33	WPNP-032	1	DELRIN LATCH WASHER
34	WPNP-019	1	PIVOT LOCK SHOULDER SCREW
35	WPNP-LKA	1	LOCK KNOB ASSEMBLY
36	WPNP-SFB-12	1	SIDE FRAME "B"
37	MC-02	3	SCREW, 1/4-20 X 5/8" LG. SHC
38	WPNP-029	1	INKING SYSTEM MOUNTING PLATE
39	WPNP-040	1	NP COVER, STATIONARY

WPNP-400NI-12-PDA & WPNP-400NI-12-PDA-T NON-POROUS WEB PRINTER PRINT DRUM



KEY NO.	PARTNUMBER	QTY. REQD.	DESCRIPTION
1	CB-04	2	BEARING, PRINT DRUM
2	2 WPNP-034 2 O-RING, P.D. BEARER (SQUARE CUT) 3 PRINT DRUMS ONLY AVAILABLE IN COMPLETE PRINT DRUM ASSEMBLIES. SEE PAGES 18 & 19 (KEY 8)		O-RING, P.D. BEARER (SQUARE CUT)
3			
4	WPNP-037	VPNP-037	RIBtype® DRUM COVER
	WPNP-037T		RIBtype® DRUM COVER - METRIC

NON-POROUS WPNP WEB PRINTER REPLACEMENT INK ROLLS



DISPOSABLE TYPE MT INK ROLLS

PARTNUMBER	DESCRIPTION
WPNP-MT4-P1	WPNP NON-POROUS WEB PRINTER MT ROLL - BLACK

Note: The MT Type Ink Rolls in additional colors are available by special order, with an 18 piece minimum. Extended lead time required.



RE-INKABLE - XF NEOPRENE INK ROLLS

lote: Ink rolls must be pre-inked before use, once the ink is depleted from the roll, the roll can be taken off the printer and re-inked for extended use. To determine the type of ink to use, please contact customer service.		
PARTNUMBER	DESCRIPTION	
WPNP-XC4	4" - WPNP XF NEOPRENE INK ROLL - DRY	
WPNP-XC4-P1	4" - WPNP XF NEOPRENE INK ROLL - BLACK	
WPNP-XC4-P2	4" - WPNP XF NEOPRENE INK ROLL - RED	
WPNP-XC4-P3	4" - WPNP XF NEOPRENE INK ROLL - GREEN	
WPNP-XC4-P4	4" - WPNP XF NEOPRENE INK ROLL - BLUE	
WPNP-XC4-P5	4" - WPNP XF NEOPRENE INK ROLL - YELLOW	
WPNP-XC4-P6	4" - WPNP XF NEOPRENE INK ROLL - WHITE	
WPNP-XC4-P9	4" - WPNP XF NEOPRENE INK ROLL - VIOLET	