

PARTS REPLACEMENT AND RECONNECTION

1. Replace the Spring Clip if it is bent, deformed (compare to new clip supplied in kit for reference) or heavily ink stained
2. Each maintenance kit comes with a new controller-to-shuttle air hose and five (5) shorter shuttle to cartridge replacement hoses. Recommended maintenance is to replace both air hose assemblies at least once per year. Inspect the controller-to-shuttle air hose for kinks, pinches and ink contamination and replace annually or as necessary.
 - a) X1410 and X1413: Use the existing controller to shuttle air hose as a template to split blue and red tubing and trim the red cartridge side of the tubing to connect it to the manifold and then on to the shuttle. Either end of the red 210-2010 cartridge air hose (straight fitting or elbow fitting) can be used in the manifold or as the cartridge fitting. The rubber washer shipped on the straight fitting should be installed on the fitting used for the ink cartridge.
 - b) Each kit contains 5 red cartridge-to-shuttle air hose assemblies, as this component is critical to inker performance. If the existing long controller-to-shuttle air hose is serviceable, the short cartridge-to-shuttle air hose can be replaced with a new one included in the maintenance kit. If this short air hose and fitting become contaminated with ink, replacement outside the normal interval is recommended.
3. Connect the controller-to-shuttle air hose (blue side of the twin tubing) to the shuttle.
 - a) X1100 SERIES: Connect blue hose from the twin tubing to the top shuttle fitting. Red air hose side of the twin tubing goes to the fitting on the side of the cartridge body. Connect short cartridge-to-shuttle air hose to the fitting on the opposite side of the shuttle.
 - b) X4115, X4116, X4215, X4217: The blue air tube that attaches to the shuttle passes through a hole in the shuttle mounting arm. If the shuttle was removed from the inker base for service, the shuttle must be re-installed on the inker base before the blue air hose can be reconnected.
4. If the shuttle was removed from the inker / inking equipment:
 - a) X1100 SERIES: Reinstall the shuttle on the inker using the two Allen screws previously removed in disassembly.
 - b) ALL OTHER MODELS: Reinstall the shuttle on the mounting bracket using the three Allen screws retained when the shuttle was removed.
5. Reinstall the inker on the wafer prober / inking equipment.
6. Connect the controller-to-shuttle air hose to the port on the pneumatic controller labeled SHUTTLE.
 - a) X4115, X4116, X4215, X4217 motorized inkers: Connect the inker cable to the MOTOR port on the controller.
7. Re-connect controller air supply and power up the controller. Verify that controller air regulator is set at:
 - a) 70 ± 10 PSI: All inker models except X4000 series
 - b) 80 ± 5 PSI: 4000 Series: X4115, X4116, X4215, X4217
8. Check air fittings for leaks and correct as necessary.



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820-0330 Instruction for Shuttle
Preventive Maintenance Kits
370-0006 / 370-0007 / 370-0008 /
370-0009 / 370-0010 / 370-0011

SHUTTLE MAINTENANCE DISCUSSION

In 2022 Xandex re-designed the pneumatic shuttle assemblies used on most DieMark Pneumatic Inkers. The new "Precision" design eliminates the need to disassemble the shuttle for maintenance. While the recommended maintenance schedule is unchanged (see next section) the new precision design dramatically reduces contact surface area of the shuttles moving parts. Internal bearings have replaced the bracket and slide used in the original design.

The Precision Shuttle has two form factors, the most common requires a mounting bracket for installation in inking equipment, the second (X1100 series only) has an integral flange that mounts directly to the inking equipment. Internally, the shuttles are identical. The new shuttles have been run for over 60 million cycles with negligible particulate generation, which was the main driver for disassembly and internal cleaning in the previous design.

Maintenance now consists of replacement of external shuttle parts, contaminated or damaged air tubing and fittings and removing any ink accumulated on the shuttle body.

To order additional kits or shuttle parts not included in this kit, contact your local Xandex distributor or contact Xandex Customer Service at (707) 763-7799, toll free in the US at (800) 767-9543, FAX (707) 763-2631 email: insidesales@xandex.com or visit us on the internet at www.xandexsemi.com

PNEUMATIC SHUTTLE MAINTENANCE SCHEDULE

The recommended periodic preventive maintenance schedule for the Xandex pneumatic shuttle is as follows;

- Off-line use = 6 month intervals
- In-Line / Post Probe use = Once per year

CLEANING SOLVENT RECOMMENDATIONS

Solvents are not included in the Shuttle Maintenance Kits

Isopropyl Alcohol, Acetone or DieMark Ink Remover

WARNING: USE PROTECTIVE EQUIPMENT AS NOTED AND FOLLOW ALL USE REQUIREMENTS IN THE SOLVENT SDS TO ENSURE SAFE USE!

THE FOLLOWING TABLE CONTAINS A LIST OF PARTS INCLUDED IN ALL MAINTENANCE KITS LISTED IN THE DOCUMENT TITLE

KIT NUMBER:	ALL KITS IN THIS DOCUMENT	INKER MODEL(S):	ALL*
Part NUMBER	DESCRIPTION		QTY
110-0601	SPRING CLIP		1
510-2201	SCR PHS 2-56 X 3/32 SS		1
820-0330	PRECISION SHUTTLE PREVENTIVE MAINTENANCE INSTRUCTION (this document)		1

* Most current and obsolete pneumatic ink models can be retrofitted to use the new Precision Pneumatic Shuttle by purchasing and installing a Shuttle Retrofit Kit made specifically for your ink. Contact Xandex Customer Service for more information.

THE FOLLOWING TABLES INCLUDE ADDITIONAL PARTS SPECIFIC TO MAINTENANCE KIT AND INKER MODEL(S) LISTED.

KIT NUMBER:	370-0006	INKER MODEL(S):	X11000, X1105
Part NUMBER	DESCRIPTION		QTY
210-2014	AIR HOSE CONT>SHTL 36" W/ORIFICE		1
210-2016	HOSE ASSY X1100		5

KIT NUMBER:	370-0007	INKER MODEL(S):	X1412
Part NUMBER	DESCRIPTION		QTY
210-2013	AIR HOSE CONT>SHTL 60 W/ORIFICE		1
210-2011	SM AIR HOSE ASSY TSK-APM90		5

KIT NUMBER:	370-0008	INKER MODEL(S):	X1101, X1102*
Part NUMBER	DESCRIPTION		QTY
210-2013	AIR HOSE CONT>SHTL 60 W/ORIFICE		1
210-2016	HOSE ASSY X1100		5

*Inker must be retrofitted with P/N 316-0010 Pneumatic Shuttle, Precision, Direct Mount w/ 60" Air Hose for this maintenance kit to apply. Contact Xandex Customer Service for more information.

KIT NUMBER:	370-0009	INKER MODEL(S):	X1410
Part NUMBER	DESCRIPTION		QTY
210-2013	AIR HOSE CONT>SHTL 60 W/ORIFICE		1
210-2010	AIR HOSE ASSY TSK-APM90		5

KIT NUMBER:	370-0010	INKER MODEL(S):	X4115, X4116, X4215, X4217
Part NUMBER	DESCRIPTION		QTY
210-2013	AIR HOSE CONT>SHTL 60 W/ORIFICE		1
210-2015	AIR HOSE ASSY X4215		5

KIT NUMBER:	370-00011	INKER MODEL(S):	X1413
Part NUMBER	DESCRIPTION		QTY
210-2013	AIR HOSE CONT>SHTL 60 W/ORIFICE		1
210-2010	AIR HOSE ASSY TSK-APM90		5

INKER AND SHUTTLE DISCONNECTION AND REMOVAL FOR SERVICE

Information specific to individual models are listed as subroutines.

WARNING: ALWAYS POWER DOWN AND DEPRESSURIZE THE CONTROLLER BEFORE PERFORMING MAINTENANCE ON A PNEUMATIC INKING SYSTEM!

1. Turn off the pneumatic controller and disconnect the controller unit from its air supply (depressurize the controller unit).
2. Disconnect the ink cartridge (if installed) and remove it from the spring clip.
3. Disconnect inker connections at the pneumatic controller:
 - a) Disconnect the twin pneumatic air hose fitting (red and blue tubing) from the SHUTTLE port on the back of the pneumatic controller.
 - b) X4115, X4116, X4215, X4217 motorized inkers: disconnect the inker cable from the MOTOR port on the controller.
4. Remove the inker from the prober / inking equipment. Retain all inker mounting screws.
5. Disconnect the blue pneumatic air hose at the shuttle (grasp, do not crush, the hose with needle nose pliers over the fitting point and pull gently to disconnect, being careful not to damage fitting).
 - a) X1100 SERIES: Also disconnect the red air hose portion of the twin tubing at the shuttle fitting. Remove the short red shuttle to cartridge tubing from the fitting on the opposite side of the shuttle.
6. Optional for shuttle removal from the inker
 - a) Remove the three Allen screws securing the shuttle assembly to the shuttle mounting arm and remove the shuttle assembly for maintenance.
 - b) X1100 SERIES: Remove the two screws securing the shuttle to the inker body and remove the shuttle assembly for maintenance.
 - c) X1410 RETROFIT on TSK / Accretech Inker: Remove the three Allen screws from the shuttle mounting bracket and remove the shuttle for maintenance.
 - d) X1413 on OEM equipment: Remove the three Allen screws securing the shuttle assembly to the shuttle mounting arm and remove the shuttle assembly for maintenance.
7. Remove the screw that retains the Spring Clip on the shuttle and remove the spring clip.

SHUTTLE CLEANING

1. Clean the external surfaces of the pneumatic *shuttle* with solvent and a clean lint free cloth or swabs. Do not immerse the shuttle or over-apply solvent. Use solvent sparingly, as required to clean ink deposits from shuttle surfaces. For stubborn ink stains, apply solvent to lint free cloth and place on stained area for 30-60 minutes to dissolve ink. [Xandex DieMark Ink Remover](#), available in US Quart and Gallon sizes, is an excellent solvent choice for removing stubborn ink stains.
2. Remove solvent residue by wiping with a clean water dampened lint free cloth and allow shuttle to air dry thoroughly.