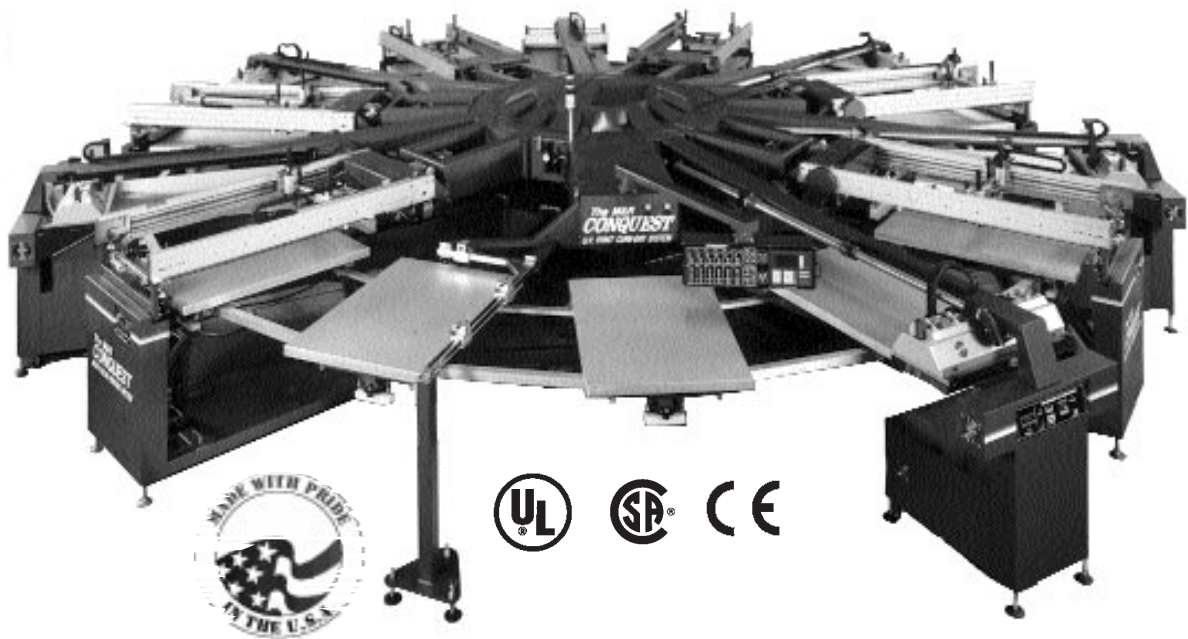


M&R CONQUEST

MULTI-COLOR U.V. PRINT/DRY SYSTEM

OPERATOR'S MANUAL



M&R PRINTING EQUIPMENT, INC.
1 N. 372 MAIN STREET - GLEN ELLYN, ILLINOIS 60137
1 (800) 736-6431



IMPORTANT

IMPORTANT!

The product described in this publication may employ hazardous voltages or might create other conditions that could, through misuse, inattention, or lack of understanding, result in personal injury, or damage to the product or to other equipment. It is imperative, therefore, that personnel involved in the installation, maintenance, or use of this product understand the operation of the product and the contents of this publication.

This document is based on information available at the time of its publication. While efforts have been made to be accurate, the information contained herein does not purport to cover all details or variations in hardware, software, features or specifications, nor to provide for every possible contingency in connection with installation, operation and maintenance. Features may be described herein which are not present in all variations of this product. M&R Printing Equipment, Inc. assumes no obligation of notice to holders of this document with respect to changes subsequently made.

M&R Printing Equipment, Inc. makes no representation or warranty, expressed, implied or statutory with respect to, and assumes no responsibility for the accuracy, completeness, sufficiency or usefulness of the information contained herein. No warranties of merchantability or fitness for purpose shall apply.



The following information will prove helpful when ordering replacement parts, requesting service or repairs. Please fill in the following information. The Model No., Serial No., Schematic No. and Machine No. are all located on the Manufacturers Rating Plate mounted to the equipment. Should you have any questions regarding this information, please do not hesitate to contact our Equipment Service Department at 1 (800) 736-6431 during normal business hours.

Product Name: _____
Model No. _____
Serial No. _____
Schematic No. _____
Machine No. _____
Date of Installation: _____
Installed By: _____

M&R Conquest Multi-Color System

Introduction



Valued Customer,

Thank you and congratulations on your purchase of the M&R Conquest Multi-Color U.V. Print/Dry Screen Printing System.

The M&R Conquest is designed for printing and drying U.V. inks in up to six colors on vinyl, glass, plastic, polycarbonates and rigid and flexible substrates in one complete and compact system.

This remarkable screen printing system eliminates the need for up to six independent press and dryer production lines, saving you valuable floor space and labor costs.

A thorough understanding of the operation and maintenance of your new M&R Conquest will insure maximum production rates and a long service life for your investment.

This Operator's Manual is provided to help guide you and your employees in the proper procedures for set-up, operation and preventive maintenance of your new M&R Conquest.

Should you have any questions regarding the operation or maintenance of your new Conquest, M&R's World Wide Technical Service and Support Network is available to you during regular business hours (8:30am - 5:00pm C.S.T.) at 1 (800) 736-6431, or, on week ends or holidays call our 24 hour Emergency Service Hotline at 1 (630) 462-4715 for technical support 24 hours a day, seven days a week.

On behalf of all of us here at M&R, thank you for making M&R your equipment supplier.

A handwritten signature in black ink that reads 'M. J. Sweers'.

Michael J. Sweers
Director of Technical Services
M&R Printing Equipment, Inc.



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M&R Conquest Multi-Color System

Safety Precautions

SAFETY PRECAUTIONS

FUNDAMENTAL SAFETY INSTRUCTIONS:

Please read all information regarding safety precautions as presented in the Operator's Manual.

The fundamental requirement to assure safe and trouble-free operation of this equipment, is a thorough understanding of the safety information contained in this Operator's Manual.

This Operator's Manual includes important instructions to assure safe operation of this equipment. This Operator's Manual, and especially the safety instructions as described there-in, must be observed by everyone who will operate this equipment. In addition to the safety instructions and regulations described in this Operator's Manual, rules and regulations of the equipment owners place of business must also be observed.

Obligation of the Equipment Operator:

The equipment operator is obliged to guarantee that only staff who are acquainted with the fundamental regulations according to workers protection and accident prevention, and, are completely knowledgeable in the operation of this equipment have fully read the Safety Chapter and the Warning Instructions of this manual, and understand the instructions as they relate to operation of this equipment.

Equipment operators must be continually evaluated to assure that they fully understand the operation of this equipment.

Obligation of Personnel:

Every person that will be engaged in the operation of this equipment must comply with the following before operation of the equipment is to begin.

1. Observe the fundamental regulations of worker's protection and accident prevention.
2. Read the Safety Chapter and Warning Instructions of this Operator's Manual and confirm by signature that they understand the instructions as described in the manual.

Dangerous Situations during Operation of the Equipment:

The M&R Conquest Multi-Color UV Print/Dry System has been designed and constructed in accordance with safety standards as described by Nationally Recognized Testing Laboratories, such as Underwriters Laboratories in the United States, and CENELEC and the European Economic Community (CE) Standards and Directives. However, it is possible that dangerous conditions which can cause serious injury or loss of life for the user or third persons, or damage to the equipment or property could occur. This equipment must be used only for the defined purpose as described in the Operator's Manual, and must be maintained in perfect running condition in accordance with described Safety Regulations.

Conditions which may compromise operator safety must be identified and corrected immediately.

Defined Purpose:

The M&R Conquest Multi-Color UV Print/Dry System is specifically designed to apply (print) screen printed inks on flat rigid and semi-rigid substrates. Any other use of the equipment which does not meet the Defined Purpose as described above is not permitted.

In accordance with the Defined Purpose of this equipment, it is necessary to observe all instructions as outlined in the Operator's Manual and to perform the preventive maintenance procedures as described in the manual.

Guarantee and Liability:

In principle, our general terms of sale and delivery are valid and these are at the Operator's disposal. Guarantee and liability claims for persons or property damage are excluded if they originate for one or more of the following reasons.

1. A non-defined use of the equipment
2. Improper installation or use of the equipment
3. Operation of the equipment with defective safety devices
4. Non-Observance of instructions as described in the Operator's Manual for transportation, storage, installation, operation, maintenance, set-up and take-down of the equipment.
5. Modification of the equipment.
6. Failure to replace worn or defective parts of the equipment.
7. Defective repairs made to the equipment.
8. Dangerous conditions which are a result of the improper use of the equipment

Description of Safety Symbols and Instructions:



This symbol signifies or alerts the equipment operator of conditions or areas of the equipment which present imminent danger to the health of the equipment operator.

Non-observance of these instructions has serious health consequences, and can lead to highly dangerous injuries.



This symbol signifies a possible imminent danger for life and health of persons and equipment operators.

Non-observance of these instructions can have serious health consequences and can lead to highly dangerous injuries.

M&R Conquest Multi-Color System

Safety Precautions



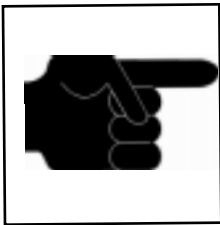
CAUTION

This symbol signifies a possible danger. **Non-observance of these instructions can lead to light injuries or damage to the equipment or property.**



IMPORTANT

This symbol gives important instructions for the proper use of the equipment. **Non-observance of these instructions can lead to equipment failure.**



OPERATING TIP

This symbol is used to describe operating tips or especially useful information. **This information will enable the operator to use all equipment functions for optimal performance.**

Organizational Measures:

Equipment operators are responsible to provide personal protection when operating this equipment. All safety devices must be checked each day before operation of the equipment can begin.

Safety Devices:

Before beginning operation of the equipment, all safety appliances must be checked for proper operation.

Safety devices may only be removed after.....

1. The equipment is shut down.
2. The electrical power has been dis-connected from the equipment.
3. In case of delivery of partial components, the operator must install safety devices in accordance with regulations.

Exploratory Safety Measures:

The Operator's Manual must be kept on or near the equipment at all times. All safety and danger notices must be kept in readable condition at all times.

Training of Equipment Operator's

Only properly trained operators may run the equipment. The competence of personnel who are to operate, maintain, set-up and shut down the equipment must be confirmed. Unskilled staff may work with the equipment only when supervised by experienced equipment operators.

Equipment Control System:

Never make any modifications to software.

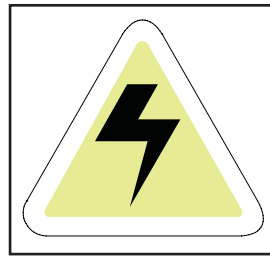
Only experienced operators may actuate the control system.

Safety Measures during Normal Operation:

Operate the equipment only if all safety devices are fully operational. Before starting the equipment, check to be sure no-one will be endangered by the operation of the equipment.

Check the equipment and safety devices at least once per shift for external or visible damage.

Danger by Electrical Energy:



DANGER!

Work on the electrical system must be carried out by qualified personnel only. Check the electrical equipment regularly for any sign of defect or loose connections.

Electrical enclosures must be kept securely locked at all times.

Only authorized personnel with a key are allowed access to electrical enclosures.

Danger by Pneumatic Energy:

Only personnel with experience with pneumatic power systems may work with pneumatic components or assemblies.

Before starting any work on pneumatic components or assemblies, **the compressed air supply must be completely drained from the equipment to prevent any operation of pneumatic controls or assemblies.**

All pneumatic piping and/or hoses must be checked at regular intervals for signs of wear or failure.

Exhaust of Harmful Gas and Vapor:

It is possible that harmful gas and vapors may escape when ever safety guards or covers are removed. Extreme care must be taken to provide sufficient ventilation.

Maintenance & Trouble Shooting:

Preventive maintenance must be performed at regular intervals as described in the Operator's Manual.

Equipment operator's must be informed before any preventive maintenance can be performed.

M&R Conquest Multi-Color System

Safety Precautions

All power systems such as electrical, pneumatic, hydraulic or mechanical must be dis-connected and locked out before preventive maintenance may begin.

Structural Modification of the Equipment:

Modifications of equipment are specifically not allowed without written authorization from M&R Printing Equipment, Inc.

Cleaning of the equipment:

Clean away all ink or other contaminants at the end of each day.

Equipment Noise:

Under normal operating conditions as described under Defined Purpose, this equipment will not produce sound above the level of 65 db. Depending on local conditions, a higher continuous sound level may result that could lead to hardness of hearing. In this case, the operational staff must wear appropriate safety clothing or protection.



CAUTION: The information contained in this Operator's Manual has been provided to eliminate problems from occurring. Be sure to read through this Operator's Manual fully before operating your press. There are numerous safety features utilized in the operation of this equipment. **Please be sure you know the location of these safety devices and how they operate before attempting to operate this equipment.**

SAFETY FEATURES -

1. All equipment is provided with either a safety bar, foot switch, yellow safety cords, infrared safety beam, yellow floor mats or hand switch to stop the equipment. Please know the type on your equipment and its location before operating.
2. Safety guards have been provided to protect the operator from all moving parts. Please do not remove these Safety Guards any time the equipment is in operation.
3. This Operator's Manual includes information regarding the proper preventative maintenance procedures. When ever personnel are performing preventative maintenance procedures, **be sure that all electrical and pneumatic power is disconnected from the equipment, and that disconnects are locked in the "OFF" position.**
4. Never work on the table surface under the print station master frame unless the drive switch is "OFF".
5. The ultraviolet curing stations on this equipment have been provided with UV filter shields. **DO NOT** operate the UV curing stations with the UV filter shields removed or mis-adjusted.



CAUTION

CAUTION: EXPOSURE TO THE INTENSE UV LIGHT ENERGY PRESENT WHEN THE UV LAMPS ARE ENERGIZED WILL BE HARMFUL TO THE SKIN AND EYES. SERIOUS AND PERMANENT INJURY CAN RESULT FROM THIS EXPOSURE. NEVER LOOK DIRECTLY OR INDIRECTLY AT THE UV LAMPS WITHOUT APPROVED EYE PROTECTION!

OPERATOR SAFETY INSTRUCTIONS -

All industrial equipment, including screen printing equipment, requires a combination of high electrical, pneumatic, hydraulic or mechanical power for operation. In addition, automatic screen printing equipment, by its nature, exposes operators to parts and assemblies which operate at high speeds and contain numerous moving parts. As with all complex industrial equipment, care should be exercised to carefully observe proper operating procedures and safety precautions.

Although every effort has been made to design and construct safe, dependable equipment, it is impossible to foresee all circumstances under which this equipment may be utilized, or to anticipate all possible combinations of factors which may cause a hazardous condition or situation. It is therefore imperative that the equipment Operator, as well as all other personnel engaged in any phase of the set-up, operation or preventative maintenance of this equipment consider safety first an important part of their job.

The following general safety considerations are offered as an aid to users of M&R Printing Equipment to assist them in becoming safety conscience.

1. **READ THE OPERATOR'S MANUAL** before attempting to lift, move, operate or perform maintenance on any piece of machinery. Become intimately familiar with all equipment controls, their locations, their operation and their effect on equipment function. Keep this Operator's Manual in a clean location immediately adjacent to the equipment for a quick and handy reference.
2. **BEFORE ATTEMPTING TO START THE EQUIPMENT** inspect all areas around and adjacent to moving parts for possible obstructions: tools, rags, crating remnants etc. Be certain that all Safety Guards, covers, access doors etc., are properly installed prior to starting operation.
3. **PRACTICE GOOD HOUSEKEEPING:** Maintain an area adjacent to **NOT ON** the equipment for tool and color storage. Clean up all spills and eliminate all potential trip points from the operating areas around the equipment to prevent slipping or falling into the working zone of the equipment. **Do not stand on equipment elements not intended for this purpose.** Maintain a maximum clear area around the equipment for unobstructed movement of the Operator. Perform Preventative Maintenance at the intervals specified in this Operator's Manual.

M&R Conquest Multi-Color System

Safety Precautions

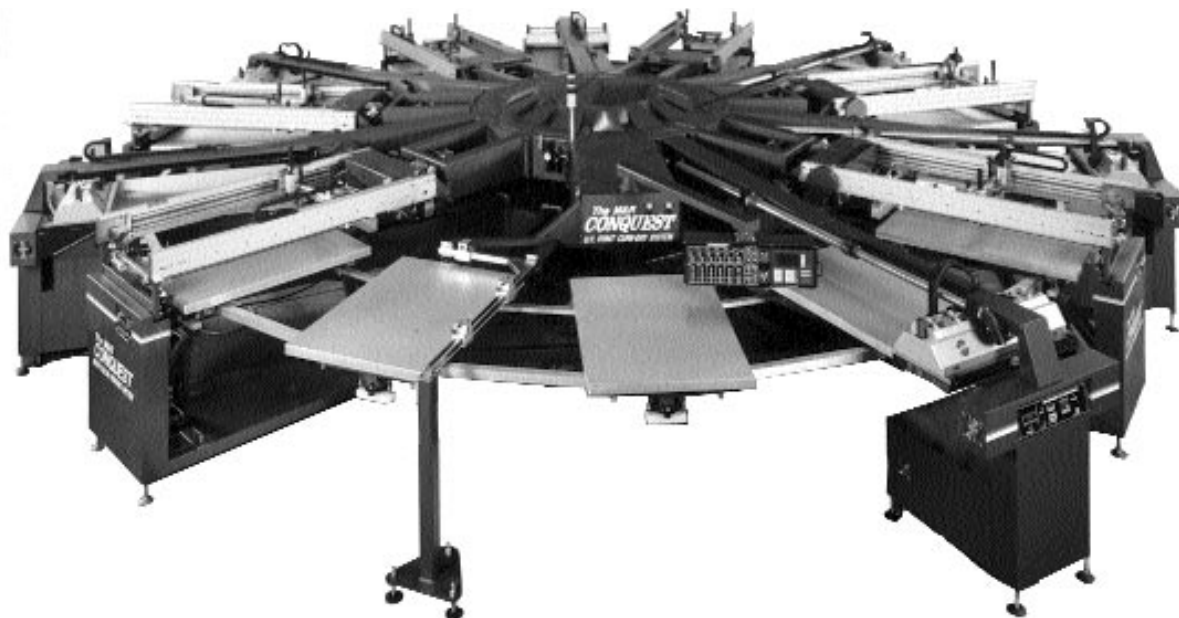
- 4. AVOID WEARING LOOSE CLOTHING** , long hair, neck ties etc., when operating this equipment as these can easily become entangled in moving parts. Safety shoes are likewise recommended. Avoid horseplay around the equipment.
- 5. DO NOT ATTEMPT** to operate this equipment if you are sick, excessively fatigued or under the influence of alcohol or prescription drugs. Shut off the equipment immediately if any malfunction occurs or appears imminent. Report any unsafe equipment or condition promptly in order that correction can be made as soon as possible.
- 6. BY-STANDERS** should stay well away from the equipment so as not to distract the operator or accidentally move a control element. Avoid talking to the operator while the equipment is in operation.
- 7. WHEN CHANGING SET-UP**, performing maintenance work, cleaning the equipment etc., it is imperative that the main electrical and pneumatic power supplies be disconnected to avoid accidental operation and possible resultant injury. This is particularly important in the event more than one person is involved in such duties.
- 8. A WRITTEN SAFETY PROGRAM** should be installed by all companies owning M&R Printing Equipment. This program should cover inspection, maintenance and safety training on the proper use of the machinery.



WARNING! DO NOT WORK ON THE PRINT TABLE UNDER THE PRINTING STATIONS OR IN BETWEEN PRINT HEADS & UV STATIONS UNLESS ALL SAFETY PRECAUTIONS HAVE BEEN OBSERVED!

M&R Conquest Multi-Color System

Specifications



SPECIFICATIONS		
Model No.	Model No. CONQUEST2538	Model No. CONQUEST3040
Electrical Requirements	240 volts, 3 phase, 253 amps	240 volts, 3 phase, 253 amps
Compressed Air Req.	110 P.S.I. @ 5 C.F.M.	110 P.S.I. @ 5 C.F.M.
Maximum Image Size	25" X 38" (64 X 97 cm)	30" X 40" (76 X 102 cm)
Maximum Frame O.D.	39" X 56" X 2" (99 X 142.2 X 5.0 cm)	44" X 58" X 2" (111 X 147 X 5.0 cm)
Overall Setup Diameter	28' 3" (8.61 m)	28' 3" (8.61 m)
Shipping Weight	17,000 lbs. (7711.2 kg)	18,000 lbs. (8164.8 kg)

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IMPORTANT

The electrical specifications indicated are based on mathematical calculations which assume ideal conditions exist for electrical supply line values, material used in the installation of electrical service and site preparation. Although every effort has been made to provide accurate electrical specifications, M&R Printing Equipment, Inc., does not assume any liability for damages, whether consequential or incidental, that may result from the use of the indicated electrical specifications. M&R Printing Equipment, Inc., encourages the use of a licensed Electrician for the installation of electrical service to this equipment. The equipment when installed must be electrically grounded in accordance with local codes, or in the absence of local codes, with the National Electrical Code ANSI/NFPA 70- Latest Edition.

M&R Printing Equipment, Inc. reserves the right to alter specifications in the manufacture of its products.

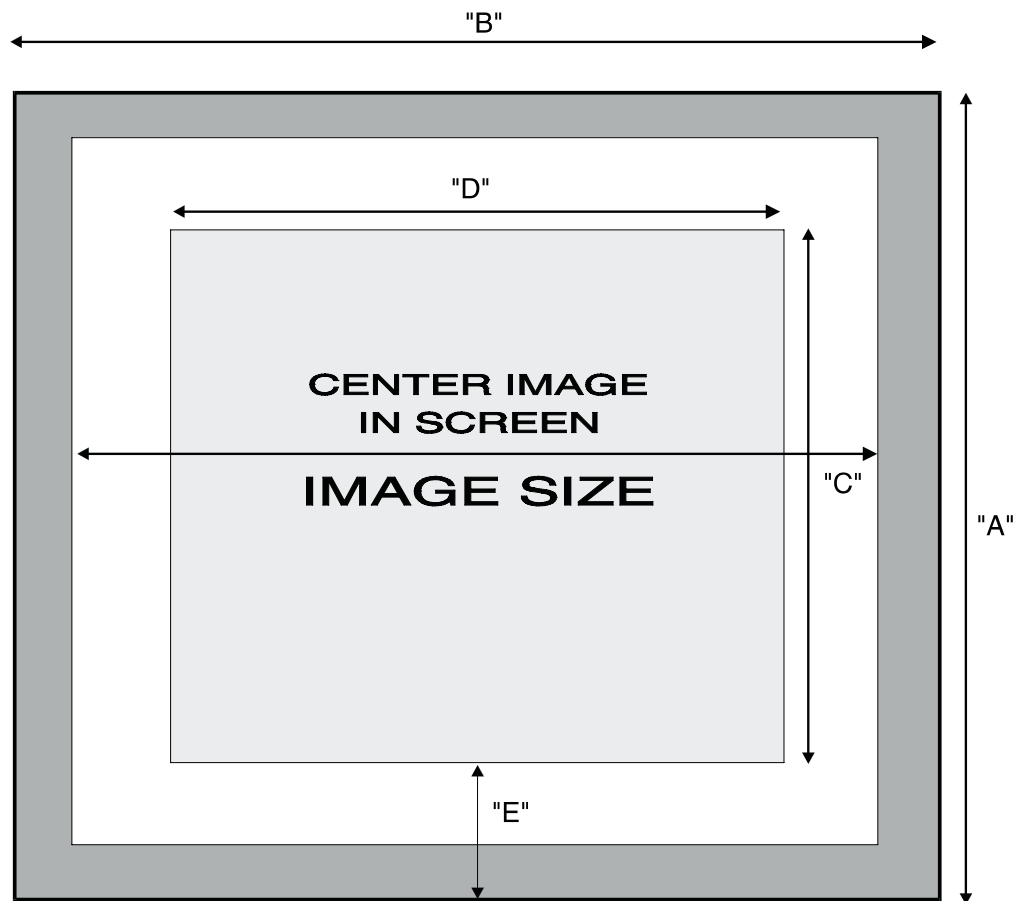
M&R Conquest Multi-Color System

Specifications

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M&R Conquest Multi-Color System

Screen Frame & Image Size



FRONT

MODEL No.	"A"	"B"	"C"	"D"	"E"
CONQUEST2538	39" (99.8cm)	56" (142.2cm)	25" (63.5cm)	38" (96.5cm)	7" (17.7cm)
CONQUEST3040	44" (111.7cm)	58" (147.3cm)	30" (76.2cm)	40" (101.6cm)	7" (17.7cm)

NOTE: Although every effort has been made to provide accurate screen frame specifications, M&R Printing Equipment, Inc. does not assume any liability for damages, whether consequential or incidental that may result from the use or misuse of the indicated specifications. M&R Printing Equipment, Inc. reserves the right to alter specifications in the manufacture of its products.

M&R Conquest Multi-Color System

Installation Instructions

Installation

The M&R Conquest Multi-Color U.V. Print/Dry System incorporates sophisticated state of the art microprocessor technology and electro-pneumatic drive systems. As such, this equipment must be installed by an M&R factory trained Service Representative to assure optimum performance of your new Conquest system.

The following check list includes information which must be reviewed **before the technician arrives for the installation.**

Please read and follow these instructions carefully. Should you have any question regarding these installation requirements, please contact our Service Dept. at 1 (630) 858-6101 during regular business hours 8:30am to 5:00pm CST.

Pre-Technician Checklist For Conquest Installation

1. Carefully uncrate your Conquest and check it for any obvious damage. Obvious signs of damage to the crate should be brought to the attention of the **freight carrier** as soon as possible. Report any damage to the M&R Service Dept. at 1 (630) 858-6101 immediately.

2. Refer to the specifications on page 5 to determine dimensional space requirements for your particular model size. We recommend an additional three feet (3') of work space at each print station for the loading and unloading of frames. (5' for larger 30" x 40" model).

3. Upon determination of equipment location, set up the index base with main index shaft in the center of that area. Pay particular attention to the orientation of the load and unload stations (located at Control Console) as they relate to your floor plan.

4. A clean, moisture-free compressed air supply is essential for the proper operation of this equipment — the use of a refrigerated air dryer is therefore mandatory. An air compressor which provides 100 P.S.I. @ 5 C.F.M. must be provided for set-up and operation. Use 3/4" O.D. black pipe from the compressor to the air inlet located on the index base, and provide a disconnect valve within 3-4 feet of the compressed air input.

5. Electrical power lines for the ultra-violet curing units are connected at the lower control box enclosure. The electrical power for the press is connected at the top of the indexer base assembly. **Do not connect the electrical power to the equipment at this time!** Our Service Representative will check the electrical power for proper voltage, phase and amperage before connecting electrical power to the system.

6. Squeegee blades suitable for use with Ultra-violet screen printing inks must be provided. Provide six pieces 27" long - 32" long for the 30" x 40" model, 80-90 durometer, 1 7/8" x 3/8" for each print station.

7. Screens will be required for the initial test printing of this equipment. A minimum three color close registration design must be ready to run upon completion of the installation. Please refer to page 7 for the screen frame size and image placement dimensions for screens.

8. Provide adequate lighting in the press area.



CAUTION: The use of ceiling mounted mercury vapor lights in the area where this equipment will be used should be avoided if possible. These type of lighting fixtures emit a low frequency ultra violet light that can cure UV ink in the screens after prolonged exposure.

M&R Conquest Multi-Color System

Installation Instructions

Overview

The M&R Conquest Multi-Color U.V. Print Cure/Dry System (Fig. 1) is designed to print and dry up to six colors in one complete printing system. Paper, glass, plastic, vinyl and most other flat rigid and flexible substrates are placed on the machine tooled vacuum bases mounted to the index system. The substrate is then automatically indexed into the first print station position for imprinting.

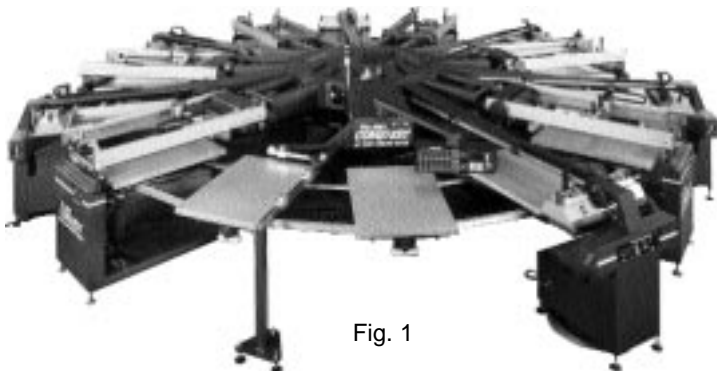


Fig. 1

Print stations feature individual control of squeegee/flood bar speed, angle and printing pressure. In addition, each print station includes controls for frame up/down speed, jog left/jog right, front & rear pneumatic frame clamp switches, independent print start push button, re-set button, adjustable front and rear print stroke length sensors and Emergency Stop button. (See Figure 2 below)

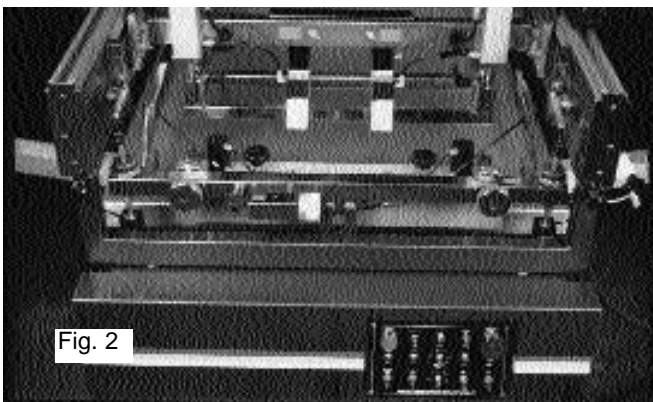


Fig. 2

At the completion of the print stroke, the substrate is then automatically indexed into position under the M&R Conquest ultra-violet curing stations for curing of the printed ink film. Exposure and cure speed of the ink film are controlled through the use of selectable U.V. power outputs of 200 or 300 watts per square inch, and adjustable UV lamp Multi-Scan. When the U.V. lamp is idle (Stand-by position), the wattage drops to 125 watts per square inch and the lamp assembly retracts into a specially designed shielding area, conserving energy, eliminating stray ultra-violet light emissions and preventing heat buildup in the substrate. Once the lamp is activated, the pre-selected curing wattage is reached instantly.

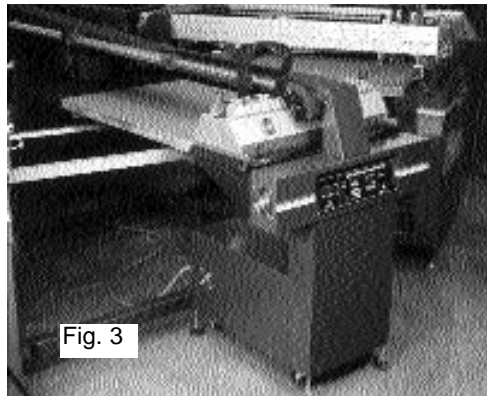


Fig. 3

Unique to the M&R Conquest is the multi-pass capability of the U.V. lamp assembly for curing of darker colors or heavier deposit ink films. Each U.V. lamp may be individually controlled for either one pass, or multiple passes as particular job requirements may dictate.

At the completion of the curing cycle, the substrate is then automatically indexed into position for imprinting of the next color in the sequence, with subsequent curing of the ink film as described above. Up to six colors can be printed and dried with this one system offering the graphic screen printer substantial savings in labor and floor space.

M&R Conquest Multi-Color System

Controls and Adjustments

MTA OPERATOR INTERFACE PANEL

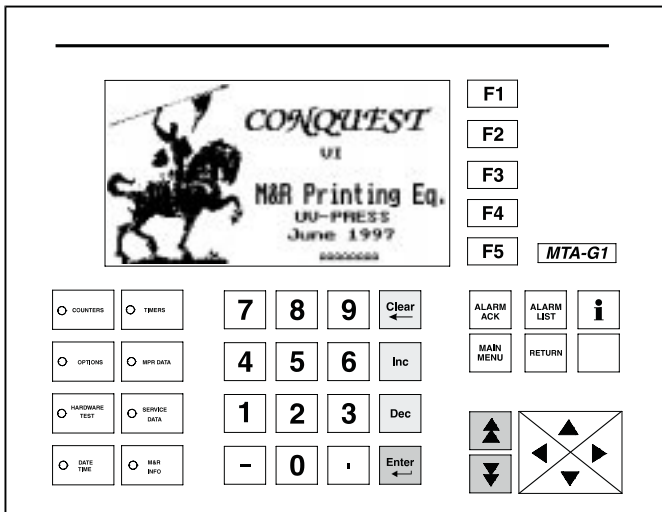
The L.C.D. digital display microprocessor control panel is provided to display all operational parameters of your Conquest Multi-Color U.V. System. Control of Dwell Time, Counters and Index Settings are only a few of the control parameters available to you.

The following information will describe each function in detail.



Upon application of electrical power to the system, the digital display window will automatically display a PLC logic check screen.

At the completion of the logic check sequence, the L.C.D. window will display the **MAIN MENU** screen. (See illustration below)



As a safety feature you will note that the display window will indicate a flashing frame around the word **“ALARM”** at the top right of the **MAIN MENU** screen. This indicates that an alarm condition has been detected by the on-board PLC, and must be corrected before operation can begin. Typically the alarm condition is due to the Emergency Stop Button left in the **“ON”** (in) position as this is usually the last control to be activated when the system is shut down at the end of the previous production period.

To re-set the control for operation, deactivate the Emergency Stop push button by gently pulling the red mushroom shaped head straight up and out, then, simply push the green **“RE-SET”** button located immediately under the Emergency Stop Button and the alarm condition will clear, making the control ready for operation.

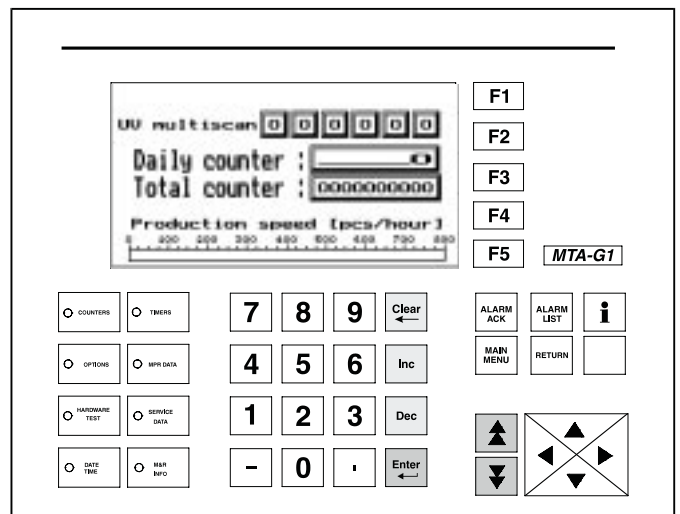
If however, the flashing cursor does not clear upon pushing the green **“RE-SET”** button, push the **“ALARM LIST”** key on the microprocessor control panel to list the cause for the **ALARM** condition. Some of the possible causes for a **“ALARM”** condition are, Safety Circuit interrupted, E-Stop activated, etc.

Do not under any circumstances attempt to operate this equipment until the cause for the “ALARM” indication has been isolated and corrected.

COUNTERS

The **COUNTERS** menu is accessed by pressing the **COUNTERS** key on the Operator Interface control panel. The L.C.D. message window will then display the **COUNTERS** menu. (See illustration below)

Across the top of the display you will see **“UV Multiscan”** and to the right of this, six numeric value windows used to enter and display the amount of scans for each individual UV station. The system Operator is permitted to enter a maximum value of 9 (nine) scans per UV station. To enter the desired number of scans for each UV head, simply use the arrow keys to place the flashing frame around each individual numeric value window, then using the numeric key pad, enter the number of scans desired, then press the **ENTER** key. Counting from left to right, the numeric value windows are for UV stations, 1 - 2 - 3 - 4 - 5 - & 6.



Upon initiation of the printing cycle the **Daily Counter** will count once for every print cycle.

To re-set the value for the **Daily Counter** to **“0”**, use the arrow keys on the control panel to position the flashing frame around the numeric value to the right of **Daily Counter**. Press the **“0”** key on the keypad and then press **ENTER**. The value will re-set to **“0”**, re-setting the **Daily Counter**.

The **Total Counter** will register and record all print cycles for the production day, regardless of how many various print jobs are run. In this manner, the **Total Counter** provides a history of the total print cycles run throughout the production life of the press. **The Total Counter cannot be re-set.**

Lastly, at the bottom of the **COUNTERS** message screen you will note that a graphic indicator which displays the current speed of the system in pieces per hour has been provided.

M&R Conquest Multi-Color System

Controls and Adjustments

As the system operates, you will observe that the bar located below the numeric graduations starts to fill in from the left to the right. This indicates the current speed of the system in pieces per hour.

TIMER

Pressing the **TIMERS** key will display the **TIMER** message screen. The message screen will display **INDEX TIME**, **UV FLASH TIME** and **UV LAMP DELAY TIME**. (See illustration below)

When operating your Conquest system in the **AUTOMATIC** mode, the time interval between the end of a print cycle and the start of the next print cycle, is described as Dwell Time. Index Dwell Time may be adjusted as follows.

Using the arrow keys, position the flashing frame around the numeric value for **INDEX TIME**, located just below the words "**INDEX TIME**". Using the numeric keypad, enter the numeric value for the **INDEX TIME** and press the **ENTER** key. Please note that the minimum setting for the dwell time is 0.1 seconds, while the maximum is 20 seconds.

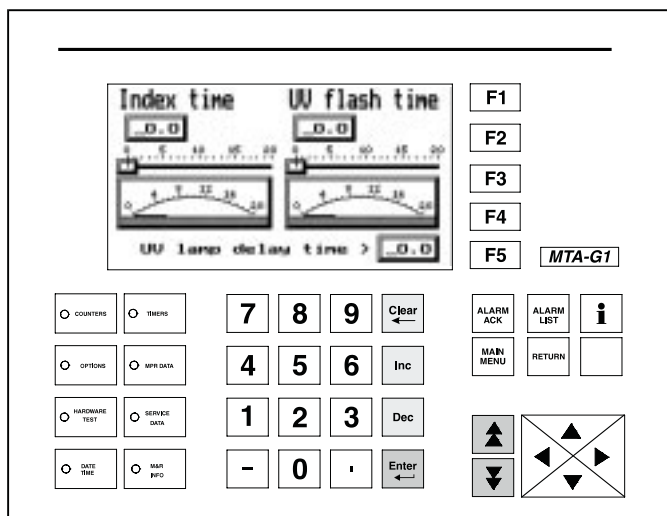
Additionally, as the system operates, and the dwell time decreases, the analog meter display will reflect the amount of dwell time remaining until the start of the next print cycle.

When the dwell time value reaches "0", the system will automatically start the next index cycle.

The UV curing stations incorporated in the M&R Conquest feature selectable UV power output settings of 200 and 300 watts per inch. This feature provides the system operator with increased flexibility when printing a wide range of substrate types and weights, and contributes to the overall efficiency of the system.

During operation of the UV stations, the UV curing lamps scan down the length of the printed substrate. At the completion of the scan sequence, the lamps start what is described as their "Stand-By Dwell Time". During the "Stand-By Dwell Time", the lamps will automatically power down to the lower UV power output setting of 125 to maximize electrical power savings, which also contributes to longer lamp life. The "Stand-By Dwell Time" may be adjusted by the system Operator to closely match the speed of the index table and to compensate for other UV stations which may be adjusted for multiple scans.

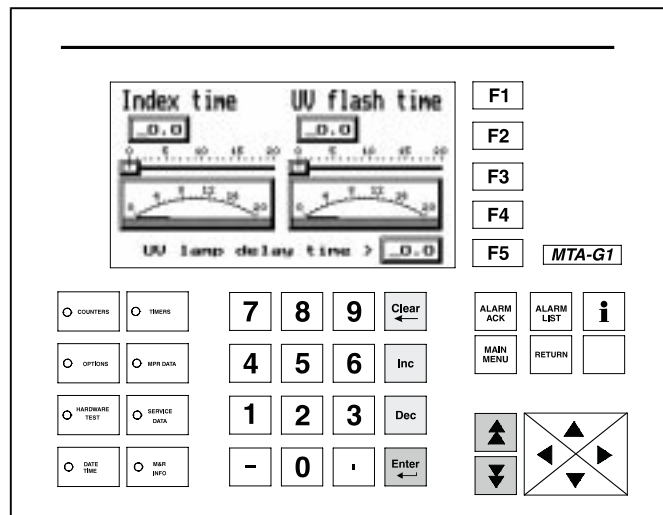
UV FLASH TIME provides the system Operator with a means to adjust the "Stand-By" time for all UV Stations. **UV FLASH TIME** is adjusted in the exact same manner as described previously for **INDEX TIME**. Simply use the arrow keys to place the flashing frame around the numeric time indication. Then, using the numeric keys, enter the desired Stand-By dwell time, then press the **ENTER** key. The sliding scale and analog meter display perform exactly the same as for **INDEX TIME**. (See illustration below)



Another method of adjusting the **INDEX TIME** is to use the arrow keys to place the flashing frame around the numerical value window, then press the "**INC**" or "**DEC**" keys to either increase or decrease the displayed numeric value.

To start the Index Dwell Timer, press the mode switch, located on the Master Control Panel, first down to "**MANUAL**" (spring loaded position) and then up to "**AUTOMATIC**", the latched position. This action will command the system to operate in the **AUTOMATIC** mode of operation with the Dwell Time as indicated in the display window.

As a convenient indicator, a small sliding scale and analog meter are displayed under both the **INDEX TIME** and the **UV FLASH TIME**. These graphic displays provide the system Operator with a visual indication of the current dwell time setting, and remaining dwell time (as read on the analog meter display) at a glance. You will note that as you adjust the **INDEX TIME**, the sliding scale indicator will change to reflect the dwell time as entered into the system.



The ultraviolet (UV) lamps used in the M&R Conquest Multi-Color Print/Dry System incorporate operational characteristics which are unique to mercury vapor curing lamps.

M&R Conquest Multi-Color System

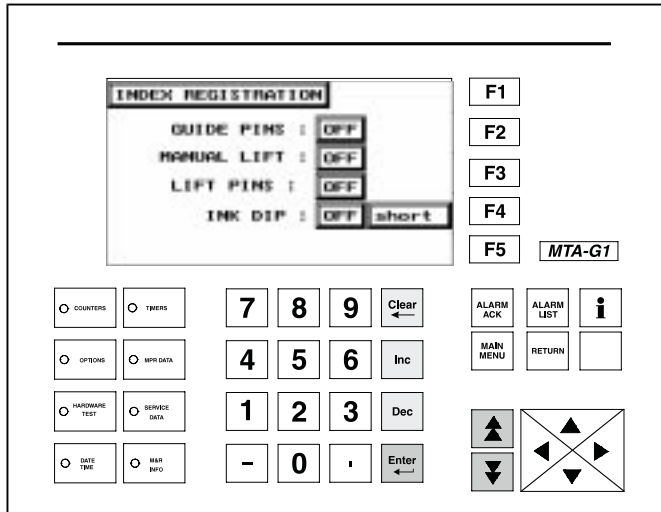
Controls and Adjustments

One of these characteristics is the requirement for a “Warm-Up” time interval upon start up of the lamp. This time interval allows the lamp to develop the optimum operating temperature for striking an arc across the lamps length. The **UV LAMP DELAY TIME** is provided to make adjustments to this “Warm Up” time.

To adjust the **UV LAMP DELAY TIME**, use the arrow keys to place the flashing frame around the numeric indication, then use the numeric keys to enter the desired delay time (Minimum of “0” & maximum of “20”). Now press the **ENTER** key.

OPTIONS

The **OPTIONS** menu allows setting of the “**INDEX REGISTRATION SETTINGS**”, “**GUIDE PINS**”, “**MANUAL LIFT**” and if equipped, the “**LIFT PIN**” system for imprinting of glass or other heavy rigid substrates. Additionally, this sub-menu contains the “**INK DIP**” feature. To access these sub-menu items, press the **OPTIONS** key on the keypad.



The “**INDEX REGISTRATION**” sub-menu item may be accessed by pressing the “**ENTER**” key when the flashing frame is around “**INDEX REGISTRATION**”. The L.C.D. window will display the “**REGISTRATION MODE**” menu screen. To the right of the words “**REGISTRATION MODE**” you will see a control box which displays either “**ON**” or “**OFF**”. This is used to activate the “**REGISTRATION MODE**” menu item. With the flashing frame around this control item, press the “**ENTER**” key to toggle the indication either “**ON**” or “**OFF**”.

As your M&R Conquest experiences the normal break-in period you may notice after the first 3-4 months of operation that the index table is locating in the index locking forks somewhat harder as time passes. This is due to the normal break-in of the index drive timing belt on the index system. The M&R Conquest has a built-in feature which will automatically compensate for this condition, the “**REGISTRATION MODE**” adjustment.

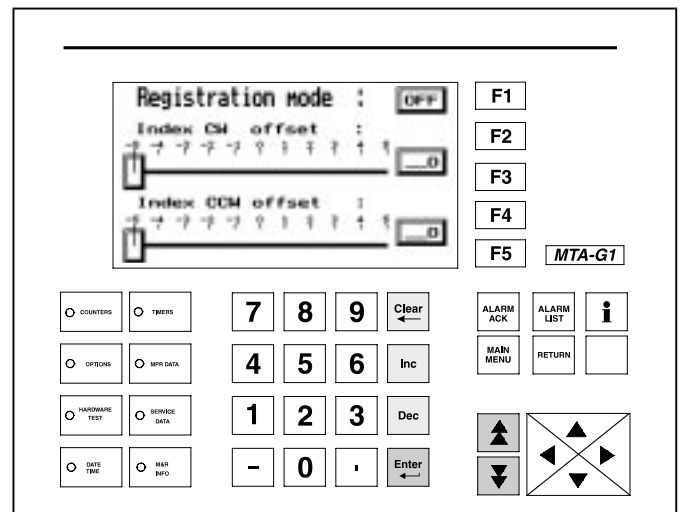
To activate the “**REGISTRATION MODE**” adjustment feature, first set all dwell timers to zero. Now, access the “**REGISTRATION MODE**”

adjustment in the Operator Interface as previously described. Select “**REGISTRATION MODE**” with the flashing frame and turn the feature “**ON**”.

Start the index system only, running on the automatic mode. The indexer will perform a complete index cycle, after which it will wait approximately 7 seconds. After the wait period of approximately 7 seconds, the indexer will perform another index cycle, and wait another 7 seconds. Allow the index system to operate through at least three complete index cycles, then remove the index system from the “**AUTOMATIC**” mode.

What has taken place during the index cycles is that the servo drive system has initiated and completed what is defined as a “**teach**” operation. In this process, the index servo drive system has sampled the system, during the three cycle periods, for the optimum location and position for smooth locking of the index table. This data has now been automatically stored in the servo drive system, and an improvement in index locking will be the result.

Below the “**REGISTRATION MODE**” setting, you will see “**INDEX CW OFFSET**” and “**INDEX CCW OFFSET**” along with sliding indicators which display the current offset value. “**INDEX CW OFFSET**” and “**INDEX CCW OFFSET**” are adjustments which provide a control for fine tuning the sensitivity of the index servo drive system as it makes its approach into the index fork locking portion of the index cycle. These adjustments permits the system Operator to set the index servo drive system to compensate for the various electrical loads as seen by the index servo drive system, when running various weights of substrates. The advantages of the ability to fine tune the index servo drive result in longer service life for index servo drive components and consistent color to color and station to station registration. The “**INDEX OFFSET**” adjustments can be accomplished in two ways. Firstly, you may use the arrow keys to place the flashing frame around the indication box at the right of each adjustment, or you can use the arrow keys to place the flashing frame around the sliding scale, then use the “**INC**” or “**DEC**” keys to increase or decrease the value. (See illustration below)



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Upon close examination, you will note that the "INDEX CW OFFSET" and "INDEX CCW OFFSET" have a minimum range of -5 and a maximum range of +5.

GUIDE PINS-

If your M&R Conquest includes the pneumatic guide pin assembly, then the next menu item, "GUIDE PINS" is used to activate this system. Simply use the arrow keys to locate the flashing frame around the indication to the right of "GUIDE PINS", and then press the "ENTER" key to toggle the indication either "ON" or "OFF".

MANUAL LIFT-

This sub-menu item is used to manually activate the vacuum table mounted lift pins when running heavy weight substrates such as glass or metal panels. The "MANUAL LIFT" is activated in the same manner as described for "GUIDE PINS" above.

LIFT PINS-

The "LIFT PINS" menu item accesses the automatic pin lift function for lifting heavy substrates such as glass, board and various other heavy weight stock as described previously in "MANUAL LIFT".

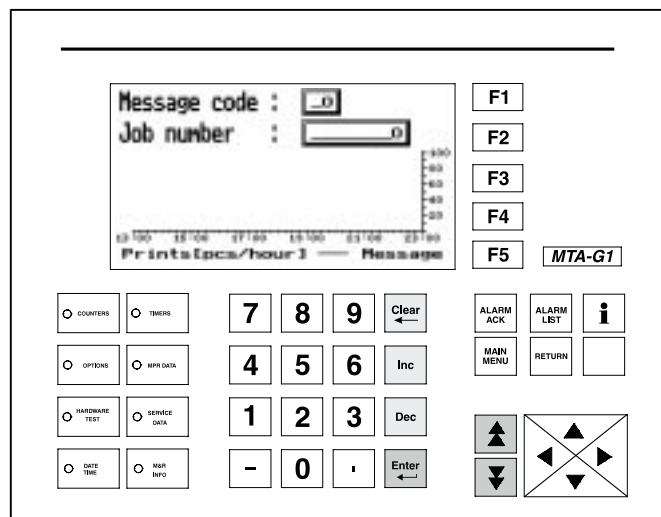
To activate the "LIFT PINS", place the flashing cursor next to the "OFF/ON" indication and press the "ENTER" key to toggle the indication "ON" or "OFF". (See illustration below)

Located to the right of the Ink Dip value is another indicator which reads either "SHORT" or "LONG". This indication can be changed by placing the flashing frame around the indication and then pressing the "ENTER" key. When the indication reads "SHORT", the Ink Dip function will retrieve ink 5" inches into the ink well. When the indication reads "LONG", the Ink Dip function will retrieve ink 10" into the ink well.

MPR DATA

The "MPR DATA" menu item is designed for use with M&R's exclusive Management Production Report software package.

The MPR software package is designed exclusively for use with M&R Challenger, Gauntlet, Predator & Gladiator Belt Systems, the Conquest Multi-Color Print Cure/Dry System and Patriot Graphic Screen Printing System. (See illustration below)

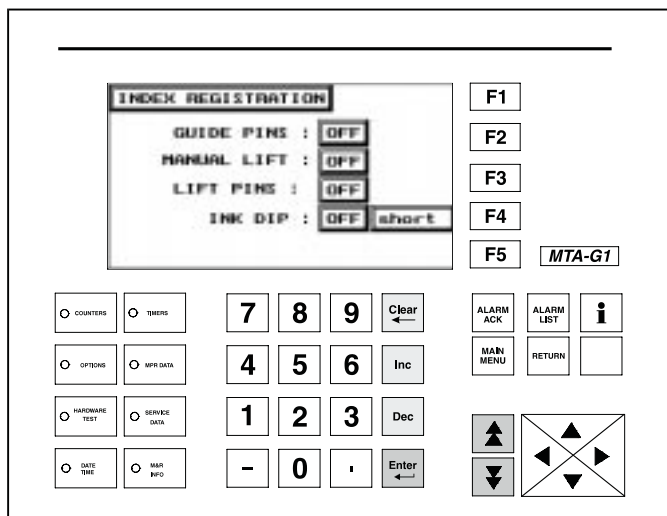


A detailed logging of events builds a data base which may be used for cost analysis, job tracking, production volume reporting, press utilization and down time analysis. The MPR report filters, compiles and formats this data for output to any compatible personal computer.

HARDWARE TEST

The next menu item is the "HARDWARE TEST" menu item. This menu item permits the operator to check the integrity of each toggle switch, push button and proximity switch used in the operation of the M&R Conquest system. This menu item is a valuable diagnostic tool for determining the location and cause for a possible operational error.

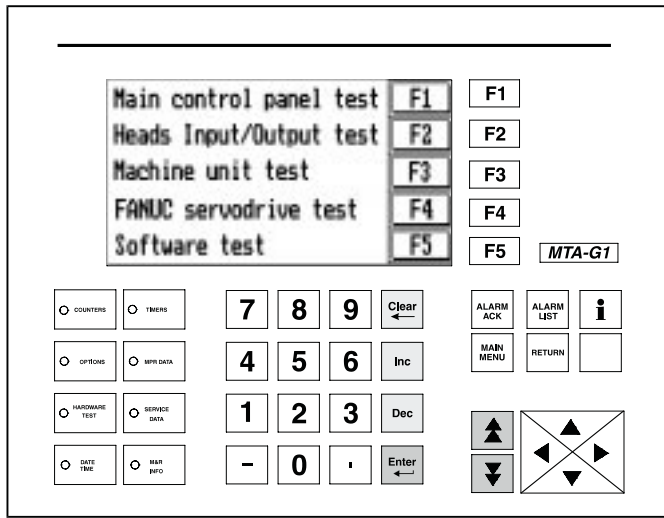
To access the "HARDWARE TEST" menu item, press the key located under the "OPTIONS" key on the left side of the MTA Operator Interface panel. The LCD window will display the following categories; **Main Control Panel Test, Heads Input/Output Test, Machine Unit Test, FANUC Servodrive Test and Software Test.** (See illustration top next page)



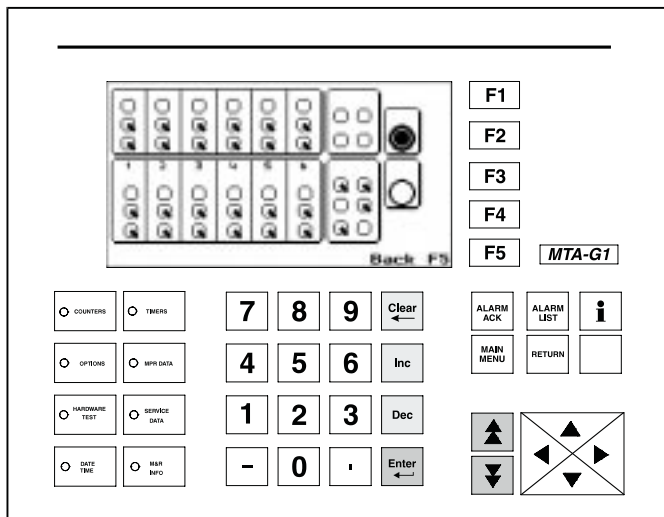
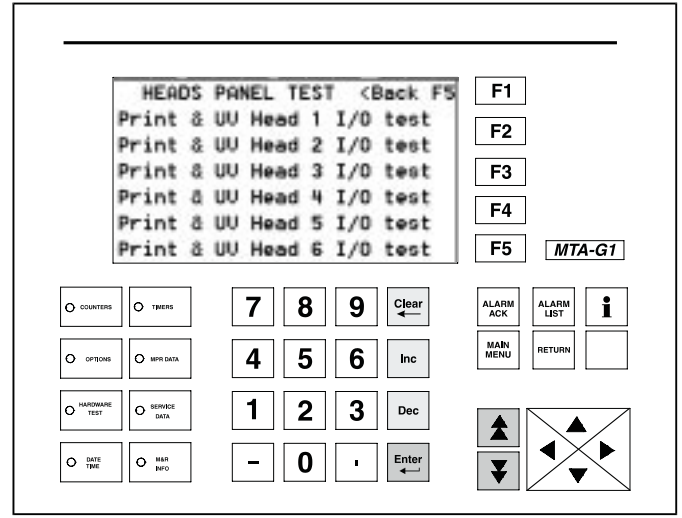
The last sub-menu item in the "OPTIONS" menu is "INK DIP". The ink dip function is designed to eliminate the need to manually scrape ink from the rear ink well of screens when ink flood coverage begins to decrease. The "INK DIP" function provides this action automatically based on cycle intervals entered into the system. For example, if you enter "10" as the value in the indicator window, then the Ink Dip function will retrieve ink from the rear ink well of the screen every 10 print cycles. To adjust the frequency of the Ink Dip action, use the arrow keys to place the flashing frame around the indication to the right of "INK DIP" and using the numerical keys, enter the value from a minimum of "0" to a maximum of "999", then press the "ENTER" key.

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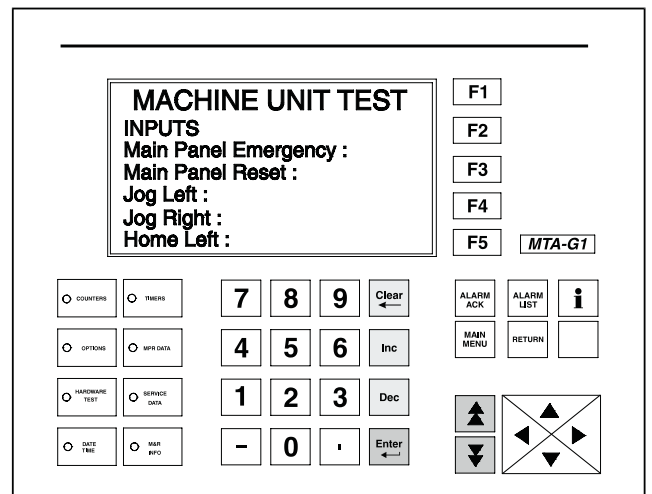


Pressing “F1” will access the “Main Control Panel Test” display screen. This screen permits the Operator to visually confirm that all switches on the Main Control Panel are functional. As you turn on/off any switch, the display will confirm the contact closure of that switch in the LCD display window. (See illustration below)



Press “F2” to access the “HEADS INPUT/OUTPUT TEST” screen. As described above under Control Panel Test, the LCD screen will display a list of all Print Head Control Panel switches. As you individually turn on/off these switches, the display window will indicate their functional integrity. (See illustration top right)

Press “F3” to access the “MACHINE UNIT TEST” screen. Again, the display will indicate the functional integrity of the toggle switches on the Main control console, indexer control system and safety circuit and devices as they are activated or de-activated. (See illustration at right)



Press “F4” to access the “FANUC Servodrive Test” screen. The LCD window will display the operational parameters of the FANUC Servo Drive unit. Starting with “IN Position” the listing in the display window will give the press operator a visual indication of the current operational parameters of the servo drive system. (See illustration top left next page)

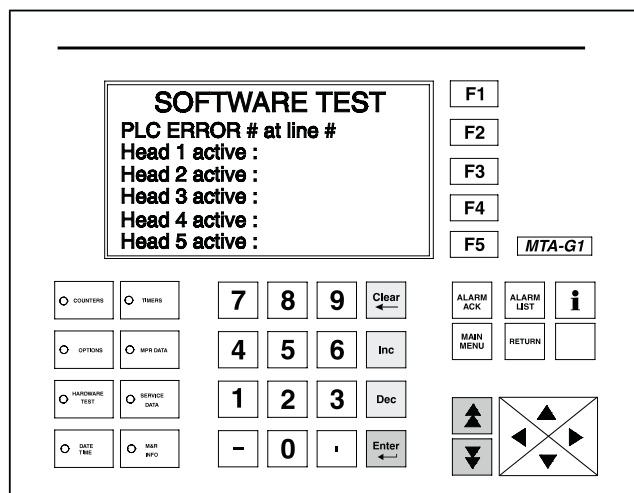
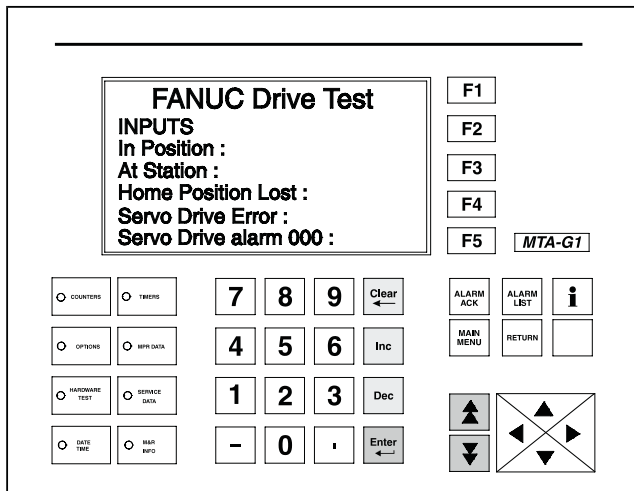
Pressing “F5” will access the “SOFTWARE TEST”. The display screen will list the current operational parameters for all print heads, index servo drive in either “ON” or “OFF”.

SERVICE DATA

The next menu item is Service Data. This menu item is used by M&R Service Personnel **ONLY**. **Do not attempt to access this menu item.**

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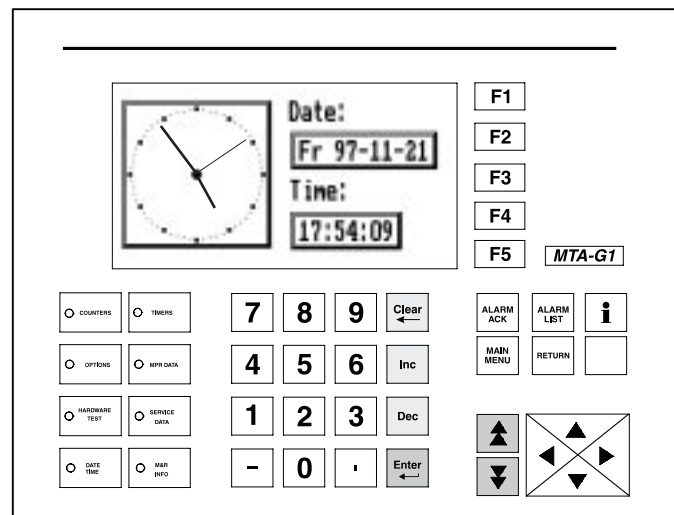


DATE & TIME

The Date & Time menu item displays the current date and local time. The time of day is displayed in military time, where 12:00:00 is 12 o'clock noon and 17:00 is 5 o'clock in the afternoon. The date and time are set as follows. Press the **DATE TIME** key located at the lower left of the MTA control panel. The LCD window will display a graphic representation of a standard clock, and the numerical value for the current date and time. You will note that the date is expressed as the day of the week, the current year, the month of the year and the numerical date of the month. As you change the date, you will note that the day of the week is automatically displayed based on the month, day and year selected.

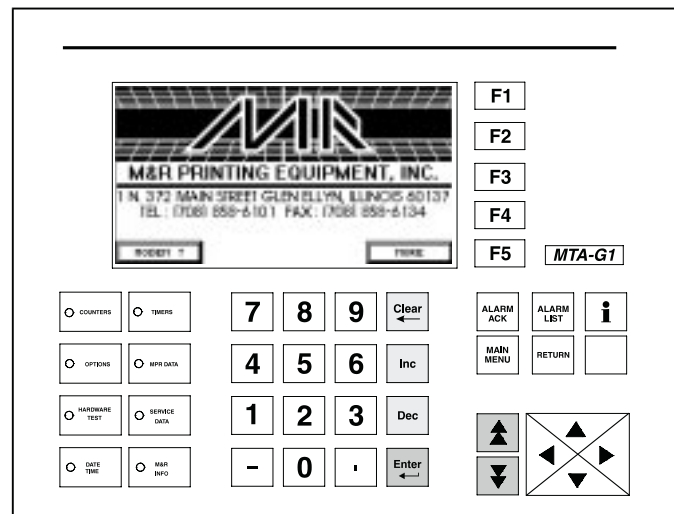
To change the date or time, use the arrow keys to place the flashing cursor around the numerical display for date or time. Use the arrow keys to position the small cursor at the appropriate time date or time value and enter the desired date or time using the number keypad.

Press "ENTER" to save your selection into the PLC memory. For example, to set the time of day for 2 o'clock in the afternoon, you would first press the numerical key "1" one time, then press the numerical key "4" one time. While observing a reliable watch or clock, press the "ENTER" key just as the second hand reaches 12. The display will show **14:00:00**, or 2 o'clock in the afternoon as expressed in military time. (See illustration below)



INFO

The last menu item is the "M&R Info" menu item. To access this menu item press the M&R INFO key to the right of the Date/Time key. The LCD display window will display the M&R logo along with our address, telephone and fax numbers. Additionally, program information may be accessed from this menu screen. (See illustration below)

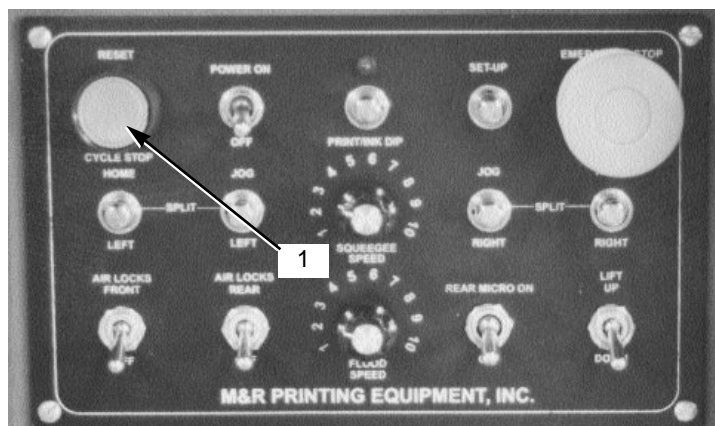


To view the program identification information, use the arrow keys to place the flashing frame around the "MORE" indication at the right of the screen, then press the "ENTER" key. This screen displays the current program version running in the PLC. (See illustration top left next page)

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PRINT HEAD CONTROL PANEL -

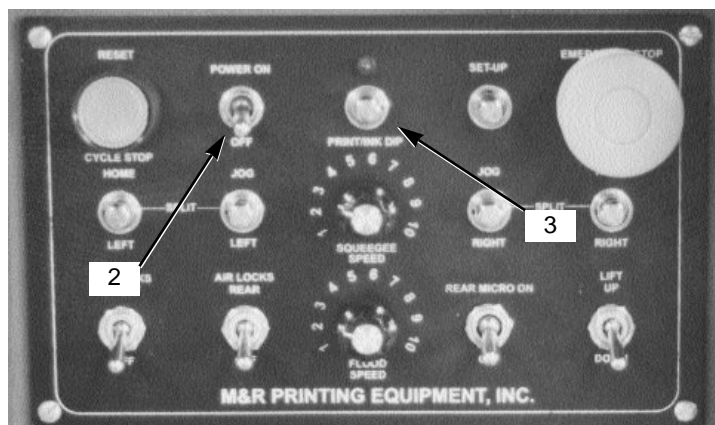


1 - RE-SET PUSH BUTTON -

Located in the upper left corner of each print head control panel is the green RE-SET push button. This push button is provided for re-setting of the control logic in the microprocessor PLC unit whenever the equipment is stopped as a result of an Emergency condition. Before you attempt to use the RE-SET push button to re-start the press, you must first determine the cause of the Emergency stop condition, and then correct the condition before continuing operation.

2 - POWER ON/OFF TOGGLE SWITCH -

Located immediately to the right of the Re-Set push button is the individual print head power on/off toggle switch. This switch has two position, ON or OFF. When it is desired to operate a selected print head, this switch, as well as the corresponding power on/off switch located on the Main Control Console, must be in the "ON" position. When this switch is placed in the "OFF" position, the selected print head will not operate.

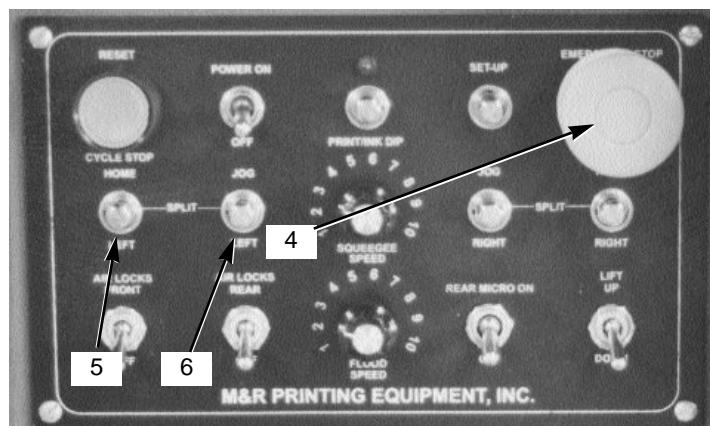


3 - PRINT/INK DIP PUSH BUTTON -

This push button is used to command the individual print head to complete one manual print cycle. This push button is also used to activate the "INK DIP" feature. To activate the "INK DIP" feature, press this push button as the print carriage travels through its print stroke cycle. This will command the individual print head to perform one "INK DIP" cycle.

4 - EMERGENCY STOP PUSH BUTTON -

Located in the upper right corner of the control panel, the red Emergency Stop button is provided for immediate stopping of the equipment in an Emergency situation where injury to operators or other personnel may result. When the red mushroom shaped push button is pushed "IN", the press will immediately stop all operation. To re-start press operation you must first correct the condition which required the Emergency Stop originally, then pull out the red mushroom shaped push button, and then press the green Re-Set push button located in the upper left corner of the control panel. Each print head and UV station is provided with a red Emergency Stop push button, and all work in the same manner as described above.



5 - HOME LEFT PUSH BUTTON -

Located under the Re-Set push button, the Home Left push button when pressed in will move the index table one full cycle to the left, or clockwise direction.

6 - JOG LEFT PUSH BUTTON -

This push button when pressed will cause the index table to jog incrementally to the left as long as the push button is held "IN". Releasing the push button will cause the index table to stop in what ever position it is in at the time of release of the push button.

7 - SQUEEGEE SPEED CONTROL -

The squeegee speed control is provided to vary the speed of the squeegee in the print stroke cycle. Turning this control clockwise will increase the squeegee speed, while turning the control counter-clockwise will decrease the squeegee speed.

8 - JOG RIGHT PUSH BUTTON -

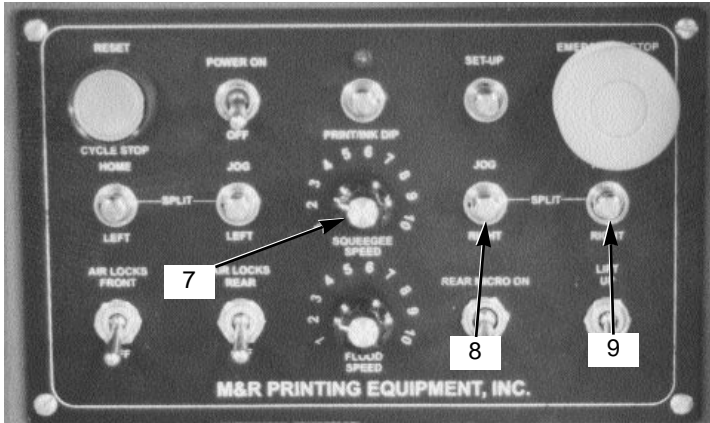
This push button when pressed will cause the index table to move incrementally to the right, counterclockwise direction. Releasing the push button at any time during the movement of the index table will cause the index table to stop in that position. To complete the index table cycle, press the "HOME RIGHT" push button located to the right of the Jog Right push button.

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9 - HOME RIGHT PUSH BUTTON -

The home right push button functions in the same manner as the Home Left push button described previously. When pressed, the index table will cycle to the right or counterclockwise direction.

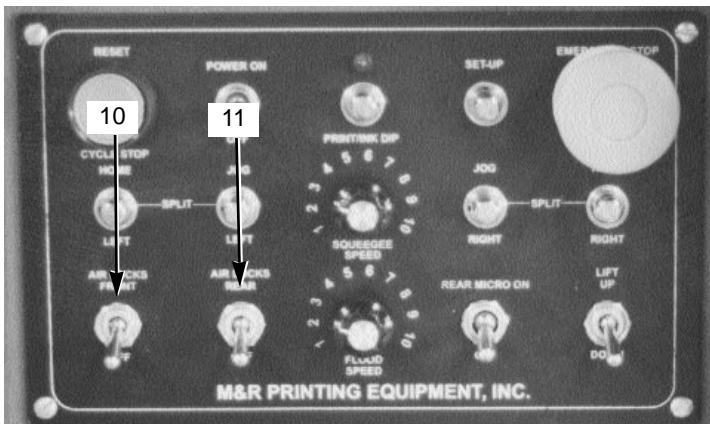


10 - AIR LOCKS FRONT ON/OFF -

Located in the lower left corner of the control panel, this toggle switch when placed in the "ON" position will activate the pneumatic screen frame clamps located on the front screen frame holder. When the switch is in the "OFF" position the clamps will be off (released).

11 - AIR LOCKS REAR ON/OFF -

Located to the right of the Front air lock switch, this switch functions in the same manner as described for the front pneumatic frame lock, however this switch controls the rear screen frame locks only.



12 - SQUEEGEE/FLOOD BAR PNEUMATIC LOCKING CLAMPS -

Located in the middle of the print carriage cross support tube are two toggle switches which will activate the Squeegee/Flood Bar pneumatic locking clamps. The toggle switch on the left controls the locking clamps for the flood bar, while the toggle switch on the right controls the locking clamps for the squeegee.



13 - FLOOD SPEED CONTROL -

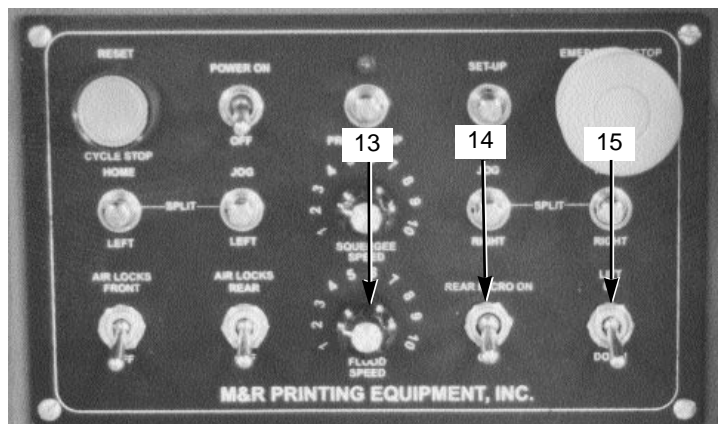
Located immediately below the Squeegee Speed Control is the Flood Speed Control. Turning the control knob clockwise will increase the flood speed, while turning the control knob counterclockwise will decrease the flood speed.

14 - REAR MICRO "ON/OFF" TOGGLE SWITCH -

This toggle switch is used to activate the pneumatic lock mechanism located on the rear micro-registration adjustment. The rear micro-registration adjustment should be locked after any change in the position of the adjustment mechanism. To lock the rear micro-registration adjustment, place the toggle switch to the "ON" position. To unlock the rear micro-registration adjustment, place the toggle switch in the "OFF" position.

15 - LIFT UP/DOWN SWITCH -

This toggle switch is used to place the print head in the "High Lift" position. In the high lift position the press operator has increased access for cleaning of screens or maintenance. To place the print head in the "High Lift" mode, place this switch in the "UP" position. To lower the print head, place the toggle switch in the "Down" position.



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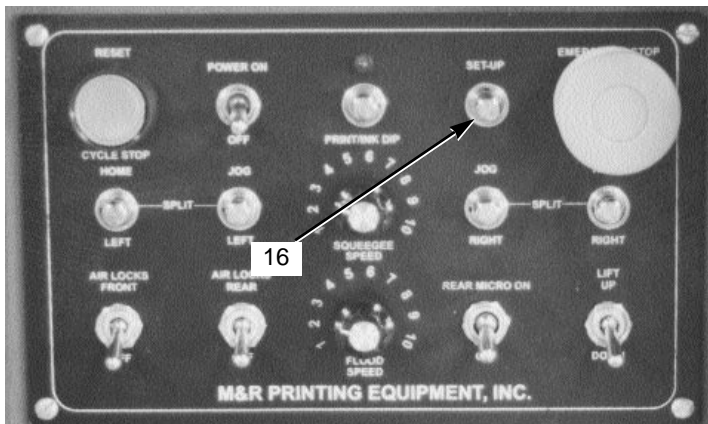
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16 - SET-UP PUSH BUTTON -

Adjustment of the screen frame, such as micro-registration is accomplished by use of the "SET UP" push button located to the left of the red Emergency Stop push button on the print head control panel. Pressing the "SET UP" push button one time will command the Master Frame assembly to cycle down to the lower or set-up position. In the lowered position adjustments to the micro-registration or screen frame position are performed.

Pressing the "SET UP" push button once again will command the squeegee/flood bar carriage to cycle the squeegee to the lowered or print position. In this manner the flood bar and squeegee may be easily installed on the print carriage assembly.

Pressing the "SET UP" push button a third time will command the Master Frame assembly to return to the raised position.



MAIN CONTROL CONSOLE -

The Main Control console used on the M&R Conquest system is designed for ease of use. All control parameters of the system may be accessed and controlled from the Main control Console.

The Main control Console is divided into five control areas. Starting from the left and moving right, they are, UV Station controls, Print Head controls, Index system controls, Emergency Stop and Reset push buttons and the MTA Operator Interface control panel.

UV STATION CONTROLS -

Located in the upper left corner across the top of the panel are the UV Station controls. The controls are divided into individual controls for each UV Station in the system.

UV HEAD 1 -

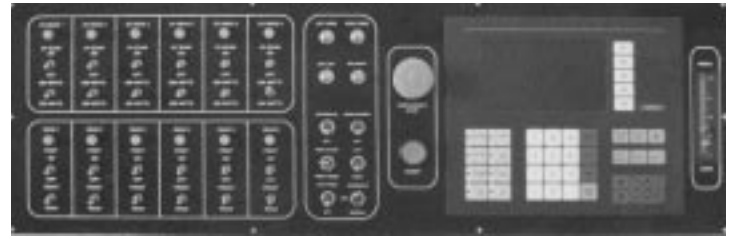
This push button is used to manually cycle the individual UV Station for one cycle. To operate, press the push button one time and release.

UV SCAN ON/OFF -

This toggle switch is used to activate the "UV SCAN" function. To turn the UV Scan "ON" place the toggle switch in the "ON" position. When this toggle switch is in the "OFF" position, the UV SCAN function will not operate.

200 WATTS/300 WATTS SELECTOR SWITCH -

The UV Stations on the M&R Conquest may be selected to produce a UV power output of either 200 watts per inch, or 300 watts per inch. This toggle switch is used to select the desired UV output setting.



PRINT STATION CONTROLS -

The print station control section of the Main control console is used in the same manner as the UV Station control section described previously. Each individual print station is represented with the following controls.

MANUAL PRINT PUSH BUTTON -

Press this push button to command the individual print station to perform one print cycle.

ON/OFF TOGGLE SWITCH -

This toggle switch is used to activate the individual print station. If this toggle switch is placed in the "OFF" position, the individual print station will not be active. The toggle switch must be placed in the "ON" position in order for the individual print station to operate.

FRONT/REAR TOGGLE SWITCH -

Each of the print stations may be selected to end its print cycle either in the front (screen flooded) or rear (screen not flooded). Placing this toggle switch in the "FRONT" position will cause the print station to stop its print cycle with the screen flooded with ink. Placing the toggle switch in the "REAR" position will result in the print carriage stopping at the rear of the screen (not flooded) position at the end of the print cycle.



SYSTEM CONTROL SECTION -

The next control section includes controls which effect index table motion and other various set-up and control functions as follows.

LEFT HOME PUSH BUTTON -

The Left Home push button when pressed will move the index table one full cycle to the left, or clockwise direction.

RIGHT HOME PUSH BUTTON -

The Right Home push button when pressed will move the index table one full cycle to the right, or counterclockwise direction.

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JOG LEFT -

This push button when pressed will cause the index table to jog incrementally to the left as long as the push button is held "IN". Releasing the push button will cause the index table to stop in whatever position it is in at the time of release of the push button.

JOG RIGHT PUSH BUTTON -

This push button when pressed will cause the index table to jog incrementally to the right as long as the push button is held "IN". Releasing the push button will cause the index table to stop in whatever position it is in at the time of release of the push button.



VACUUM ON/OFF TOGGLE SWITCH -

This toggle switch is used to turn "ON" or "OFF" the vacuum system. To turn the vacuum system "ON", place the toggle switch in the "ON" position. When this toggle switch is placed in the "OFF" position the vacuum system will not operate.

MAIN BLOWER ON/OFF TOGGLE SWITCH -

This toggle switch is used to turn "ON" or "OFF" the exhaust blower used to cool the UV Stations. To turn the blower system "ON" place the toggle switch in the "ON" position. When the toggle switch is in the "OFF" position, the blower system will not operate.

PRINT START/PRINT FINISH TOGGLE SWITCH -

This toggle switch is provided as a convenience when initially starting or finishing a print run. It is designed to eliminate the need to individually turn "ON" or "OFF" print heads. Placing this toggle switch in the "PRINT START" position will automatically command each print station that is selected to "ON" on the Main control console to print sequentially at the start of a print run.

EXAMPLE: As the system Operator loads the substrate, the first print station will make its print cycle. Then the second print station will automatically make its print cycle and so on.

When this toggle switch is placed in the "PRINT FINISH" position, the print stations will automatically and sequentially shut down after printing the last substrate which has been loaded.



LEFT/RIGHT TOGGLE SWITCH -

This toggle switch is used to select the index rotation direction for the index table. When placed in the "LEFT" position, the index table will rotate to the left or clockwise direction. When placed in the "RIGHT" position, the index table will rotate to the right or counter-clockwise direction.

TEST PRINT TOGGLE SWITCH -

This toggle switch is designed to aid the system Operator when it is desired to print only one piece to check for registration or image quality. When placed in the "ON" position, the Conquest system will automatically and sequentially print each selected print station for one print cycle, then shut down each print station at the end of the print cycle. The result is one printed piece at the end of the print sequence without the need for the system Operator to turn "ON" or "OFF" the print stations individually.

AUTOMATIC - OFF - MANUAL MODE SWITCH -

This toggle switch has three positions: "AUTOMATIC" at the top position, "STOP" at the middle position, and "MANUAL" at the lower position. This switch commands the system to operate in either "AUTOMATIC" or "MANUAL" mode of operation. To operate the index system one complete cycle, press the toggle switch down to "MANUAL". You will note that the toggle switch does not "latch" in this position, but returns via a spring loaded action to the middle or "OFF" position when released. The index system will cycle one time, along with any selected print stations that are selected to "ON". Placing this toggle switch in the "AUTOMATIC" position while the index table is in motion, will command the index system to operate in the "AUTOMATIC" mode. The dwell time for automatic operation is adjusted via the L.C.D. Operator Interface control panel located to the extreme right on the Main control console. Instructions on how to adjust the index dwell time are available on page ?? of this manual.

When the toggle switch is placed in the middle or "OFF" position, the index system will not operate.



EMERGENCY STOP PUSH BUTTON -

The red Emergency Stop push button is provided for immediate stopping of the equipment in an Emergency situation where injury to operators or other personnel may result. When the red mushroom shaped push button is pushed "IN", the press will immediately stop all operation. To re-start press operation you must first correct the condition which required the Emergency Stop originally, then pull out the red mushroom shaped push button, and then press the green Re-Set push button located in the upper left corner of the control panel. Each print head and UV station is provided with a red Emergency Stop push button, and all work in the same manner as described above.

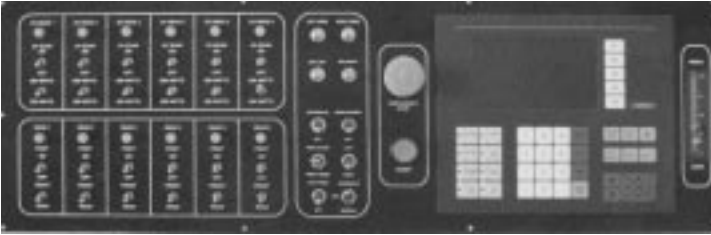
M&R Conquest Multi-Color System

Controls and Adjustments

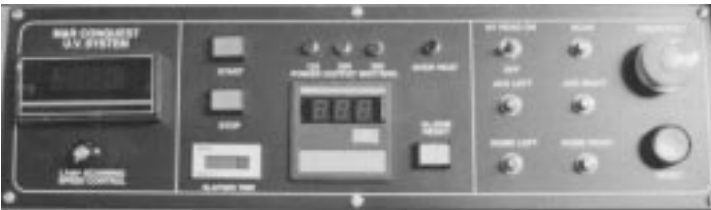
OPERATION OF VITRAN UV CURE/DRY STATIONS -

The following instructions will describe the proper procedure for operating the Conquest's U.V. cure/dry system.

Flip the Power On/Off Toggle Switch located on the Main Control Console to the "ON" position.



After determining which U.V. Modules are to be used for your particular print job, push the green Start Button located on the Control Panel of the individual Conquest U.V. Power Module Cabinets. This action will supply control power for each U.V. Module which is turned on at the control panel.



On the Main Control Console, flip the UV Power On/Off Toggle Switch to the "ON" position. At this time you will note that the exhaust and cooling system blowers are automatically activated.

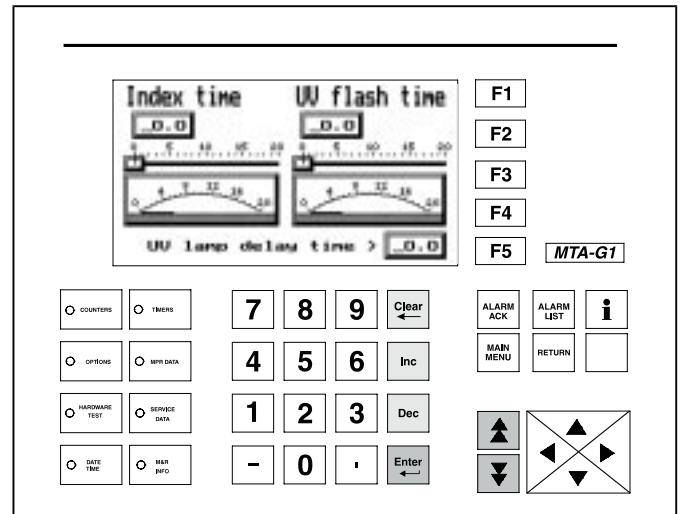
Select the process U.V. power output for either 200 or 300 watts per square inch by use of the toggle switch located directly underneath the U.V. Power On/Off Switch on the Main Control Console.



NOTE: A pre-determined warm up time of 1 to 1.5 minutes is automatically initiated after any Conquest U.V. lamp is turned on at the main control console. At the conclusion of the warm up cycle, the Conquest U.V. Modules will automatically cycle down to the stand-by U.V. power output of 125 watts per square inch.

As the substrate is indexed under the Conquest U.V. lamps, the U.V. power output will automatically cycle up to either 200 or 300 watts per square inch, whichever has been pre-selected at the main control console.

On the digital display control panel located on the extreme right of the main control console, push the F3 key to display the U.V. Lamps Dwell menu screen. This menu item provides a Dwell Time of up to three (3) seconds maximum for U.V. lamp power output changeover from the stand-by of 150 watts, to the selected power output of either 200 or 300 watts per square inch.



This Dwell Time is used primarily on the initial start up of the system when the U.V. lamps are still in the cooler warm up stage of operation. It is also recommended that the U.V. lamp Dwell Time be used when ever the press operator has left the system on stand-by for extended periods such as breaks or lunch.

After the system has cycled for three to four print/dry cycles, the U.V. lamp Dwell Time may be reduced to a one second dwell.

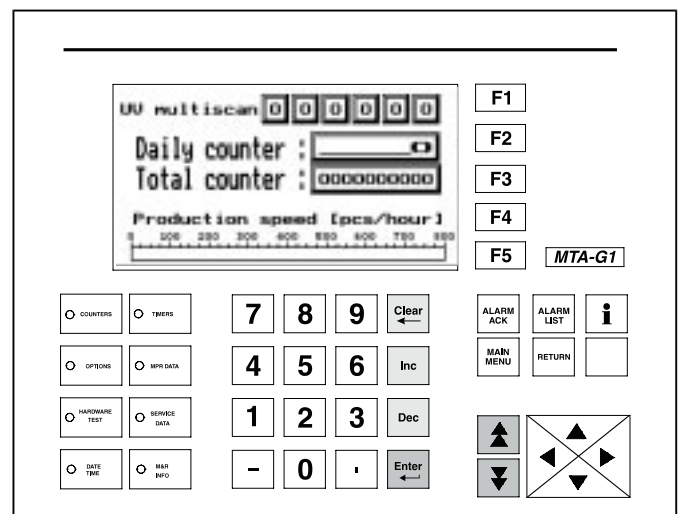
To set the U.V. Lamp Dwell Time, press the **F3** key on the digital display Control Panel.

Using the arrow keys on the Control Panel, move the flashing cursor to the left of the value for Pre-set Value in the display window. Press the value on the numeric keypad (1 to 3) for the Dwell Time in seconds, and then press **ENTER**.

All U.V. lamps will pause before scanning the printed image for the dwell time as set, allowing the lamps to reach full power output for efficient cures.

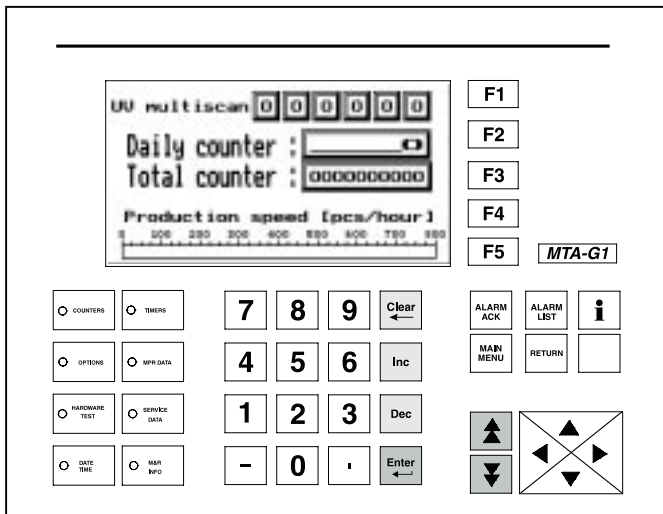
UV LAMP MULTI-SCAN ADJUSTMENT-

The M&R Conquest includes a unique control feature for adjustment of multiple scans by individual UV stations of the printed substrate.



M&R Conquest Multi-Color System

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This feature is useful when heavier deposit coatings are required and undercuring may present a problem.

To adjust the Multi-scan feature, press the **"COUNTERS"** key to display the **"COUNTERS"** menu screen. Across the top of the display you will see "UV Multiscan" and to the right of this, six numeric value windows used to enter and display the amount of scans for each individual UV station.

The system Operator is allowed to enter a maximum value of 9 scans for each UV station. Simply use the arrow keys to place the flashing frame around each individual value window, then using the numerical keys, enter the value from 1 to 9 and press the **"ENTER"** key. Counting from left to right on the display, the windows are for UV stations 1 - 2 - 3 - 4 - 5 and 6.

UV STATION CONTROL PANEL -

Scanning Speed L.E.D. Readout -

Located in the upper left corner of the control panel, this L.E.D. display indicates the scan speed for the UV lamp assembly in feet per minute.



Lamp Scanning Speed Control -

Directly below the Scanning Speed L.E.D. display is the Lamp Scanning Speed Control. This control adjusts the scan speed of the UV lamp assembly. Turning the control clockwise will increase the scan speed, while turning the control counterclockwise will decrease the scan speed.

Start Push Button (Green) -

To the right of the scanning speed L.E.D. display is the green **"START"** push button. This push button must be pressed to supply electrical power to the individual UV station for operation.

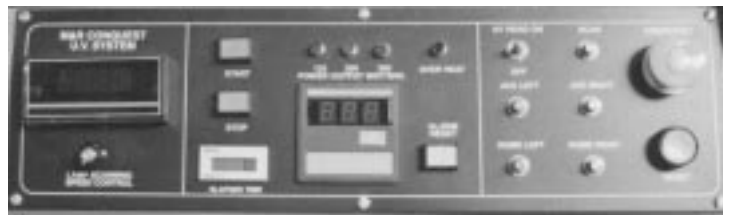
The push button will illuminate confirming that the UV station is receiving electrical power.

Stop Push Button -

The red **"STOP"** push button is located below the **"START"** push button. Push this button when you wish to turn the UV station **"OFF"**. The push button will illuminate confirming that the individual UV station is **"OFF"**.

Elapsed Time Indicator (Hourmeter) -

The elapsed time indicator provides a visual indication of individual UV lamp life in hours. As UV lamp life is generally accepted to be a maximum of 1200 hours, this indicator is useful in determining when the UV lamp should be replaced.



UV Power Output Indicator Lights -

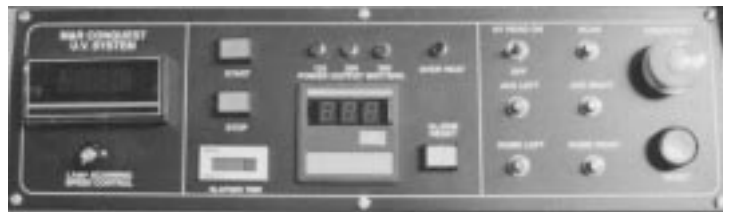
The UV lamps used on the M&R Conquest produce UV output of 125, 200 and 300 watts per inch. These indicator lights provide a visual indication of the current UV output setting as selected for the individual UV stations on the Main Control Console. During operation, when the UV stations are in the "stand-by" mode, the indicators will display 125 watts per inch. When the UV stations are initially activated, the indicators will display 300 watts per inch as the lamps begin their warm up cycle.

L.E.D. Digital Ammeter -

This L.E.D. digital ammeter displays the amperage of the individual UV lamp. This control is not adjustable in any manner, and is provided as an indication of lamp performance.

Over Heat Indicator Light -

This indicator light will illuminate and an audible alarm signal will sound in the event that the thermoswitch sensor mounted on the UV lamp reflector assembly detects radiated heat in excess of 350 degrees F. If this occurs, the UV lamp will automatically shut-down until the reflector housing has cooled down. To silence the audible alarm, press the yellow push button located below the indicator light.



M&R Conquest Multi-Color System

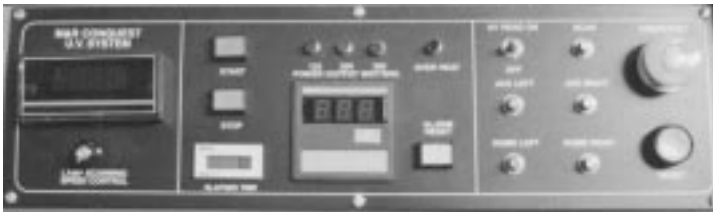
Controls and Adjustments

Alarm Reset Push Button -

This yellow push button will illuminate and an audible signal will sound when ever an over heat condition has been detected by the thermoswitch mounted to the UV lamp reflector assembly. Press this push button to silence the audible signal.

UV Head ON/OFF Toggle Switch -

This toggle switch is used to turn "ON/OFF" the individual UV stations. In addition, the "ON/OFF" toggle switch on the "Main Control Console" must also be placed in the "ON" position or the UV station will not operate.



Jog Left Push Button -

This push button is used to jog the index table to the left during set-up procedures. The index table will continue to jog to the left for as long as the push button is held "IN".

Home Left Push Button -

This push button is used to command the index table to the home position in the left hand direction. You **do not** need to hold this push button switch "IN".

Scan Push Button -

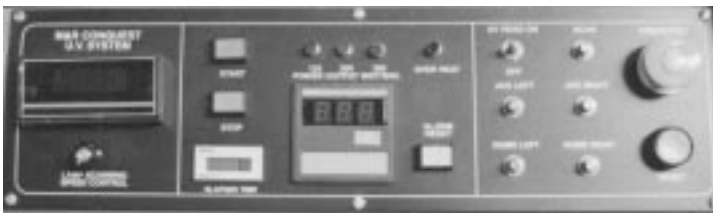
Pressing this push button will manually command the UV station to perform one scan cycle.

Jog Right Push Button -

This push button is used to jog the index table to the right during set-up procedures. The index table will continue to jog to the right for as long as the push button is held "IN".

Home Right Push Button -

This push button is used to command the index table to the home position in the right hand direction. You **do not** need to hold this push button switch "IN".



Emergency Stop Push Button -

Located in the upper right corner of the control panel, the Emergency Stop push button is distinguished by the large red colored push button mushroom shaped head.

Pressing the Emergency Stop push button will result in the **immediate shut down of all press operation**. When ever the press is to be operated, you must be sure that the Emergency Stop push button is deactivated.



CAUTION!

CAUTION! THE RED EMERGENCY STOP PUSH BUTTON IS NOT INTENDED TO ROUTINELY STOP THE SYSTEM. THE EMERGENCY STOP PUSH BUTTON IS USED TO STOP THE SYSTEM IN AN EMERGENCY SITUATION ONLY!

Reset Push Button -

Located directly below the red Emergency Stop push button, the green "RESET" push button is used to reset the control logic in the on-board PLC controller after the use of any of the Safety Appliances to stop the system. To reset the control logic, simply press the green "RESET" push button one time. If the system fails to reset, then one of the Safety Appliances still remains in the activated position. Determine which Safety Appliance is tripped or activated, reset the Safety Appliance, and attempt to "RESET" the system once again.



WARNING!

WARNING! DO NOT ATTEMPT TO RESET THE CONTROL LOGIC IN THE PLC CONTROLLER UNTIL THE CAUSE FOR THE EMERGENCY CONDITION HAS BEEN ISOLATED AND CORRECTED. FAILURE TO CORRECT THE EMERGENCY CONDITION BEFORE RESETTING THE PLC LOGIC CONTROLLER MAY RESULT IN SERIOUS INJURY TO PERSONNEL OR EQUIPMENT!

OPERATOR SAFETY APPLIANCES -

The M&R Conquest Multi-Color Cure/Dry System has been designed to assure the safety of the system Operator's. There are several safety devices incorporated into the system which are designed to prevent injury to personell. The following information will describe each safety device, and its operation in detail. To assure Operator safety, it is imperative that all personell who will operate or perform preventive maintenance procedures on this equipment become intimately familiar with each device or appliance, its location and its operation. We recommend that each safety device or appliance be tested for proper operation at the beginning of each production shift.



WARNING!

NEVER ATTEMPT TO BY-PASS ANY SAFETY DEVICE OR APPLIANCE. IF ALL SAFETY DEVICES OR APPLIANCES ARE NOT OPERATING PROPERLY, DO NOT ATTEMPT TO OPERATE THIS EQUIPMENT!

M&R Conquest Multi-Color System

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YELLOW SAFETY CORDS -

Yellow colored Safety Cords are provided between all print heads and UV stations, with the exception of the first and last print heads (load and unload stations) to prevent entry by the equipment Operators into the index operation area. The load and unload stations are protected by an infrared safety beam and yellow colored floor mats which detect and confirm the presence of the system Operators. The Yellow Safety Cords provide a continuous electrical circuit (loop) rated at 24 volts DC, which, when broken, interrupts the 24 volt DC control circuit, preventing equipment operation. Each Yellow Safety Cord is supplied with either a male or female phone jack connector at the center.



When it is necessary to enter into the indexer operating area, the equipment operator must first disconnect one of the Yellow Safety cords by grasping both the phone jacks securely, and pulling gently apart.



IMPORTANT: Do not disconnect phone jacks by grasping Yellow Safety Cord itself and pulling apart. This practice will result in an "Open" electrical connection internal to the phone jack, and equipment operation will not be possible.

Should it become necessary to enter into the index table operating area between print stations or UV curing stations, always press "IN" the red Emergency Stop push button located on all individual print station and UV station control panels as well as the Main control console. Then, disconnect the Yellow Safety Cord as described above. Each print station and UV station has affixed to its side chassis a warning label as illustrated below, to remind the system Operators to

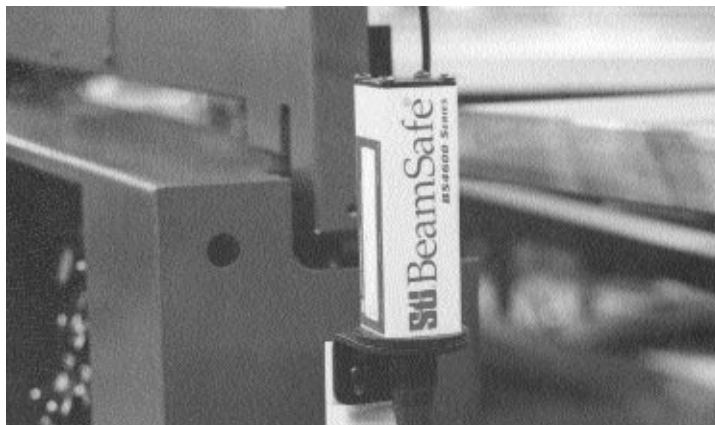


observe proper safety procedures when entering into the index table operating area.

After completing any adjustments required in the indexer operating area, reconnect the Yellow Safety Cord phone jacks and pull "OUT" the red Emergency Stop push buttons and press the green "RESET" push button to resume operation of the system.

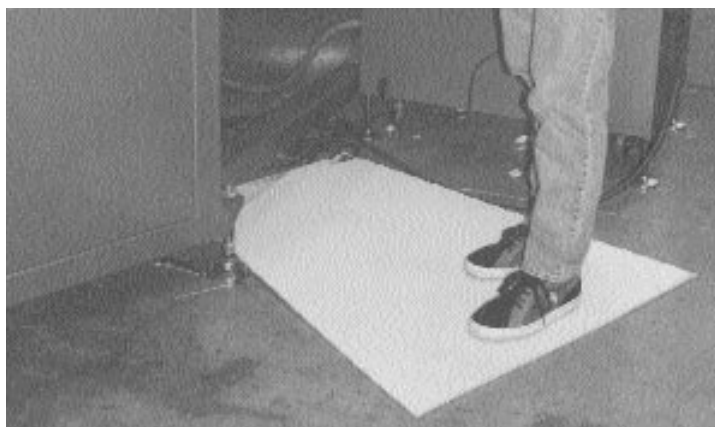
INFRARED SAFETY BEAM -

The system Operators are protected at the load and unload stations by an invisible infrared safety beam. Should the infrared safety beam be interrupted for any reason during system operation, the index table will immediately stop all operation.



YELLOW FLOOR MATS -

The system Operators are further protected by three yellow floor mats located at the load and unload stations. These floor mats detect the presence of the Operators as they stand upon the mat surface. Should the system Operators step onto the mat surface for any reason, the index system will not operate. All four of these appliances, Yellow Safety Cords, Infrared Safety Beam, Yellow Floor Mats and red Emergency Stop push buttons are designed to protect the system Operators from injury while occupying the inner area of the index table assembly between print heads or UV stations.

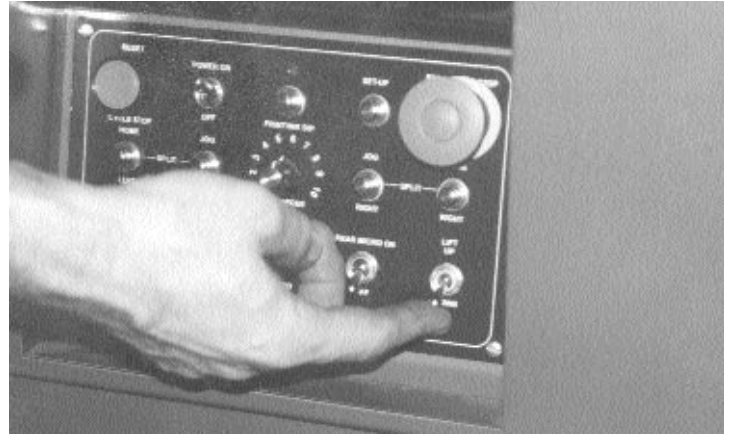


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Set-Up Instructions

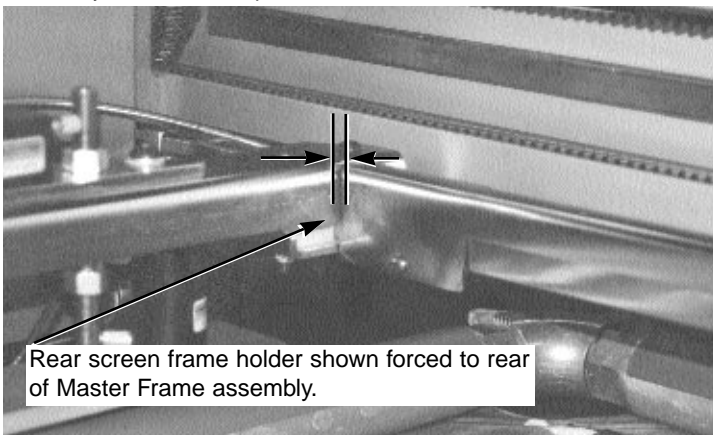
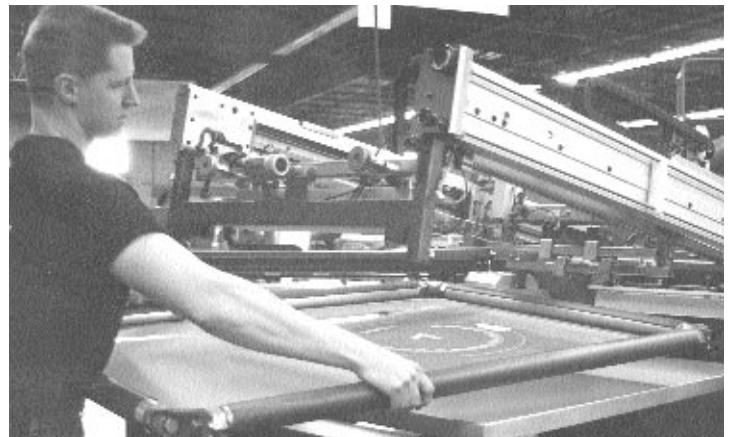
SCREEN FRAME INSTALLATION -

Unlock the rear frame holder lock assembly located in the middle section of the Master Frame assembly by lifting up the locking lever. Please note that there are two rear frame holder lock assemblies, one on the left, and one on the right of the Master Frame assembly. (See illustration below)



With the print head in the "High lift" position, you may now load the screen frame into the Master Frame assembly from the front of the print head as illustrated below.

The rear frame holder assembly is spring loaded to provide pressure at the rear of the screen frame to facilitate loading of screen frames. As the screen frame is installed, pressure is applied to force the rear screen holder assembly to the rear of the print head. At the same time the rear frame holder also applies pressure at the rear of the screen frame, forcing the screen frame forward into the front frame holder assembly. The illustration below shows the rear frame holder assembly in the relaxed position, before the screen frame is installed.

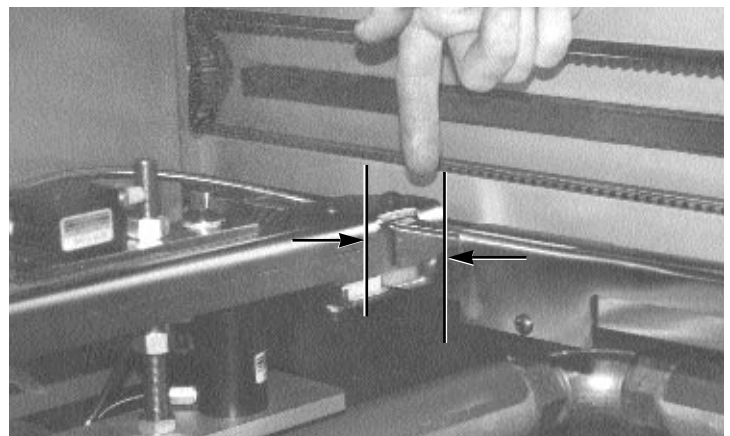


As the screen frame is installed, it forces the spring loaded rear screen frame holder assembly to the rear of the print head as previously described. (See illustration below)

The rear frame holder should be adjusted so that the inside dimension from the front frame holder to the inside dimension of the rear frame holder is approximately 1/2" larger than the outside dimension of the screen frame.

On the print head control panel, move the "LIFT UP/DOWN" toggle switch to the "LIFT UP" position. This will command the print head to raise to the "high lift" position for screen frame installation.

(See illustration top right)



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With the rear of the screen frame positioned in the rear frame holder assembly, lift the front of the screen frame and allow the spring loaded rear screen frame holder assembly to force the screen frame into the front screen frame holder assembly as illustrated below.



The next step is to place the "LIFT UP/DOWN" toggle switch in the "DOWN" position. This will command the print head to return to the lowered position.

Adjustment of the screen frame, such as micro-registration is accomplished by use of the "SET UP" push button located to the left of the red Emergency Stop push button on the print head control panel. Pressing the "SET UP" push button one time will command the Master Frame assembly to cycle down to the lower or set-up position. In the lowered position adjustments to the micro-registration or screen frame position are performed.

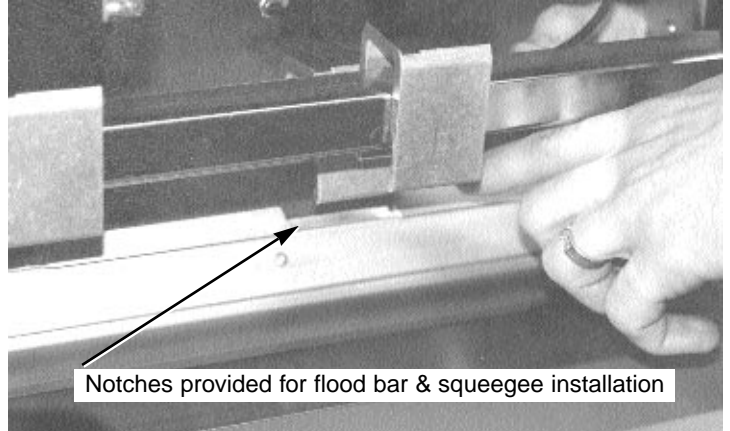
Pressing the "SET UP" push button once again will command the squeegee bar to cycle the squeegee to the lowered or print position. In this manner the squeegee may be easily installed on the print carriage assembly.

Pressing the "SET UP" push button a third time will command the Master Frame assembly to return to the raised position. (See illustration below)



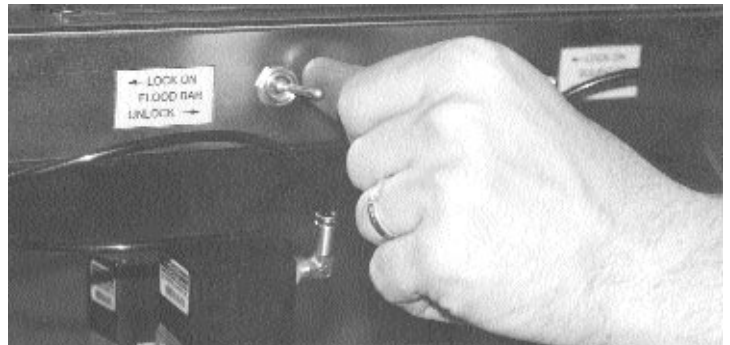
SQUEEGEE/FLOOD BAR INSTALLATION -

Before installation, check to insure that the squeegee has a sharp printing edge, free of nicks and/or abrasions and that the flood bar has no nicks or scoring which may result in damaged screen fabric. Upon close examination of the flood bar & squeegee, you will note that two notches have been milled into the top length of the both the flood bar and squeegee holder. These notches are provided to facilitate the mating of the flood bar and squeegee to the pneumatic clamps designed to hold the flood bar and squeegee in place on the print carriage. (See illustration below)



Install the squeegee on the front (towards the outside diameter of the press) print carriage mounting bar and the flood bar on the rear carriage mounting bar using the pneumatic clamps provided.

Activate the toggle switches on the print carriage support tube marked "LOCK ON/OFF FLOOD BAR" & "LOCK ON/OFF SQUEEGEE" to secure the flood bar and squeegee in place. (See illustration below)



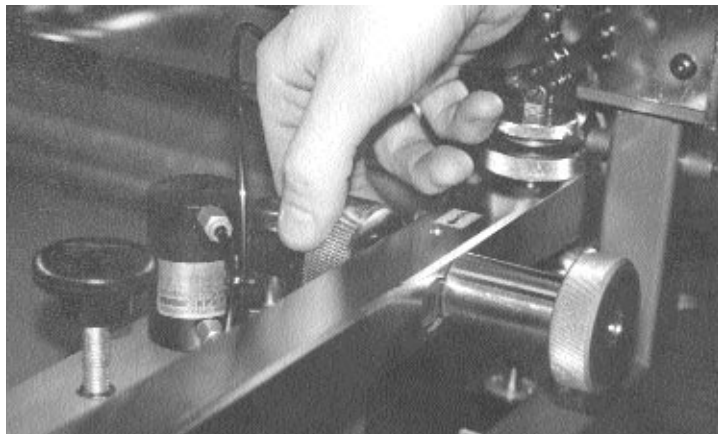
MICRO-REGISTRATION ADJUSTMENTS -

Each print head on the M&R Conquest system includes micro-register adjustments for alignment of screen frames. The micro-register adjustments provide movement in the "X" (left to right) and "Y" (front to rear) axis. Screen frame alignment in the "Y" axis is accomplished by use of the two micro-registration adjustments located at the front of the Master Frame assembly.

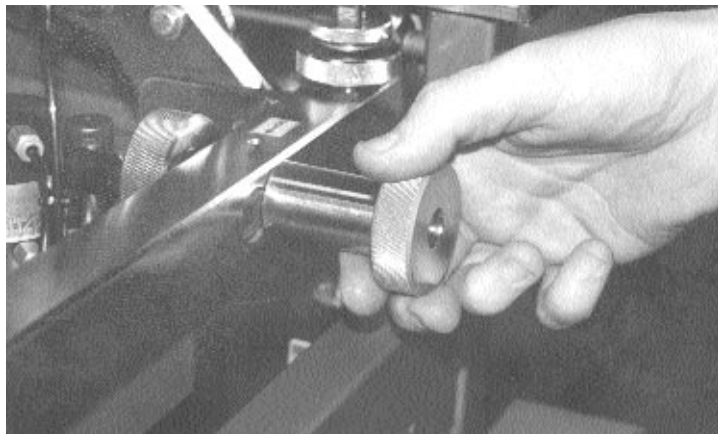
M&R Conquest Multi-Color System

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To make adjustments, first unlock the micro-registration lock knob at the rear of the adjustment knob. (See illustration below)



After unlocking the rear micro-registration lock knob, alignment of the screen frame in the "Y" axis may be adjusted. To move the screen frame towards the rear of the print head, turn the adjustment knob counterclockwise. To move the screen frame towards the front of the print head, turn the adjustment knob clockwise. (See illustration below)



To adjust the screen frame in the "X" axis, first unlock the Kipp Elisa locking handle. (See illustration below)



To move the screen frame to the left, turn the adjustment knob counterclockwise. To move the screen frame to the right, turn the adjustment knob clockwise. (See illustration below)

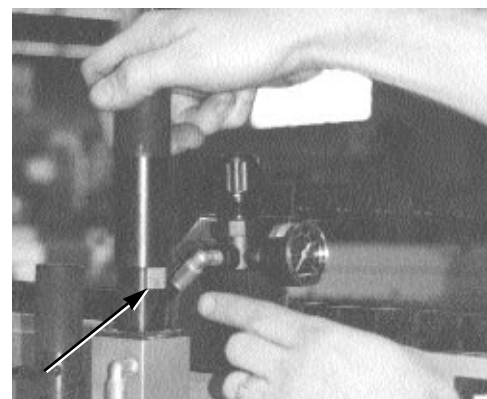


FLOOD BAR/SQUEEGEE PRESSURE ADJUSTMENT -

Adjustment of flood bar and squeegee pressure is accomplished by use of the black knurled knobs located on top of the square air cylinders on the print carriage assembly.

To increase squeegee or flood bar pressure, turn the adjustment knob in a counterclockwise direction.

To decrease squeegee or flood bar pressure, turn the adjustment knob in a clockwise direction. The squeegee pressure adjustment includes a reference scale for precise adjustment. (See illustration above)



SQUEEGEE PRESSURE EQUALIZER ADJUSTMENT -

Squeegee pressure may be further adjusted by means of a pneumatic regulator located on the top right side of the print head assembly. This air pressure regulator provides equalized pressure across the length of the squeegee. To adjust the equalizing pressure, simply pull up on the round black adjustment knob on the regulator, and turn clockwise to increase pressure, or counterclockwise to decrease pressure. (See illustration at right)

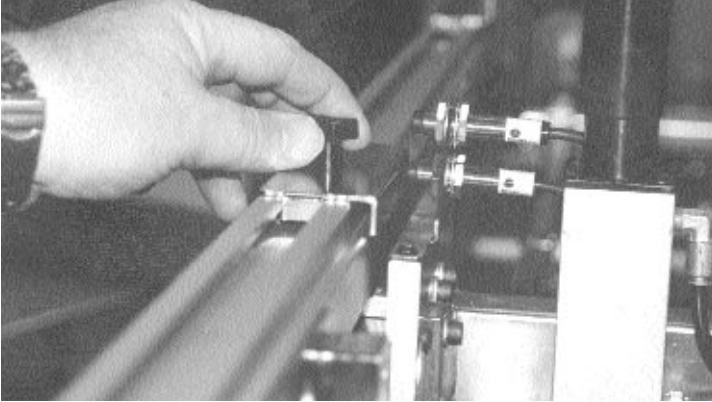


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PRINT STROKE LENGTH ADJUSTMENT -

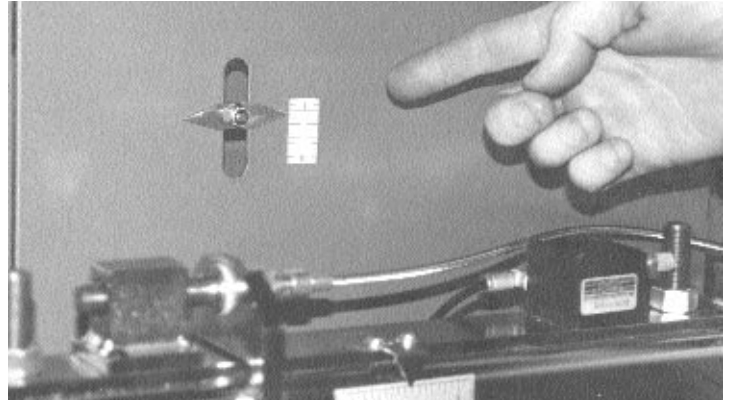
Each print head used on the M&R Conquest includes an adjustment to limit both the front and rear print carriage stroke length. To adjust either the front or rear stroke length, simply locate the sensor flag located on the upper left side of the print head assembly to the desired position by sliding the sensor flag. When the proximity switches mounted to the print carriage sense the proximity of the sensor flag, the print carriage will stop at that position. In this manner, the flood and print stroke may be effortlessly adjusted to suit various screen frame and image sizes. (See illustration below)



To adjust the rear off-contact adjustment, use the large black knurled knob located to the upper right front of the print head. (See illustration below)

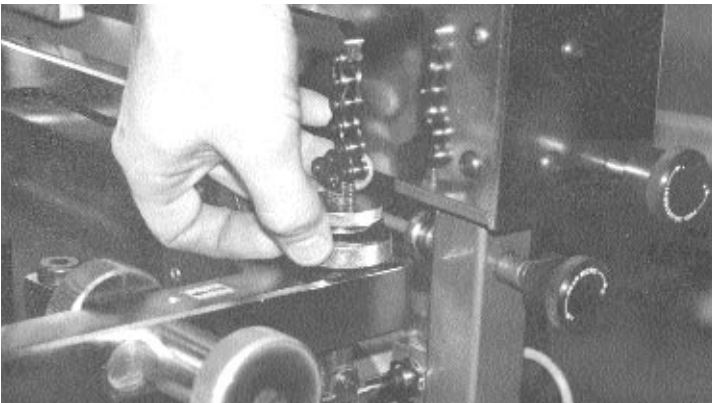


First unlock the small locking collar located at the back side of the adjustment knob. Turning the adjustment knob clockwise will increase the rear off-contact, while turning the adjustment knob counterclockwise will decrease the rear off-contact. A reference scale with pointer is provided at the rear of the print head to aid in incremental adjustments of the rear off-contact. (See illustration below)



FRONT & REAR OFF-CONTACT ADJUSTMENTS -

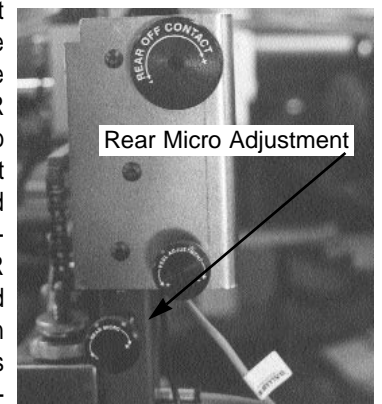
The M&R Conquest features easily accessible controls for adjustment of both the front and rear off-contact on each print head. The front off-contact is adjusted by means of a round knurled knob arrangement located at the left and right front of the Master Frame assembly. (See illustration below)



To adjust the front off-contact, first loosen the smaller round knurled knob located at the top of the adjustment control. Then, to increase the off-contact turn the larger round knurled knob counterclockwise (higher on threaded stud). To decrease the off-contact, turn the larger knurled knob clockwise (lower on threaded stud). Then lock in the adjustment by turning the smaller knurled knob down to lock it against the larger knurled knob. A small reference scale is provided on the threaded stud for ease of incremental adjustment.

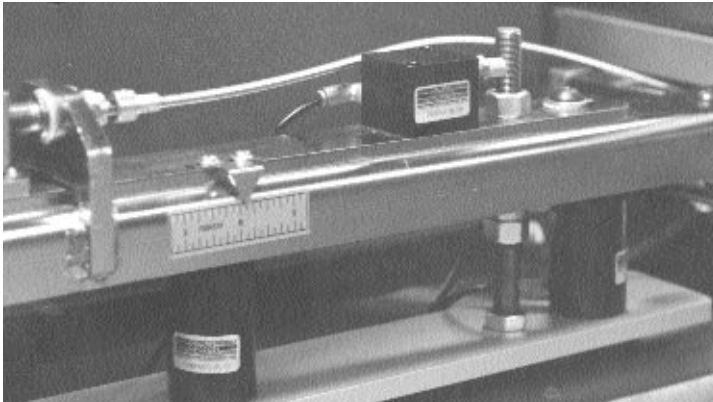
REAR MICRO-REGISTRATION ADJUSTMENT -

The micro-registration alignment of the rear of the screen frame may be adjusted by use of the small black knurled "REAR MICRO REGISTER" control knob located below the rear off-contact adjustment knob described above. To adjust the rear micro-registration, first place the "REAR MICRO ON" toggle switch located on the print head control panel in the "OFF" position. This unlocks the rear micro-registration assembly located at the rear frame holder assembly. (See illustration top next page)



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A convenient reference scale with pointer is provided for making incremental adjustments. To move the screen frame to the left, turn the knurled knob counterclockwise. To move the screen frame to the right, turn the knurled knob clockwise. Remember to re-tighten the locking collar and turn "ON" the "REAR MICRO ON" toggle switch after adjustments are completed.

VACUUM SPEED ADJUSTMENT -

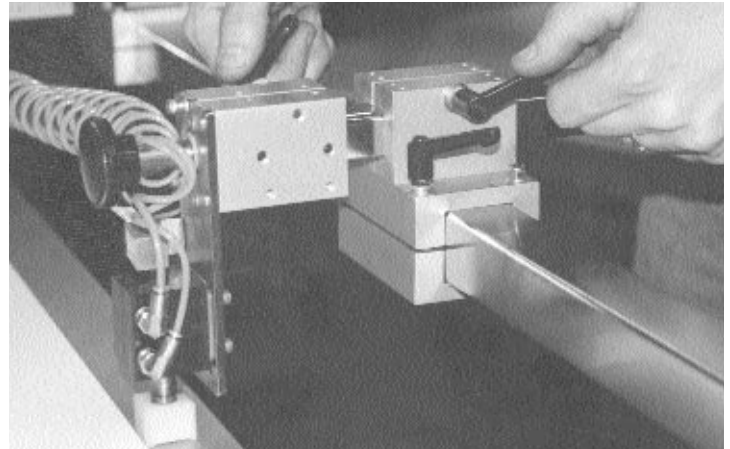
The M&R Conquest features a unique vacuum speed control adjustment which provides the system Operator with a method to set the exact vacuum pressure for the particular substrate and job requirements at hand. The control is located on the right side of the Main control console. To increase the vacuum speed (heavier weight stock) turn the adjustment clockwise. To decrease the vacuum speed (light weight stock) turn the adjustment knob counterclockwise.



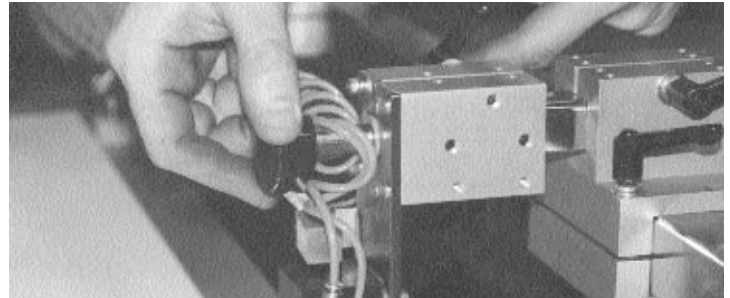
PNEUMATIC SHEET FEEDING GUIDES -

The M&R Conquest includes fully adjustable pneumatically operated sheet feeding guides to facilitate placement of substrate on the vacuum tables. Each of the three pneumatic guide assemblies are fully adjustable from front to back and left to right. In addition, a fine tuning adjustment knob is also provided for incremental adjustment of each guide assembly.

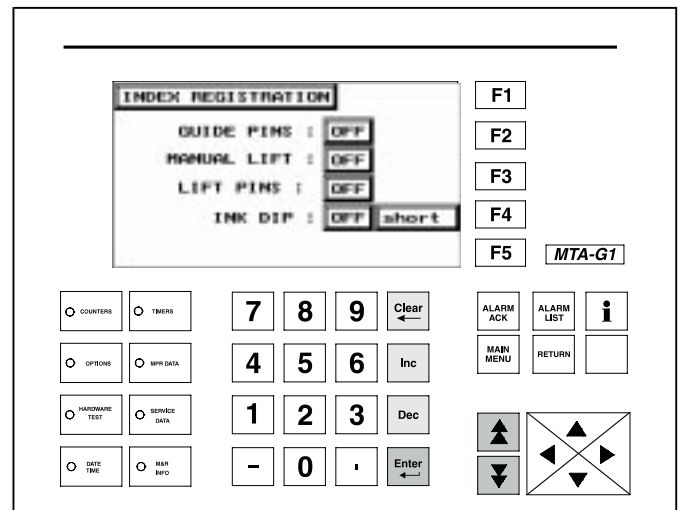
To adjust the position of the guide assembly, simply loosen the Kipp Elisa adjustment handle and slide the guide assembly along the support tube. When you are satisfied with the new location, re-tighten the Kipp elisa adjustment handles to secure the guide assembly in position. (See illustration top right)



To fine tune the guide position, loosen the small Kipp Elisa adjustment handle and adjust the round black adjustment knob to suit your requirements. When you are finished with the fine tuning adjustment, remember to re-tighten the Kipp elisa adjustment handle to secure the adjustment in place. (See illustration below)



To turn the pneumatic sheet guides "ON" press the "OPTIONS" key on the Operator Interface control panel. This will display the "OPTIONS" menu item which is used to activate the pneumatic guide system. Simply use the arrow keys to locate the flashing frame around the "ON/OFF" indication for "GUIDE PINS". Now press the "ENTER" key to turn the pneumatic guide system "ON". (See illustration below)



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Preventive Maintenance Procedures

PREVENTATIVE MAINTENANCE -

Regularly Scheduled Preventative Maintenance is of utmost importance to protect your investment in your M&R Conquest Multicolor U.V. Print/Dry System, and will significantly reduce or eliminate problems which can lead to unnecessary down time.

The following information is provided to help guide you in performing the required maintenance procedures and to keep your equipment in excellent running condition for many years to come.

Should you have any questions regarding this information, please contact our Equipment Service Department during regular business hours (8:30am - 5:00pm C.S.T.) at (630) 858-6101, or on week ends or holidays call our 24 Hour Emergency Service Hotline at (630) 462-4715.

INDEX DRIVE REDUCER

After the initial installation of the Conquest System, the lubricant in the index drive reducer should be drained after the first two weeks of operation. After draining the lubricant, the reducer must be refilled to the proper level (see illustrations at right) using **Mobil Oil SCH 634 Synthetic Lubricant, M&R Part No. 7017004.**

After the initial change, the lubricant should be drained and replaced after every twenty-five hundred hours of operation or six months of operation, whichever ever occurs first.



Drain Oil Here

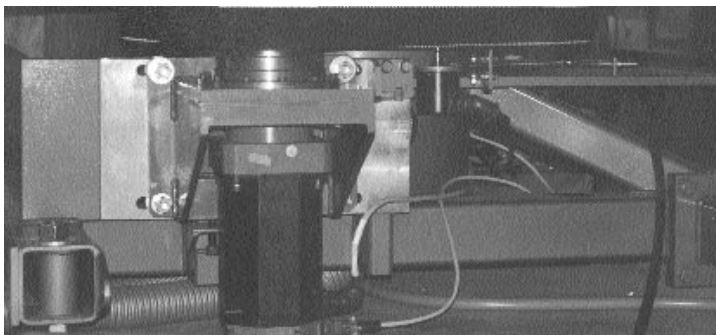


Add Oil Here



Proper Oil Level

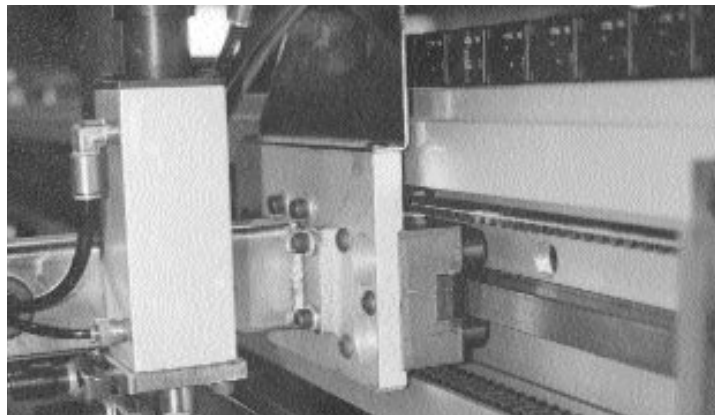
NOTE: Models produced after September 1997 use a planetary gear reducer which is permanently lubricated. (See illustration below)



DAILY:

Print Head Carriage Assembly -

Remove any accumulation of ink or dirt on the print head carriage assembly paying particular attention to the print carriage bearings, and bearing guide race. (See illustration below)

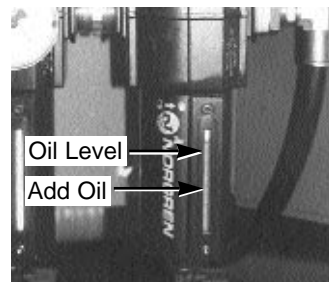


MAIN REGULATOR ASSEMBLY -

The air line lubricator/moisture trap assembly is provided to automatically release a small quantity of lubricating oil into the systems air lines as well as to trap moisture which occurs in the air lines. This oil provides lubrication of the seals, valves and air cylinders used for master frame lifting & lowering and print carriage squeegee-chopper operation.

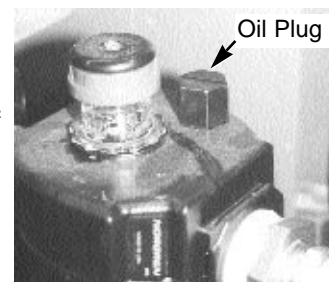
Check the air line lubricator assembly and maintain the proper oil level as indicated on the graduated glass located on the lubricator assembly. If you determine that the oil level is low, add No.10 Non-Detergent oil (M&R Part No.7017000) and refill to the proper level.

To add oil, disconnect and bleed off the compressed air to the system, remove the hex nut located behind the sight dome on top of the lubricator assembly, and fill to the top of the graduated sight glass. Replace the hex nut and tighten securely.



Oil Level

Add Oil



Oil Plug

WEEKLY -

Index Drive Reducer -

Check the lubricant level in the index reducer. Add lubricant as required to maintain the proper level.

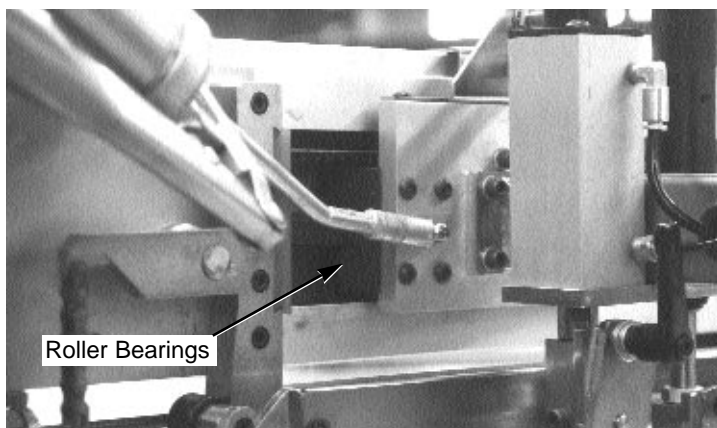
M&R Conquest Multi-Color System

Preventive Maintenance Procedures

To check the lubricant level, remove the level plug and confirm that lubricant is present. If the lubricant is at the proper level, then a small quantity of lubricant will run out when the level plug is removed. If no lubricant is present after removing the level plug, remove the fill plug and add Mobil Oil SHC 634 Synthetic Lubricant (M&R Part No.7017004) until the lubricant begins to run out at the level plug. (See illustrations page 35) Replace both the fill plug and the level plug and tighten securely before operating the system. **DO NOT OVER FILL THE REDUCER WITH LUBRICANT!**

Print Head Squeegee/Flood Bar Carriage -

Clean away any dirt, ink or grease from the print carriage roller bearing assembly, and the bearing guide race. Apply white lithium grease (M&R Part No.7018017) to the print carriage roller bearings and bearing guide races. Use the Zerk grease fitting provided.



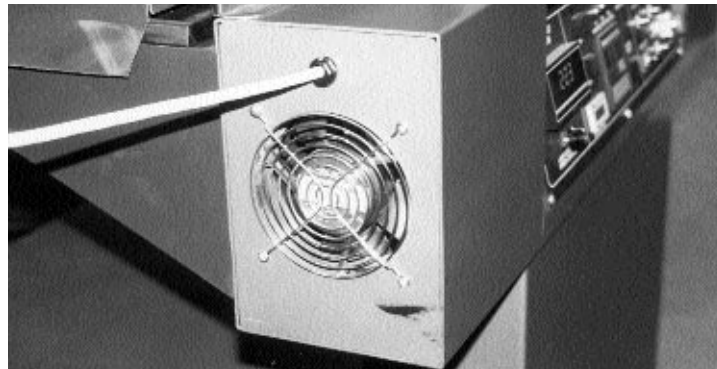
Control Console Vent Fan -

Clean the control console vent fan metal guard and air intake louvers to insure good air flow through the control enclosure. (See illustration below)



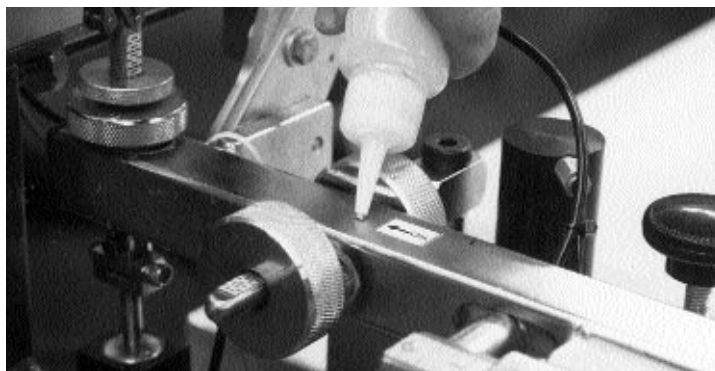
Vitran Power Module Vent Fans -

Clean the vent fan guards and air intake louvers of any accumulation of dirt to insure good air flow for Vitran Power Module vent fans. (See illustration top right)



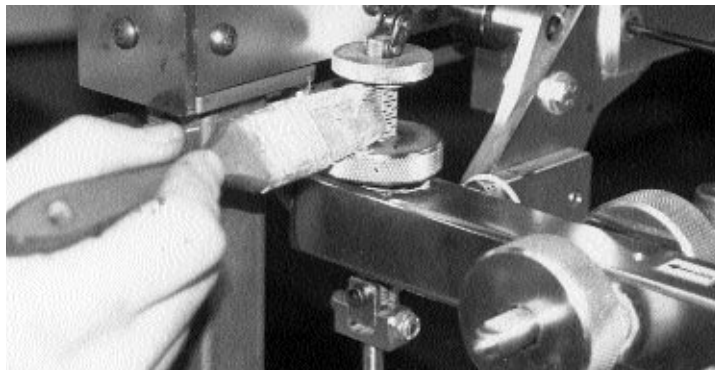
Master Frame Micro Register Assembly -

Apply No. 10 non-detergent oil (M&R Part No.7017000) to the micro register inner support tubes. (See illustration below)



Master Frame Front Peel Adjustment Assembly -

Using a small brush, apply white lithium grease to the front peel adjustment on all print heads. (See illustration below)



Vitran UV Station Linear Carriage Bearing -

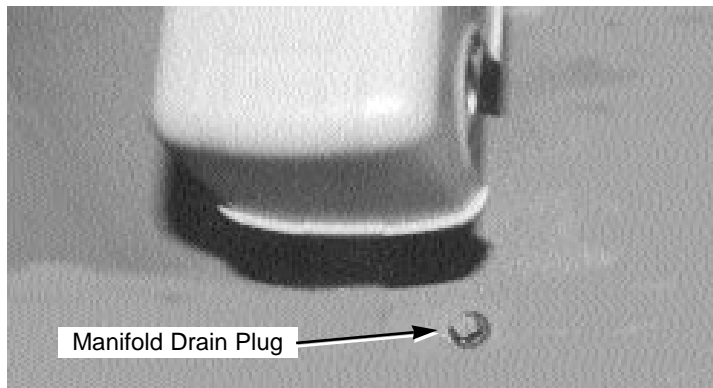
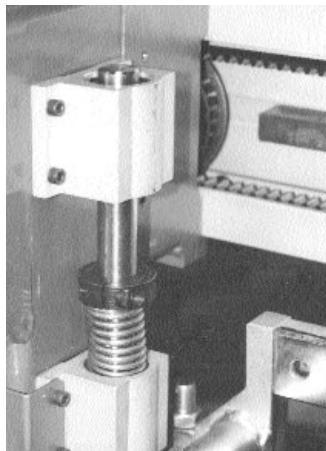
The linear bearings on the Vitran UV Station lamp carriages must be lubricated using white lithium grease (M&R Part No. 7018017)

M&R Conquest Multi-Color System

Preventive Maintenance Procedures

Rear Master Frame Guide Shafts -

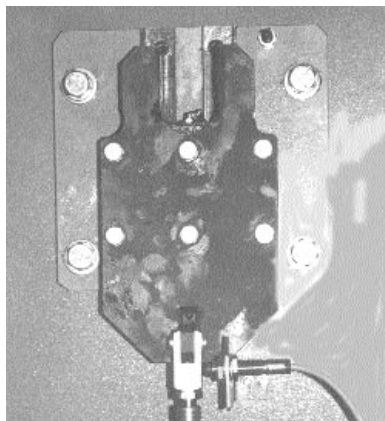
Clean away any accumulation of ink or dirt and apply 10 wt. Non-Detergent oil (M&R Part No. 7017000) to the rear Master Frame guide shafts on each print head. (See illustration at right)



MONTHLY -

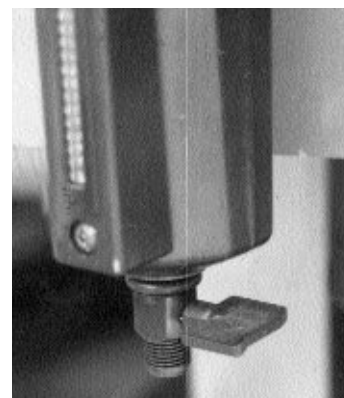
Indexer Lock Assembly -

Clean away old grease and apply white lithium grease (M&R Part No. 7018017) to the inside top and side dimensions of the lock assembly. (See illustration below)



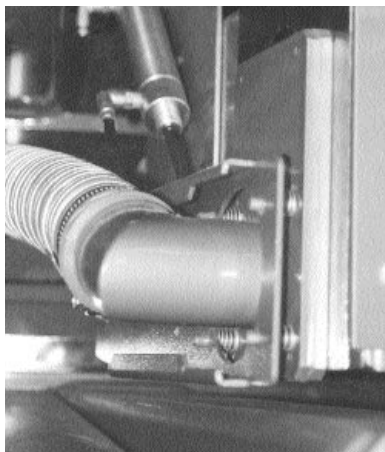
Air Line Lubricator & Moisture Trap Assembly -

Drain the Air Line Lubricator Moisture Trap of accumulated moisture by opening the small pet cock valve located under the moisture trap assembly 1/2 turn to the left.



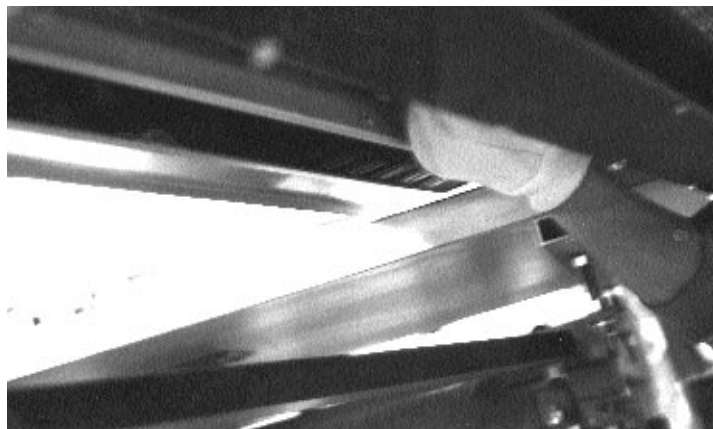
Vacuum Actuator Assembly -

Using a small brush, apply white lithium grease (M&R Part No. 7018017) to the vacuum/blow-back slide assembly



U.V. Lamps & Reflectors -

Clean U.V. lamps and reflectors using isopropyl alcohol. Do not touch the U.V. lamps with your bare hands. Use soft lintless gloves and wipers when handling lamps. (See illustration below)



Air Manifold -

Drain excess moisture from the air manifold located on the left hand side of the Main Control Console.

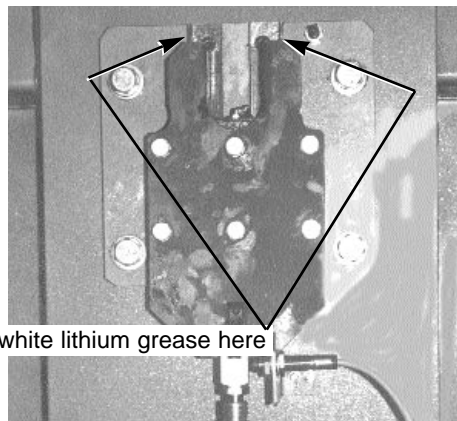
To drain, disconnect the compressed air supply to the press. Bleed off the residual air pressure by opening the drain valve on the moisture trap and remove the threaded plug on the air manifold. The drain plug is located just behind the air pressure switch. (See illustration top right)

Index Table Registration Locking Fork Linear Bearing -

Apply white lithium grease (M&R Part No. 7018017) to the linear bearing on the index table registration fork lock assemblies. (See illustration top right next page)

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Preventive Maintenance Procedures



Apply white lithium grease here

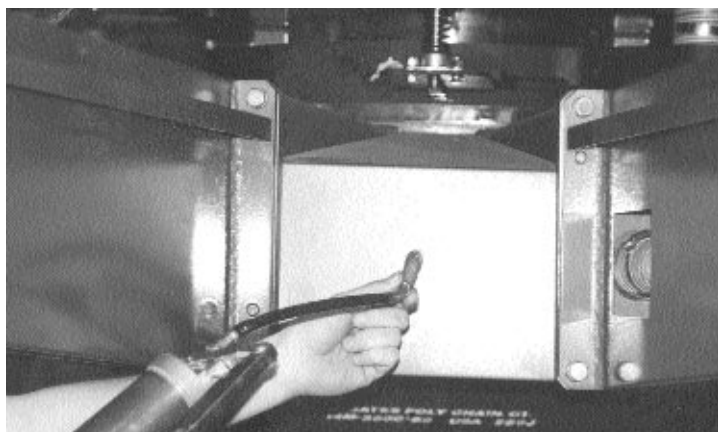
U.V. Lamp Assembly Vent Fan Filters -

Clean the vent fan guards located on the top of the U.V. lamp reflector housing on each U.V. lamp assembly. (See illustration below)



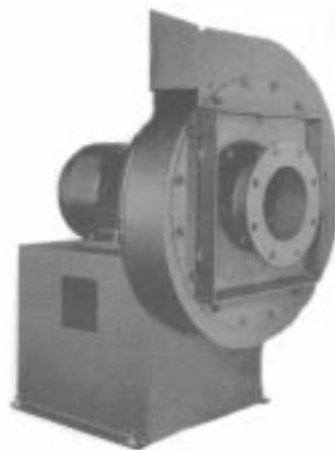
Index Table Lubrication -

Using the zerk grease fitting provided, lubricate the index table assembly with white lithium grease (M&R Part No. 7018017)



Exhaust Blower Bearings -

Lubricate exhaust blower bearings using high temperature grease (M&R Part No. 7018004) (See illustration top right)

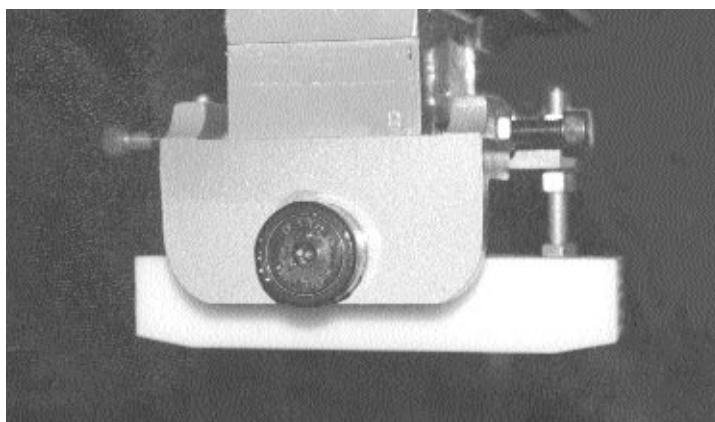


Registration Locking Fork Assembly -

Apply white lithium grease (M&R Part No. 7018017) to the outside and inside surface ("U") of the registration locking fork assemblies.

Nylon Support Blocks -

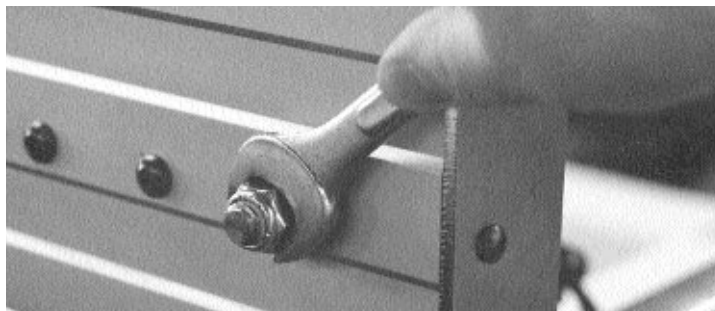
Apply white lithium grease (M&R Part No. 7018017) to the nylon support blocks located under each vacuum table assembly. See illustration below)



6 MONTHS -

Check and adjust the tension on the print head drive timing belts.

To adjust the tension of the print head timing belts, first loosen the 3/4" lock nut located on the side of the print carriage support arm as illustrated below.



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Preventive Maintenance Procedures

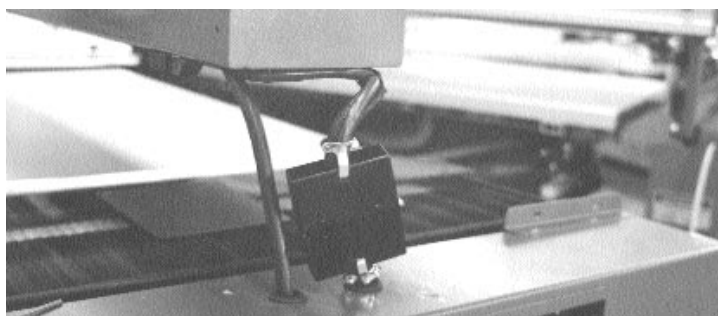
Now, using an 1/8" allen wrench, adjust the button head allen screw clockwise to increase the tension, or counterclockwise to decrease the timing belt tension. The tension adjustment should be very slight, perhaps one half turn. Be sure that the timing belt tension on the opposite side of the print carriage is adjusted to the same degree of tension. (See illustration below).



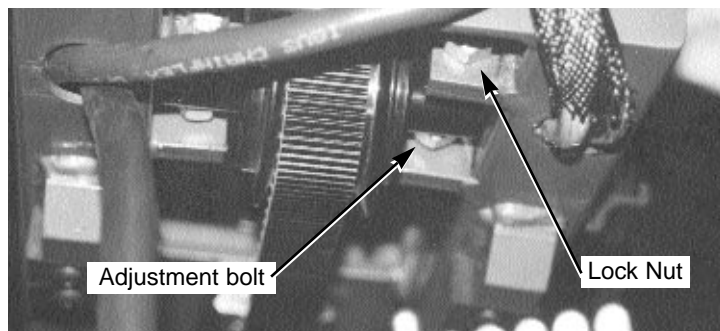
Remember to re-tighten the locking nut when you are satisfied with the adjustment.

Check and adjust the timing belt tension on the UV stations.

To adjust the tension of the timing drive belts on the UV stations, you must first remove the UV filter shield and front support assembly. Move the UV lamp/reflector assembly to the rear most position. Now remove the UV filter shield and support assembly. (See illustration below).



Disconnect the electrical connector by pulling gently apart. Loosen lock nut at front left and right sides approximately 2 full turns. Use allen wrench at the front of the threaded screw to adjust timing belt tension. To increase tension, turn screw in clockwise direction. To decrease tension, turn the screw in a counterclockwise direction. Be sure to adjust both sides the same amount. (See illustration below)

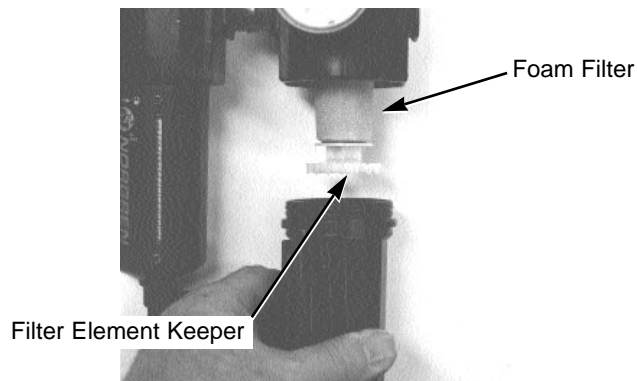


When you are satisfied with the adjustment, re-tighten the lock nuts. Re-connect electrical plug by pushing gently together, and re-assemble front support assembly.

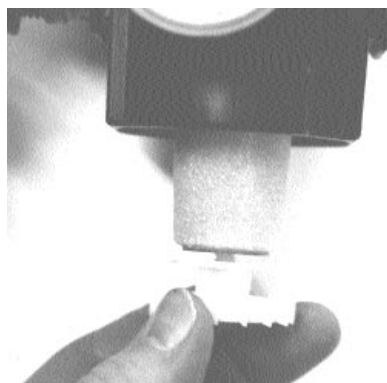
Replace Filtler Element in Moisture Trap Assembly -

The small foam filter element in the air line lubricator moisture trap assembly must be replaced every six months. To replace the filter element,

1. Disconnect the compressed air supply and bleed off any residual air which may be in the system.
2. Open the pet cock at the bottom of the moisture trap to bleed off any accumulated moisture and air which may be present.
3. Now, grasp the moisture trap bowl assembly and while pushing up slightly, turn the bowl 1/4 turn to the left, then pull the bowl straight down.



4. Grasp the white nylon filter element keeper and turn it to the left and remove it from the assembly.



5. Remove the filter element by gently pulling straight down.
6. Install new filter element (M&R Part No.2019047)
7. Install nylon filter element keeper.
8. Install bowl assembly.
9. Turn "ON" compressed air supply to the system.

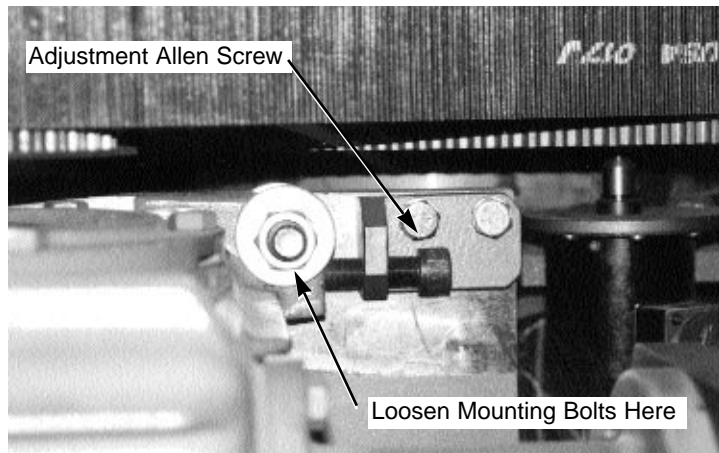
M&R Conquest Multi-Color System

Preventive Maintenance Procedures

Check and adjust the tension on the index drive timing belt.

To adjust the timing belt tension, loosen the gear reducer mounting bolts 1 or 2 full turns. Now move the gear reducer to the left to increase the tension on the index drive timing belt. Re-tighten the mounting bolts once again after the adjustment.

The index system will now have to be fine tuned using the "Registration Mode" menu in the L.C.D. Operator Interface. See page 13 of this manual for further instructions on how to use "Registration Mode".



YEARLY:

The 4 batteries in the Absolute Pulse Coder must be changed every 12 months. To change the batteries, proceed as follows.

1. Have four "D" size batteries (M&R Part No. 1017075) in hand ready for replacement use.
2. Turn "ON" the electrical power to the Conquest system.

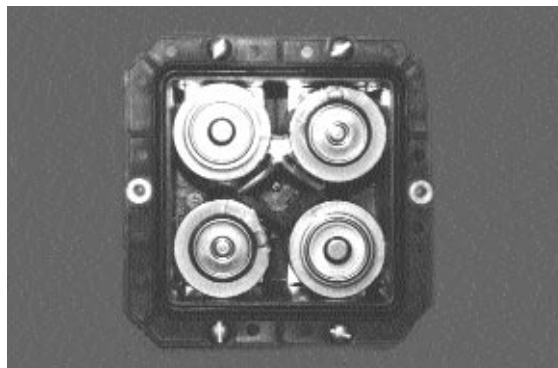


WARNING! The program data will be lost if the battery is changed with the electrical power "OFF".

3. Loosen the battery case cover and remove the cover assembly.



4. Remove the batteries in the case and replace them with the new batteries immediately. Be sure to place the batteries so that they are facing the correct direction. (See illustration below)



5. Replace the battery case cover and tighten the screws on the cover.
6. turn the electrical power to the Conquest system "OFF".

EVERY THREE YEARS:

The service life of the Mitsubishi PLC battery is three years. When the battery is nearly dis-charged, the "ALARM" indicator on the PLC unit will start to flash. When this happens, replace the battery (M&R Part No. 1017075A) with a new one within one week.

The date by which the first battery must be replaced is written on the side panel of the PLC. For example: if the date indicated reads "FIRST REPLACEMENT 97/12, then the battery must be replaced no later than December 1997.



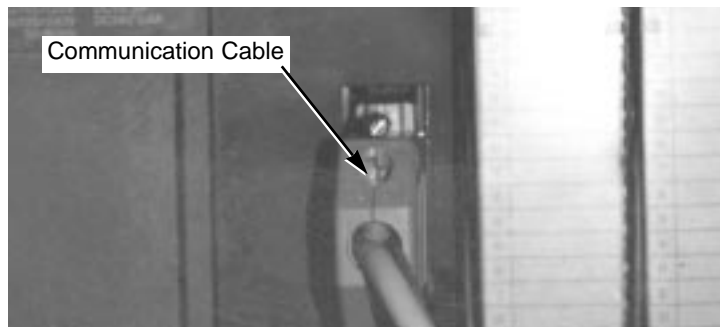
CAUTION! The new battery must be connected within five minutes of removing the old battery to preserve the program data in the PLC unit.

Replace the battery as follows:

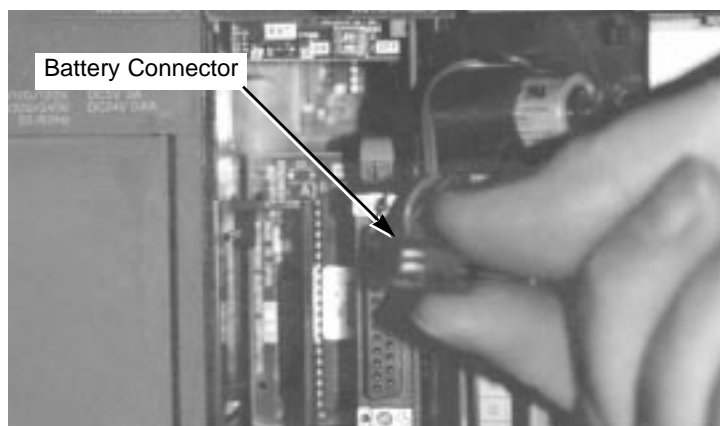
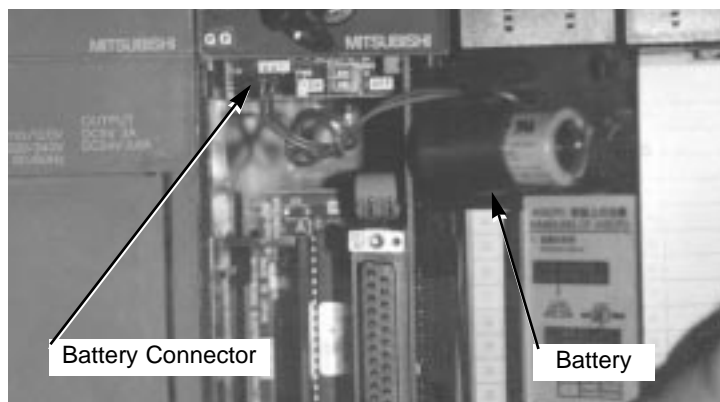
1. **DO NOT** turn "OFF" the electrical power to the press. If the electrical power is not "ON", turn it "ON".
2. Remove the communication cable from the front of the Mitsubishi module A1SCPU by unscrewing the two mounting screws. (See illustration top left page 41)
3. Detach front cover on Mitsubishi module A1SCPU

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Preventive Maintenance Procedures



4. Remove the battery from the mounting clip on the cover, then disconnect the battery by gently squeezing the connector and gently pulling out and away from the module. Remember you have only five minutes to install the new battery, otherwise the program data in the CPU may be lost. (See illustrations below)



5. Install the new battery in reverse order as described in 1 through 4 above.
6. Close the front cover on the Mitsubishi module A1SCPU.
7. Reconnect the communication cable to the Mitsubishi module A1SCPU.

Replace the Battery in the FANUC Servo Drive PLC Unit -

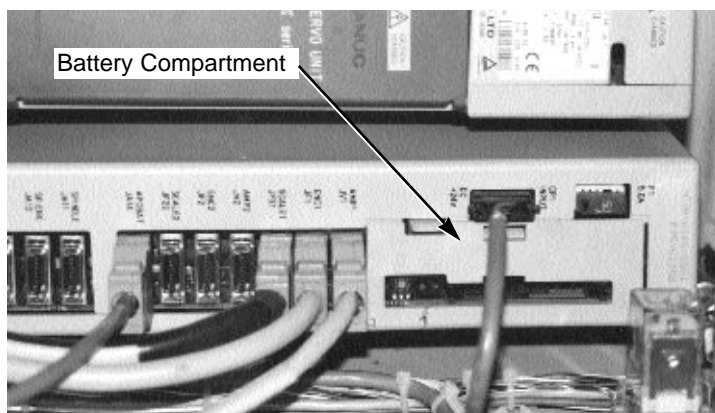
1. Have a replacement lithium battery type AO2B-0118-K111 (M&R Part No. 1017075A) on hand.
2. Turn "ON" the electrical power to the Conquest system.



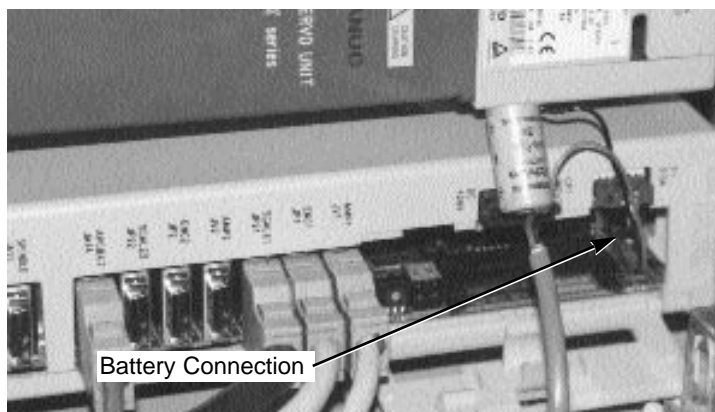
WARNING! The program data will be lost if the battery is changed with the electrical power "OFF".

WARNING!

3. Remove the lithium battery from the battery case behind the cover on the front panel of the control unit.



4. Remove the battery connector from the circuit board by grasping the connector firmly and pulling straight and away from the circuit board.



5. Install the replacement battery immediately and reattach the battery connector to the circuit board.
6. Close the battery case cover.
7. Turn the electrical power to the Conquest system "OFF".

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RECOMMENDED LUBRICANTS -

Quantity & Description	M&R Part No.
1 Quart No. 10 Wt. Non-Detergent Oil	7017000
1 Tube White Lithium Grease	7018017
1 Tube Permatex Super Lube with Teflon	7018031
1 Tube High Temperature Grease	7018004

RECOMMENDED TOOLS -

1. Combination wrench set (Standard U.S.)	2. Allen wrench set (Standard U.S.)
3. Allen wrench set (Metric)	4. 12" Adjustable wrench
5. 6" "C" clamp	6. Locking pliers (Vise Grip)
7. 12" pipe wrench	8. Electrical pliers
9. 13" Claw hammer	10. Rubber mallet
11. Hack saw	12. 1/2" drive ratchet
13. 1/2" drive socket set (Standard U.S.)	14. Needle nose pliers
15. Measuring tape rule	16. Rat 9round) tail file
17. 5/16" Nut driver	18. Screw starter (Magnetic type)
19. Utility knife	20. Phillips screw driver 7" long
21. Flat head screw driver 7" long	22. Flash light
23. Wire stripper/crimper for wire sizes 22 to 6 gauge	24. 9" torpedo level with magnetic strip
25. Small phillips screw driver	26. Small flat head screw driver
27. Flat file course and fine	28. Snap ring pliers internal and external type
29. Volt/Ohm meter	

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RECOMMENDED SPARE PARTS -

Quantity & Description	M&R Part No.
1 - Push Button	1017159
1 - Toggle Switch	1017158
1 - Push Button	1010006
1 - Emergency Stop Push Button	1010040
1 - Reset Push Button	1010001A
1 - Automatic/Manual Mode Switch	1010007
1 - Toggle Switch	1010011
1 - Potentiometer 10k Ohm 2 Watt	1029003
1 - Push button	1010006
2 - Green L.E.D. Indicator Lights	1013001
1 - Plastic Adjustment Knobs	3033019
3 - Plastic Adjustment Knobs	3033006
2 - Green Indicator Lights (UV panel)	1013012
1 - Toggle Switch (UV panel)	1010073
1 - Green Push Button	1010058
1 - Red Push Button	1010059
2 - Yellow Push Button	1010060
2 - Proximity Switch (Print head)	1010082A
2 - Round Black Plastic Knob (Print head)	3033001
2 - Air Cylinder (Print head)	2009255
2 - Air Cylinder (Frame clamp)	2009023
3 - Kipp Elisa Handle (Print head)	3032009
1 - Air Cylinder (Rear frame holder assy)	2009144
25" - Nylon Tubing (Print head)	2001002
2 - 4 Pole Idec Relay 110 volt	1011021
2 - 2 Pole Idec Relay 110 volt	1011005
2 - 4 Pole Idec Relay 24 volt DC	1011033
2 - 2 Pole Idec Relay 24 volt DC	1011017
2 - 4 Pole Idec Relay socket	1011022
2 - 2 Pole Idec Relay socket	1011006
1 - Timer (UV electrical cabinet)	1022001
2 - Mercury Relay 100 amp	1011048
3 - Capacitor 6mf	1036005C
2 - Capacitor 2.8mf	1036005B
2 - UV Lamps	1036054
2 - Thermostat 500 degree F	1012005
2 - Thermostat 150 degree F	1012021
2 - Proximity Switch (UV head)	1010082B
25" - Flexible Hose (UV head)	2001066
1 - Mitsubishi I/O Module (Print head)	1017049

M&R Conquest Multi-Color System

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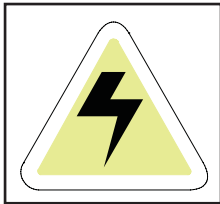
RECOMMENDED SPARE PARTS (Cont.) -

Quantity & Description	M&R Part No.
1 - Mac Air Valve assembly (Print head)	2012043A
2 - Air Cylinder (Feed guide)	2009136A
3 - Nylon Guide Block (Feed guide)	8P05135
2 - Proximity Switch (Feed guide)	1010005
2 - proximity Switch (Index lock assy)	1010012
1 - Piston Rod Clevis (Index lock assy)	2009054
25' - Flexible Hose 3" I.D. (Vacuum assy)	2001070
2 - Timing Belt (Print & UV head drive)	3040185
25" - Yellow Safety Cable	8080160
2 - Male Phone Jack Connector	1018000
2 - Female Phone Jack Connector	1018001
1 - 45 Type Mac Valve Assembly	2017023
1 - Fork Valve	2011001
2 - Fuse 3 amp 250 volt	1004010
2 - Fuse 20 amp 250 volt time delayed	1004002A
2 - Fuse 1/2 amp FLNR 1/2	1004021
2 - Fuse 15 amp 250 volt slo-blo FLNR 15	1004027
2 - Fuse 3-1/2 amp FLNR 3-1/2	1004033A
2 - Fuse 4 amp 250 volt NON-4	1004035
2 - Fuse 25 amp 250 volt slo-blo FLNR 25	1004036
2 - Fuse 2 amp 250 volt FLNR 2	1004039
2 - Fuse 60 amp 250 volt FLNR 60	1004050A
2 - Fuse 1 amp 250 volt FLNR 1	1004022

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U.V. Lamp Replacement Procedure

The following information describes the correct procedure for the cleaning of the reflector and replacement of the UV lamp assembly used on the M&R Conquest System:



DANGER!

DANGER: Do not attempt to replace the U.V. Lamp or components of the U.V. Power Module assemblies when electrical power is "ON". Disconnect and lock-out the electrical and pneumatic power from the Conquest System before attempting lamp replacement.

1. Using a standard blade screw driver, remove the two end panels on the lamp housing assembly. (See Fig.1)



Fig. 1

2. Carefully unwrap the heat resistant tape (M&R Part No. 7019016) from the lamp power conductor connection. Do this on both ends of the lamp. (See Fig.2 and 2A).

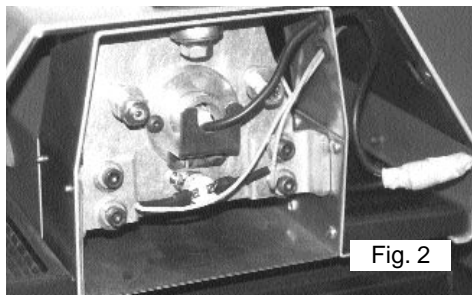


Fig. 2

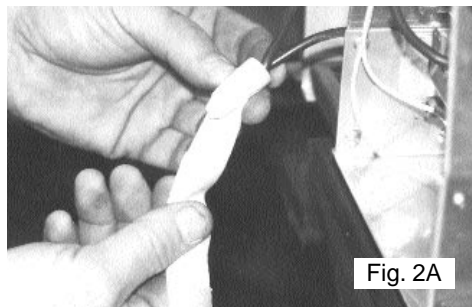


Fig. 2A

Remove the yellow plastic wire nut at the lamp conductor connection. (See Fig.2B)

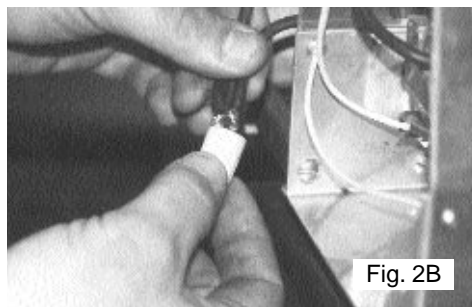


Fig. 2B

3. Using a 1/8" allen wrench, loosen the two allen screws located on either side of the lamp support bracket. (See Fig.3)

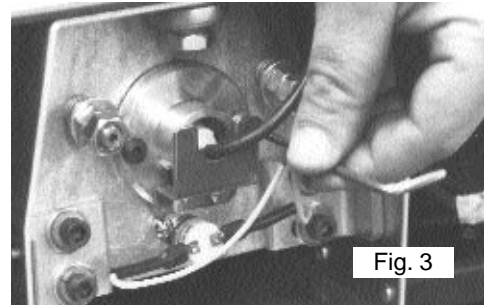


Fig. 3

4. Carefully remove the lamp support bracket and place aside with the allen mounting screws. Do this at both ends of the lamp. (See Fig. 4)

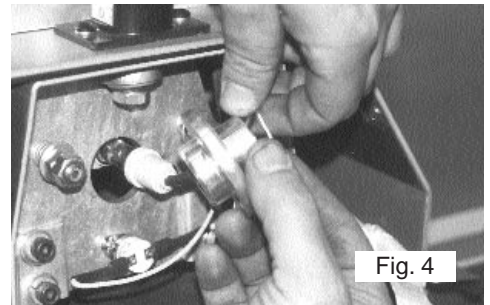


Fig. 4

5. While wearing lintless gloves, carefully remove the lamp from the reflector housing. (See Fig. 5)

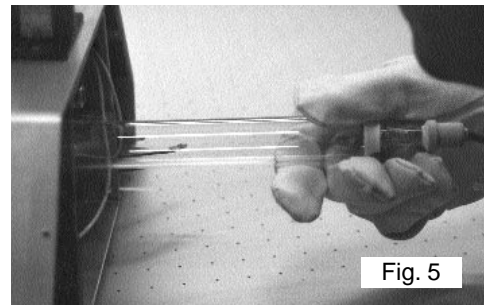


Fig. 5

6. To gain access to the reflector assembly, manually relocate the lamp housing so that it just clears the front lower light shield.



Fig. 6

7. Before installing new UV lamp, clean the reflector using Isopropyl Alcohol and a clean lintless cloth or wiper. (See Fig. 6)

8. Install the replacement U.V. Lamp in the reverse order as described above.



CAUTION

CAUTION: Do not handle the U.V. Lamps with your bare hands. Use soft cloth gloves when handling any U.V. Lamp as natural oils on the skin will cause burn spots on the lamp envelope during operation, reducing cure efficiency.

M&R Conquest Multi-Color System

Troubleshooting Procedure

The following information is provided as a guide for troubleshooting in the event a problem may occur during the operation of your M&R Conquest Multi-Color System. Should you have any questions regarding the installation, operation or preventive maintenance procedures for this equipment, we strongly encourage you to contact our Equipment Service Department at 1 (630) 858-6101 during normal business hours, or our 24 hour Emergency Service Hotline at 1 (630) 462-4715 in the evening, week ends or holidays.

It is further recommended that persons using this troubleshooting guide have a working knowledge of electrical and pneumatic power and control systems, and in addition are thoroughly familiar with the operation and adjustment of the electrical and pneumatic components and control devices used on this equipment before attempting to replace or adjust components of this equipment.

IMPORTANT! Experience has shown that many problems can be Operator induced. It is important to check that the main electrical power lines to the equipment are “ON”, and that all safety appliances are operating properly and reset.

PROBLEM	PROBABLE CAUSE/SOLUTION
Print register varies from print to print.	<ol style="list-style-type: none"> 1. Check to be sure that there is proper vacuum being delivered to all the print tables. In some instances when printing on smaller size stock, you may have to mask off the vacuum table around the substrate to increase vacuum. 2. Reduce the UV power output setting to eliminate stock shrinkage which can occur from excessive exposure to infra-red heat radiated by the UV lamps. 3. Increase the scan speed of the UV stations. This will further reduce unwanted infra-red radiation causing stock shrinkage.
The printed image exhibits indications of smearing at either the beginning or the end of the print stroke.	<ol style="list-style-type: none"> 1. Check the off-contact setting for the particular print station in question. Typically, for light-weight flexible substrates, the off-contact distance is set for 1/16" across the substrate. 2. Check the screen mesh for proper tension. A mesh tension of 18 to 20 Newtons is recommended for optimum print results. 3. Check the peel rate setting on the print station in question. The peel rate should be set so that the screen mesh makes a clean break away from the substrate immediately behind the squeegee during the print stroke.
The printed image exhibits uneven ink deposit across the image area.	<ol style="list-style-type: none"> 1. Check for excessive squeegee pressure, use just enough squeegee pressure to achieve a sharp image. Check the setting on the squeegee pressure equalizer on each print head. The pressure should read between 80 and 100 P.S.I. 2. Check the squeegee angle. A wider angle will tend to result in a heavier ink deposit, while a sharper angle will reduce ink deposit offering higher print definition and crisper images. 3. Check for excessive off-contact or peel rate and adjust as necessary.

M&R Conquest Multi-Color System

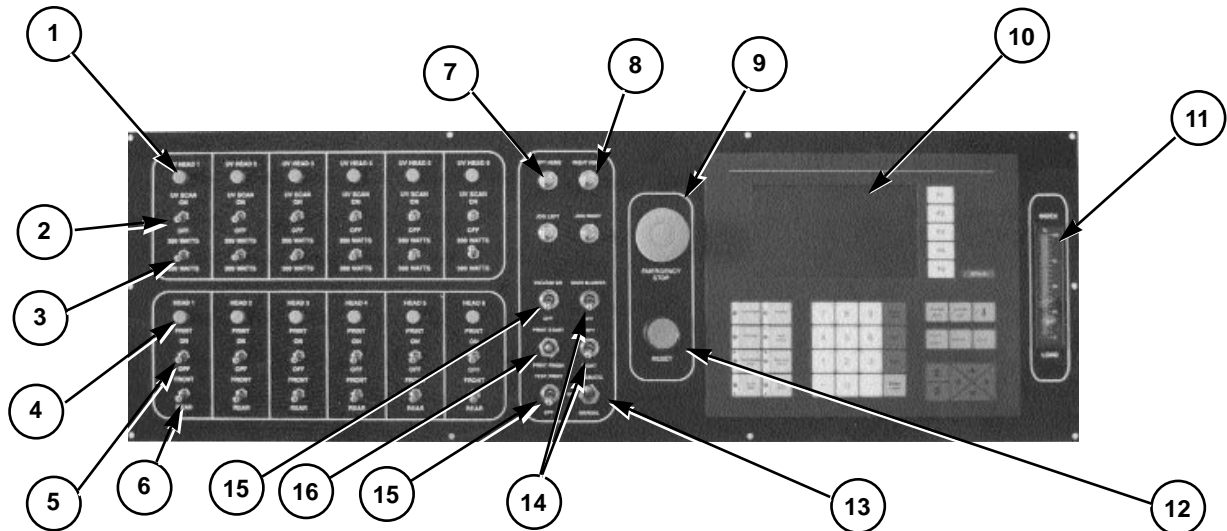
Troubleshooting Procedure

PROBLEM	PROBABLE CAUSE/SOLUTION
The printed image is under cured.	<ol style="list-style-type: none">1. Check the scan speed for the UV lamps and decrease as required. In addition, check the power output setting at the Main control Console for the UV station in question. Be aware that a higher UV power output setting may induce shrinkage in more heat sensitive substrates.2. Check for excessive ink deposit. Excessive ink deposit can be caused by using a mesh count which is too low for the particular print requirements, a squeegee angle which is set for too wide an angle or a squeegee durometer which may be too soft for the particular application.3. If the characteristics of the substrate allow, set the UV lamp Multi-Scan control for an additional scan pass of the substrate. The maximum amount of scan passes is 9.
The cured image indicates poor inter-coat adhesion.	<ol style="list-style-type: none">1. Increase the exposure time by decreasing the scanning speed of the particular UV stations in question.2. Increase the individual UV power output setting at the Main Control Console. Be careful not to overexpose the substrate to infra-red radiation which is present at higher UV power output settings.3. If the characteristics of the substrate allow, set the UV lamp Multi-Scan control for an additional scan pass of the substrate. The maximum amount of scan passes is 9.

M&R Conquest Multi-Color System

Replacement Parts

MAIN CONTROL CONSOLE

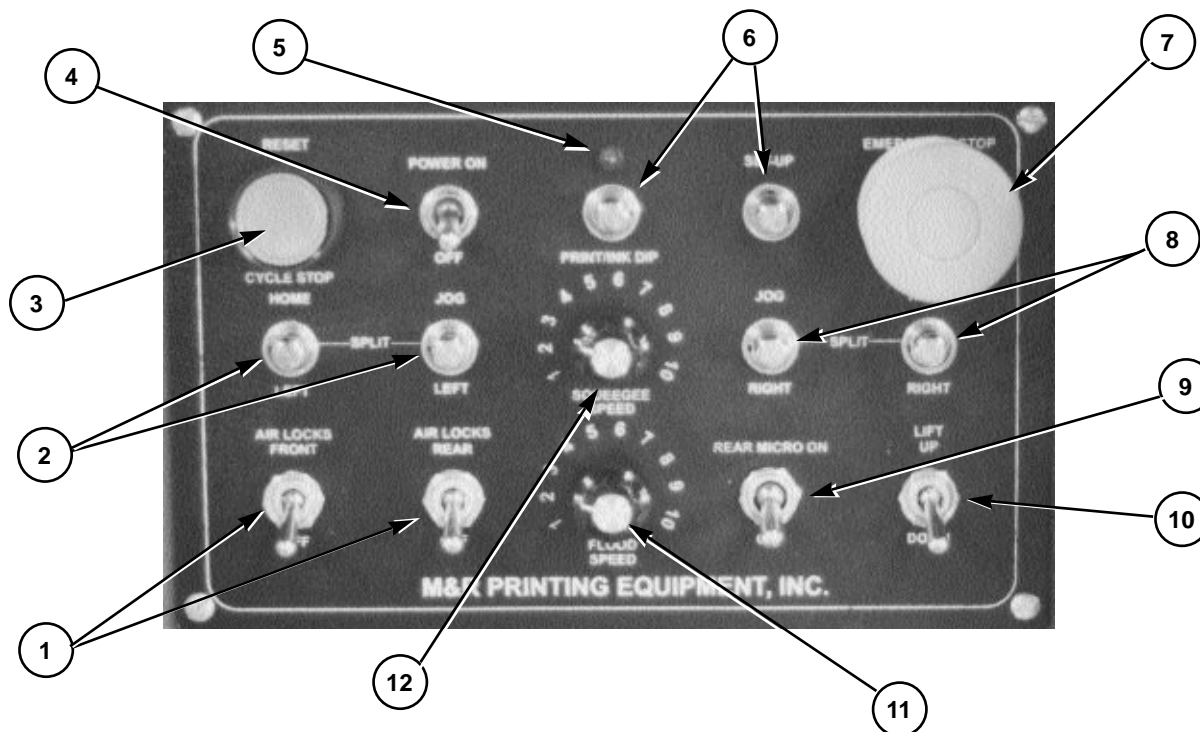


PART NAME		PART NUMBER
1	Push Button Gray	1017159
2	Toggle Switch ON/OFF	1017158
3	Toggle Switch ON/OFF	1017158
4	Push Button Gray	1017159
5	Toggle Switch ON/OFF	1017158
6	Toggle Switch ON/OFF	1017158
7	Push Button	1010006
8	Push Button	1010006
9	Emergency Stop Push Button	1010040
10	L.C.D. Operator Interface (MTA-G1)	1017121
11	Index Load Indicator	1019080
12	Reset Push Button	1010001A
13	Automatic/Manual Mode Switch	1010007
14	Toggle Switch	1010011
15	Toggle Switch (Test print)	1010011
16	Print Start/Print Finish Toggle Switch	1010007

M&R Conquest Multi-Color System

Replacement Parts

PRINT HEAD CONTROL PANEL

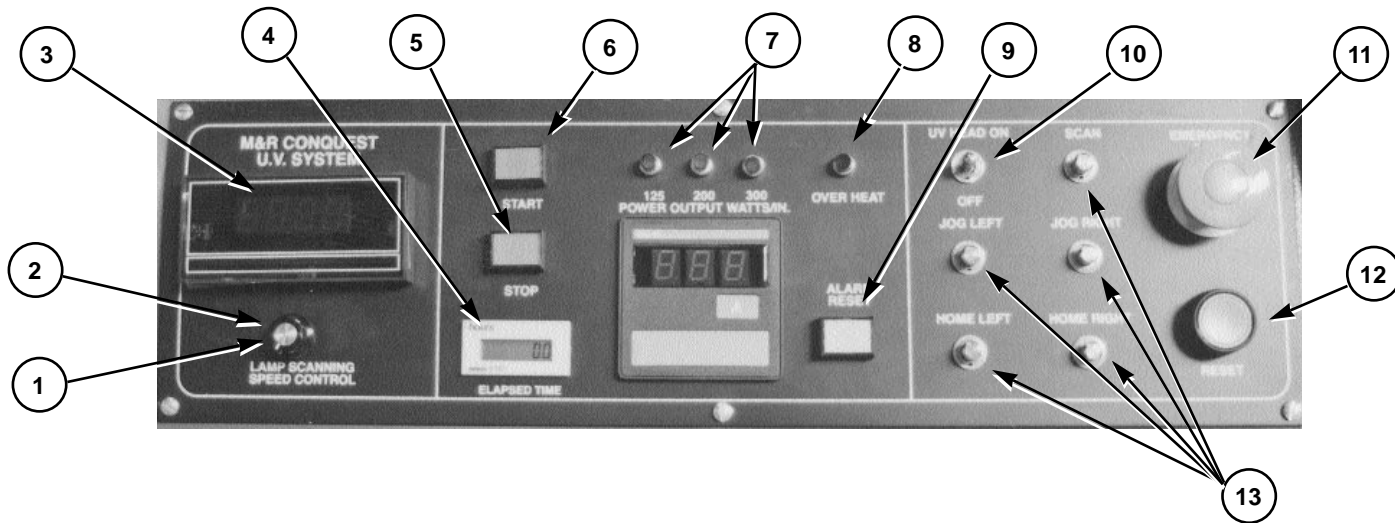


	PART NAME	PART NUMBER
1	Air Switch 4 Way 10/32 Ports	2018011
2	Push Button 2X894A	1010006
3	Reset Push Button	1010001A
4	Toggle Switch	1010011
5	Green L.E.D. Indicator Light	1013001
6	Push Button 2X894A	1010006
7	Emergency Stop Push Button	1010040
8	Push Button 2X894A	1010006
9	Valve 3 Way 1/8" Port	2018010
10	Valve 4 Way 1/8" NPT	2018065
11	Plastic Adjustment Knob	3033006
12	Potentiometer 10k Ohm 2 Watts	1029003

M&R Conquest Multi-Color System

Replacement Parts

U.V. STATION CONTROL PANEL

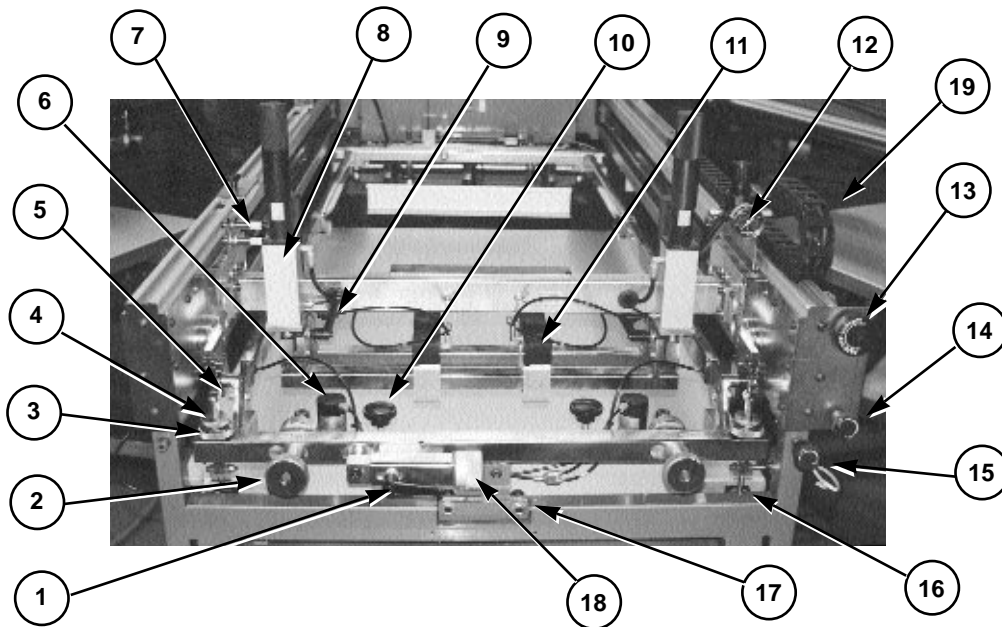


PART NAME		PART NUMBER
1	Control Knob	3033006
2	Potentiometer	1029001
3	L.E.D. Indicator	1013012
4	Lamp Hour Meter	1015002
5	Push Button Green	1010058
6	Push Button Red	1010059
7	Indicator Lights Green	1013012
8	Indicator Light Red	1013011
9	Push Button Yellow	1010060
10	Toggle Switch	1010073
11	Emergency Stop Push Button	1010040
12	Reset Push Button	1010001A
13	Push Button	1010006

M&R Conquest Multi-Color System

Replacement Parts

PRINT HEAD CARRIAGE

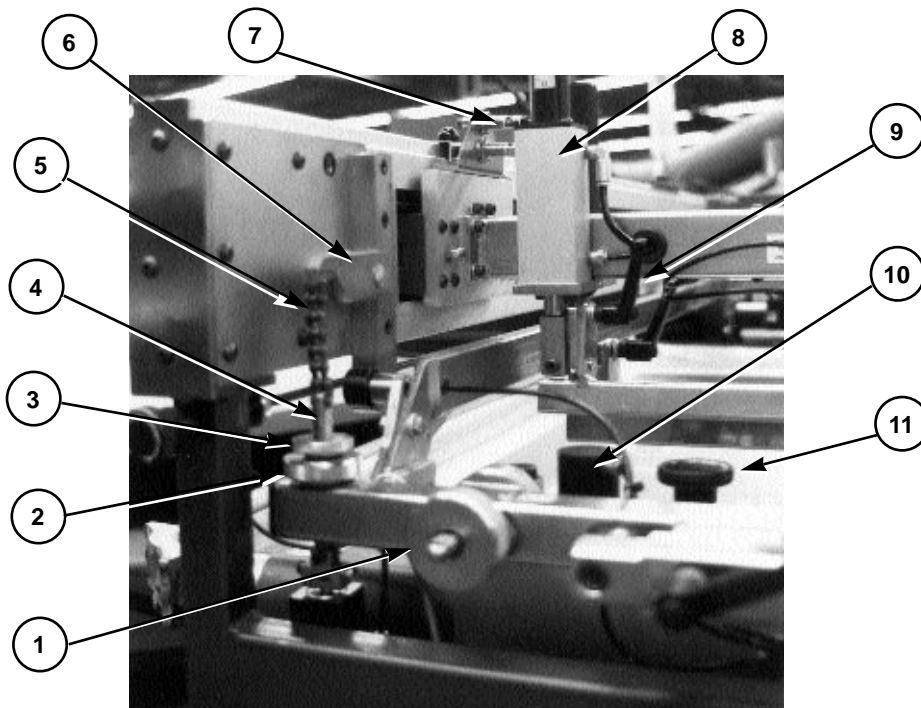


PART NAME		PART NUMBER
1	Kipp Elisa Handle	3032009
2	Round Knurled Knob	9P00986
3	Round Knurled Knob	9P00804
4	Small Round Knurled Knob	9370415
5	Chain Link	3041247A
6	Air Cylinder	2009023
7	Proximity Switch	1010082B
8	Air Cylinder	2009255
9	Kipp Elisa Handle	3032009
10	Round Black Plastic Knob	3033001
11	Square Air Cylinder	2009118
12	Air Regulator with Gauge	2019042
13	Round Knurled Knob (Rear Off-Contact)	9P00954
14	Round Knurled Knob (Peel Adjustment)	9P00893
15	Round Knurled Knob (Rear Micro)	9P00893
16	Air Cylinder	2009137
17	Cam Follower	3023457
18	Round Knurled Knob (Micro Adjustment)	9362559
19	Flexible Wire Guideway	1001054

M&R Conquest Multi-Color System

Replacement Parts

PRINT HEAD ASSEMBLY

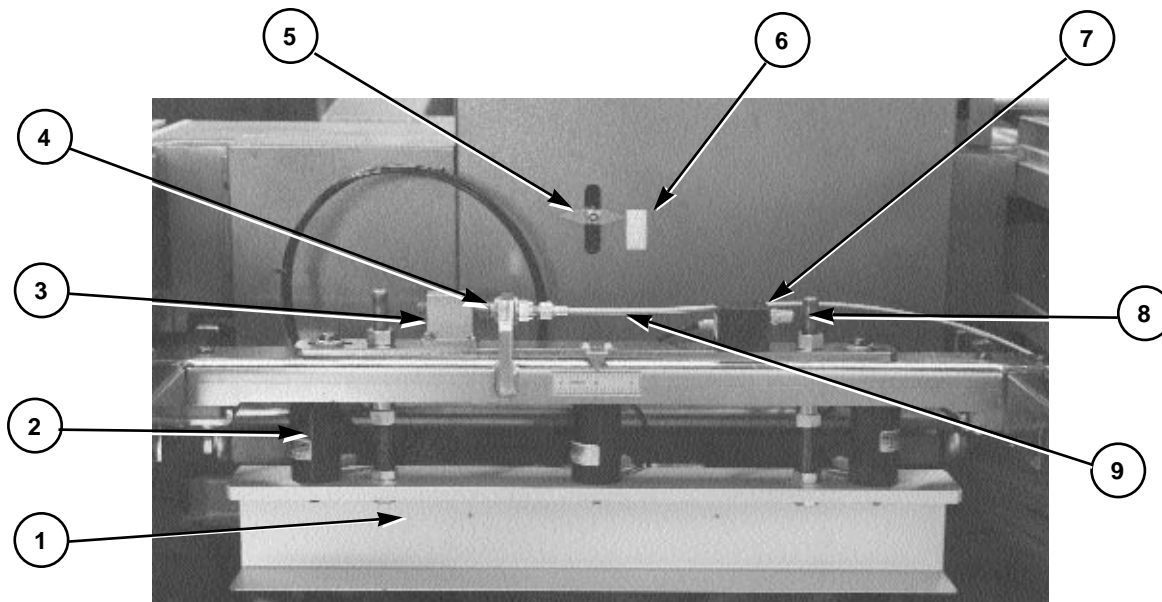


PART NAME		PART NUMBER
1	Micro Registration Knob	9P00986
2	Off-Contact Adjustment Knob	9P00804
3	Peel Nut	9370415
4	Off-Contact Adjustment Screw	9P00805
5	No. 35 Chain	3041247
6	Peel Lever	9260167
7	Stroke Adjustment Guide	9362108
8	Air Cylinder	2009255
9	Kipp Elisa Handle	3032009
10	Air Cylinder	2009023
11	Knob	3033001

M&R Conquest Multi-Color System

Replacement Parts

REAR FRAME HOLDER ASSEMBLY

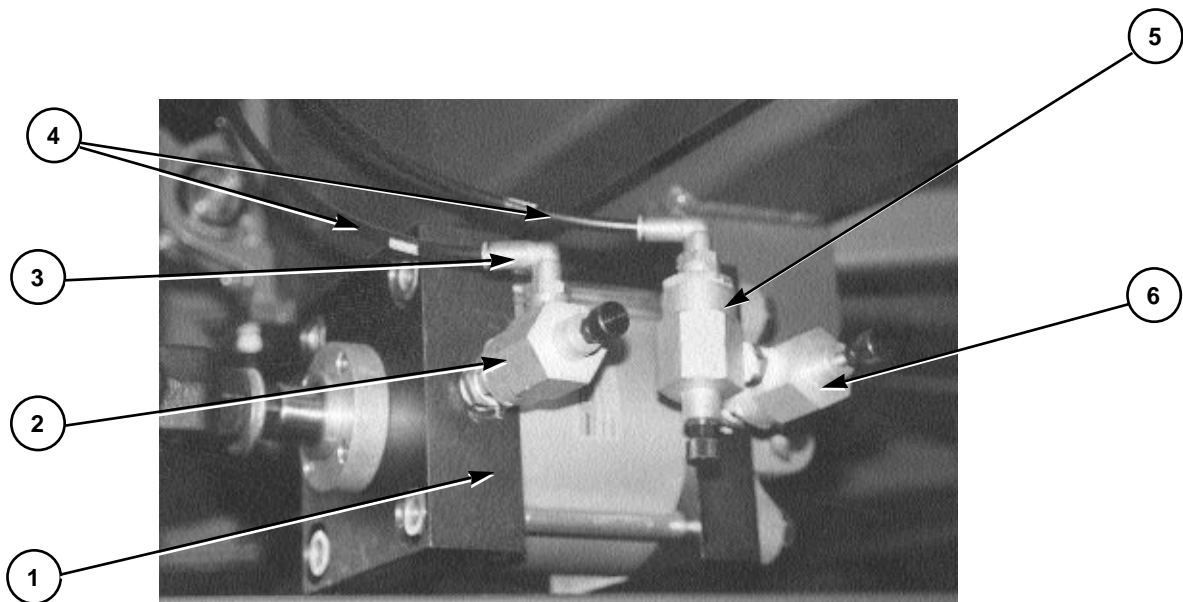


PART NAME		PART NUMBER
1	Rear Screen Frame Holder	9370458
2	Air Cylinder	2009023
3	Rear Micro Regulator Block	9P00854
4	Rear Micro Screw	9P00887
5	Rear Off-Contact Indicator	9P00975
6	Reference Scale	7009190
7	Custom Cylinder 1.125 X .25 SK	2009144
8	Muffler	2014006
9	Rear Micro Register Control Cable	3023228

M&R Conquest Multi-Color System

Replacement Parts

PRINT HEAD Hi-LIFT ASSEMBLY

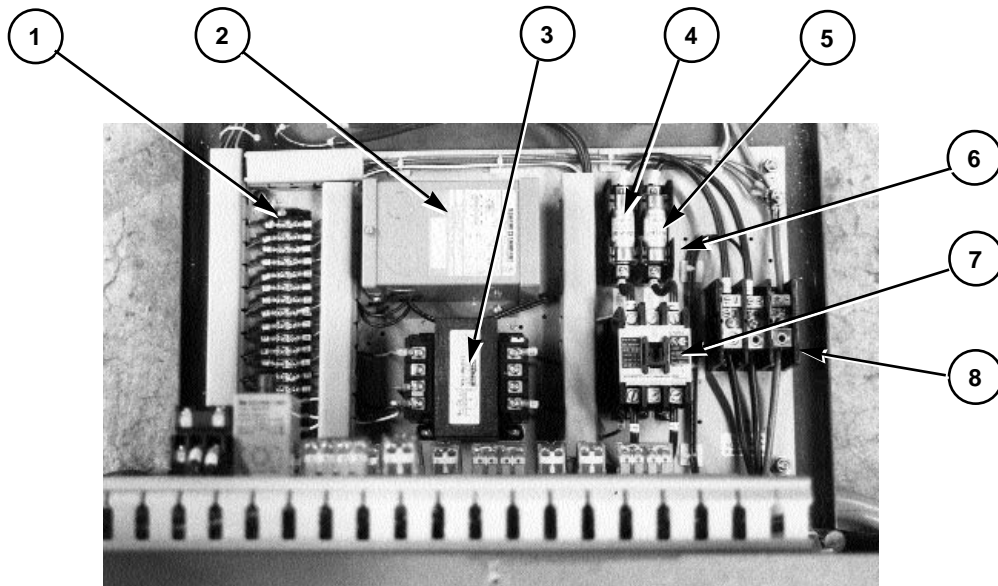


PART NAME		PART NUMBER
1	Print Head Hi-Lift Air Cylinder	2009147
2	Flow Control	2018000
3	90 Degree Elbow Air Fitting	2003009
4	Nylon Tubing 3/8"	2001002
5	Flow Control 3/8 NPT	2018000
6	Flow Contro 3/8 NPTI	2018000

M&R Conquest Multi-Color System

Replacement Parts

U.V. STATION ELECTRICAL CABINET

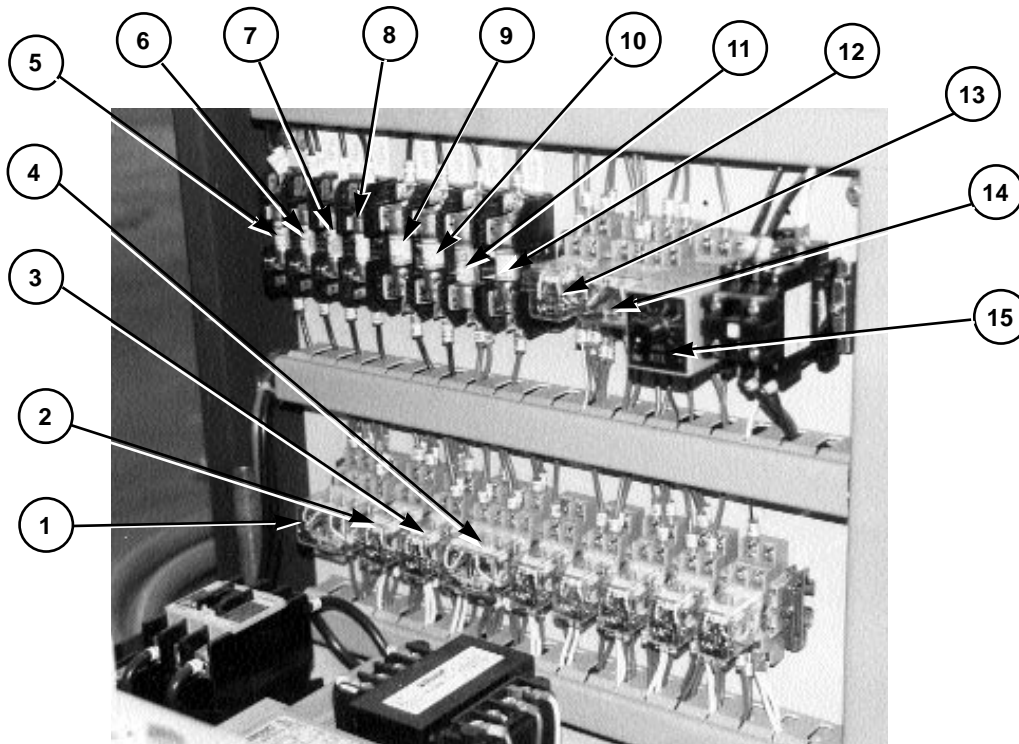


PART NAME		PART NUMBER
1	Terminal Block 18 Pole	1003017
2	Transformer 100va 480/220	1019000
3	Transformer 150va 220/110	1019015
4	Fuse JTD 30 Amp 600v	1004004A
5	Fuse JTD 30 Amp 600v	1004004A
6	Fuse Holder 30 Amp 600v	1005008
7	Magnetic Contactor	1011074
8	Terminal Block	1005023

M&R Conquest Multi-Color System

Replacement Parts

U.V. STATION ELECTRICAL CABINET

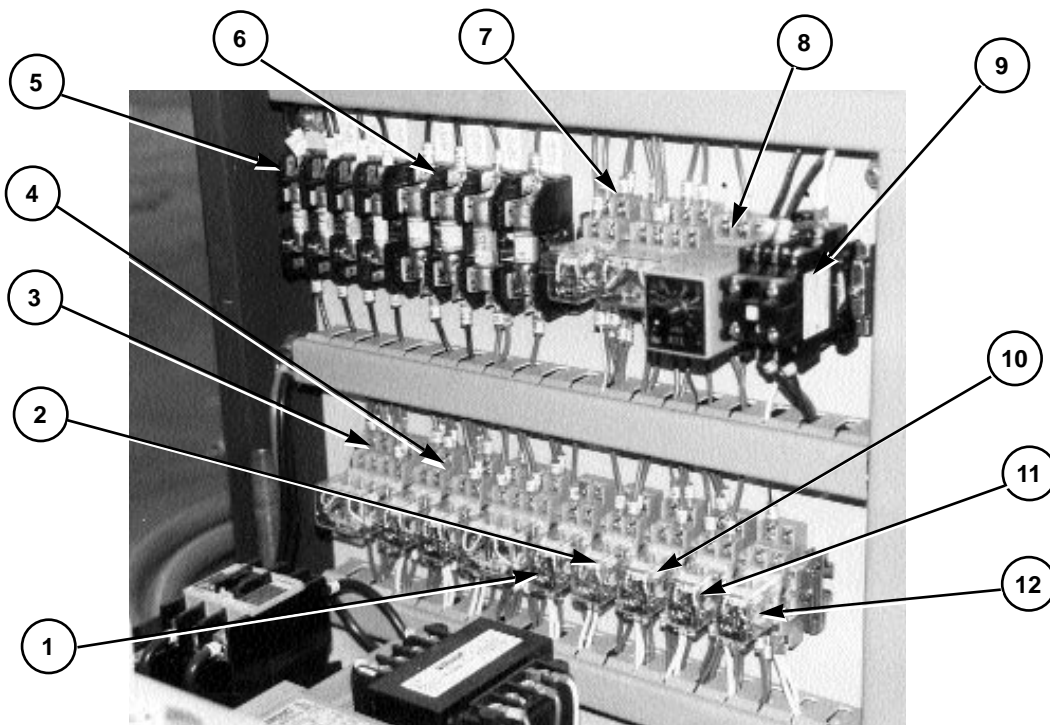


	PART NAME	PART NUMBER
1	Idec Relay 4 Pole 110v	1011021
2	Idec Relay 2 Pole 110v	1011005
3	Idec Relay 2 Pole 110v	1011005
4	Idec Relay 4 Pole 110v	1011021
5	Fuse CCMR 1/2 Amp 600v	1004021A
6	Fuse CCMR 1/2 Amp 600v	1004021A
7	Fuse CCMR 2 Amp 600v	1004043B
8	Fuse CCMR 2 Amp 600v	1004043B
9	Fuse FLNR 1 Amp 250v	1004022
10	Fuse FLNR 1 Amp 250v	1004022
11	Fuse NLN 4 Amp 250v	1004035
12	Fuse FLNR 1/2 Amp 250v	1004021
13	Idec Relay 2 Pole 24vdc	1011017
14	Idec Relay 4 Pole 24vdc	1011033
15	Timer RTE-P11 110vac	1022001

M&R Conquest Multi-Color System

Replacement Parts

U.V. STATION ELECTRICAL CABINET

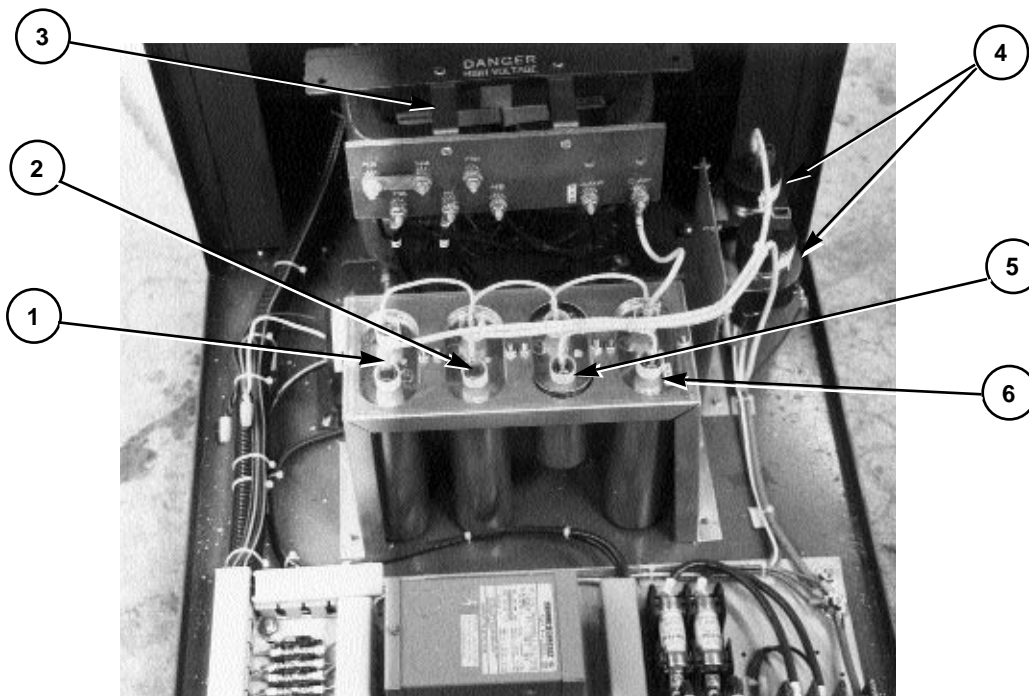


PART NAME		PART NUMBER
1	Idec Relay 2 Pole 110v	1011005
2	Idec Relay 2 Pole 110v	1011005
3	Relay Socket 4 Pole	1011022
4	Relay Socket 2 Pole	1011006
5	Fuse Holder 30 Amp 600v	1005014
6	Fuse Holder 30 Amp 250v	1005000
7	Relay Socket 2 Pole	1011006
8	Timer Socket	1022001B
9	Mitshubishi Contactor NU11-12	1011026
10	Idec Relay 2 Pole	1011005
11	Idec Relay 2 Pole	1011005
12	Idec Relay 2 Pole	1011005

M&R Conquest Multi-Color System

Replacement Parts

U.V. STATION ELECTRICAL CABINET

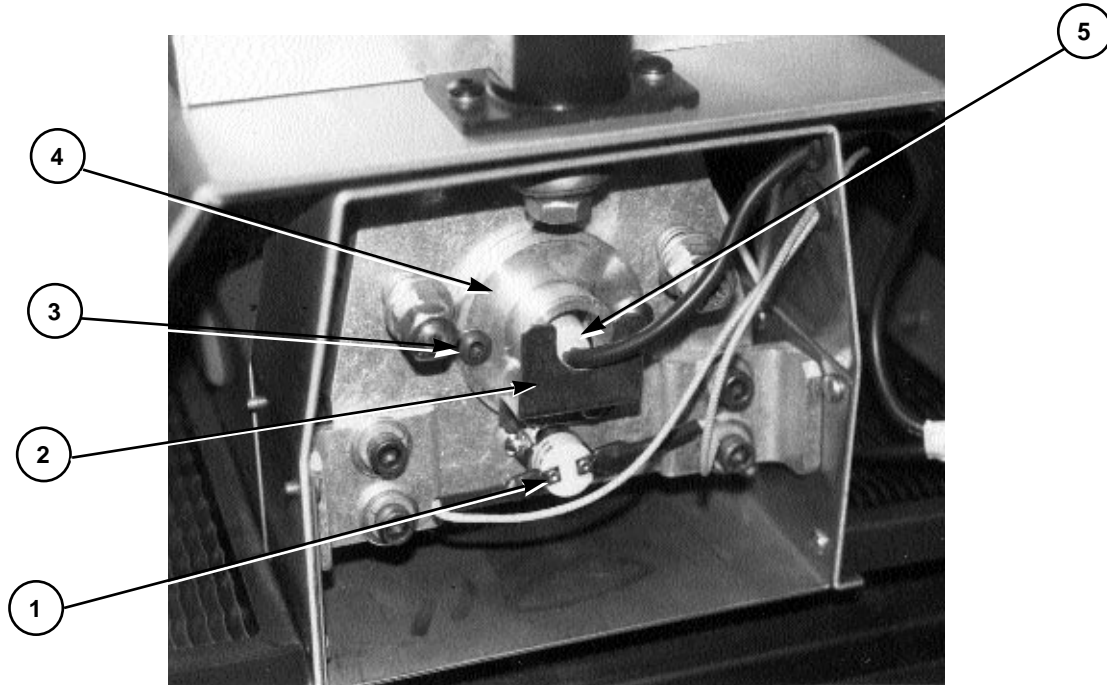


PART NAME		PART NUMBER
1	Capacitor 6mf	1036005C
2	Capacitor 6mf	1036005C
3	Ballast 30"	1036012
4	Mercury Relay 100 Amp	1011048
5	Capacitor 2.8mf	1036005B
6	Capacitor 6mf	1036005C

M&R Conquest Multi-Color System

Replacement Parts

U.V. STATION LAMP HOLDER ASSEMBLY



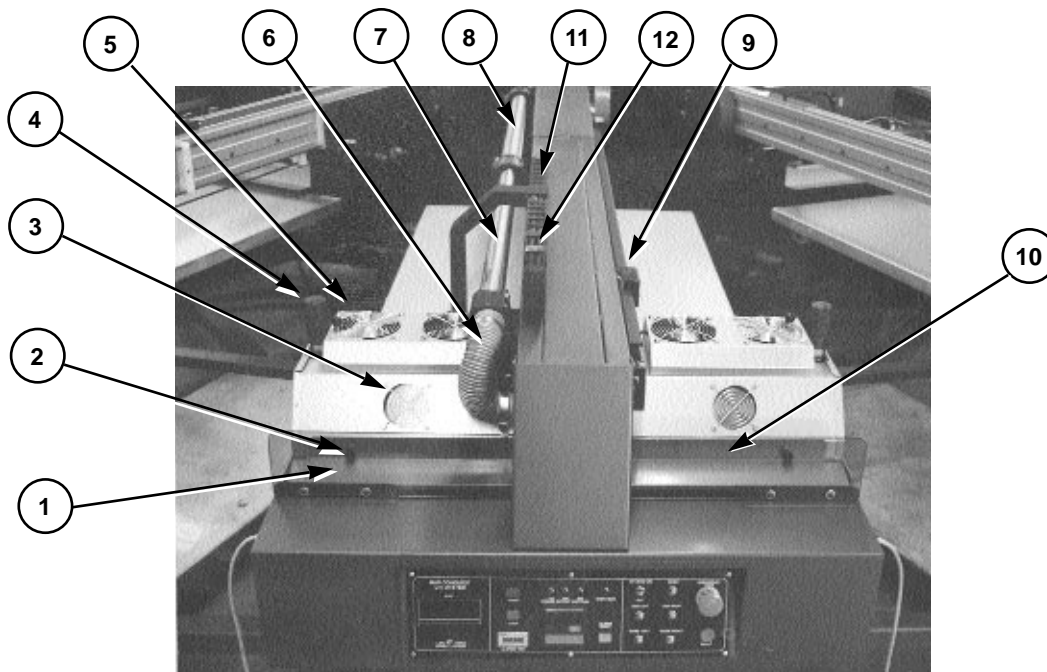
PART NAME		PART NUMBER
1	Thermoswitch High Temperature 500 F	1012005
2	Bulb Holder Spring	9370592
3	Button Head Allen Screw 6-32 X 1/4"	3001051
4	Bulb Housing	9370593
5	UV Lamp	1036054
6	Thermoswitch Low Temperature 150 *	1012021

* Not Shown in photo

M&R Conquest Multi-Color System

Replacement Parts

U.V. LAMP ASSEMBLY

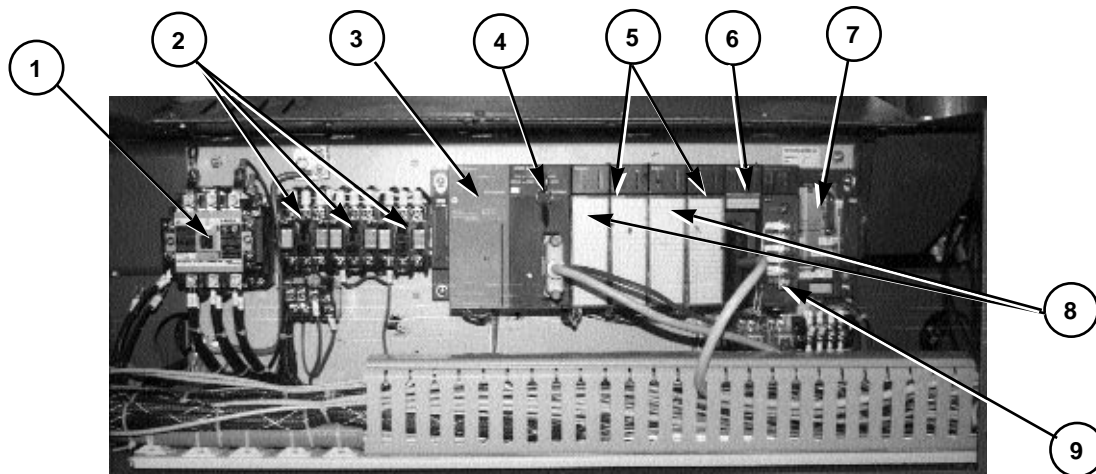


PART NAME		PART NUMBER
1	UV Filter Shield	9370219
2	Round Knurled Knob (Height Adj.)	3016009
3	Vent Guard	1009007
4	Black Knurled Height Adjustment Knob	9370642
5	Air Intake Vent Guard 4"	1009006
6	Flexible Hose	2001066
7	Front Exhaust Tube	9370667
8	Rear Exhaust Tube	9370669
9	Proximity Switch (Stroke Adjustment)	1010082B
10	Metal Light Shield	9370566
11	High Voltage Cable (Not Visible)	1001028A
12	Low Voltage Cable 7 Cond. (Not Visible)	1001028

M&R Conquest Multi-Color System

Replacement Parts

UPPER INDEX ELECTRICAL ENCLOSURE

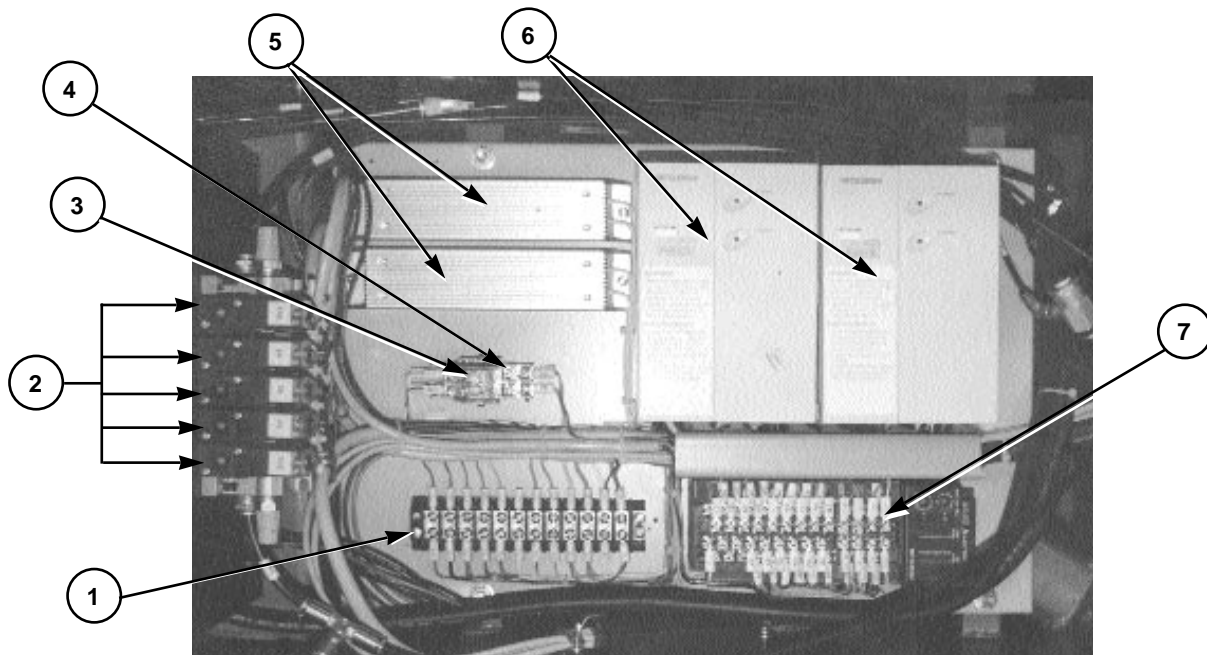


PART NAME		PART NUMBER
1	Magnetic Contactor 95 Amp	1011090
2	Magnetic Contactor S-N18	1011113
3	Power Supply 5v	1017043
4	Mitshubishi CPU A1S	1017040
5	Output Module A1SY10	1017073
6	Output Module 32pt A1SY41	1017160
7	Mitshubishi 8 Unit Base Assembly	1017163
8	Input Module A1SX40	1017109
9	Master Unit A1S-33	1017129

M&R Conquest Multi-Color System

Replacement Parts

PRINT HEAD REAR ELECTRICAL ENCLOSURE

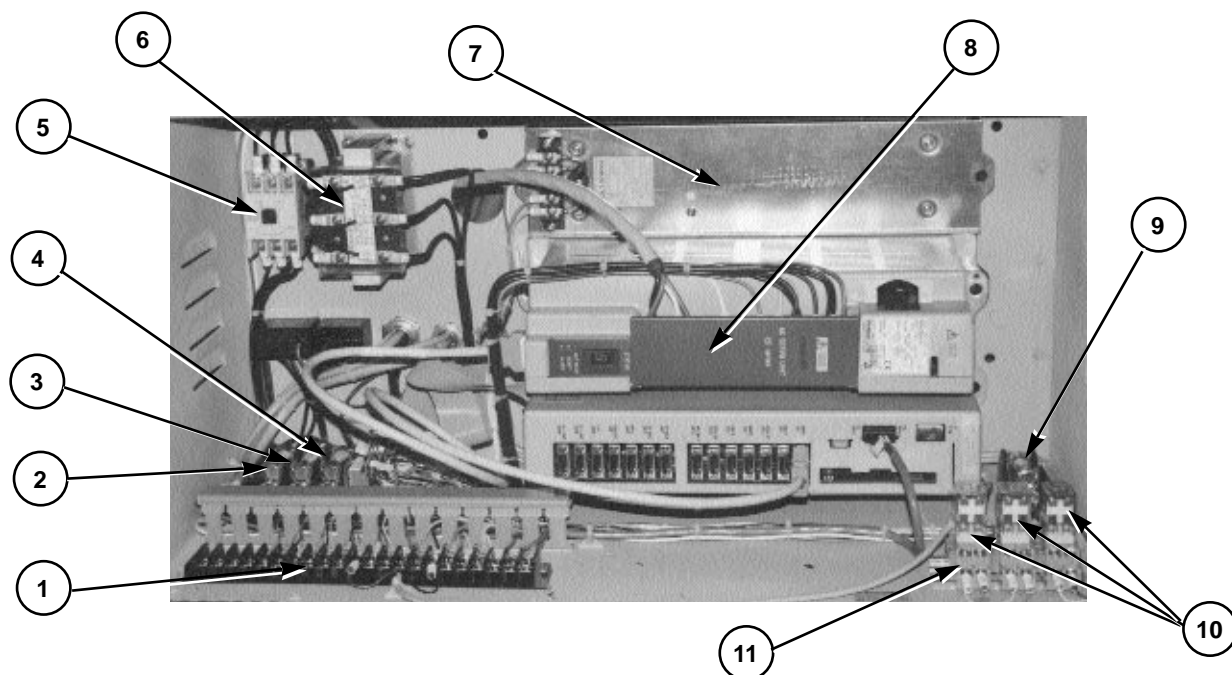


PART NAME		PART NUMBER
1	Terminal Block 12 Pole	1003014
2	Mac Air Valve Block Assembly	2012043A
3	2 Pole Idec Relay 24vdc	1011017
4	2 Pole Idec Relay Socket	1011006
5	Brake Resistor	1017072A
6	Mitshubishi Frequency Drive .75kw	1008030A
7	Input/Output Module	1017049

M&R Conquest Multi-Color System

Replacement Parts

LOWER INDEXER ELECTRICAL ENCLOSURE

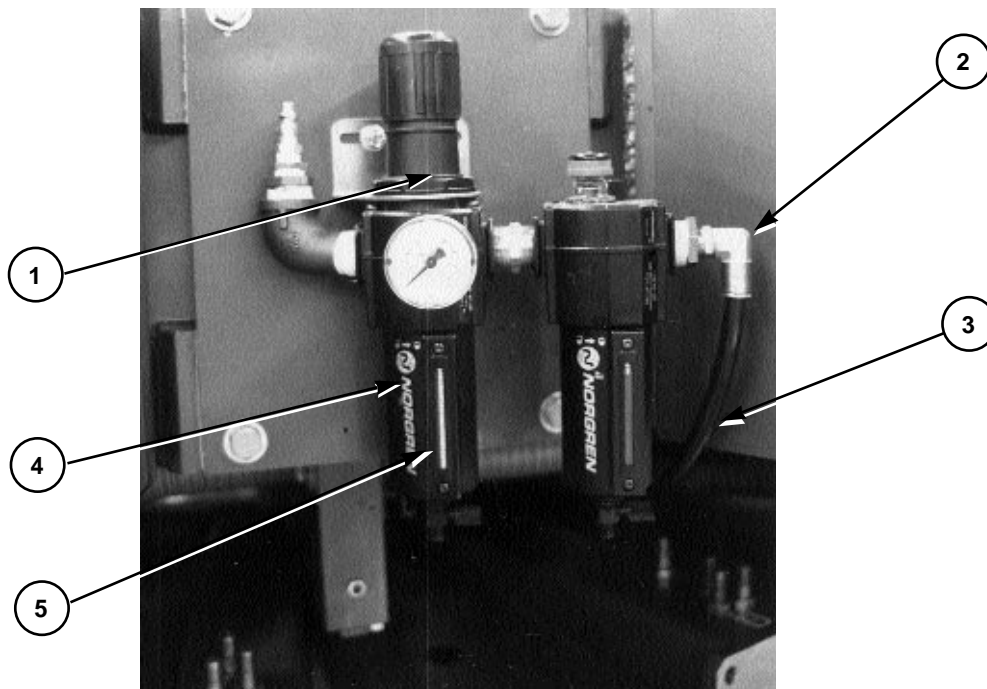


	PART NAME	PART NUMBER
1	Terminal block 22 Pole	1003021
2	Fuse NON-5 5 Amp 250v	1004001
3	Fuse NON-5 5 Amp 250v	1004001
4	Fuse NON-5 5 Amp 250v	1004001
5	Magnetic Contactor	1011113
6	Line Filter 5.4kw	1008158F
7	Discharge Resistor 16 Ohm 200 Watts	1008158D
8	Servo Amplifier SVU 1-80	1008159B
9	Fuse 1/2 Amp 250v Slo-Blo	1004021
10	2 Pole Idec Relay 24vdc	1011017
11	2 Pole Idec Relay Socket	1011006

M&R Conquest Multi-Color System

Replacement Parts

AIR LINE LUBRICATOR/FILTER ASSEMBLY

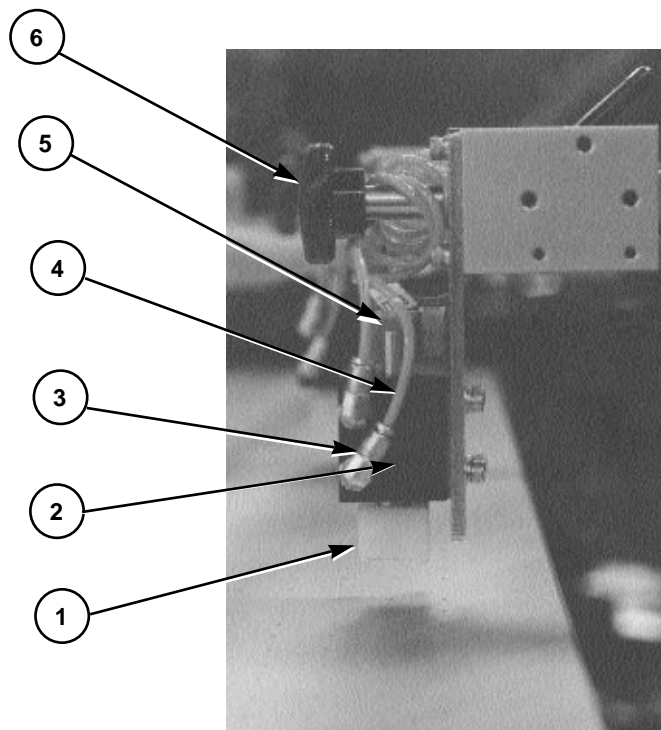


PART NAME		PART NUMBER
1	Lubricator/Filter/Water Trap Assembly	2020003
2	90 Degree Elbow air Fitting	2003104
3	Plastic Tubing	2001003
4	Moisture Trap Filter Element 1/2"	2019047B
5	Moisture Trap Filter Element 3/4"	2019047

M&R Conquest Multi-Color System

Replacement Parts

PNEUMATIC FEED GUIDE

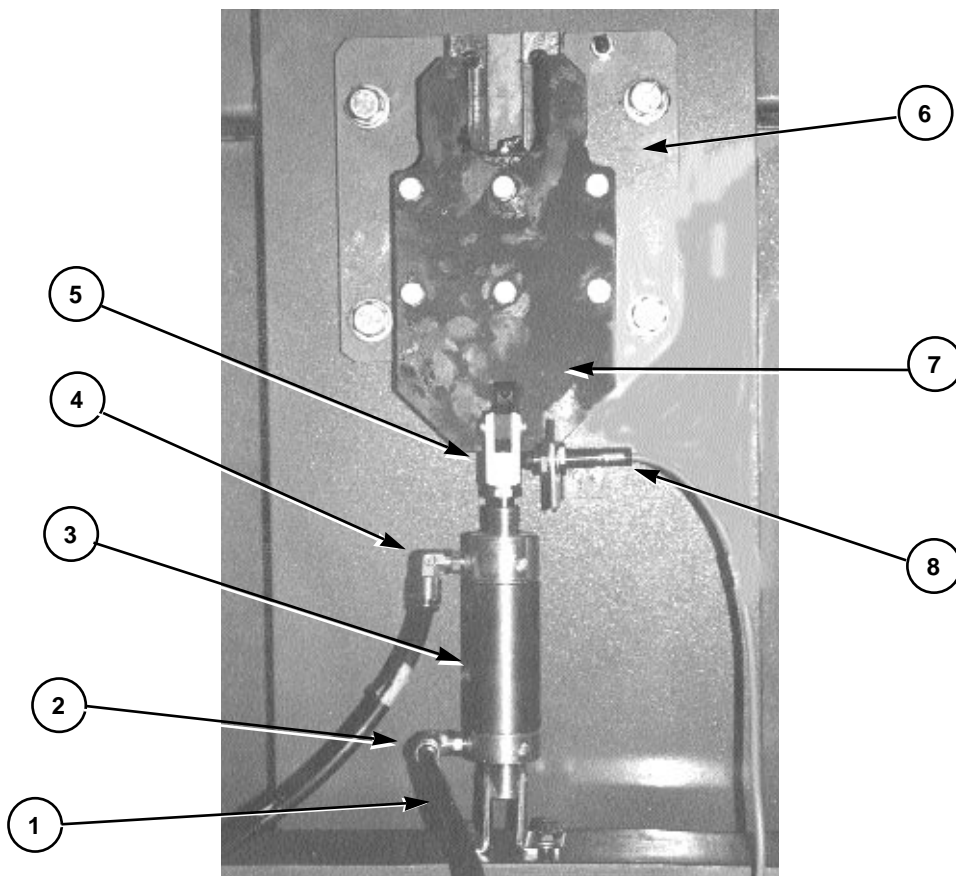


PART NAME		PART NUMBER
1	Nylon Guide Block	8P05135
2	Air Cylinder	2009136A
3	90 Degree Elbow Air Fitting	2003004
4	Air Hose	2001017
5	Proximity Switch	2009339
6	Black Plastic Adjustment Knob 3/8-16	3033001

M&R Conquest Multi-Color System

Replacement Parts

INDEX LOCK ASSEMBLY

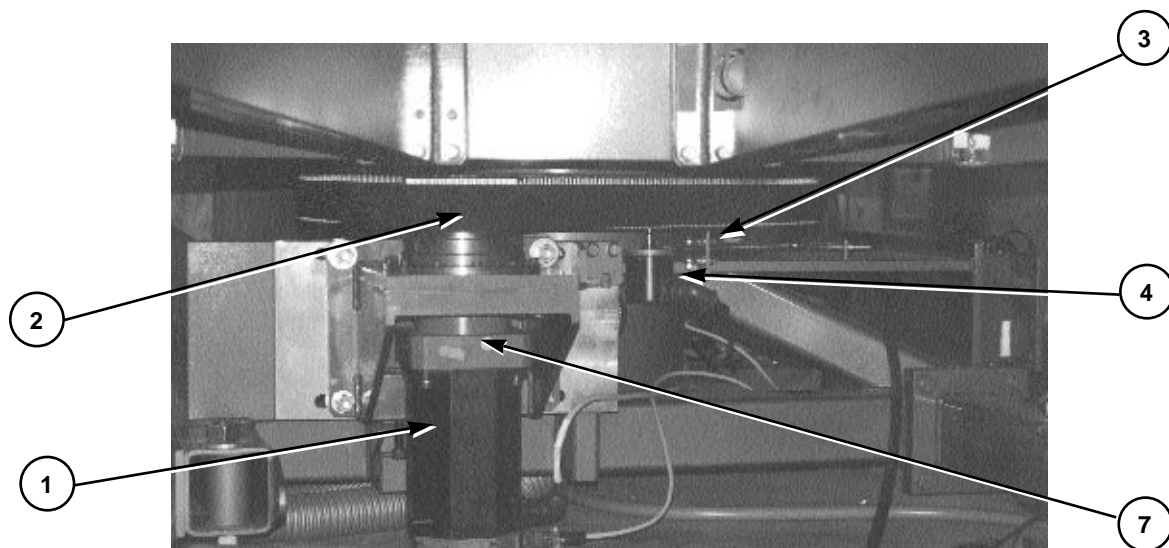


PART NAME		PART NUMBER
1	Air Hose	2001002
2	90 Degree Elbow Air Fitting	2003169
3	Air Cylinder	2009084
4	90 Degree Elbow Air Fitting	2003169
5	Piston Rod Clevis	2009054
6	Bearing Base Plate	9370243
7	Registration Fork 9" Long	9362262
8	Proximity Switch	1010012

M&R Conquest Multi-Color System

Replacement Parts

INDEX DRIVE ASSEMBLY

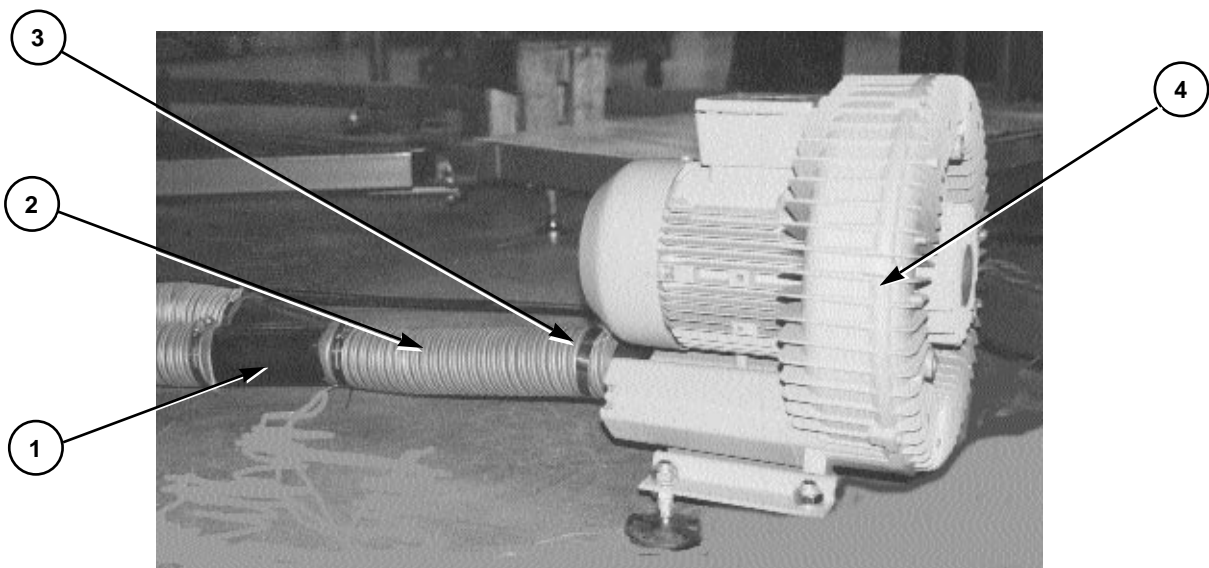


PART NAME		PART NUMBER
1	Index Drive Motor	1008159A
2	Timing Belt 14m 250 Teeth	3040054
3	Rod End 3/8"	3034003
4	FANUC Encoder	1008073
5	Backlash Gear (Not visible in photo)	3041160
6	Encoder Bracket (Not visible in photo)	9360753
7	Gear Box	3027113

M&R Conquest Multi-Color System

Replacement Parts

VACUUM MOTOR ASSEMBLY

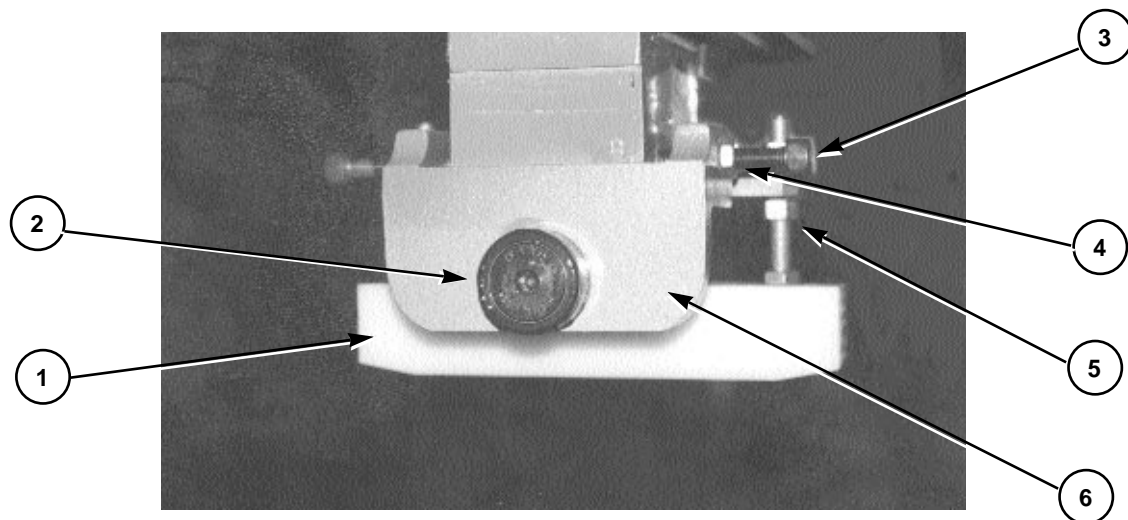


	PART NAME	PART NUMBER
1	"Y" Shaped Connector	9370392
2	Flexible Hose 3" I.D.	2001070
3	Hose Clamp	3039019
4	Vacuum Motor/Blower Assembly	1009021

M&R Conquest Multi-Color System

Replacement Parts

INDEX REGISTRATION BEARING ASSEMBLY

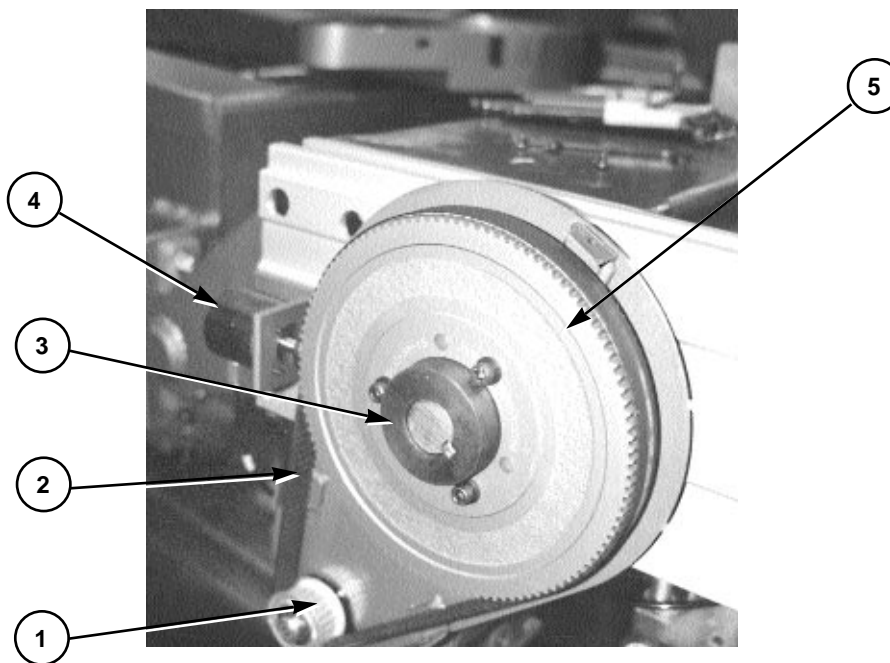


PART NAME		PART NUMBER
1	Nylon Support Block 8" Long	9370534
2	Cam Follower 1-1/2" SB	3024027
3	Allen Cap Screw	3009073
4	Lock Nut 3/8-16	3013014
5	Lock Nut 3/8-16	3013007
6	Registration Bearing Bracket	8362408

M&R Conquest Multi-Color System

Replacement Parts

PRINT HEAD DRIVE

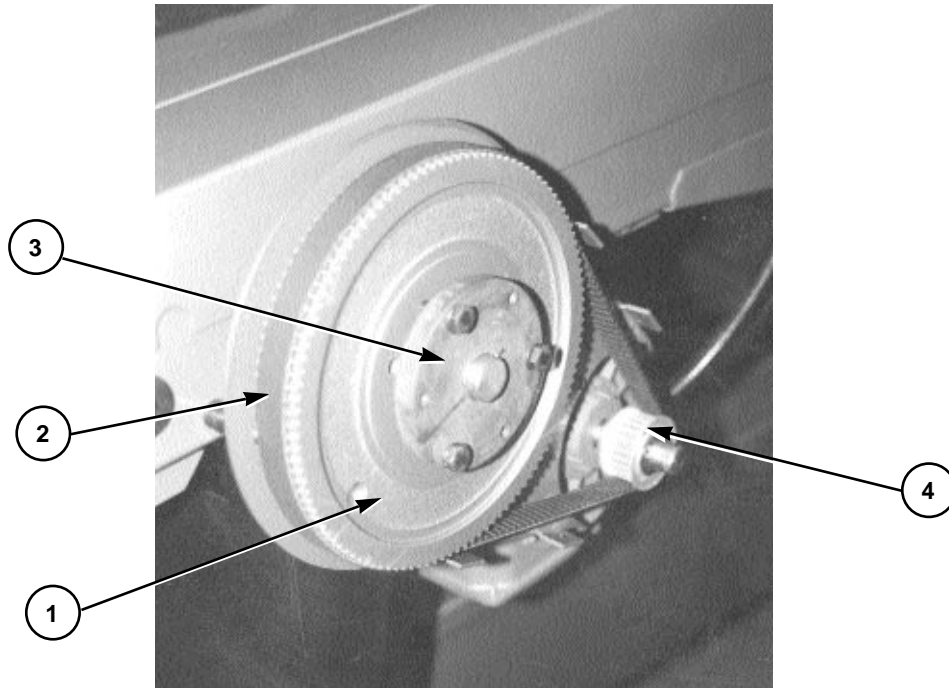


	PART NAME	PART NUMBER
1	Sprocket 5mm Pitch 112 Grooves	3041270
2	Timing Belt 5mm Pitch 15mm Wide	3040185
3	SD Bushing 1" Bore	3041029
4	Air Cylinder 3/4" Bore - 3/4" Stroke	2009075
5	Sprocket 5mm Pitch 24 Grooves	3041269

M&R Conquest Multi-Color System

Replacement Parts

UV STATION DRIVE

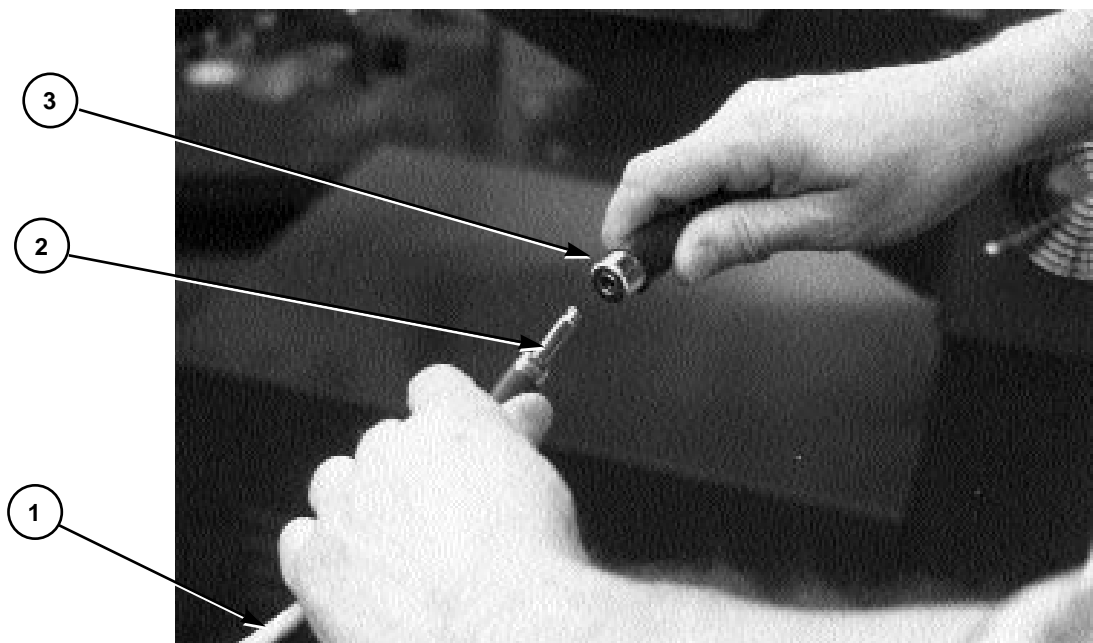


PART NAME		PART NUMBER
1	Sprocket 5mm Pitch 112 Grooves	3041270
2	Timing Belt 5 mm Pitch 15mm Wide	3040185
3	Bushing 3/4" Bore	2004032
4	Sprocket 5mm Pitch 24 Grooves	3041269

M&R Conquest Multi-Color System

Replacement Parts

SAFETY CORD ASSEMBLY

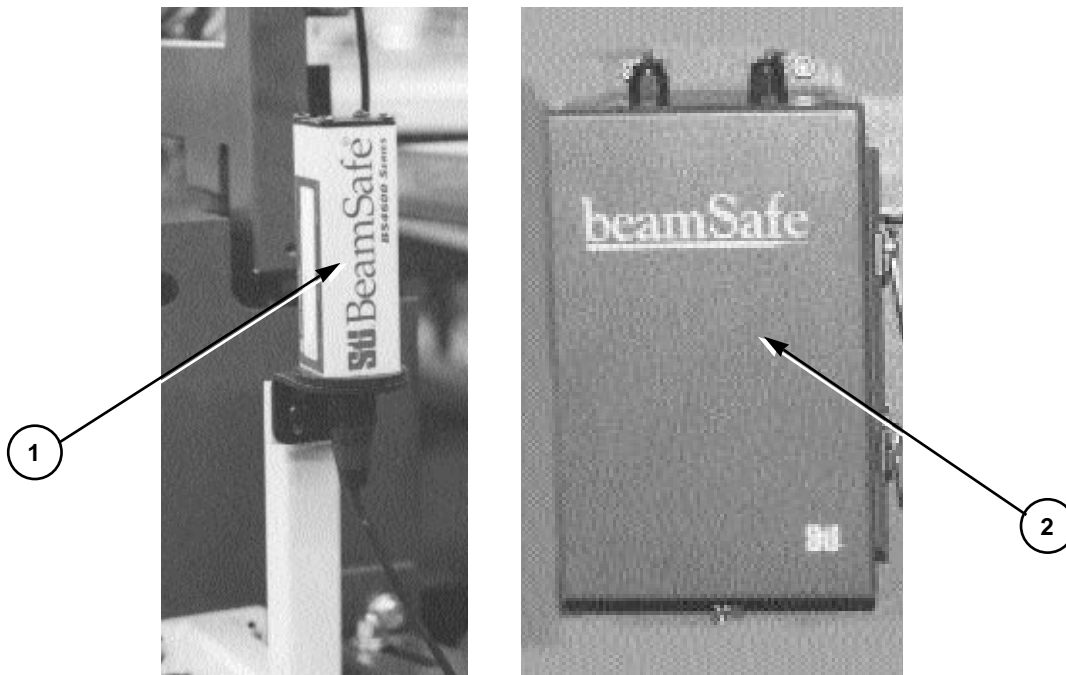


	PART NAME	PART NUMBER
1	Yellow Safety Cord Cable	8080160
2	Male Phone Jack	1018000
3	Female Phone Jack	1018001

M&R Conquest Multi-Color System

Replacement Parts

INFRARED SAFETY BEAM ASSEMBLY

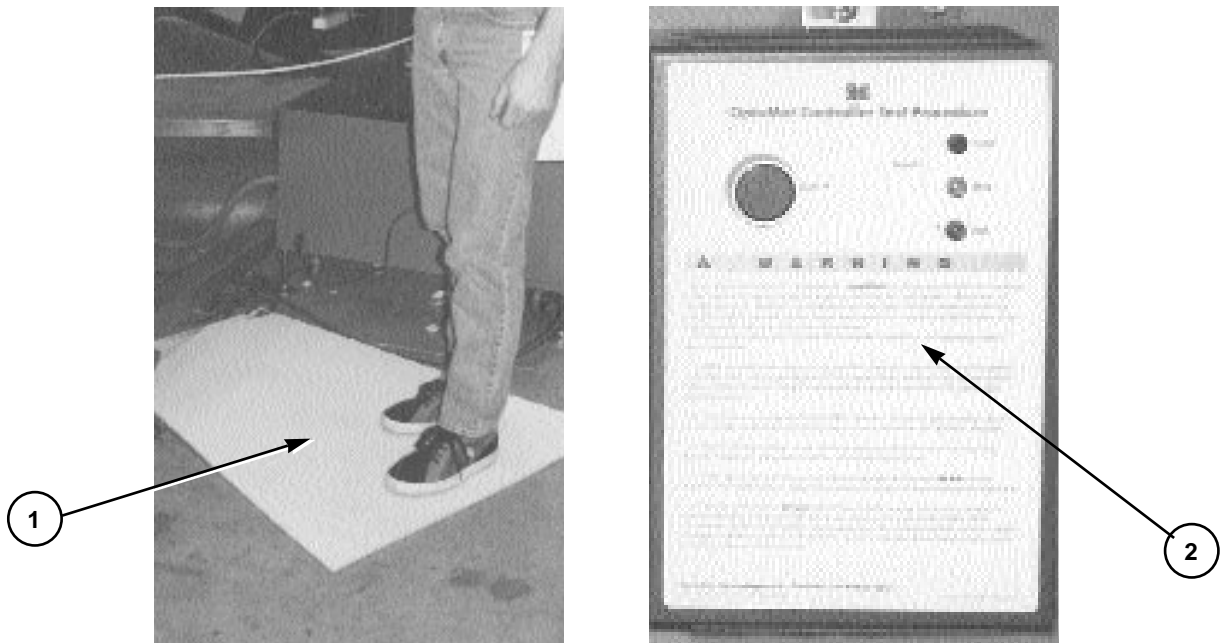


	PART NAME	PART NUMBER
1	Photo Electric Receiver	1017119
2	Controller Unit	1017123
3	Reflector Mirror (Not Shown)	1017124
4	Tranmitter (Not Shown)	1017118

M&R Conquest Multi-Color System

Replacement Parts

YELLOW SAFETY MATS

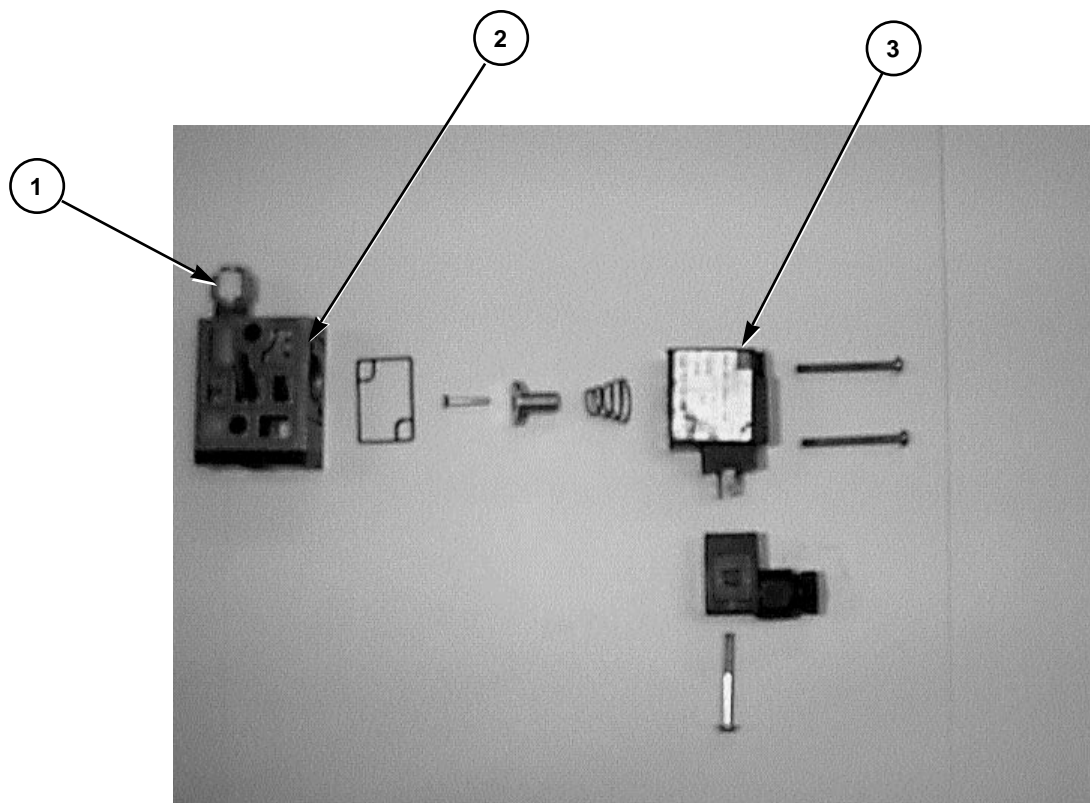


PART NAME		PART NUMBER
1	Floor Mat (Yellow)	1037000
2	Floor Mat Controller	1017122

M&R Conquest Multi-Color System

Replacement Parts

45 TYPE MAC VALVE ASSEMBLY



	PART NAME	PART NUMBER
1	Fitting Male Connector 1/8" NPT 5/32"	2003000
2	45 Type Mac Valve Only	2017017
3	Solenoid Less Plug for 45 Type	2017023

M&R Conquest Multi-Color System

Replacement Parts

PRINT HEAD MAC VALVE ASSEMBLY

M & R PART# DESCRIPTION

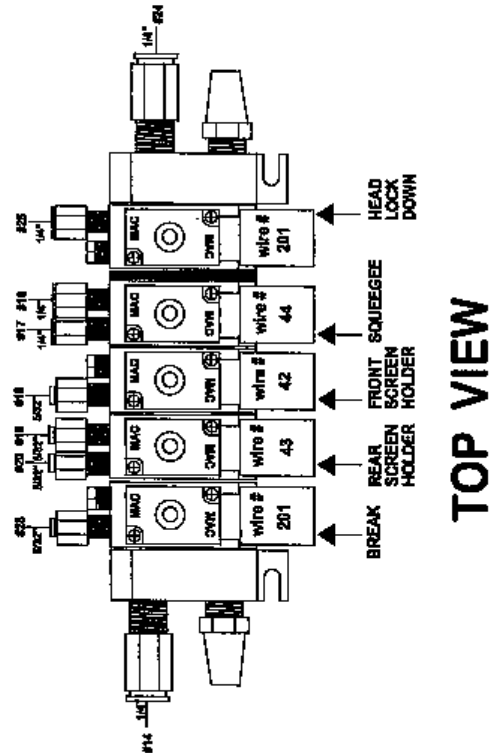
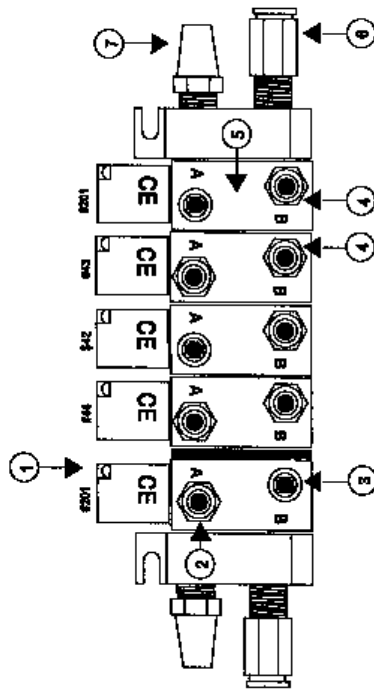
1	2017023	SOLENOID LESS PLUG FOR 45 TYPE MAC VALVE
2	2003000	FITTING MALE CONN 1/8" NPT
3	2006002	PLUG SQUARE HEAD 1/8" NPT
4	2003001	FITTING MALE CONN 1/8" NPT
5	2017030	45 TYPE VALVE WITH SOLENOID
6	2003015	FITTING MALE CONN 1/4" NPT
7	2014000	MUFFLER 1/4" P-28

SCALE NONE WHERE USED TRANSFER/CONQUEST

DATE MAR/13/97 DWN BY FJGO

MAC BLOCK FOR PRINT HEAD
SPLIT HEAT TRANSFER PRESS
AND UV CONQUEST

FRONT VIEW



TOP VIEW

LIMITED WARRANTY M&R GRAPHIC EQUIPMENT

Graphic screen printing equipment manufactured by M&R Printing Equipment, Inc. ("M&R") is warranted against defects in workmanship and materials provided that it is properly maintained and operated under normal use for a period of one year from the date of shipment.

Damage which occurs in transit is not covered under this warranty. Any damage which occurs in transit is the responsibility of the freight carrier.

Neither are parts subject to normal wear and tear nor expendable parts such as motor brushes, filters, lamps and fuses covered by this warranty, nor do we warrant failure of parts or components resulting from misuse or lack of normal maintenance. Conveyor transport belts are subject to normal wear and tear. These belts may be replaced subject to M&R Printing Equipment, Inc. inspection. If replacement is deemed necessary by M&R, the belt will be replaced at no prorate during the first year and a graduated prorate during the second year of the warranty. M&R is not responsible for the removal or installation of a defective part or its replacement part, nor for any related or unrelated costs incurred with respect thereto. All labor, travel and sustenance charges for service technicians are the customers responsibility. Any part determined to be defective in material or workmanship within the warranty period will be repaired or replaced if deemed necessary and at our discretion without charge when returned **FREIGHT PREPAID** to:

**M&R Printing Equipment, Inc.
1 N. 372 Main Street
Glen Ellyn, Illinois 60137-3576**

Customers must secure written authorization, or authorization number from our Customer Service Department prior to making any return of defective parts.

A clean, moisture-free air supply must be installed onto pneumatically operated equipment. Failure to install a clean moisture-free air supply to this equipment may result in premature failure of pneumatic components such as air cylinders, seals and valves. Any pneumatic component or assembly which is determined to have failed due to the customers failure to provide a clean moisture-free air supply to the equipment will not be covered under this warranty.

Limitation of Remedies and Liability - The remedies provided herein are Buyer's sole and exclusive remedies. In no event shall M&R be liable for direct, indirect, special, incidental or consequential damages (including loss of profits) whether based on contract, tort or any other legal theory.

Limitation of Warranty - The foregoing warranty shall not apply to defects resulting from: Improper or inadequate maintenance by Buyer; Buyer supplied equipment or interfacing; Unauthorized modification or misuse; Operation outside of the environmental specifications for the product; or Improper site preparation and maintenance. This warranty applies to the original equipment purchaser only and is not transferable.

THE WARRANTY SET FORTH ABOVE IS EXCLUSIVE AND NO OTHER WARRANTY, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED. M&R SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.