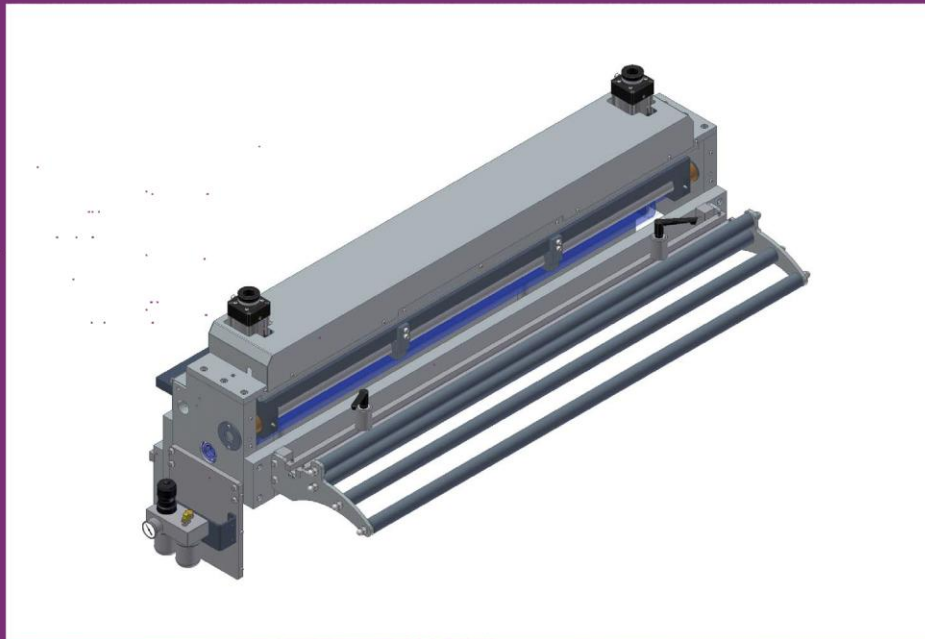


Installation Manual

SRF - 48

SERVO ROLL FEED



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1.2. ELECTRICAL INSTALLATION

The *Ultra Control* has been designed to make electrical connections quickly and easily. All that is required is a "clean" source that must be connected to the main disconnect switch.

The inputs and outputs to your press control (i.e. Emergency Stop, Feed Cam Signal, Pilot Release Cam Signal, Reset Cam Signal) must also be connected for proper operation.

Note, that if your feed is supplied with P/A PLS (Programmable Limit Switch) you don't have to wire Feed and Reset Cam signals.

The motor connects to the electrical control by factory installed "Amphenol" (Military Specifications) Quick connectors.

The optional PLS connects to the electrical controls by factory installed Military Quick connector.

IMPORTANT!

A GROUNDING CONDUCTOR MUST BE INSTALLED FOR PROPER MACHINE GROUNDING.

NOTE:

All connections should be made in accordance with National Electrical Code (NEC) requirements and must comply with all local ordinances.

NOTE:

A word about electrical "noise" - Most pressroom environments contain considerable electrical noise. It is emitted from electro-mechanical press relays, contacts, and solenoids. While the *Ultra Control* is designed to minimize "self generated" electrical noise, it is difficult to provide protection for all applications. If erratic system behavior is experienced, then the source of the "noise" must be suppressed with either a resistive/capacitive type of suppressor on AC coils, or "Avalanche" type diodes on DC coils.

NOTE:

The *Ultra Control* is fully protected by line circuit breakers.

NOTE:

The electrical control enclosure is supplied with a stand/support, which may be placed in any convenient location. The enclosure may also be mounted in any fixed location as long as the cabling is adequate to reach the feed. It is not recommended that the electrical enclosure be mounted directly to the press. The vibrations caused by the punch press can result in damage to the control system

1.3. LOADING THE FEED

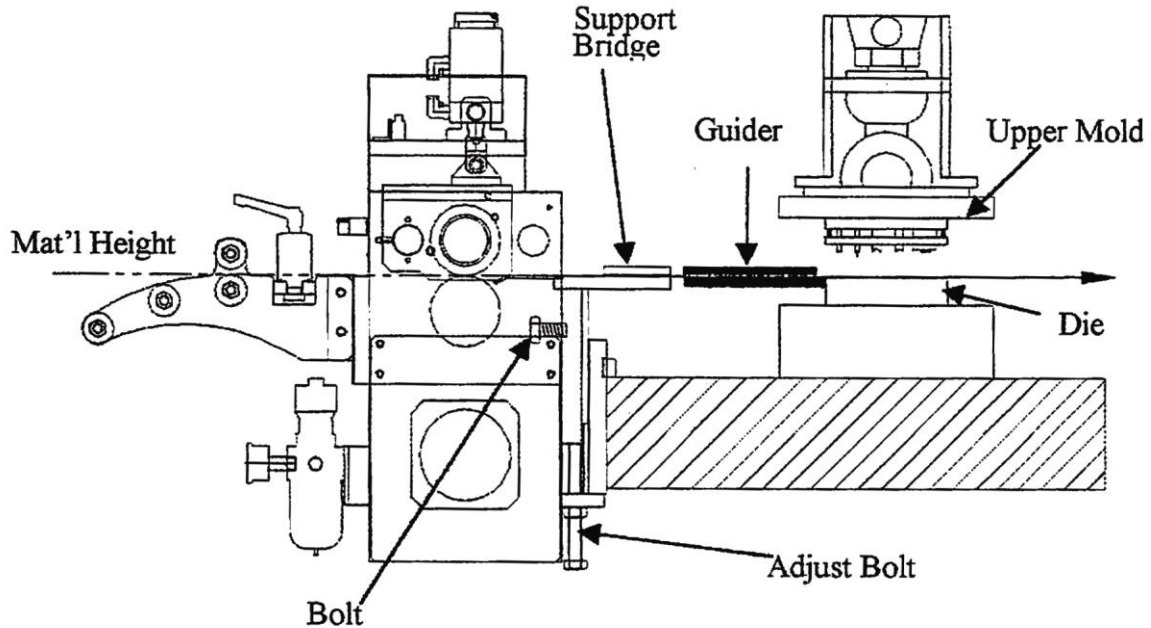


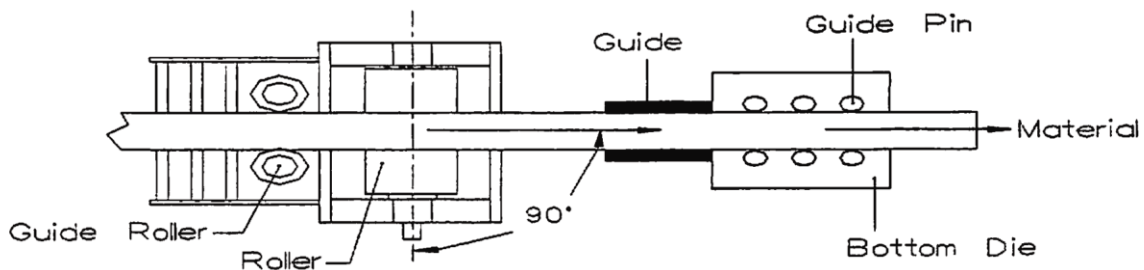
FIGURE 3

Prior to this step, the electrical control must be powered up and all needed parameters are loaded. (Refer to the *Ultra* Operating Manual.)

NOTE:

This example is based on using PLS (Programmable Limit Switch), but all PLS timing notes can be easily translated to other forms of timing.

1. Put the *Ultra control* into "MANUAL MODE". Record the present settings of the Feed Cam, Reset Cam, and Pilot Release Cam into a job set-up record sheet for future reference to the job.



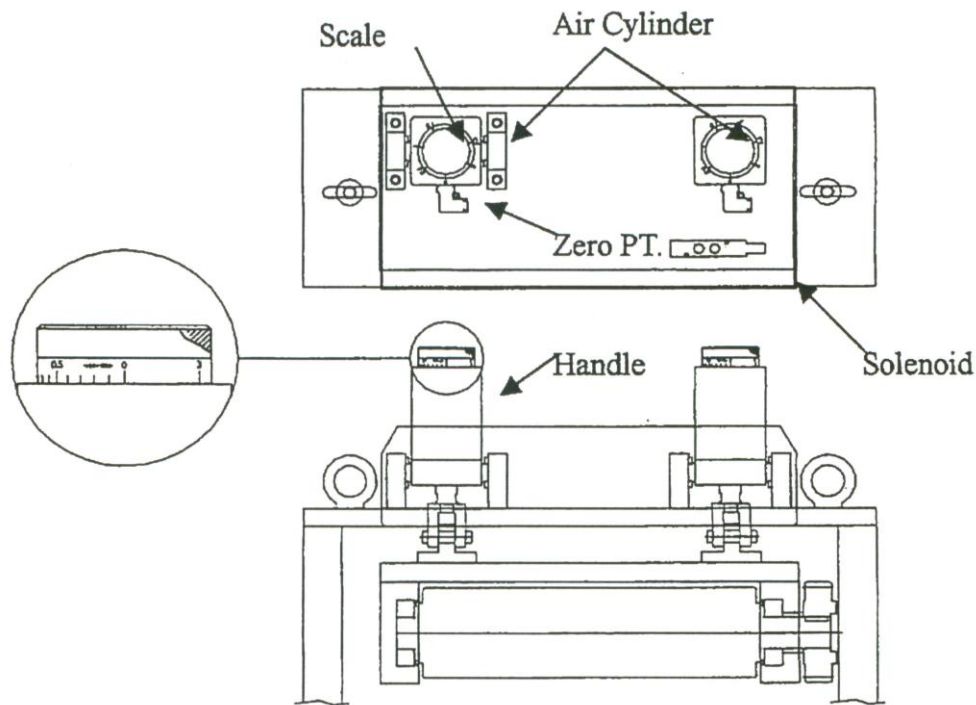


FIGURE 3A

2. Adjust for the material thickness using the (2) Cylinder Thickness Adjustment dials. Adjust the dials to the required setting for your material. (0-3mm range) Refer to the **FIGURE 3A** for proper setting
3. Open the feed rolls by selecting **Open** on the jog pendant. Insert the material through the feed rolls and close the feed rolls by selecting **Close** on the jog pendant.
4. Using the **Jog Forward** button on the jog pendant, advance the material up to the entrance of the die (far enough where the punches would not pierce the material).
5. Check the vertical alignment of the strip. If necessary, adjust the pass line of the feeder so that the material is at the proper height.
6. Assuming that the press shut height and the tool are set up properly, jog the press one or two strokes without the feed working.
7. Jog the press down slowly observing when the longest pilot would engage the pilot hole in the material if the material were there. (Refer to Figure 4.) Note the press positional readout and put this setting into your Programmable Limit Switch (PLS) for the '**Pilot Release On**' setting. The '**Pilot Release Off**' setting, in most cases, should be 180°. (See Figure 5.) Some drawing applications require the rolls to remain open past 180°.

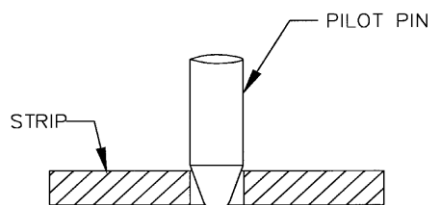


FIGURE 4

8. Continue to jog the press slowly until the longest pilot just comes out of the material. Note the press positional readout and put this setting into your PLS for the '**Feed Cam On**' setting. Set the '**Feed Cam Off**' point so that there is enough time to complete the feed length and enough time to stop the press, if there is a feed fault. (See Figure 5.)
9. Set the '**Reset Cam On**' for 180 degrees and '**Reset Cam Off**' for 200 degrees. This setting should never need changing. (See Figure 5.)

1.4. THREADING THE TOOL

For a comprehensive description, refer to the *Ultra Servo Roll Feed* Operation Manual.

NOTE ABOUT CAMS:

The Feed Cam (open tool): The feed system uses this press cam for timing the feeder to the press crankshaft. Although no shafting or belts actually connect the press to the feeder, the feed must be "told" when it is safe to move the strip and when the feed move must be completed.

- This "connection" is an electrical one, and not a mechanical one. This gives the Operator/set-up personnel total flexibility in deciding when the feed progression should take place.
- Each die set can have a unique 'Feed Angle'. This 'Feed Angle' is dependent upon many variables; pilot and punch length, press stroke, strip forming in the die, etc.

Put the *Ultra Control* into "JTL" mode. All the adjustments to the feed system and press have now been made. The press is at Top Dead Center (TDC) and ready for automatic cycling. Proceed by advancing the material using **Jog Forward** button on the jog pendant until **WAITING FOR PRESS** is seen in the display and inch the press through another stroke, verifying that things are happening at the correct time (Roll Release, etc.). If the system is operating properly, you can make a few more "hits", checking your parts.

1.5. RUNNING THE FEED

Put the *Ultra Control* into "Auto" mode and press the **Cycle Start** button. The *Ultra Control* will now follow the press until it is stopped by the Operator, counter, emergency stop, or feed error.

TYPICAL 180 DEGREE FEED ANGLE (FROM 260 DEGREES TO 80 DEGREES) WITH MECHANICAL PILOT RELEASE:

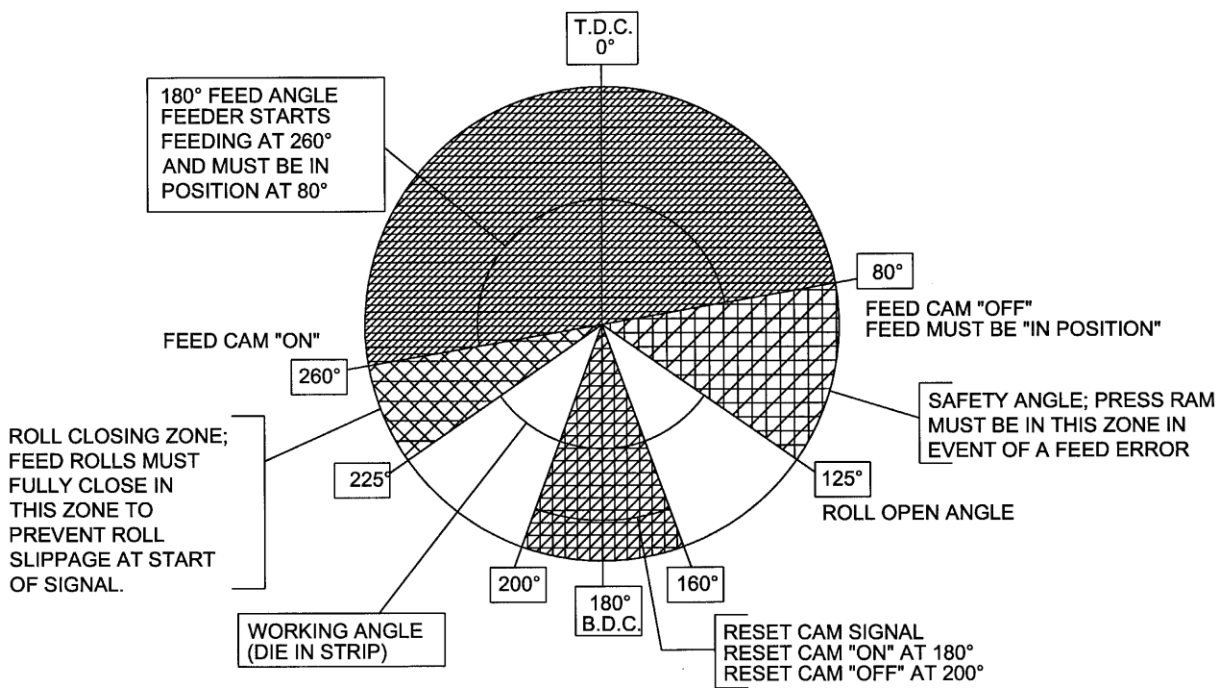


FIGURE 5

NOTES ABOUT 'POSSIBLE PROBLEM TOOLING': *

- A tight die, one that is not square, or has other tooling problems, will cause significant difficulty and downtime. Accuracy in feeding is directly related to how easily the feeder can position the strip in the die. Binding, bad part ejection, or sticking parts may cause the material to "jam" in the die.
- The *Ultra Control* will "try" to overcome the "jam-up" by applying more power to the rolls.

ONE OF FOUR OUTCOMES WILL RESULT:

1. The feed will continue to try to move the strip (if the rolls do not slip) until the Feed Cam opens. A **SYNC FAULT** Error will occur and the press will be stopped by the feeder.
2. The feed will apply more power to the rolls, causing them to slip on the material. This produces a "short-feed". In reality the feeder did not "miss-feed". The rolls were positioned properly, the strip did not keep up, causing the die to close and a miss-hit is produced.
3. The feed applies more power to a thin strip, causing the material to buckle somewhere between the feed and the die set. The feeder positioned the strip accurately, it just did not occur in the die set.
4. The feed tries to apply so much power to a heavy strip in order to move it, that excessive current is drawn by the servo drive. This results in the drive shutting down to protect itself and in doing so stops the press.

NOTE: The feed detected a problem and emergency-stopped the press before the die closed. In using the *Ultra Control*, you in fact have added a "die protection" system to your tooling.

* A tooling problem is a problem caused by tooling and not the Feeder itself.

1.6. PNEUMATIC PILOT RELEASE

During operations such as forming or using pilots, the purpose of the Pneumatic Pilot Release is to release the strip from being held by the feeder rolls. This allows the material to be adjusted slightly any time during the press cycle.

The pneumatic pilot release is controlled by a solenoid valve connected to (2) pneumatic cylinders. Once the material thickness is set correctly (Ref Figure 3A) no further action is required.

The Pilot Release system requires hook up of outside air and electrical connections.

The pilot release is operated by applying the appropriate voltage signal from the *Ultra Control* to actuate the 3-way solenoid valve to open the feeder rolls. The activation signal can come from a source such as a rotary cam switch mounted on the press.

The solenoid valve, located on top of the servo feed, is provided with a cable attached to the solenoid valve for connecting the power signal leads.

Air pressure of 80-100 PSI is required for proper operation of the release. A 3/8" tubing fitting is provided for the air supply connection.

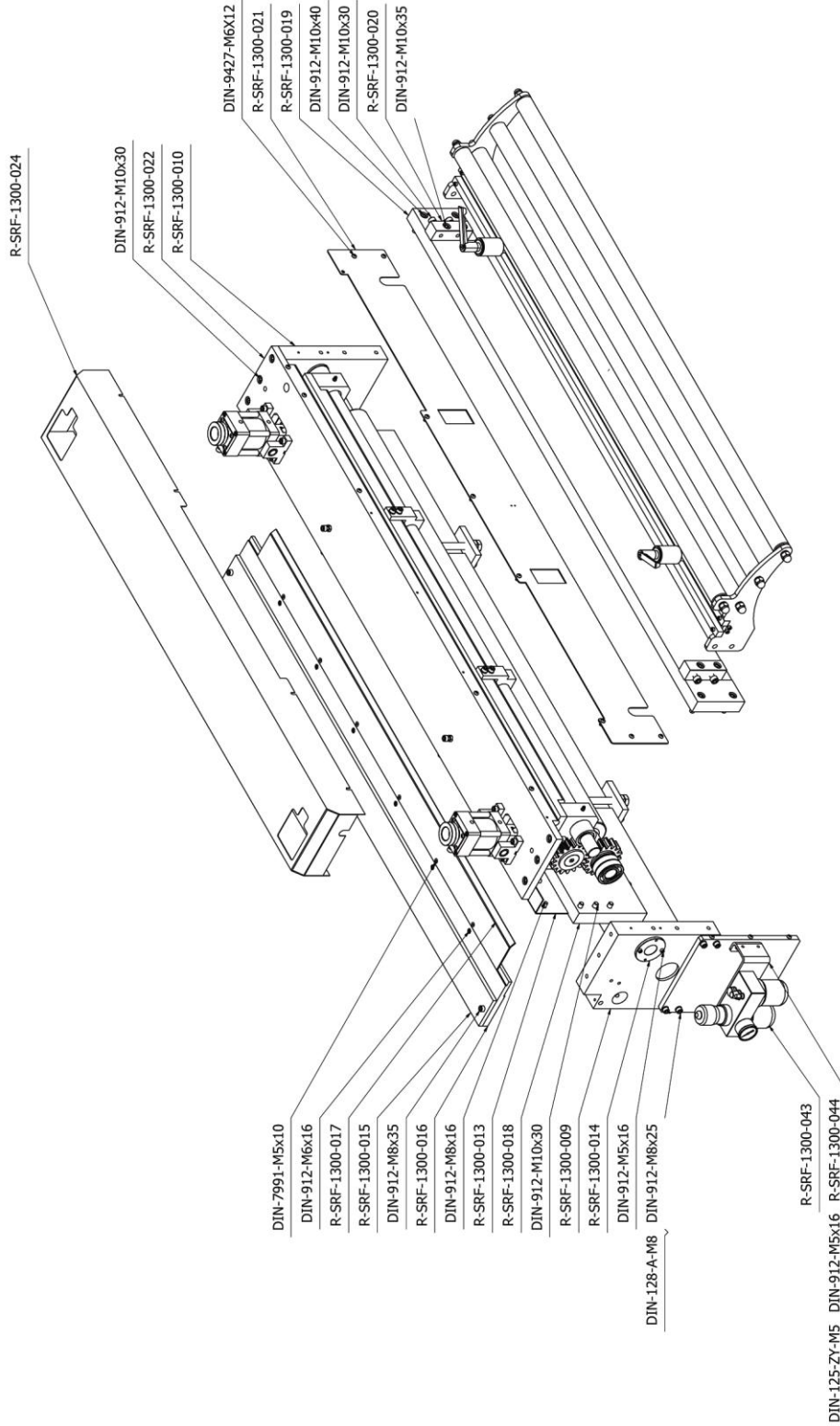
2. MAINTENANCE

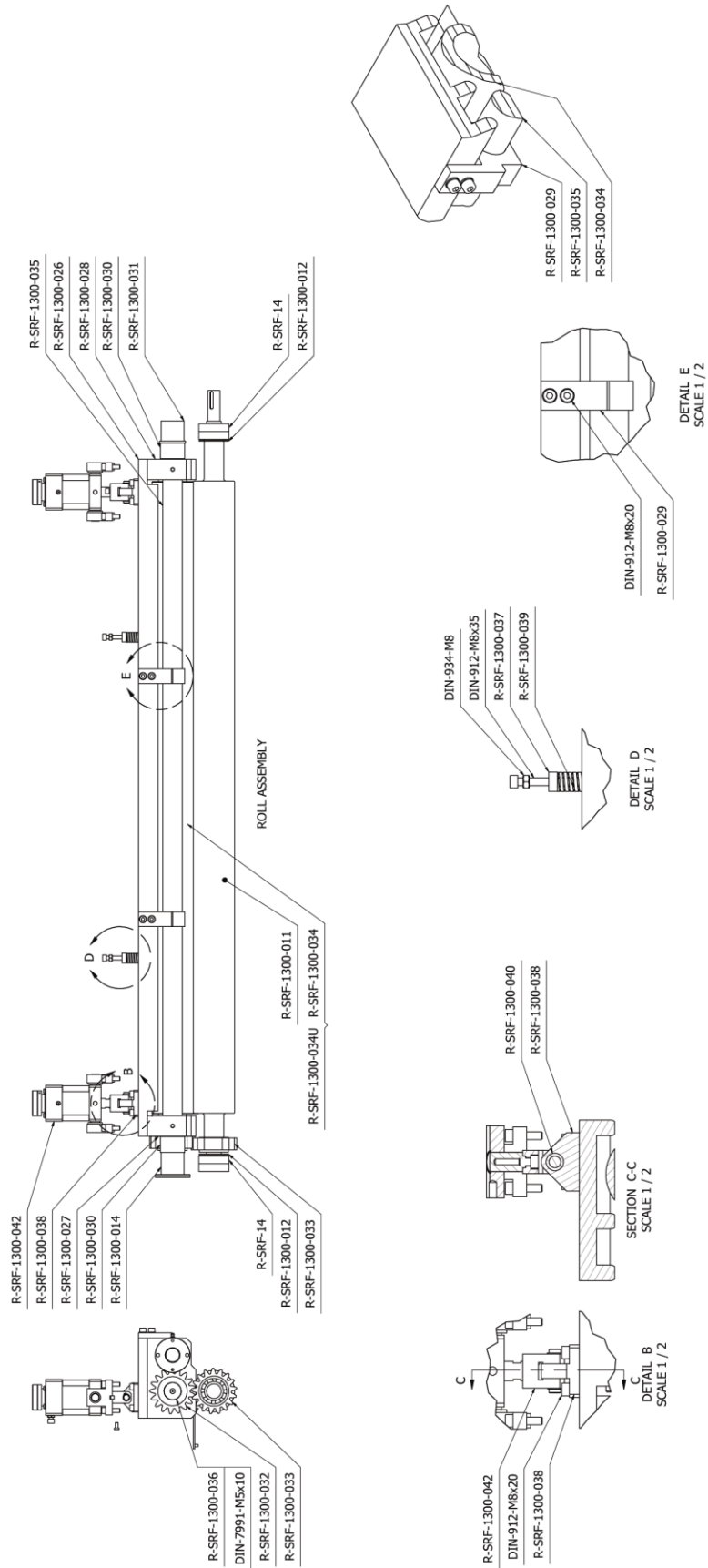
The *Ultra Advantage Servo Roll Feed* needs very little maintenance to keep the system operating at its optimum performance.

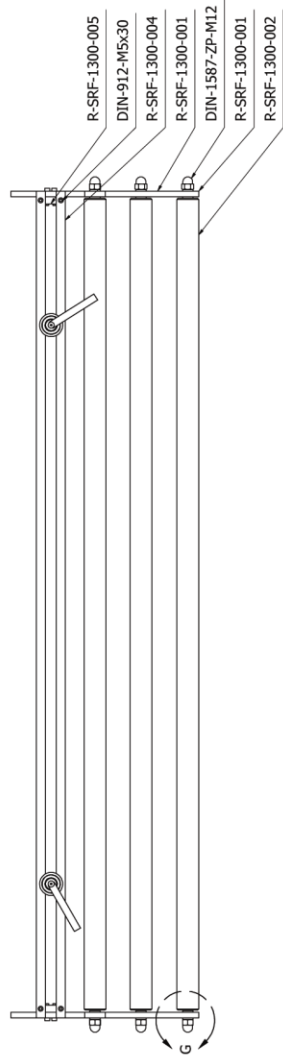
- This precision equipment must be kept as clean as possible. This is especially important if large amounts of air suspended oil mists in combination with "dirty metals" are used. The resulting abrasive dust can attach itself to the feed rolls and other surfaces, leading to premature wear on many parts.
- The roll release system requires a clean, dry air supply.
- Some bearings used on the feeder are fully sealed and maintenance-free roller ball bearings. The exceptions are provided with standard "zerk" type grease fittings. They should be lubricated with a good grade of high pressure bearing grease. The frequency of lubrication will depend on the overall usage of the system. A small "shot" once a day is a good starting point. The feed roll gears set should be coated with a small amount of open gear grease.
- The main drive belt should be checked periodically for tightness. It can be adjusted by loosening the two fasteners on the motor adjuster plate, applying downward pressure on the motor adapter plate, and retightening. **ERRATIC MOTOR BEHAVIOR WILL BE EXPERIENCED IF THE DRIVE BELT IS LOOSE!**
- All fasteners should be checked for tightness at regular intervals.
- The electrical system also requires very little maintenance. Keep the enclosure clean and replace any burned indicator bulbs. Do not expose the electrical enclosure to constant high temperatures. Possible system failure could result.
- The Feeder's electrical enclosure door is sealed to prevent oil and contaminants from entering inside. However, small gaps can be found around some sealing surfaces and faceplates. It is a good idea, therefore, to keep the console free of stamping oils and fluids, which could "seep into" the enclosure. Most often, these oils are carried by the Operator's hands or by air mist lubrication etc.
- All of the above guidelines should be added to your existing pressroom Preventive Maintenance (PM) Program.

3. MECHANICAL PARTS

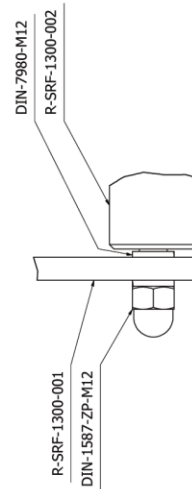
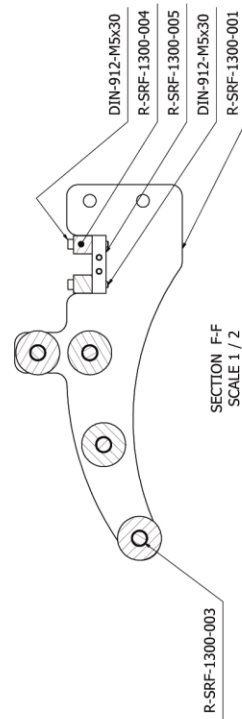
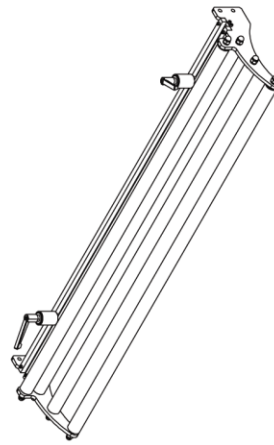
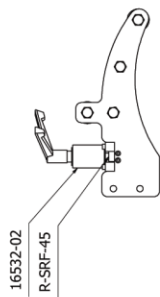
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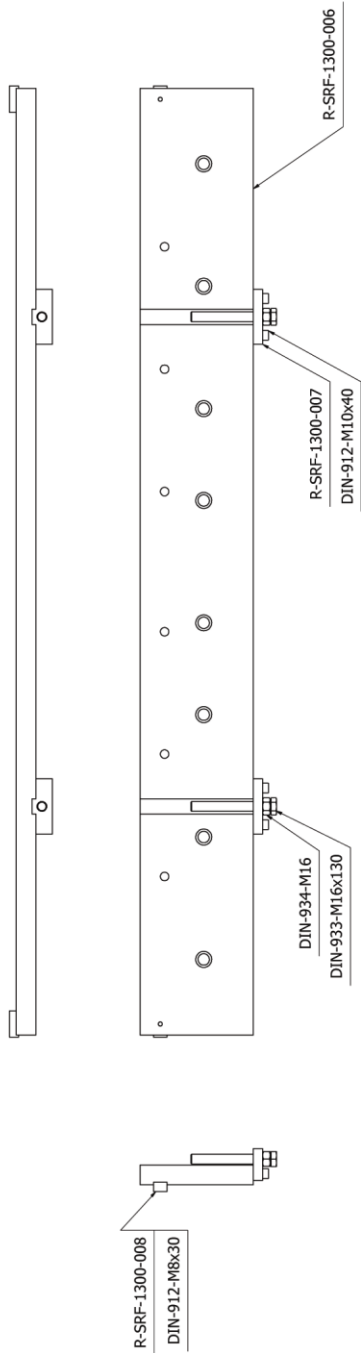




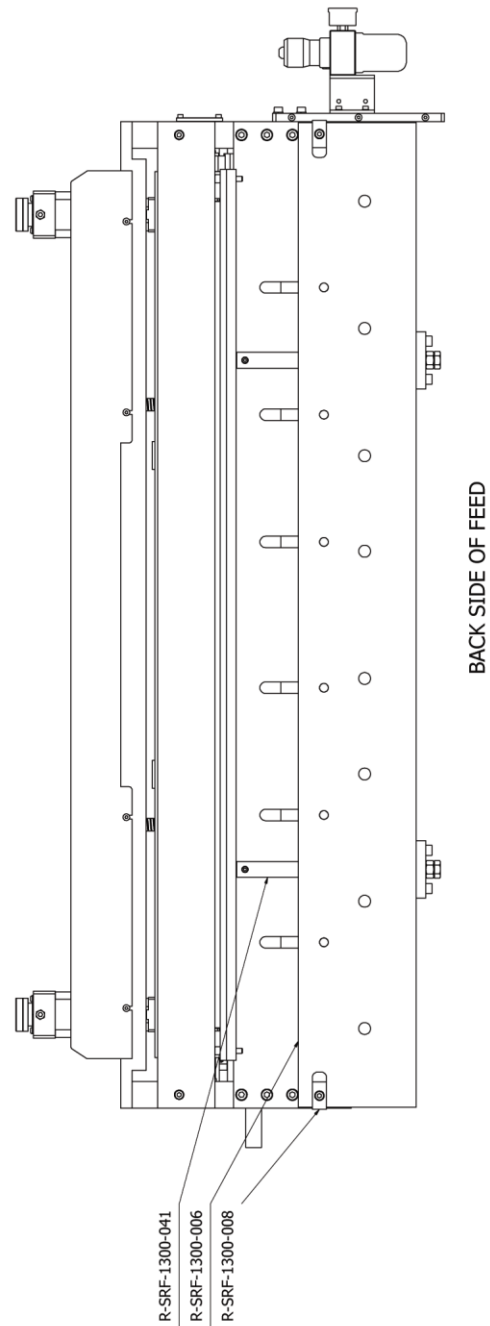


CASCADE ASSEMBLY





TRANSITION PLATE ASSEMBLY



3.1. PARTS LIST

PART NUMBER	DESCRIPTION	QTY
DIN-125-M16	M16, WASHER, FLAT, REG,ZINC PLATED STEEL	6
DIN-125-ZY-M5	M5, WASHER, FLAT, REG,ZINC PLATED YELLOW	2
DIN-128-A-M8	CURVED SPRING WASHER	10
DIN-71412-A-M6	LUBRICATING NIPPLE, CONED TYPE A	2
DIN-7991-M5x10	M5x10MM LG, FHSCS, ZINC PLATED	7
DIN-912-M10x30	M10x30MM LG, SHCS, BLACK	22
DIN-912-M10x35	M10x35MM LG, SHCS, BLACK	4
DIN-912-M10x40	M10x40MM LG, SHCS, BLACK	4
DIN-912-M16x65	M16x65MM LG, SHCS, BLACK	6
DIN-912-M5x16	M5x16MM LG, SHCS, BLACK	8
DIN-912-M6x16	M6x16MM LG, SHCS, BLACK	6
DIN-912-M8x16	M8x16MM LG, SHCS, BLACK	2
DIN-912-M8x20	M8x20MM LG, SHCS, BLACK	12
DIN-912-M8x25	M8x25MM LG, SHCS, BLACK	4
DIN-912-M8x30	M8x30MM LG, SHCS, BLACK	8
DIN-912-M8x35	M8x35MM LG, SHCS, BLACK	4
DIN-934-M8	M8, HEX NUT, BLACK	2
DIN-9427-M6X12	M6x12MM LG, BHCS, BLACK	23
R-SRF-1300-009	SIDE PLATE, LEFT	1
R-SRF-1300-010	SIDE PLATE, RIGHT	1
R-SRF-1300-011	DRIVE ROLL	1
R-SRF-1300-012	BEARING COVER	2
R-SRF-1300-013	EXIT COVER	1
R-SRF-1300-014	PIVOT SHAFT CAP	1
R-SRF-1300-015	UPPER EXIT PLATE	1
R-SRF-1300-016	LOWER EXIT PLATE	1
R-SRF-1300-017	EXIT GUIDE	1
R-SRF-1300-018	REAR PLATE	1
R-SRF-1300-019	ENTRANCE PLATE	1
R-SRF-1300-020	CASCADE MTNG BLOCK	2
R-SRF-1300-021	ENTRANCE COVER	1
R-SRF-1300-022	TOP PLATE	1
R-SRF-1300-023	FILTER REGULATOR MTG PLATE	1
R-SRF-1300-024	TOP COVER	1
R-SRF-1300-025	CYL MTNG BLOCK	4
R-SRF-1300-026	PIVOT SHAFT COVER	1
R-SRF-1300-027	PIVOT, LEFT	1
R-SRF-1300-028	PIVOT, RIGHT	1
R-SRF-1300-029	PIVOT SHAFT SUPPORT BRACKET	2
R-SRF-1300-030	PIVOT SHAFT BUSHING	2
R-SRF-1300-031	PIVOT SHAFT PLATE BUSHING	1
R-SRF-1300-032	CYL BUSHING	4
R-SRF-1300-032	SPROCKET	1
R-SRF-1300-033	SPROCKET, DRIVE	1
R-SRF-1300-034	UPPER ROLL	1

R-SRF-1300-034U	UPPER ROLL, URETHANE (OPTIONAL)	1
R-SRF-1300-035	PIVOT SHAFT	1
R-SRF-1300-036	GEAR RETAINING CAP	1
R-SRF-1300-037	SPRING BUSHING	2
R-SRF-1300-037	CYL MTNG BLOCK KEY	4
R-SRF-1300-038	CYL CLEVIS MNT	2
R-SRF-1300-039	SPRING	2
R-SRF-1300-040	CLEVIS BUSHING	2
R-SRF-1300-041	PRESS MOUNTING KEY	2
R-SRF-1300-042	CYLINDER ASSEMBLY	2
R-SRF-1300-043	FILTER REGULATOR	1
R-SRF-1300-044	FILTER REGULATOR BRACKET	1
R-SRF-14	REARING, 6206ZZ	8
16532-02	ROLLER, MATERIAL GUIDE	2
DIN-1587-ZP-M12	M12, DOME NUT, ZINC PLATED	8
DIN-7980-M12	M12, WASHER, LOCK, SPRING STEEL	16
DIN-912-M5x25	M5x25MM LG, SHCS, BLACK	4
DIN-912-M5x30	M5x30MM LG, SHCS, BLACK	4
R-SRF-1300-001	CASCADE SIDE PLATE	2
R-SRF-1300-002	CASCADE ROLL	4
R-SRF-1300-003	CASCADE ROLLER SHAFT	4
R-SRF-1300-004	CASCADE TNUT GUIDE RAIL	2
R-SRF-1300-005	CASCADE T-NUT RAIL MTNG BLOCK	2
R-SRF-45	T-NUT	2
DIN-912-M10x40	M10x40MM LG, SHCS, BLACK	4
DIN-912-M8x30	M8x30MM LG, SHCS, BLACK	2
DIN-933-M16x130	M16x130MM LG, HEX HD SCR, BLACK	2
DIN-934-M16	M16, HEX NUT, BLACK	2
R-SRF-1300-006	PRESS MOUNTING PLATE	1
R-SRF-1300-007	PRESS MOUNTING PLATE ADJUST BLOCK	2
R-SRF-1300-008	PRESS MOUNTING BLOCK KEY	2
PART NUMBER	DESCRIPTION	QTY

4. WARNING

This equipment offers various means of operating or controlling machines. The operator must not be in or near the point-of-operation of the machine, or the operating parts of any equipment installed on the machine, or bodily injury could result. The EMPLOYER must post adequate warning signs onto the machine with proper warnings for his machine and the specific application to which the machine and equipment are being applied.

Occupational Safety and Health Act (OSHA) Sections 1910.211, 1910.212, and 1910.217 contain installation information on the distance between danger points and point-of-operation guards and devices. No specific references have been made to which paragraph of OSHA 1910.211, 1910.212, 1910.217 or any other applicable sections because the paragraphs may change with each edition of the publication of OSHA provisions.

All equipment manufactured by us is designed to meet the construction standards of OSHA in effect at the time of sale, but the EMPLOYER installs the equipment so the EMPLOYER is responsible for installation, use, application, training, and maintenance, as well as adequate signs on the machine onto which this equipment will be installed.

Remember, OSHA says that the EMPLOYER must use operating methods designed to control or eliminate hazards to operating personnel.

It shall be the responsibility of the EMPLOYER to establish and follow a program of periodic and regular inspections of his machine to insure that all their parts, auxiliary equipment, and safeguards are in a safe operating condition and adjustment. Each machine should be inspected and tested no less than weekly to determine the condition of the machine. Necessary maintenance or repair of both shall be performed and completed before the machine is operated. The EMPLOYER shall maintain records of these inspections and the maintenance work performed.

Our Company is not responsible to notify the user of this equipment of future changes in State or Federal laws, or construction standards.

5. SAFETY PROGRAM

Accident free operation will result from a well developed, management sponsored and enforced safety program. Of vital importance to any successful program is the proper selection of guards and devices. However, there is no safety device that will bring "automatic" safety to your operation.

Of equal importance to this proper selection of the guard and the device is the training of your personnel. Each person must be trained as to the operation of the guard or safety device, highlighting why they have been provided on the equipment. Rules for safe operating should be written and enforced at all times. A final major concern of an effective safety program is regularly scheduled inspection and maintenance of all of the equipment.

To ensure continued safety at all times, top management, line supervision, safety engineers and all employees must assume their proper share of the responsibility in the program. Only as a group, one that knows your own operation and its problems, can you carry out an effective safety program.

To assist you in the development of and continued use of safety programs, many safety minded groups have made guidelines available to you. However, you must know when and how to apply these guidelines. The manufacturer provides information to assist you in properly adjusting and maintaining your equipment. There is no short cut to proper safety; therefore, it is recommended that you comply with their recommendations at all times.

6. WARRANTY

We warrant our new parts against defects under normal use and service for a period of 12 months after date of shipment. Our obligation under this warranty is limited to replacing or repairing (at our option) the defective part without charge, F.O.B. our plant in Bloomfield, Connecticut. The defective part must be forwarded to our plant, freight prepaid, for our inspection prior to replacement or repair. EXCEPT AS EXPRESSLY PROVIDED HEREIN, THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING A WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Furthermore, the seller does not warrant or represent that the equipment complies with the provisions of any law, particularly including the Occupational Safety and Health Act of 1970, and regulations promulgated thereunder. In no event shall we be liable for special, indirect incidental or consequential damages, however rising.



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