

Model MC-35U Impact Press
Operation & Maintenance Instructions



Revised 12/05/07

WARNINGS

1. Safety glasses must always be worn by the machine operator, as well as any co-workers, or any other persons in the area.
2. Never operate this press unless hands and foreign objects are clear of the pinch point area.
3. Never operate a machine in a pneumatic mode without approved dual hand controls that include anti-tie down features. Pneumatic operation requires the use of a filter-regulator-lubricator in the line. Flow controls must be used in the "U" series units.
4. Never remove any safety guards until the air is turned off and secured in the off position.
5. Never do any maintenance work on the press until the air is turned off and locked out with the air lines removed from the cylinder ports.
6. Never make any tooling or set up change until the air is turned off and locked out.
7. Never operate the press until the impact adjustment and the trip travel adjustment is correct. See operation manual for instructions.
8. Never operate the press with tooling (shank) of improper diameter. See machine specifications for proper shank size.
9. Never use hammer blows on any wrench to tighten any nuts on the machine. Hand tightening with a wrench is sufficient.
10. All moving parts must be regularly lubricated with a light grade machine oil. Periodic preventive maintenance scheduling should be established for cleaning, lubricating and inspection of all moving parts.

WARRANTY

All warranties of the products described herein, express or implied, including the warranties of merchantability and fitness for particular purpose are, except if contrary to state law, specifically excluded except the following: We will repair or replace any machine or machine part, which, within ninety (90) days after sale by us or our distributor is found to be defective in material or workmanship.

This is our sole warranty and it shall extend to new equipment, repaired or replaced.

Except if contrary to state law, we shall not be liable for any injury or consequential, arising out of the use of, or the inability to use, the products described herein.

**TO VALIDATE YOUR WARRANTY
PLEASE RETURN THIS PAGE IMMEDIATELY TO:**

Fax: 1-508-754-3063

Or

**Warranty Registration Department
33 Arctic Street
Worcester, MA 01613**

Important Notice:

No person shall operate this equipment without first carefully studying and understanding the instruction manual. Contact us with any questions relating to the safe operation or limitations of this equipment.

The warranty, as presented in the manual, will become effective immediately upon return of this Disclaimer.

Model No. _____

Serial No. _____

Company _____

Address _____

Signed _____

Title _____

Phone _____

E-mail _____

Date _____

Model MC-35U Impact Press

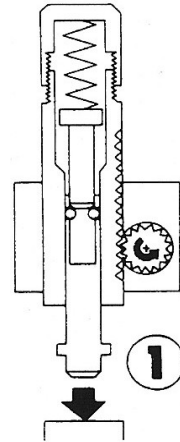
Operation & Maintenance Instructions

Principle of Operation

The press contains a large spring that is compressed during energy section travel. When release point is reached, the compressed energy is released causing the internal hammer to deliver the powerful impact.

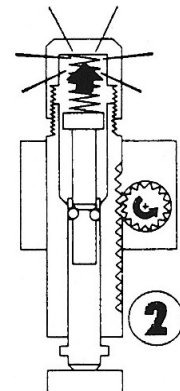
Step 1

Energy section advances toward workpiece by gear rack and pinion, powered by double-acting pneumatic cylinder (pneumatic units) or by operator pulling lever (manual units).



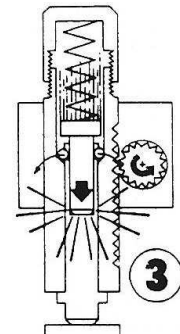
Step 2

After workpiece is contacted, stroke continues. The workpiece is held in place by the pressure from the energy section. The Impact Spring is compression builds as the press continues to maintain contact with the workpiece.



Step 3

When ball bearings reach release point, the powerful impact is released. The Impact Spring delivers force to the hammer, which in turn strikes the plunger (tool holder).



The result is a strong impact from a small press.

Delivery:

Units are shipped in heavy-duty containers to prevent damage in shipment. Should any damage be found, claims should be made immediately against the freight carrier.

Installation:

1. The machines should be cleaned and all anti-rust lubrication should be removed.
2. All machines are designed with boltholes in the MAIN CASTING (Part #1). The machine should be bolted securely to a rigid fixture or bench that is level and located in a safe location. Any flex in the fixture will result in a loss of impact force.

Impact Adjustment:

1. The press is rated at the maximum force possible.
2. Machines are shipped with three (3) different gauge IMPACT SPRINGS (Part #10).
3. Force can be adjusted by adjusting the HAND WHEEL (Part #17)
4. Force can be adjusted by selecting a heavier or lighter gauge IMPACT SPRING (Part #10)
5. When the proper impact force is determined, the IMPACT ADJUST LOCK NUT (Part #15) should be tightened to prevent changes due to vibration or tampering.

NOTE

IMPACT FORCE IS **NOT** ADJUSTED BY CHANGING THE AIR PRESSURE TO THE MACHINE CYLINDER

Tooling Installation:

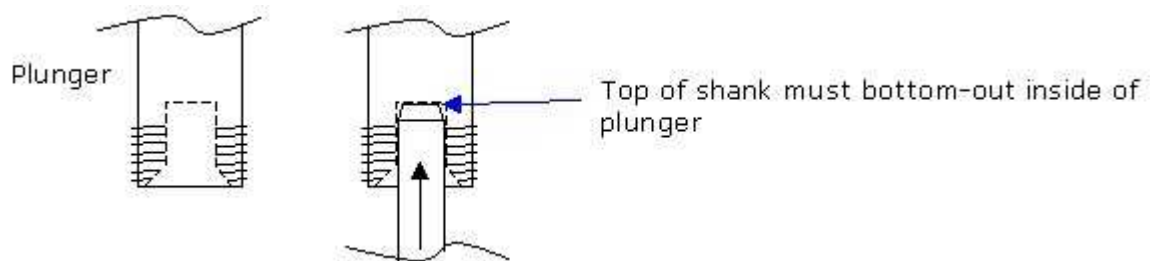
CAUTION

ALL AIR SUPPLY TO THE MACHINE MUST BE SECURED IN THE OFF POSITION PRIOR TO TOOLING INSTALLATION.

1. This machine uses a collet arrangement for retaining the tooling in the machine. For proper retention in the collet, the shank size is critical. The following shank size must be used:
16.0mm dia. X 48mm
2. The COLLET NUT (Part #23) must be loosened and the tool shank inserted through the COLLET (Part #22) until it is bottomed into the PLUNGER (Part #19).
3. Tighten the COLLET NUT (Part #23) securely to prevent tool rotation.

NOTE

DO NOT USE HAMMER BLOWS AGAINST THE WRENCH TO TIGHTEN.

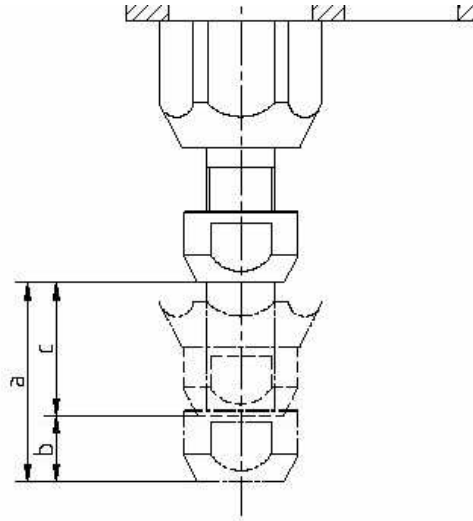


Collet, Collet Nut, Trip Travel Adjust Nut, Trip Travel Lock Nut And Trip Travel Lock Washer are not shown for clarity

**Standard plunger and shank shown. Some systems are specially modified per application.

Operating Height Adjustment:

| | | |
|---|---|------|
| a | Maximum Total Travel | 64mm |
| b | Compression required to realize impact | 20mm |
| c | Maximum distance between tool and work piece in rest position (Optimal distance is 6mm or less) | 44mm |



NOTE

THE DISTANCE FROM THE TOOLING TO THE WORKPIECE, WITH MACHINE AT REST, SHOULD BE KEPT TO A MINIMUM (1/4" OR LESS).

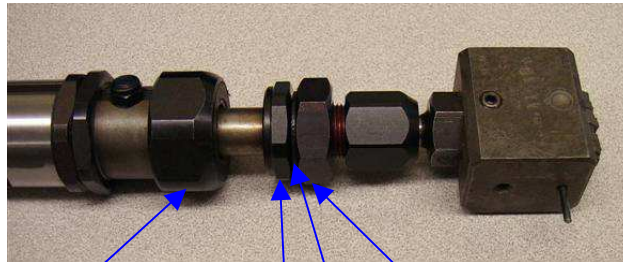
CAUTION

THE TRIP TRAVEL ADJUSTMENT MUST BE MADE IN A MANUAL MODE OF OPERATION WITH AIR SUPPLY DISCONNECTED FROM THE MACHINE. BEFORE THE MACHINE IS MANUALLY IMPACTED, CARE MUST BE GIVEN THAT HANDS AND FINGER ARE CLEAR OF THE MACHINE.

Trip Travel Adjustment:

(Photos below show optional steel type holder installed)

TRIP TRAVEL ADJUSTMENT is a critical adjustment on this press. Improper adjustment can result in chatter at the point of impact, which will shorten the life of the internal parts, or a machine that will fail to impact.



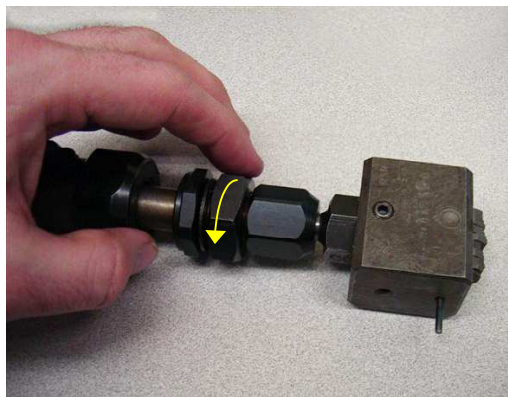
Plunger Retaining Nut (Part #21) with Embedded Shock Absorber (Part #65)

Trip Travel Lock Nut (Part #64)

Trip Travel Lock Washer (Part #164)

Trip Travel Adjust Nut (Part #75)

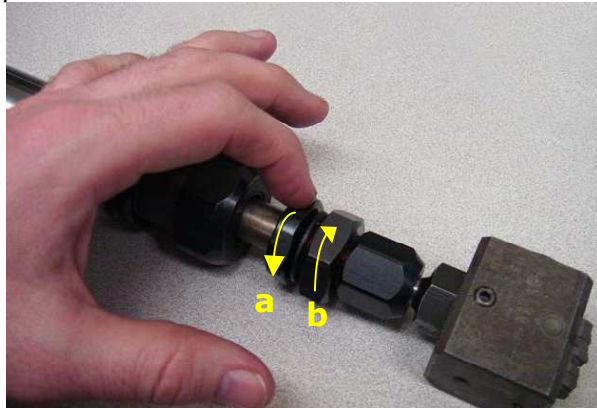
1. Loosen the TRIP TRAVEL LOCK NUT (Part #64) and turn to a location on the threads of the PLUNGER (Part #19) that is out of the way.



2. Use the press in manual mode with the LEVER HANDLE (Part #35) to test and adjust the trip travel setting through trial and error. Gradually adjust the TRIP TRAVEL ADJUST NUT (Part #75) upward on the threads of the PLUNGER (Part #19). Cycle the press using the LEVER HANDLE. Repeat until the press **does not make impact**.



3. a) Turn the TRIP TRAVEL ADJUST NUT (Part #75) back a full turn on the threads to allow impact to occur. b) Lock in place by wrenching the TRIP TRAVEL LOCK NUT (Part #64) against the TRIP TRAVEL ADJUST NUT (Part #75). This adjustment should be checked periodically during operation.



Pneumatic Operation:

CAUTION

PRIOR TO ANY HOOK-UP TO PNEUMATIC VALVING, THE MANUAL OPERATING LEVER (Part #35) MUST BE REMOVED.

CAUTION

DO NOT USE FOOT PEDAL CONTROLS

1. Although the press can be operated in a manual mode, it is equipped with a double acting pneumatic cylinder that will require a four-way valve for pneumatic operation.
2. For safe press operation, only DUAL HAND CONTROLS with ANTI-TIEDOWN features should be used and a FILTER-REGULATOR-LUBRICATOR should be used in every installation.
3. With the MANUAL-OPERATING LEVER (Part #35) removed, connect compressed air to the cylinder and turn the airline regulator to a low setting. Operate the pneumatic press controls to signal the press to travel down against the work piece. With the regulator set at a low-pressure setting, the press should not impact.
4. Increase the air pressure at the regulator until the machine impacts against the work piece. **The line pressure to the machine should not exceed the pressure required to trigger the impact.**
5. Changes to the impact setting will require the line pressure to be adjusted, and visa-versa.

Maintenance:

CAUTION

ALL AIR SUPPLY MUST BE SECURED IN THE OFF POSITION PRIOR TO MAINTENANCE OR TOOLING CHANGE.

1. Depending on the usage and operating conditions, the machine should be regularly lubricated at all wear points. Periodically, the machine should be disassembled for cleaning, inspected for worn parts and lubricated completely.

Use a lightweight machine oil like 3-In-One™ to lubricate machine through the oil fittings (Part #69). Apply general-purpose lithium grease to the Piston Rod (Part #45) and the Lower Tube (Part #2).

2. Care must be given to the pneumatic lubricator oil level to assure proper lubrication of the pneumatic cylinder.

Parts ordering - Information required:

1. Please furnish part number and part name.
2. Please furnish machine model number.
3. Please furnish serial number.
4. Please furnish quantity desired.

For all information and/or correspondence concerning this machine, please state type and serial number.

Serial Number: _____

Date: _____

Signature: _____

Model MC-35U

| Mark | New Part # | Description 1 | Description 2 |
|------|--------------|-----------------------------------|--------------------------------|
| 1 | 20-116001 | Casting | HOUSING BLOCK MC35U |
| 2 | 20-103102 | Lower Tube | RACK MC30 |
| 3 | 20-103103 | Sleeve Return Spring | SLIDING-BUSH SPRING MC30 |
| 4 | 20-103104 | Bearing Sleeve | SLIDING-BUSH MC30 |
| 5 | 20-103105 | Tube Guide | GUIDE SLEEVE MC30 |
| 6 | 20-103106 | Ball Bearings | BALLS Ø6 |
| 7 | 20-103107 | Tube Guide Return Spring | GUIDE-SLEEVE SPRING MC30 |
| 8 | 20-103108 | Upper Tube | COUPLING SLEEVE MC30 |
| 9 | 20-103109 | Hammer | HAMMER MC30 |
| 10 | 20-103110-H | Impact Spring-7mm Wire Diameter | PENETRATION SPRING 7 mm MC30 |
| 10 | 20-103110-M | Impact Spring-6.5mm Wire Diameter | PENETRATION SPRING 6.5 mm MC30 |
| 10 | 20-103110-XH | Impact Spring-7.7mm Wire Diameter | PENETRATION SPRING 7.7 mm MC30 |
| 11 | 20-103111 | Impact Adjust Screw | ADJUSTING SCREW MC30 |
| 12 | 20-103185 | Impact Adjust Nut | CAP MC30 |
| 13 | 20-103113 | Impact Spring Seat | INTERLOCKING SCREW MC30 |
| 14 | 20-103114 | Impact Spring Seat Bolt | CLAMPING SCREW MC30 |
| 15 | 20-103115 | Impact Screw Lock Nut | LOCKNUT MC30 |
| 17 | 20-103117 | Hand Wheel | HANDWHEEL VRTP 125mm A12 MC30 |
| 18 | 20-103118 | Lower Tube Nut | RACK NUT MC30 |
| 19 | 20-103119 | Plunger | TOOL-HOLDER MC30 |
| 20 | 20-103120 | Plunger Key | TOOL-HOLDER KEY MC30 |
| 21 | 20-103121 | Plunger Retaining Nut | RETAINING NUT MC30 |
| 22 | 20-103122 | Collet | COLLET MC30 |
| 23 | 20-103123 | Collet Nut | COLLET NUT MC30 |
| 24 | 20-113024 | Lower Tube Key | RACK KEY MC35 |
| 25 | 20-103025 | Lower Tube Key Nut | KEY NUT M6 |
| 26 | 20-113026 | Pinion | PINION MC35 |
| 27 | 20-113027 | Pinion Shaft Bushing | PIN GUIDE MC35 |
| 29 | 20-113029 | Lever Housing | LEVER COUPLING MC35 |
| 31 | 20-103031 | Lever Housing | RETAINING SCREW MC30 |
| 34 | 20-103034 | | ALLEN SCREW M6X20 |
| 35 | 20-103035 | Lever Handle | DRIVING LEVER MC30 |
| 36 | 20-103036 | Lever Handle Ball | ROUND KNOB BALL MC30 |

| | | | |
|----|-----------|-----------------------------|----------------------------|
| 40 | 20-113040 | Pinion Shaft Bearing | PINION BUSH MC35 |
| 41 | 20-103041 | | CONICAL STUD M6X15 |
| 43 | 20-113043 | Collar | RING MC35 |
| 44 | 20-103044 | Clamp Bolt | ALLEN SCREW M10X50 |
| 45 | 20-113045 | Piston Rod | PISTON RACK MC35 |
| 46 | 20-113046 | Elevating Screw | SPINDLE MC35 |
| 47 | 20-113047 | Elevating Screw Key Nut | KEY NUT M4 |
| 48 | 20-101024 | Elevating Screw Key | RACK KEY MC11 |
| 49 | 20-113049 | Elevating Screw Casting | SPLINDLE HOUSING MC35 |
| 50 | 20-113050 | Elevating Gear | CROWN GEAR MC35 |
| 51 | 20-113051 | Elevating Screw Cast Cover | SPINDLE HOUSING COVER MC35 |
| 52 | 20-113052 | Thrust Washer | SCREW WASHER MC35 |
| 53 | 20-113053 | Lower Cylinder End | LOWER BEARING MC35 |
| 54 | 20-113054 | Cylinder Seal | O-RING AN51 MC35 |
| 55 | 20-113055 | Cylinder | CYLINDER MC35 |
| 56 | 20-113256 | Piston | COMPLETE PISTON MC35 |
| 57 | 20-113057 | Piston Rod Bolt | SCREW MC35 |
| 59 | 20-113059 | Cylinder Tie Bolts | CYLINDER SCREW 10x200 MC35 |
| 60 | 20-113060 | Top Cylinder End | UPPER BEARING MC35 |
| 61 | 20-113061 | Piston Rod Seal | O-RING MC35 |
| 62 | 20-103162 | Indicator Pin | SIGNALING INDEX MC30 |
| 63 | 20-103163 | Upper Tube Lock Nut | CAP LOCKNUT MC30 |
| 64 | 20-103164 | Trip Travel Lock Nut | REGULATION LOCKNUT MC30 |
| 65 | 20-103165 | Shock Absorber | STOP RING MC30 |
| 66 | 20-112066 | Safety Plunger Bolt | SPRING MC21 |
| 67 | 20-113067 | Safety Plunger Bolt | BOLT PIVOT MC35 |
| 68 | 20-103068 | Lever Set Screw | ALLEN SCREW M6X18 |
| 69 | 20-102069 | Oil Fitting | BALL GREASER D8 MC18 |
| 70 | 20-113070 | Safety Plunger | SAFETY BOLT MC35 |
| 71 | 20-113071 | Worm Shaft Bearing | SPIRAL BUSH MC35 |
| 72 | 20-113072 | Elevating Worm | WORM SCREW MC35 |
| 73 | 20-113073 | Guide Pin | BOLT MC35 |
| 74 | 20-103174 | Hand Wheel Pin | ELASTIC BOLT D5X30 |
| 75 | 20-103175 | Trip Travel Adjust Nut | SETTING NUT MC30 |
| 79 | 20-103179 | | SCREW M10X25 |
| 80 | 20-103180 | Trip Travel Adj Lock Washer | GROWER WASHER D8 |

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|-----|-----------|-------------------------|-------------------------|
| 81 | 20-103081 | Table Set Screw | CONICAL STUD M10X30 |
| 85 | 20-113085 | Elevating Crank | SPIRAL HANDLE MC35 |
| 86 | 20-113086 | Elevating Screw Bolt | SCREW MC35 |
| 88 | 20-103088 | Main Casting Bolt | CYLINDRICAL STUD M10X30 |
| 89 | 20-113089 | | SCREW MC35 |
| 120 | 20-103025 | Plunger Key Nut | n/a |
| 126 | 20-113080 | Pinion | PIN MC35 |
| 157 | 20-113157 | Piston Rod Bolt Washer | WASHER MC35 |
| 164 | 20-103164 | Trip Travel Lock Washer | REGULATION LOCKNUT MC30 |
| 168 | 20-102086 | Lock Nut | LOCKNUT M6 MC18 |
| 230 | 20-113230 | Pinion Drive Pin | ELASTIC BOLT MC35 |

MC-35U

