



100 TON DELUXE IRONWORKER

MAINTENANCE MANUAL



ORIGINAL INSTRUCTIONS - IW100DX04

1 GENERAL

- Operator and Supervisor Information
- Signal Word Definition
- Signal Word Panel

2 MAINTENANCE PRECAUTIONS MAINTENANCE SCHEDULE

4 PUNCH

- Punch and Die Operating Clearances
- Punch Tonnage Requirements

6 BAR SHEAR

- Remove and replace stationary blade
- Remove and replace moving blade

7 ANGLE SHEAR

- Remove and replace stationary blade
- Remove and replace moving blade

8 NOTCHER STATION

- (50/60/65/75/100dx/120 Ton Ironworkers)
- Remove and replace moving blade
- Remove and replace stationary blade

9 PEDESTAL DIE

- Punch and Die Operating Clearances
- Punch Tonnage Requirements

OPTIONAL TOOLING MAINTENANCE

10 NOTCHER (25/40/55/100Ton)

- Remove and replace moving blade
- Remove and replace stationary blade

11 ANGLE NOTCHER

- Remove and replace moving blade
- Remove and replace stationary blade

12 OVERSIZE PUNCH

- Punch and Die Operating Clearances
- Punch Size Tolerances

13 PIPE NOTCHER

- Remove and replace moving blade
- Remove and replace stationary blade

14 BRAKE TOOLING

- Remove and replace moving punch
- Remove and replace stationary 4-way die

15 ROD SHEAR/MULTI-SHEAR

- Remove and replace moving blade
- Remove and replace stationary blade

16 241 PUNCH TOOLING

- Punch and Die Operating Clearances
- Punch Tonnage Requirements

OPERATOR AND SUPERVISOR INFORMATION

This is one of four manuals supplied with your machine.

- Installation Manual
- Safety Instructions Manual
- Operations Manual
- Maintenance Manual

READ ALL MANUALS BEFORE OPERATING MACHINERY. Operating machinery before reading and understanding the contents of all four manuals greatly increases the risk of injury.

Each of the four machine manuals describe 'best practices' in handling, installing, operating and maintaining your machine. The contents of each manual is subject to change without notice due to improvements in the machinery or changes in National or International standards.

All rights reserved. Reproduction of this manual in any form, in whole or in part, is not permitted without the written consent of Edwards Manufacturing Company.

Keep all manuals close to the machine to allow for easy reference when necessary.

Provide operators with sufficient training and education in the basic functions of the machine prior to machine operation.

Do not allow for operation of the machine by unqualified personnel. Edwards Manufacturing Company is not liable for accidents arising from unskilled, untrained operation.

Do not modify or change the machine without written authorization from Edwards Manufacturing Company. Unauthorized modification to a machine may result in serious operator injury, machine damage and will void your machine warranty.

Never leave a powered machine unattended. Turn machinery **OFF** before walking away.

This machine is manufactured for use by able bodied and able minded operators only. Never operate machinery when tired or under the influence of drugs or alcohol.

Do not resell, relocate or export to a destination other than to the original point of sale. Edwards has designed this machine to meet the standards of the original receiving country and is not liable for meeting any governing body or performance standards beyond those of the original receiving country.

SIGNAL WORD DEFINITION

 **DANGER**

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 **WARNING**

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a hazardous situation that, if not avoided, could result in mild or moderate injury.

NOTICE

Indicates information considered important, but not hazard related.

SIGNAL WORD PANEL ON MACHINE

 **DANGER**

Critical machine safety information is identified on signal word labels. Labels are attached adjacent to the potentially hazardous locations of the machine. Reference the Safety Instruction Manual for additional information regarding the potentially hazardous condition identified on the label.

Review ALL labels on the machinery, reference the operational precautions and safe operations sections within this manual before any operation activity is initiated.

Failure to read and understand the signal word labels affixed to the machinery may result in operator death or injury.

MAINTENANCE PRECAUTIONS

DANGER

Reasonable, common sense safety precautions should be observed when maintaining the Ironworker or hydraulic accessory tool. The following precautions are described in order of their hazard.

Electrical Hazard

Dangerous high voltages are present inside the electrical enclosure of this product. Only qualified, authorized, maintenance or service personnel should gain access to the electrical panel.

Lockout Power

Danger, circuits are live. Lockout / tagout upstream power source before any maintenance activity is performed.

Shear / Crush Hazard

Moving parts can cut and crush. Keep hands clear when servicing and maintaining the Ironworker.

Hydraulic Fluid Hazard

Hydraulic hoses are under pressure. Pressurized fluid can pierce skin and cause severe injury. To avoid physical hazard, always wear personal protective equipment when servicing / maintaining the Ironworker.

Do Not Operate With Guard Removed

Physical barriers and guards have been designed and installed to protect the operator/maintenance personnel from moving parts that can pinch, cut and crush. If it is necessary to remove guarding when servicing the Ironworker, immediately replace guards after service and prior to power being restored to the machinery.

Refer to Manuals

For safe installation, operation and maintenance of the machine, read:

- Installation Manual
- Safety Instructions Manual
- Operations Manual
- Maintenance Manual

Wear Personal Protective Equipment

To avoid physical hazard wear protective eyewear, clothing, gloves, footwear, head-gear and hearing protection.

Slipping, Tripping and Falling

During routine maintenance hydraulic fluid could spill outside of the machine footprint. Plug hose ends when working with hydraulic fluids and clean up spills near the machinery in a timely manner.

Figure 1 - Fuses

Part #	Volts	Phase	Hertz	FLA	Fuse	Part #	Voltage	Amperage	SC/IR	Class	Qty.
213213	230 V	3~	60 Hz	24 FLA	Littelfuse	JTD040	600VAC	40 A	200 kA	J	3
213217	460 V	3~	60 Hz	12 FLA	Littelfuse	JTD020	600VAC	20 A	200 kA	J	3

MAINTENANCE SCHEDULE

CAUTION

Your Edwards Ironworker will benefit from reasonable care and periodic maintenance. Reasonable care includes daily visual observation, general maintenance daily, weekly, monthly and at hourly milestone intervals by operator/maintenance personnel. Perform inspections and maintenance of the electrical, hydraulic, and mechanical systems of the Ironworker and any optional Edwards hydraulic accessory connected to the Ironworker as follows:

Daily/Shift Change Visual Observation

CAUTION

Electrical System

Visually inspect incoming power and exposed surface conduit or cabling on the Ironworker for signs of damage. Cut, abraded or crushed electrical cords may present an electrical hazard to the Operator and damage the machinery. **Replace fuses as necessary with same type and rating. See Figure 1 below.**

Hydraulic System

Visually inspect exposed or surface mounted hydraulic hoses and fittings for signs of damage. Cut, abraded or crushed hydraulic hoses or leaking fittings may present a hydraulic fluid hazard to the Operator and damage the machinery.

Plug hose ends when working with hydraulic fluids and clean up spills near the machinery in a timely manner to reduce the likelihood of spills, trips and falls.

Mechanical System

Visually inspect guards and material hold-downs protecting moving parts. Guards and material hold-downs must remain on the machine for safe operation. Clear any material obstructions at the work stations prior to visually inspecting moving parts of the machine. Cycle the machine. Machine should operate smoothly in hydraulic extend and retract mode.

Observe mechanical operating clearances. Punches, dies, angle shear, notcher and bar shear blades should be evenly gapped and free of nicks, chips or burrs in their surface.

Ironworker operation creates small concussive shocks and vibration that may loosen hardware and fasteners over time. Inspect fasteners and fittings and tighten where loose.

Failure of any element of the daily/shift change visual observation will require maintenance of the affected Ironworker or accessory componentry. Please follow the following maintenance procedures.

General Maintenance - Daily

DANGER

Lockout power to machine.

Clean your Ironworker daily with a compressed air nozzle and soft cloth lightly moistened with a mild, water based detergent solution. Remove filings, dirt, dust and grime and excess lubricant from working surfaces. All clean surfaces must be fully dry before powering up machine.

Grease all machine guides and pins supplied with a GREASE DAILY designation with NLGI Grade 2 (NLGI Service GC-LB) or equivalent premium, heavy duty lubricant.

General Maintenance - Weekly

DANGER

Lockout power to machine.

Check blade tolerance. Maintain .010 clearance between fixed and movable shear blades on 40, 50, 55, 60 and 65 Ton models at all times. Maintain .015 clearance between fixed and movable shear blades on 75, 100, 100D, 120 Ton, 110 Elite and 110/65 DO Elite models at all times. Insert a feeler gauge between fixed and movable blades to verify proper blade clearance and shear tolerance. Adjust tolerance of shear blades by relieving the locking nuts that secure the gib-pins to the Ironworker frame. Once loose, rotate gib-pins to push the operating center against the frame. Gap the angle and bar shear blades with the specified clearance and tighten the gib-pin lock nuts. Failure to maintain proper clearance will result in lower quality cuts, damage to blade, blade pockets and the potential to damage the Ironworker frame.

General Maintenance - Monthly

DANGER

Lockout power to machine.

Check gib-pins for lubrication and snugness to the operating center. Tighten gib-pins and locking nuts to maintain blade clearance as indicated above. Gib-pins are wearing parts. Order replacement gib-pins through your Edwards Distributor or through Edwards Mfg. Co.

Check the ISO Viscosity 46 hydraulic fluid level monthly, maintain the correct volume of hydraulic fluid in the reservoir as indicated. Contaminated fluid will compromise your cutting operation.

General Maintenance - First 30 Hours

DANGER

Lockout power to machine.

Replace the oil filter on your Ironworker after your first 30 hours of use. External oil filters are available through your Edwards Distributor or Edwards Manufacturing.

When working on the hydraulic power plant use plugs to cap hose ends during maintenance procedures to minimize fluid loss. Clean up spills near the machinery to reduce the likelihood of slips, trips and falls.

General Maintenance - Every 1000 Hours

DANGER

Lockout power to machine.

Replace the oil filter on your Ironworker after your first 1000 hours of use. External oil filters are available through your Edwards Distributor or Edwards Manufacturing.

When working on the hydraulic power plant use plugs to cap hose ends during maintenance procedures to minimize fluid loss. Clean up spills near the machinery to reduce the likelihood of slips, trips and falls.

General Maintenance - Every 5000 Hours

DANGER

Lockout power to machine.

Drain used hydraulic fluid, dispose of according to local or jurisdictional guidelines and replace with ISO Viscosity 46 hydraulic fluid to the volume specified on the hydraulic fluid reservoir.

PUNCH



Image Note: Guarding Removed for Clarity

⚠ CAUTION

Your Edwards Ironworker has been shipped with a punch and die installed within the punch station. When worn or chipped, the punch and die must be replaced. Observe the following procedure when maintaining the Ironworker punch station.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Maintain as follows:

1. Swing the Punch Stripper up or away from the punch by loosening the stripper assembly bolts.
2. Remove punch by loosening the punch nut assembly with factory supplied wrench.
3. Remove die by loosening the set screw at the side of the punch table and then lifting die from the die holder. If the die resists removal gently tap the die from the underside of the punch table to loosen the die for removal.
4. Select new punch and die according to clearances recommended in the Operations Manual.
5. Install new die and tighten set screw. If loading a shaped die, align the whistle spot with the set screw and tighten.
6. Install new punch and tighten punch nut with wrench. If using a shaped punch, align the locating keystick of the punch with the corresponding slot within the punch stem assembly and tighten the punch nut with the wrench.
7. Check for punch and die alignment by powering up the machine and inching down the punch to meet the die with the foot pedal. Check to see that the punch is centered in the die.

8. In the event that the punch and die are not aligned, first confirm that the punch is seated properly in the punch nut assembly. If not seated properly, repeat step 5. If seated properly, loosen the bolts under the die table allowing the table to be moved to center the die. When aligned, tighten the table bolts to secure the table and repeat step 6.
9. Swing the stripper bar back in place allowing for minimal clearance between the top of the material and the bottom of the stripper and tighten the stripper bolts.

Punch and Die Operating Clearances

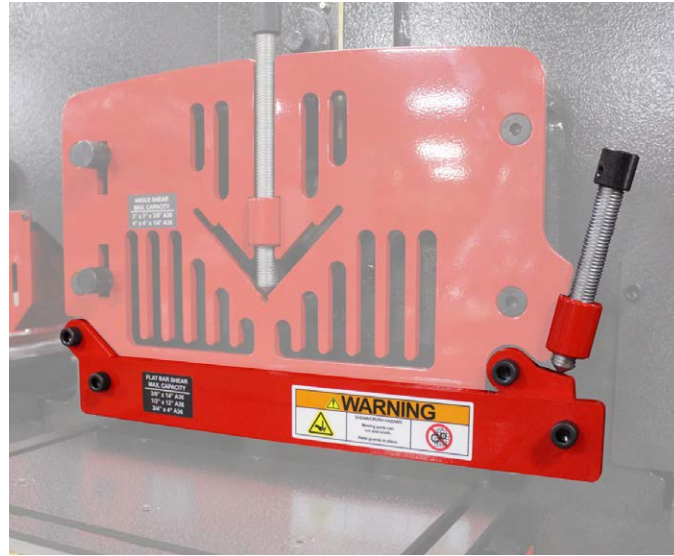
Maintain the following clearance between punch and die:

Material Thickness	Total Clearance
16 gauge and lighter	.006"
15 gauge - 13 gauge	.010"
3/32" - 5/32"	1/64"
3/16" - 15/32"	1/32"
1/2" and heavier	1/16"

Figure 2 - Punch Tonnage Requirements

Stock Thickness	1/8	3/16	1/4	5/16	3/8	7/16	Hole Diameter		1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1"		
26 ga. (.0179)	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90	0.99	1.07	1.16	1.25	1.34	1.43	1.50	1.59	1.67	
24 ga. (.0239)	0.24	0.36	0.48	0.60	0.72	0.84	0.96	1.08	1.20	1.31	1.43	1.50	1.67	1.89	1.91	2.07	2.24	2.39	2.59
22 ga. (.0299)	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.24	2.39	2.51	2.69	2.87	3.07
20 ga. (.0359)	0.36	0.54	0.72	0.90	1.08	1.26	1.44	1.62	1.80	1.98	2.15	2.33	2.51	2.69	2.87	3.05	3.24	3.44	3.64
18 ga. (.0478)	0.48	0.72	0.96	1.20	1.43	1.67	1.91	2.15	2.39	2.63	2.87	3.11	3.34	3.58	3.82	4.05	4.29	4.53	4.77
16 ga. (.0598)	0.60	0.90	1.20	1.50	1.79	2.09	2.39	2.69	2.99	3.29	3.59	3.89	4.19	4.49	4.78	5.08	5.38	5.68	5.98
14 ga. (.0747)	0.75	1.12	1.49	1.87	2.24	2.61	2.99	3.36	3.73	4.11	4.48	4.86	5.23	5.60	5.97	6.34	6.71	7.08	7.45
12 ga. (.1046)	1.05	1.57	2.09	2.62	3.14	3.66	4.18	4.71	5.23	5.75	6.28	6.80	7.32	7.85	8.37	8.90	9.42	9.95	10.47
10 ga. (.1345)		2.02	2.69	3.36	4.04	4.71	5.38	6.05	6.73	7.40	8.07	8.74	9.42	10.09	10.76	11.43	12.10	12.77	13.44
3/16 (.187)		2.81	3.74	4.68	5.61	6.50	7.48	8.42	9.35	10.29	11.22	12.16	13.09	14.03	14.96	15.89	16.83	17.76	18.70
1/4 (.250)			5.00	6.25	7.50	8.75	10.00	11.25	12.50	13.75	15.00	16.25	17.50	18.75	20.00	21.25	22.50	23.75	25.00
3/8 (.375)				11.25	13.13	15.00	16.88	18.75	20.63	22.50	24.38	26.25	28.13	30.00	31.88	33.75	35.63	37.50	39.38
1/2 (.500)					20.00	22.50	25.00	27.50	30.00	32.50	35.00	37.50	40.00	42.50	45.00	47.50	50.00	52.50	55.00
5/8 (.625)						31.25	34.38	37.50	40.63	43.75	46.88	50.00	53.13	56.25	59.38	62.50	65.63	68.75	71.88
3/4 (.750)							45.00	48.75	52.50	56.25	60.00	63.75	67.50	71.25	75.00	78.75	82.50	86.25	90.00
7/8 (.875)								61.25	65.63	70.00	74.38	78.75	83.13	87.50	91.88	96.25	100.63	105.00	109.38
1" (1.000)									80.00	84.38	88.75	93.13	97.50	101.88	106.25	110.63	115.00	119.38	123.75

BAR SHEAR



CAUTION

Your Ironworker may include a bar/plate shear as a standard feature. When maintained within tolerance, the bar/plate shear will provide a distortion and burr free shear cut to mild steel bar or plate stock. Shear blades are wearing parts and need to be maintained or replaced over time. When worn or chipped, shear blades must be replaced. Observe the following procedure when maintaining the Ironworker bar shear station.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Remove and replace stationary blade:

1. Remove the material hold-down assembly from the Ironworker frame by removing the return spring and bolts that secure the assembly to the Ironworker frame.
2. Remove blade bolts located under the feed table. Remove the stationary blade.
3. With blade removed, clean blade pocket of any dirt or debris.
4. Your shear blades have multiple cutting surfaces that can be flipped and rotated prior to full replacement of the part. Rotate the stationary blade to new cutting surface and reinstall in blade pocket.
5. Tighten the stationary blade back into the blade pocket.

Remove and replace moving blade:

1. Remove the drop-off guard from the rear of the Ironworker frame.
2. Power on the machine and inch the moving center down to reveal blade bolts for the moving blade.

3. With bolts exposed, turn machine off and disconnect from power source.
4. Remove blade bolts and remove blade from the blade pocket.
5. With blade removed, clean blade pocket of any dirt or debris.
6. Your shear blades have four cutting surfaces that can be used prior to full replacement of the part. Rotate the movable blade to new cutting surface and reinstall in blade pocket.
7. Tighten the movable blade back into the blade pocket.
8. Replace the drop-off guard to the rear of the frame.
9. Return the machine to power and turn on to automatically return the moving center to its neutral position.
10. With a feeler gauge, check shear blade for correct operating clearance.

- Maintain .010 clearance between fixed and movable shear blades on 40, 50, 55, 60 and 65 Ton models at all times.
- Maintain .015 clearance between fixed and movable shear blades on 75, 100, 100D, E110, E110 / 65 and 120 Ton models at all times.

11. Adjust tolerance of shear blades by relieving the locking nuts that secure the gib-pins to the Ironworker frame. Once loose, rotate gib-pins to push the operating center against the frame. Gap the angle and bar shear blades with the specified clearance and tighten the gib-pin lock nuts.

Failure to maintain proper clearance will result in lower quality cuts, damage to blades, blade pockets and the potential to damage the Ironworker frame.

12. Replace and secure guarding removed in the maintenance procedure.
13. Replace the material hold-down assembly to the Ironworker frame.

ANGLE SHEAR



CAUTION

Your Ironworker may include an angle iron shear as a standard feature. When maintained within tolerance, the angle iron shear will provide a distortion and burr free shear cut to mild steel angle iron. Angle iron shear blades are wearing parts and need to be maintained or replaced over time. When worn or chipped, shear blades must be replaced. Observe the following procedure when maintaining the Ironworker bar shear station.

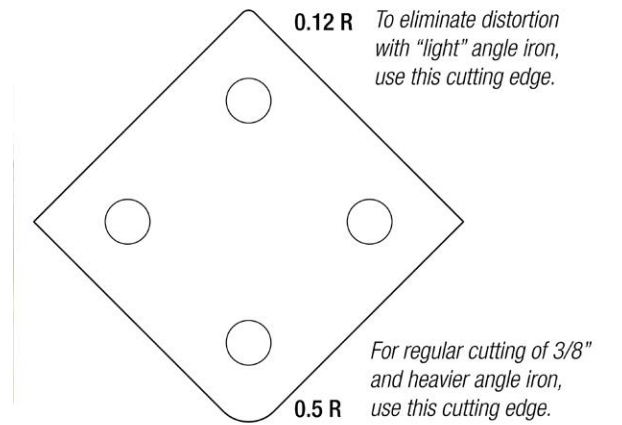
Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Remove and replace stationary blade:

1. Remove the material hold-down assembly from the Ironworker frame by removing the bolts that secure the guard / hold-down assembly to the Ironworker frame.
2. Remove blade bolts located behind the guard. Remove the stationary blades.
3. With blades removed, clean blade pocket of any dirt or debris.
4. Your shear blades have multiple cutting surfaces that can be used prior to full replacement of the part. Rotate the stationary blades to new cutting surface and reinstall in blade pocket.
5. Tighten the stationary blades back into the blade pocket.
6. Replace and secure the material hold-down and guarding to the Ironworker frame.

Remove and replace moving blade:

1. Remove the angle shear drop-off guard from the rear of the Ironworker frame.
2. Power on the machine and inch the moving center down to reveal blade bolts for the moving blade.



3. With bolts exposed, turn machine off and disconnect from power source.
4. Remove blade bolts and remove blade from the blade pocket.
5. With blade removed, clean blade pocket of any dirt or debris.
6. Your shear blades have multiple cutting surfaces and two radius options that can be used prior to full replacement of the part. Rotate the movable blade to the appropriate radius and new cutting surface and reinstall in blade pocket. See diagram (above) for correct radius designation.
7. Tighten the movable blade back into the blade pocket.
8. Replace the drop-off guard to the rear of the Ironworker frame.
9. Return the machine to power and turn on to automatically return the moving center to its neutral position.
10. With a feeler gauge, check shear blade for correct operating clearance.

- Maintain .010 clearance between fixed and movable shear blades on 40, 50, 55, 60 and 65 Ton models at all times.
- Maintain .015 clearance between fixed and movable shear blades on 75, 100, 100D, E110, E110 / 65 and 120 Ton models at all times.

11. Adjust tolerance of shear blades by relieving the locking nuts that secure the gib-pins to the Ironworker frame. Once loose, rotate gib-pins to push the operating center against the frame. Gap the angle and bar shear blades with the specified clearance and tighten the gib-pin lock nuts.

Failure to maintain proper clearance will result in lower quality cuts, damage to blades, blade pockets and the potential to damage the Ironworker frame.

12. Replace and secure the material guard and hold-down assembly to the Ironworker frame.

NOTCHER 50/60/65/75/100dx/120 Ton Ironworkers



⚠ CAUTION

Your Ironworker includes a notcher as a standard feature. When maintained within tolerance, the notcher will provide a distortion and burr free shear cut to mild steel bar, plate or angle iron. Notcher tooling is equipped with one, three-sided top notcher blade and three, four-sided bottom blades. The top blade is mounted to the moving “center” of the Ironworker, while the bottom three blades are secured into a base housing. Notcher blades are wearing parts and need to be maintained or replaced over time. Observe the following procedure when maintaining the Ironworker notcher station.

Turn off power to machine by depressing the red stop / off button and lockout upstream power at the main electrical panel.

Remove and replace moving blade:

1. Remove or swing the notcher guard assembly up and away from the notcher table.
2. Remove the two 1/2” socket head cap screws that secure the existing top notcher blade to the moving center.
3. Clean the keyway in the moving center of any dirt or debris.
4. Install the top notcher blade with the keyway up. Secure the top blade using the two 1/2” socket head cap screws. Tighten bolts.

Remove and replace stationary blades:

1. The notcher table includes three blades secured within the table housing. Remove the four 1/2” bolts and washers that secure notcher table to the base table.
2. Remove the six, 3/8” socket head cap screws that secure the blades into the base table housing.

3. Clean the blade pockets of any dirt or debris.
4. The bottom shear blades have multiple cutting surfaces. Either rotate/flip the existing blade set to the new cutting surfaces or install new cutting blades into the blade pockets. Re-install the six 3/8” socket head cap screws and tighten. The blades should be planar to each other at the top surface of the working table.
5. Re-install the notcher table with the open “U” facing the center of the machine. The guide foot of the top notcher blade should be centered within the base table blades.
4. Loosely secure the notcher table from the underside of the base with four 1/2” bolts and washers (provided).
5. Check for top and bottom blade alignment by powering up the machine and slowly inching down the top blade to meet the bottom blades with the foot pedal. Power the machine off.
6. Using a feeler gauge, adjust the clearance between the perimeter of the top and bottom blades to allow for .010 clearance on all three sides.
7. In the event that the top and bottom blades are not aligned, simply loosen the bolts under the table allowing the table to be moved to center the top blade within the bottom blades. When aligned, tighten the table bolts to secure the table.
8. Adjust the cap screws at the end of the notcher table to engage the base notcher table to the base table. Lock the two 3/8” nuts in place to secure the cap screws in place.
9. Swing the notcher guard back in place.

PEDESTAL DIE



⚠ CAUTION

Your Ironworker includes a standard or oversized pedestal punch and die assembly installed within the punch station. When worn or chipped, the punch and die must be replaced. Observe the following procedure when maintaining the Ironworker punch station.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Maintain as follows:

1. Swing the Punch Stripper up or away from the punch by loosening the stripper assembly bolts.
2. Remove punch by loosening the punch nut assembly with factory supplied wrench.
3. Remove die by loosening the set screw at the front edge of the punch table and then lifting die from the die holder. If the die resists removal gently tap the die from the underside of the punch table to loosen the die for removal.
4. Install new die and tighten set screw. If loading a shaped die, align the whistle spot with the set screw and tighten.
5. Install new punch and tighten punch nut with wrench. If using a shaped punch, align the locating keystone of the punch with the corresponding slot within the punch stem assembly and tighten the punch nut with the wrench.
6. Check for punch and die alignment by powering up the machine and inching down the punch to meet the die with the foot pedal. Check to see that the punch is centered in the die.

7. In the event that the punch and die are not aligned, first confirm that the punch is seated properly in the punch nut assembly. If not seated properly, repeat step 5. If seated properly, loosen the bolts under the die table allowing the table to be moved to center the die. When aligned, tighten the table bolts to secure the table and repeat step 6.
8. Swing the stripper bar back in place allowing for minimal clearance between the top of the material and the bottom of the stripper and tighten the stripper bolts.

Punch and Die Operating Clearances

Maintain the following clearance between punch and die:

Material Thickness	Total Clearance
16 gauge and lighter	.006”
15 gauge - 13 gauge	.010”
3/32” - 5/32”	1/64”
3/16” - 15/32”	1/32”
1/2” and heavier	1/16”

Punch Tonnage Requirements

See Figure 2 on Page 5

OPTIONAL TOOLING - NOTCHER 25/40/55/100 Ton Ironworkers



Image Note: Guarding Removed for Clarity

CAUTION

Your Ironworker may include a notcher as an optional feature. When maintained within tolerance, the notcher will provide a distortion and burr free notch cut to mild steel bar, plate or angle iron. Notcher tooling is equipped with one, three-sided top notcher blade and three, four-sided bottom blades. The top blade is mounted to the moving “center” of the Ironworker, while the bottom three blades are secured into a base housing. Notcher blades are wearing parts and need to be maintained or replaced over time. Observe the following procedure when maintaining the Ironworker notcher station.

Turn off power to machine by depressing the red stop / off button and lockout upstream power at the main electrical panel.

Remove and replace moving blade:

1. Remove or swing the notcher guard assembly up and away from the notcher table.
2. Remove the two 1/2” socket head cap screws that secure the existing top notcher blade to the moving center.
3. Clean the keyway in the moving center of any dirt or debris.
4. Install the top notcher blade with the keyway up and the “foot” of the blade facing the center of the machine. Secure the top blade using two 1/2” socket head cap screws. Tighten bolts.

Remove and replace stationary blades:

1. Loosen the set screws (if provided) located at the sides of the notcher table.
2. The notcher table includes three blades secured within the table housing. Remove the four 1/2” bolts and washers that secure notcher table to the base table.

3. Carefully remove the notcher table assembly to a secure workbench. The top table that holds the blade set is secured by eight 3/8” socket head cap screws - four from the top working surface, four from the underside of the notcher assembly. Remove all eight cap screws to separate the blade housing from the notcher assembly. Remove the top table from the assembly.
4. Remove the six 3/8” socket head cap screws that secure the blades into the base table housing.
5. Clean the blade pockets of any dirt or debris.
6. The bottom shear blades have multiple cutting surfaces. Either rotate/flip the existing blade set to the new cutting surfaces or install new cutting blades into the blade pockets. Re-install the six 1/2” socket head cap screws and tighten. The blades should be planar to each other at the top surface of the working table.
7. Re-install the eight cap screws that secure the top table housing to the bottom table housing.
8. Re-install the notcher table with the open “U” facing the center of the machine. The guide foot of the top notcher blade should be centered within the base table blades.
9. Loosely secure the notcher table from the underside of the base with four 1/2” bolts and washers (provided).
10. Check for top and bottom blade alignment by powering up the machine and slowly inching down the top blade to meet the bottom blades with the foot pedal. Power the machine off.
11. Using a feeler gauge, adjust the clearance between the perimeter of the top and bottom blades to allow for .010 clearance on all three sides.
12. In the event that the top and bottom blades are not aligned, simply loosen the bolts under the table allowing the table to be moved to center the top blade within the bottom blades. When aligned, tighten the table bolts to secure the table.
13. Adjust the set screws (if provided) at the sides of the notcher table to engage the base notcher table to the base table. Lock the four 3/8” nuts in place to secure the set screws in place. These added fixtures are to provide additional support to the base table during the notching operation.
14. Swing the notcher guard back in place.

OPTIONAL TOOLING - ANGLE NOTCHER



Image Note: Guarding Removed for Clarity

CAUTION

Your Ironworker may include an Angle Notcher as an optional tool. When maintained within tolerance, the notcher will provide a distortion and burr free two-sided, 92 degree notch cut to mild steel bar, plate or angle iron.

Angle Notcher tooling is equipped with one, two-sided top notcher blade and two, four-sided bottom blades. The top blade is mounted to the base table with two pin and return spring assemblies. This ‘bump-die’ housing allows the moving “center” (with push block) of the Ironworker to push or ‘bump’ the top blade to bypass the bottom stationary blades. Notcher blades are wearing parts and need to be maintained or replaced over time. Observe the following procedure when maintaining the Ironworker Angle Notcher station.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Remove and replace moving blade:

1. Remove the Angle Notcher guard assembly from the notcher table.
2. Remove the two 1/2” socket head cap screws that secure the Angle Notcher push block to the moving center.
3. Clean the keyway in the moving center of any dirt or debris.
4. With the push block removed, lift the moving top blade from the guide pin assembly. Clean and lubricate the guide pins and reinstall new moving top blade.

Remove and replace stationary blades:

1. The Angle Notcher base table includes two blades secured within the table housing. Remove the four 1/2” socket head cap screws that secure the blades into the blade supports of the base table housing.
2. Clean the blade pockets of any dirt or debris.
3. The bottom shear blades have multiple cutting surfaces. Either rotate/flip the existing blade set to the new cutting surfaces or install new cutting blades into the blade pockets. Re-install the four 1/2” socket head cap screws and tighten. The blades should be planar to each other at the top surface of the working table.
4. Reinstall the push block to the moving center with the two 1/2” socket head cap screws provided
5. Check for top and bottom blade alignment by powering up the machine and slowly inching down the top blade to meet the bottom blades with the foot pedal. Power the machine off.
6. Using a feeler gauge, confirm the clearance between the perimeter of the top and bottom blades to allow for .010 clearance on two sides.
7. Periodically lubricate the Angle Notcher assembly with the grease fittings supplied as indicated on the tooling.

OPTIONAL TOOLING - OVERSIZE PUNCH



Image Note: Guarding Removed for Clarity

CAUTION

Your Ironworker may include an optional oversized punch and die assembly installed within the punch station. When worn or chipped, the punch and die must be replaced. Observe the following procedure when maintaining the Ironworker punch station.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Maintain as follows:

1. Swing the Punch Stripper up or away from the punch by loosening the stripper assembly bolts.
2. Remove punch by loosening the punch nut assembly with factory supplied wrench.
3. Remove die by loosening the set screw at the side of the punch table and then lifting die from the die holder. If the die resists removal gently tap the die from the underside of the punch table to loosen the die for removal.
4. Install new die and tighten set screw. If loading a shaped die, align the whistle spot with the set screw and tighten.
5. Install new punch and tighten punch nut with wrench. If using a shaped punch, align the locating keystone of the punch with the corresponding slot within the punch stem assembly and tighten the punch nut with the wrench.
6. Check for punch and die alignment by powering up the machine and inching down the punch to meet the die with the foot pedal. Check to see that the punch is centered in the die.

7. In the event that the punch and die are not aligned, first confirm that the punch is seated properly in the punch nut assembly. If not seated properly, repeat step 5. If seated properly, loosen the bolts under the die table allowing the table to be moved to center the die. When aligned, tighten the table bolts to secure the table and repeat step 6.
8. Swing the stripper bar back in place allowing for minimal clearance between the top of the material and the bottom of the stripper and tighten the stripper bolts.

Punch and Die Operating Clearances

Maintain the following clearance between punch and die:

Material Thickness	Total Clearance
16 gauge and lighter	.006"
15 gauge - 13 gauge	.010"
3/32" - 5/32"	1/64"
3/16" - 15/32"	1/32"
1/2" and heavier	1/16"

Punch Tonnage Requirements

See Figure 2 on Page 5

OPTIONAL TOOLING - PIPE NOTCHER



Image Note: Guarding Removed for Clarity

CAUTION

Your Ironworker may include a Pipe Notcher or Turret Pipe Notcher assembly as an optional tool. When maintained within tolerance, the notcher will provide a distortion and burr free saddle cut in pipe and tube products.

Your Pipe-Notch Station is equipped with one, top notcher die and one, bottom notcher die. The top die is mounted within a spring loaded guide housing mounted to the tooling base. The bottom die attaches to the face of the guide housing and is machined with a saddle to aid in centering and guiding pipe sections into the die housing. The moving "center" of the Ironworker, pushes on the top Pipe-Notch blade via the accessory push block. Top and bottom Pipe Notcher blades are wearing parts and will need to be replaced if worn or chipped. Observe the following procedure when maintaining the Ironworker Pipe Notcher station.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Remove and replace moving blade:

1. Remove the two 1/2" socket head cap screws that secure the Pipe Notcher push block to the moving center.
2. Clean the keyway in the moving center of any dirt or debris.
3. With the push block removed, lift the moving top blade from the guide assembly. Clean and lubricate the guide assembly and re-install new moving top blade.
4. Re-install the push block to the moving center with the two 1/2" socket head cap screws provided.

Remove and replace stationary blade:

1. The Pipe Notcher base table includes one blade secured within the table housing. Remove the two 1/2" socket head cap screws and washers that secure the blade into the base table housing.
2. Clean the blade pocket of any dirt or debris.
3. Install new cutting blade into the blade pocket. Re-install the two 1/2" socket head cap screws and washers provided and tighten.
4. Check for top and bottom blade alignment by powering up the machine and slowly jog the center down. The pipe dies will close or bypass each other. The push block should not come in contact with the die housing.
5. Periodically lubricate the Pipe Notcher assembly as indicated on the tooling.

OPTIONAL TOOLING - BRAKE TOOLING



Image Note: Guarding Removed for Clarity

⚠ CAUTION

Your Ironworker may include a Brake assembly as an optional tool. Brake tooling is available in 7", 8", 10" and 12" assemblies for your Edwards Ironworker. When maintained within tolerance, Brake tooling will allow for the graduated bending of 1/16", 3/16", 1/8" and 1/4" flat, bar or angle stock up to 90 degrees.

Your Brake tooling is equipped with one mounting bracket to secure the "punch" to the moving center of the machine, one "4-way die", and two bottom brackets that secure the "die" to the base table. The moving "center" of the Ironworker, pushes the top punch into the shaped die to bend the specified material. Brake tooling will wear over time and will need to be replaced. Observe the following procedures when maintaining or replacing components of the Ironworker Brake station.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Remove and replace moving Punch:

1. While supporting the punch, carefully remove the allen screws that secure the punch to the punch holder. Remove the punch.
2. If the punch holder requires replacement, remove the two 1/2" socket head cap screws from the punch holder assembly. Remove punch holder.
3. Clean the keyway in the moving center of any dirt or debris.
4. Install the new punch holder with the two 1/2" socket head cap screws. The 1/2" tapped hole is positioned to the outside of the machine. Tighten the assembly into the moving center.

5. Position punch in the holder so that the milled relief in the keyway slips over the holder bolt. Tighten set screws in the holder to secure the punch.

Remove and replace stationary Four-Way Die:

1. Remove four 1/2" bolts, nuts and washers from the die support brackets.
2. Remove support brackets.
3. Remove old die assembly.
4. Place new die assembly on the Ironworker support table.
5. Loosely secure the two support brackets to the support table from the underside of the base with four 1/2" bolts, nuts and washers (provided).
6. Check for punch and die alignment by powering on the machine and slowly inching down the punch to meet the bottom die with the foot pedal. Power the machine off.
7. In the event that the punch and die are not aligned, simply loosen the bolts under the table allowing the die block to be moved to center the punch. When aligned, tighten the table bolts to secure the table.
8. Select 1/16", 3/16", 1/8" or 1/4" test material for bending. Rotate your four-way die to your selected material thickness. Power the machine on and jog the center down till the punch pushes the sample material into the die. If the punch stops before the material has been formed to a 90 degree angle, a small steel shim must be placed between the die and support table.
9. Re-install all guarding to the machine prior to machine use.

OPTIONAL TOOLING - ROD SHEAR/MULTI-SHEAR



Remove and replace stationary blade:

1. The Rod Shear or Multi Shear assembly includes one or two blades secured within the base housing. Remove the six 1/2" socket head cap screws and spacers that secure the guard and blade into the base housing.
2. Clean the blade pocket of any dirt or debris.
3. Install new cutting blades into the blade pocket. Re-install the guarding and the six 1/2" socket head cap screws and spacers provided and tighten.
5. Check for moving and stationary blade alignment by powering up the machine and slowly jog the center down. The blades will bypass each other. The push block should not come in contact with the base housing.
6. Periodically lubricate the Rod Shear or Multi Shear assembly as indicated on the tooling.

⚠ CAUTION

Your Ironworker may include a Rod Shear or Multi Shear assembly as an optional tool. When maintained within tolerance, these shears will provide a distortion and burr free cut to mild steel rod, square, bar and small angle stock. Both Edwards Rod Shear or Multi Shear assemblies are "bump-die" tools consisting of a housing which holds a stationary blade, a moving blade, return springs and a push block. The moving "center" of the Ironworker, pushes on the top moving blade via the push block to shear the material. Blades within the Rod Shear and Multi Shear assemblies are wearing parts and will require replacement over time. Observe the following procedures when maintaining or replacing components of the Rod or Multi Shear assemblies.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Remove and replace moving blade:

1. Remove Rod Shear or Multi Shear assembly from tooling station by removing the four 1/2" bolts, nuts and washers.
2. Remove the two 1/2" allen head screws that secure the push block to the moving blade. Remove damaged blade from base housing. Reserve the push block and return springs for installation of new blade.
3. Clean the pushblock and return springs of any dirt or debris.
4. Install new moving top blade to pushblock with allen head screws provided. Re-install return springs. and return moving blade to base housing.

OPTIONAL TOOLING - 241 PUNCH TOOLING



Image Note: Guarding Removed for Clarity

CAUTION

Your Edwards Ironworker may include a 241 punch and die assembly installed within the punch station. When worn or chipped, the punch and die must be replaced. Observe the following procedure when maintaining the Ironworker punch station.

Turn off power to machine by depressing the red stop/off button and lockout upstream power at the main electrical panel.

Maintain as follows:

1. *Swing the Punch Stripper up or away from the punch by loosening the stripper assembly bolts.*
2. *Remove punch by loosening the punch nut assembly with factory supplied wrench.*
3. *Remove die by loosening the set screw at the front edge of the punch table and then lifting die from the die holder. If the die resists removal gently tap the die from the underside of the punch table to loosen the die for removal.*
4. *Install new die and tighten set screw. If loading a shaped die, align the whistle spot with the set screw and tighten.*
5. *Install new punch and tighten punch nut with wrench. If using a shaped punch, align the locating keystick of the punch with the corresponding slot within the punch stem assembly and tighten the punch nut with the wrench.*
6. *Check for punch and die alignment by powering up the machine and inching down the punch to meet the die with the foot pedal. Check to see that the punch is centered in the die.*

7. *In the event that the punch and die are not aligned, first confirm that the punch is seated properly in the punch nut assembly. If not seated properly, repeat step 5. If seated properly, loosen the bolts under the die table allowing the table to be moved to center the die. When aligned, tighten the table bolts to secure the table and repeat step 6.*
8. *Swing the stripper bar back in place allowing for minimal clearance between the top of the material and the bottom of the stripper and tighten the stripper bolts.*

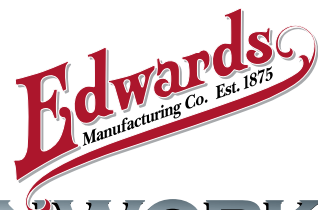
Punch and Die Operating Clearances

Maintain the following clearance between punch and die:

Material Thickness	Total Clearance
16 gauge and lighter	.006"
15 gauge - 13 gauge	.010"
3/32" - 5/32"	1/64"
3/16" - 15/32"	1/32"
1/2" and heavier	1/16"

Punch Tonnage Requirements

See Figure 2 on Page 5



IRONWORKERS

P.O. Box 166, ALBERT LEA, MN 56007 800-373-8206 WWW.EDWARDSIRONWORKERS.COM