

# Magnum™ X-Tractor 1GX

For use with equipment having Code Number: 10204

## Safety Depends on You

Lincoln arc welding and cutting equipment is designed and built with safety in mind. However, your overall safety can be increased by proper installation ... and thoughtful operation on your part. DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT. And, most importantly, think before you act and be careful.



This manual covers equipment which is obsolete and no longer in production by The Lincoln Electric Co. Specifications and availability of optional features may have changed.

## OPERATOR'S MANUAL



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## WARNING

**ARC WELDING can be hazardous.**

**PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.**

Read and understand the following safety highlights. For additional safety information, it is strongly recommended that you purchase a copy of "Safety in Welding & Cutting - ANSI Standard Z49.1" from the American Welding Society, P.O. Box 351040, Miami, Florida 33135 or CSA Standard W117.2-1974. A Free copy of "Arc Welding Safety" booklet E205 is available from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, Ohio 44117-1199.

**BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.**



### ELECTRIC SHOCK can kill.

1.a. The electrode and work (or ground) circuits are electrically "hot" when the welder is on. Do not touch these "hot" parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.

1.b. Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

**In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (in damp locations or while wearing wet clothing; on metal structures such as floors, gratings or scaffolds; when in cramped positions such as sitting, kneeling or lying, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:**

- Semiautomatic DC Constant Voltage (Wire) Welder.
- DC Manual (Stick) Welder.
- AC Welder with Reduced Voltage Control.

1.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically "hot".

1.d. Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.

1.e. Ground the work or metal to be welded to a good electrical (earth) ground.

1.f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.

1.g. Never dip the electrode in water for cooling.

1.h. Never simultaneously touch electrically "hot" parts of electrode holders connected to two welders because voltage between the two can be the total of the open circuit voltage of both welders.

1.i. When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.

1.j. Also see Items 4.c. and 6.



### ARC RAYS can burn.

2.a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87.1 standards.

2.b. Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.

2.c. Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.



### FUMES AND GASES can be dangerous.

3.a. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep

fumes and gases away from the breathing zone. **When welding with electrodes which require special ventilation such as stainless or hard facing (see instructions on container or MSDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and below Threshold Limit Values (TLV) using local exhaust or mechanical ventilation. In confined spaces or in some circumstances, outdoors, a respirator may be required. Additional precautions are also required when welding on galvanized steel.**

3.b. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations.

The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

3.c. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.

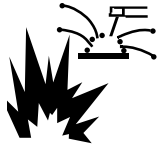
3.d. Read and understand the manufacturer's instructions for this equipment and the consumables to be used, including the material safety data sheet (MSDS) and follow your employer's safety practices. MSDS forms are available from your welding distributor or from the manufacturer.

3.e. Also see item 7b.

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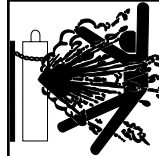
### WELDING SPARKS can cause fire or explosion.

4.a. Remove fire hazards from the welding area.

If this is not possible, cover them to prevent the welding sparks from starting a fire.

Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.

- 4.b. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to "Safety in Welding and Cutting" (ANSI Standard Z49.1) and the operating information for the equipment being used.
- 4.c. When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
- 4.d. Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned". For information, purchase "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances", AWS F4.1 from the American Welding Society (see address above).
- 4.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.
- 4.f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.
- 4.g. Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.
- 4.h. Also see item 7c.



### CYLINDER may explode if damaged.

5.a. Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.

- 5.b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- 5.c. Cylinders should be located:
  - Away from areas where they may be struck or subjected to physical damage.
  - A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.
- 5.d. Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.
- 5.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- 5.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.
- 5.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-1, "Precautions for Safe Handling of Compressed Gases in Cylinders," available from the Compressed Gas Association 1235 Jefferson Davis Highway, Arlington, VA 22202.



### FOR ELECTRICALLY powered equipment.

- 6.a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.
- 6.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.
- 6.c. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.

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## FOR ENGINE powered equipment.

7.a. Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.



7.b. Operate engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.



7.c. Do not add the fuel near an open flame welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.



7.d. Keep all equipment safety guards, covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

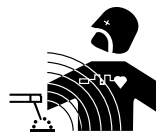
7.e. In some cases it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.

7.f. Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.

7.g. To prevent accidentally starting gasoline engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.



7.h. To avoid scalding, do not remove the radiator pressure cap when the engine is hot.



## ELECTRIC AND MAGNETIC FIELDS may be dangerous

8.a. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines

8.b. EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.

8.c. Exposure to EMF fields in welding may have other health effects which are now not known.

8.d. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

8.d.1. Route the electrode and work cables together - Secure them with tape when possible.

8.d.2. Never coil the electrode lead around your body.

8.d.3. Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.

8.d.4. Connect the work cable to the workpiece as close as possible to the area being welded.

8.d.5. Do not work next to welding power source.

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## PRÉCAUTIONS DE SÛRETÉ

Pour votre propre protection lire et observer toutes les instructions et les précautions de sûreté spécifiques qui paraissent dans ce manuel aussi bien que les précautions de sûreté générales suivantes:

### Sûreté Pour Soudage A L'Arc

1. Protégez-vous contre la secousse électrique:
  - a. Les circuits à l'électrode et à la pièce sont sous tension quand la machine à souder est en marche. Eviter toujours tout contact entre les parties sous tension et la peau nue ou les vêtements mouillés. Porter des gants secs et sans trous pour isoler les mains.
  - b. Faire très attention de bien s'isoler de la masse quand on soude dans des endroits humides, ou sur un plancher métallique ou des grilles métalliques, principalement dans les positions assis ou couché pour lesquelles une grande partie du corps peut être en contact avec la masse.
  - c. Maintenir le porte-électrode, la pince de masse, le câble de soudage et la machine à souder en bon et sûr état de fonctionnement.
  - d. Ne jamais plonger le porte-électrode dans l'eau pour le refroidir.
  - e. Ne jamais toucher simultanément les parties sous tension des porte-électrodes connectés à deux machines à souder parce que la tension entre les deux pinces peut être le total de la tension à vide des deux machines.
  - f. Si on utilise la machine à souder comme une source de courant pour soudage semi-automatique, ces précautions pour le porte-électrode s'appliquent aussi au pistolet de soudage.
2. Dans le cas de travail au dessus du niveau du sol, se protéger contre les chutes dans le cas où on reçoit un choc. Ne jamais enrouler le câble-électrode autour de n'importe quelle partie du corps.
3. Un coup d'arc peut être plus sévère qu'un coup de soleil, donc:
  - a. Utiliser un bon masque avec un verre filtrant approprié ainsi qu'un verre blanc afin de se protéger les yeux du rayonnement de l'arc et des projections quand on soude ou quand on regarde l'arc.
  - b. Porter des vêtements convenables afin de protéger la peau de soudeur et des aides contre le rayonnement de l'arc.
  - c. Protéger l'autre personnel travaillant à proximité au soudage à l'aide d'écrans appropriés et non-inflammables.
4. Des gouttes de laitier en fusion sont émises de l'arc de soudage. Se protéger avec des vêtements de protection libres de l'huile, tels que les gants en cuir, chemise épaisse, pantalons sans revers, et chaussures montantes.
5. Toujours porter des lunettes de sécurité dans la zone de soudage. Utiliser des lunettes avec écrans latéraux dans les zones où l'on pique le laitier.

6. Eloigner les matériaux inflammables ou les recouvrir afin de prévenir tout risque d'incendie dû aux étincelles.
7. Quand on ne soude pas, poser la pince à un endroit isolé de la masse. Un court-circuit accidentel peut provoquer un échauffement et un risque d'incendie.
8. S'assurer que la masse est connectée le plus près possible de la zone de travail qu'il est pratique de le faire. Si on place la masse sur la charpente de la construction ou d'autres endroits éloignés de la zone de travail, on augmente le risque de voir passer le courant de soudage par les chaînes de levage, câbles de grue, ou autres circuits. Cela peut provoquer des risques d'incendie ou d'échauffement des chaînes et des câbles jusqu'à ce qu'ils se rompent.
9. Assurer une ventilation suffisante dans la zone de soudage. Ceci est particulièrement important pour le soudage de tôles galvanisées plombées, ou cadmiées ou tout autre métal qui produit des fumées toxiques.
10. Ne pas souder en présence de vapeurs de chlore provenant d'opérations de dégraissage, nettoyage ou pistolage. La chaleur ou les rayons de l'arc peuvent réagir avec les vapeurs du solvant pour produire du phosgène (gas fortement toxique) ou autres produits irritants.
11. Pour obtenir de plus amples renseignements sur la sûreté, voir le code "Code for safety in welding and cutting" CSA Standard W 117.2-1974.

## PRÉCAUTIONS DE SÛRETÉ POUR LES MACHINES À SOUDER À TRANSFORMATEUR ET À REDRESSEUR

1. Relier à la terre le châssis du poste conformément au code de l'électricité et aux recommandations du fabricant. Le dispositif de montage ou la pièce à souder doit être branché à une bonne mise à la terre.
2. Autant que possible, l'installation et l'entretien du poste seront effectués par un électricien qualifié.
3. Avant de faire des travaux à l'intérieur de poste, la débrancher à l'interrupteur à la boîte de fusibles.
4. Garder tous les couvercles et dispositifs de sûreté à leur place.

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*Thank You* — for selecting a **QUALITY** product by Lincoln Electric. We want you to take pride in operating this Lincoln Electric Company product ••• as much pride as we have in bringing this product to you!

**Please Examine Carton and Equipment For Damage Immediately**

When this equipment is shipped, title passes to the purchaser upon receipt by the carrier. Consequently, Claims for material damaged in shipment must be made by the purchaser against the transportation company at the time the shipment is received.

Please record your equipment identification information below for future reference. This information can be found on your machine nameplate.

Model Name & Number \_\_\_\_\_

Code & Serial Number \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Whenever you request replacement parts for or information on this equipment always supply the information you have recorded above.

**Read this Operators Manual completely** before attempting to use this equipment. Save this manual and keep it handy for quick reference. Pay particular attention to the safety instructions we have provided for your protection. The level of seriousness to be applied to each is explained below:

**⚠ WARNING**

This statement appears where the information **must** be followed **exactly** to avoid **serious personal injury** or **loss of life**.

**⚠ CAUTION**

This statement appears where the information **must** be followed to avoid **minor personal injury** or **damage to this equipment**.

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### Technical Specifications- Magnum X-Tractor 1GX

<b>INPUT</b>		
<b>Sales Spec</b>	<b>Input Voltage</b>	<b>Input Current</b>
K173-2	120V, 1 $\phi$ 50/60 Hz	10 A (light duty, intermittent use)

<b>VACUUM SPECIFICATIONS</b>	
Air Flow without a hose	Air Flow with provided hose attached
96 ft <sup>3</sup> / min (164 m <sup>3</sup> / hr)	88 ft <sup>3</sup> / min (149 m <sup>3</sup> / hr)

<b>FILTER LIFE</b>
Approximately 400 lbs. of electrode under normal solid wire GMAW conditions

<b>OPERATING SOUND LEVEL</b>
75 dBA

<b>AUTOMATIC SHUT OFF DELAY</b>
5 to 25 seconds (user adjustable)

<b>PHYSICAL DIMENSIONS</b>			
<b>HEIGHT</b>	<b>WIDTH</b>	<b>DEPTH</b>	<b>WEIGHT</b>
14.4" (365 mm)	8.1" (205 mm)	32.5" (825 mm)	34 lbs (15.5 kg)

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Read this entire installation section before you start installation.

## SAFETY PRECAUTIONS

Do not attempt to use this equipment until you have thoroughly read all installation, operating and maintenance information supplied with your equipment. They include important safety precautions and detailed operating and maintenance instructions.

### WARNING



#### **ELECTRIC SHOCK can kill.**

- Do not touch electrically live parts such as internal wiring.
- Insulate yourself from the work and ground.
- Always wear dry insulating gloves.



#### **MOVING PARTS can injure.**

- Do not operate with covers open or filter removed.
- Keep away from moving parts.

Only qualified personnel should install, use or service this equipment.

The Magnum X-Tractor 1GX vacuum source was designed to provide the required fume extraction vacuum for any semiautomatic Magnum X-Tractor fume extraction gun and cable assembly. The X-Tractor 1GX will filter the collected visible particulate matter and exhaust visibly clean air. There is an indicator light on the unit that signals when the filter needs to be changed. The 1GX uses a cardboard enclosed, disposable filter that is extremely easy and clean to change.

The 1GX vacuum is portable and is intended for light duty or intermittent use. Because it has a disposable (i.e. not cleanable) paper filter, the X-Tractor 1GX is not recommended for heavy duty applications such as Innershield®. The 1GX can be operated either in the continuous mode or in the automatic mode. The auto mode senses the current in the welding cable to turn the vacuum on, and after a user determined time delay, will turn itself off after welding stops.

## GENERAL DESCRIPTION

The K173-2 Magnum X-Tractor vacuum source is made up of a vacuum motor and control assembly, a sheet metal filter cabinet with filter, and a metal spark trap with an inlet pipe on it. These three basic components fasten together and can easily be separated for servicing. The vacuum is also shipped with a hose adapter to fit 1-3/4" (45 mm) exhaust hose. Lincoln Electric has 1-3/4" hoses for both regular duty (PVC flexhose S19947- ) and heavy duty (Reinforced rubber S14927-8) applications.

The vacuum motor and control are enclosed in a molded housing. Inside the housing are the vacuum motor and blower. The motor uses a separate source of cooling air, independent of the warm filtered air, to assure cool operation. The motor also uses long life carbon brushes that can be replaced should they ever wear out. On top of the housing are the power on/off/auto rocker switch, adjustable rotary knob to set the automatic shut off delay time after welding stops, a full filter indicator light to signal when the filter needs changing, a pilot light to indicate that the power switch is in the "auto" mode, and an area designed to accept the work cable so the unit can sense welding current in the cable.

The sheet metal filter cabinet is a non-pressurized cabinet. All the vacuum air flow passes through the totally enclosed disposable filter and out the top of the cabinet through a sound trap. This means that the cabinet can be drilled and mounted more permanently, as long as the fasteners don't puncture the cardboard filter box. The filter can be removed from the cabinet without tools, thrown away as a unit, and a new one installed in one or two minutes. Because the filter media is totally enclosed, the user will not come in contact with the collected matter. The filter life varies based on the electrode and welding parameters used. The filter efficiency is 99.7%.

At the opposite end of the filter cabinet from the vacuum is the sheet metal spark trap and inlet pipe. The spark trap can be removed without tools, emptied, and replaced in about a minute.

## Connection to Power Supply and Welding Power Source

The Magnum X-Tractor 1GX vacuum source is shipped from the factory with a standard grounded 115 volt plug attached to the end of the 16.4 ft. (5 meter) long input power cord. This plug can be mated to any 115V/50/60 Hz supply, either in the wall or the auxiliary receptacles provided on some welding power sources.

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In order to take advantage of the automatic stop/start feature of the K173-2, the work cable from the power source needs to be routed through the sensor located at the motor end of the vacuum source. This sensor, or cable holder, is located on top of the plastic motor housing and has two bristle brushes on it which keep the cable in place. For low current welding applications, the work cable may need to be routed through the cable holder twice to assure 100% performance of the sensor.

## Connection to the Gun and Cable Assembly

The hose adapter supplied will mate with any 1-3/4" (45 mm) exhaust hose. Lincoln Electric has 1-3/4" hoses for both regular duty (PVC flexhose S19947- ) and heavy duty (Reinforced rubber 14927-8) applications. Simply connect the hose adapter to the hose and connect the adapter to the K173-2. Do the same at the other end of the hose with the gun or suction head being used.

Tighten the hose clamps to keep the hose in place.

## Locating the Vacuum Source

Because of its size and weight, the X-Tractor 1GX can be located almost anywhere in the work area. Since only particulate matter is filtered out of the air and because the unfiltered gases may contain odors, it is recommended that the vacuum be placed away from the user and other personnel as far as convenient within the constraints of the hoses and cables.

The filter cabinet of the 1GX is not pressurized, so it is possible to drill holes in the sheet metal box without affecting performance. This means that a more permanent mounting can be achieved by bolting or screwing the vacuum to a power source or other nearby equipment. If this type of mounting is desired:

- a) Physically check that the vacuum will fit in the desired location, and that the spark trap and filter cartridge can still be maintained after the installation. This may require that a special spacer or washer be made to keep the vacuum spaced away from the other equipment.
- b) Remove the spark trap, filter cartridge, and blower/motor assembly from the cabinet.
- c) Carefully remove the panel from the power source or other equipment that the vacuum will be mounted to, following all warnings and

instructions provided with that equipment.

- d) Mark and drill both the vacuum cabinet and the other panel for the fasteners to be used.
- e) Fasten the cabinet to the mating panel, using any spacers if they are required. Carefully choose fasteners with flat heads or other low type head so they don't interfere inside the vacuum cabinet with filter installation.
- f) Carefully reassemble and connect both the power source (or other equipment) and the vacuum unit.

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Read and understand this entire section before operating your Magnum X-Tractor 1GX.

## SAFETY INSTRUCTIONS

Do not attempt to use this equipment until you have thoroughly read all operating and maintenance manuals supplied with your equipment and any related welding machine it will be used with. They include important safety precautions, operating and maintenance instructions and parts lists.

### ⚠ WARNING



#### **ELECTRIC SHOCK can kill.**

- Do not touch electrically live parts such as output terminals or internal wiring.
- Insulate yourself from the work and ground.
- Always wear dry insulating gloves.



#### **WELDING SPARKS can cause fire or explosion.**

- Keep flammable material away.
- Do not weld upon containers which have held combustibles.



#### **ARC RAYS can burn.**

- Wear eye, ear and body protection.

Only qualified personnel should operate this equipment.

## ADDITIONAL SAFETY PRECAUTIONS

Always operate this equipment with the filter installed and covers in place as these provide maximum protection from moving parts and insure proper vacuum operation and cooling air flow.

## OPERATING INSTRUCTIONS

The 1GX vacuum can be operated in either the "On" or "Auto" mode by selecting the desired operation at the rocker switch on the motor housing. In the "On" position, the vacuum will be on continuously. In the "Auto" position, the "Auto On" light will be illuminated but the vacuum will only come on when the sensor detects welding current in the cable.

**NOTE:**The work cable must be routed through the cable holder on the motor housing in order for the "Auto" feature to work.

"Auto" operation of the vacuum will reduce shop noise when there is no welding being done. It will also increase the life of the vacuum motor and brushes dramatically since, in semiautomatic welding, the unit will probably be off more than 50% of the time.

When utilizing the "Auto" feature, the operator should adjust the delay knob for the application. This knob will allow the vacuum to continue operating from 5 to 25 seconds after welding stops. The longer delay time should be used when:

- There is a series of very quick tack welds, so the vacuum doesn't keep stopping and starting.
- In applications that cause the gun to run hot, the delay will help the gun cool off more quickly between welds.
- In very smoky conditions, the delay will help clear out more residual fumes.

## SAFETY PRECAUTIONS

### WARNING

- Have a qualified technician do the maintenance and troubleshooting work.
- Turn the equipment off before working inside the machine.
- Remove covers only when necessary and replace them when the maintenance requiring their removal is complete.
- Always use the greatest care when working near moving parts.

Read the Safety Precautions in front of this manual and the welder instruction manual before working on this machine.

Keep all equipment covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from fans and all other moving parts when operating or repairing the equipment.

## ROUTINE AND PERIODIC MAINTENANCE

### Emptying the Spark Trap

The spark trap should be emptied each time a filter is changed, and more often when the welding conditions cause high spatter.

- a)Remove the hose from the spark trap.
- b)Release the latches and pull the trap from the filter cabinet.
- c)Shake the opening of the spark trap over a waste bin until the trap is empty.
- d)Reinstall the trap and reconnect the hose.

### Replacing the Filter

The filter cartridge in the Magnum X-Tractor 1GX is disposable and should last through the use of about 400 lbs. of electrode under normal solid wire GMAW conditions. The indicator light on the motor housing will light up when the filter is in need of replacement.

### CAUTION

EXCESSIVE AIR FILTER RESTRICTION WILL RESULT IN REDUCED VACUUM LIFE. ALWAYS CHANGE THE FILTER AS SOON AS POSSIBLE AFTER THE CHANGE FILTER LIGHT ILLUMINATES.

- a)Turn off power to the vacuum.
- b)Remove the hose from the spark trap.
- c)Release the latches and remove the trap from the filter cabinet.
- d)Pull the filter out of the cabinet.
- e)Push a new filter into the cabinet. Be sure it is fully inserted (a small pipe inside the cabinet must be forced through the back of the filter, so be sure to push the cartridge completely in).
- f)Reinstall the spark trap and replace the hose.

### Changing Motor Brushes

If the carbon motor brushes become worn out, replace them by following the instructions provided with the replacement brushes.

## HOW TO USE TROUBLESHOOTING GUIDE

### WARNING

Service and Repair should only be performed by Lincoln Electric Factory Trained Personnel. Unauthorized repairs performed on this equipment may result in danger to the technician and machine operator and will invalidate your factory warranty. For your safety and to avoid Electrical Shock, please observe all safety notes and precautions detailed throughout this manual.

This Troubleshooting Guide is provided to help you locate and repair possible machine malfunctions. Simply follow the three-step procedure listed below.

#### **Step 1. LOCATE PROBLEM (SYMPTOM).**

Look under the column labeled "PROBLEM (SYMPTOMS)". This column describes possible symptoms that the machine may exhibit. Find the listing that best describes the symptom that the machine is exhibiting. Symptoms are grouped into the following categories: engine problems, function problems and output problems.

#### **Step 2. PERFORM EXTERNAL TESTS.**

The second column labeled "POSSIBLE AREAS OF MISADJUSTMENT(S)" lists the obvious external possibilities that may contribute to the machine symptom. Perform these tests/checks in the order listed. In general, these tests can be conducted without removing the case wrap-around cover.

#### **Step 3. RECOMMENDED COURSE OF ACTION**

If you have exhausted all of the items in step 2. Contact your Local Lincoln Authorized Field Service Facility.

### CAUTION

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your **Local Lincoln Authorized Field Service Facility** for technical troubleshooting assistance before you proceed.

MAGNUM X-TRACTOR 1GX



Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE AREAS OF MISADJUSTMENTS(S)	RECOMMENDED COURSE OF ACTION
<b>PROBLEMS</b>		
Low Vacuum.	1.Be sure all tubing connections are tight and there are no punctures in hose.	Contact your <b>Local Lincoln Authorized Field Service Facility</b> for technical troubleshooting assistance.
Motor won't operate in any mode.	1.Verify power to the unit.  2.Check motor brushes and replace if necessary.	
Motor won't operate in "Auto" mode.	1.Check to see that the "Auto" light is on. 2.Be sure that the welding "work" cable is properly routed through the cable holder on the vacuum motor housing. Route the cable through twice for lower current welding applications.	

**⚠ CAUTION**

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your **Local Lincoln Authorized Field Service Facility** for technical troubleshooting assistance before you proceed.

**MAGNUM X-TRACTOR 1GX**



# ***MAGNUM*** ***X-TRACTOR 1GX*** **PARTS MANUAL**

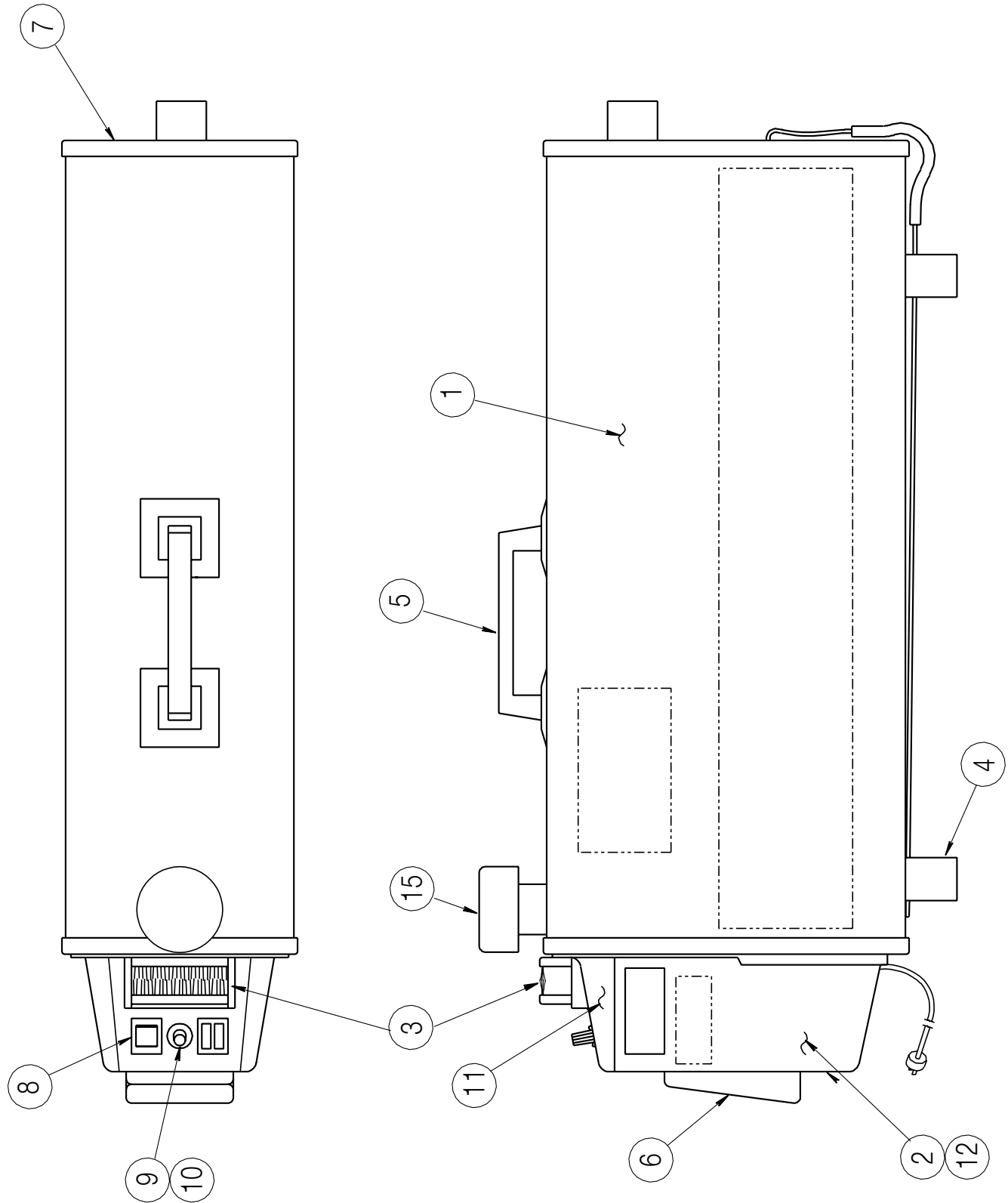
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**NOTE:** This Parts Manual is provided as an informative guide only, when ordering parts always refer to the Lincoln Electric Parts List.

**MAGNUM X-TRACTOR 1GX**



P-202-K  
MAGNUM X-TRACTOR VACUUM SOURCE



L8481  
2-3-95K

**NOTE:** This Parts Manual is provided as an informative guide only, when ordering parts always refer to the Lincoln Electric Parts List.

**MAGNUM X-TRACTOR 1GX**





P-202-K.1  
MAGNUM X-TRACTOR VACUUM SOURCE

Item	Description	Part No.	No. Req'd.
1	Filter	S20000-1	1
2	Complete Motor Assembly	S20000-2	1
3	Brush (To Hold Work Cable)	S20000-3	1
4	Rubber Feet (3 pieces)	S20000-4	1
5	Handle	S20000-5	1
6	Sound Trap	S20000-6	1
7	Spark Trap	S20000-7	1
8	Rocker Switch (3 Position)	S20000-8	1
9	Potentiometer	S20000-9	1
10	Knob	S20000-10	1
11	Circuit Board	S20000-11	1
12	Carbon Brushes	S20000-12	1
15	Exhaust Cover	S20000-15	1
<b>ITEMS NOT ILLUSTRATED</b>			
13	Hose Dia. 45mm (1.77") x 5m (16.4 ft) long (Standard on K173-1, Optional on K173-2)	S19947-5	1
14	Hose Connector	S20591-12	1

2-22-95

**NOTE:** This Parts Manual is provided as an informative guide only, when ordering parts always refer to the Lincoln Electric Parts List.

## MAGNUM X-TRACTOR 1GX



			
<b>WARNING</b>	<ul style="list-style-type: none"> <li>● Do not touch electrically live parts or electrode with skin or wet clothing.</li> <li>● Insulate yourself from work and ground.</li> </ul>	<ul style="list-style-type: none"> <li>● Keep flammable materials away.</li> </ul>	<ul style="list-style-type: none"> <li>● Wear eye, ear and body protection.</li> </ul>
Spanish <b>AVISO DE PRECAUCION</b>	<ul style="list-style-type: none"> <li>● No toque las partes o los electrodos bajo carga con la piel o ropa mojada.</li> <li>● Aislese del trabajo y de la tierra.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenga el material combustible fuera del área de trabajo.</li> </ul>	<ul style="list-style-type: none"> <li>● Protéjase los ojos, los oídos y el cuerpo.</li> </ul>
French <b>ATTENTION</b>	<ul style="list-style-type: none"> <li>● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension.</li> <li>● Isolez-vous du travail et de la terre.</li> </ul>	<ul style="list-style-type: none"> <li>● Gardez à l'écart de tout matériel inflammable.</li> </ul>	<ul style="list-style-type: none"> <li>● Protégez vos yeux, vos oreilles et votre corps.</li> </ul>
German <b>WARNUNG</b>	<ul style="list-style-type: none"> <li>● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung!</li> <li>● Isolieren Sie sich von den Elektroden und dem Erdboden!</li> </ul>	<ul style="list-style-type: none"> <li>● Entfernen Sie brennbares Material!</li> </ul>	<ul style="list-style-type: none"> <li>● Tragen Sie Augen-, Ohren- und Körperschutz!</li> </ul>
Portuguese <b>ATENÇÃO</b>	<ul style="list-style-type: none"> <li>● Não toque partes elétricas e electrodos com a pele ou roupa molhada.</li> <li>● Isole-se da peça e terra.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenha inflamáveis bem guardados.</li> </ul>	<ul style="list-style-type: none"> <li>● Use proteção para a vista, ouvido e corpo.</li> </ul>
Japanese <b>注意事項</b>	<ul style="list-style-type: none"> <li>● 通電中の電気部品、又は溶材にヒフやぬれた布で触れないこと。</li> <li>● 施工物やアースから身体が絶縁されている様にして下さい。</li> </ul>	<ul style="list-style-type: none"> <li>● 燃えやすいものの側での溶接作業は絶対にしてはなりません。</li> </ul>	<ul style="list-style-type: none"> <li>● 目、耳及び身体に保護具をして下さい。</li> </ul>
Chinese <b>警告</b>	<ul style="list-style-type: none"> <li>● 皮肤或湿衣物切勿接触带电部件及焊条。</li> <li>● 使你自已与地面和工件绝缘。</li> </ul>	<ul style="list-style-type: none"> <li>● 把一切易燃物品移离工作场所。</li> </ul>	<ul style="list-style-type: none"> <li>● 佩戴眼、耳及身体劳动保护用具。</li> </ul>
Korean <b>위험</b>	<ul style="list-style-type: none"> <li>● 전도체나 용접봉을 젖은 형갑 또는 피부로 절대 접촉치 마십시오.</li> <li>● 모재와 접지를 접촉치 마십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 인화성 물질을 접근 시키지 마십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 눈, 귀와 몸에 보호장구를 착용하십시오.</li> </ul>
Arabic <b>تحذير</b>	<ul style="list-style-type: none"> <li>● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الألكترود بجلد الجسم أو بالملابس المبللة بالماء.</li> <li>● ضع عازلا على جسمك خلال العمل.</li> </ul>	<ul style="list-style-type: none"> <li>● ضع المواد القابلة للاشتعال في مكان بعيد.</li> </ul>	<ul style="list-style-type: none"> <li>● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.</li> </ul>

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTION FOR THIS EQUIPMENT AND THE CONSUMABLES TO BE USED AND FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.

SE RECOMIENDA LEER Y ENTENDER LAS INSTRUCCIONES DEL FABRICANTE PARA EL USO DE ESTE EQUIPO Y LOS CONSUMIBLES QUE VA A UTILIZAR, SIGA LAS MEDIDAS DE SEGURIDAD DE SU SUPERVISOR.

LISEZ ET COMPRENEZ LES INSTRUCTIONS DU FABRICANT EN CE QUI REGARDE CET EQUIPMENT ET LES PRODUITS A ETRE EMPLOYES ET SUIVEZ LES PROCEDURES DE SECURITE DE VOTRE EMPLOYEUR.

LESEN SIE UND BEFOLGEN SIE DIE BETRIEBSANLEITUNG DER ANLAGE UND DEN ELEKTRODENEINSATZ DES HERSTELLERS. DIE UNFALLVERHÜTUNGSVORSCHRIFTEN DES ARBEITGEBERS SIND EBENFALLS ZU BEACHTEN.

			
<ul style="list-style-type: none"> <li>● Keep your head out of fumes.</li> <li>● Use ventilation or exhaust to remove fumes from breathing zone.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn power off before servicing.</li> </ul>	<ul style="list-style-type: none"> <li>● Do not operate with panel open or guards off.</li> </ul>	<b>WARNING</b>
<ul style="list-style-type: none"> <li>● Los humos fuera de la zona de respiración.</li> <li>● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases.</li> </ul>	<ul style="list-style-type: none"> <li>● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio.</li> </ul>	<ul style="list-style-type: none"> <li>● No operar con panel abierto o guardas quitadas.</li> </ul>	Spanish <b>AVISO DE PRECAUCION</b>
<ul style="list-style-type: none"> <li>● Gardez la tête à l'écart des fumées.</li> <li>● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail.</li> </ul>	<ul style="list-style-type: none"> <li>● Débranchez le courant avant l'entretien.</li> </ul>	<ul style="list-style-type: none"> <li>● N'opérez pas avec les panneaux ouverts ou avec des dispositifs de protection enlevés.</li> </ul>	French <b>ATTENTION</b>
<ul style="list-style-type: none"> <li>● Vermeiden Sie das Einatmen von Schweißrauch!</li> <li>● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes!</li> </ul>	<ul style="list-style-type: none"> <li>● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!)</li> </ul>	<ul style="list-style-type: none"> <li>● Arbeiten ohne Schutzgehäuse oder Instandschutzbekleidung / Reparatur setzen!</li> </ul>	German <b>WARNUNG</b>
<ul style="list-style-type: none"> <li>● Mantenha seu rosto da fumaça.</li> <li>● Use ventilação e exaustão para remover fumo da zona respiratória.</li> </ul>	<ul style="list-style-type: none"> <li>● Não opere com as tampas removidas.</li> <li>● Desligue a corrente antes de fazer serviço.</li> <li>● Não toque as partes elétricas nuas.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenha-se afastado das partes móveis.</li> <li>● Não opere com os painéis abertos ou guardas removidas.</li> </ul>	Portuguese <b>ATENÇÃO</b>
<ul style="list-style-type: none"> <li>● ヒュームから頭を離すようにして下さい。</li> <li>● 換気や排煙に十分留意して下さい。</li> </ul>	<ul style="list-style-type: none"> <li>● メンテナンス・サービスに取りかかる際には、必ず電源スイッチを必ず切って下さい。</li> </ul>	<ul style="list-style-type: none"> <li>● ネルやカバーを取り外したまま機械操作をしないで下さい。</li> </ul>	Japanese <b>注意事項</b>
<ul style="list-style-type: none"> <li>● 頭部遠離煙霧。</li> <li>● 在呼吸區使用通風或排風器除煙。</li> </ul>	<ul style="list-style-type: none"> <li>● 維修前切斷電源。</li> </ul>	<ul style="list-style-type: none"> <li>● 儀表板打開或沒有安全罩時不準作業。</li> </ul>	Chinese <b>警告</b>
<ul style="list-style-type: none"> <li>● 얼굴로부터 용접가스를 멀리하십시오.</li> <li>● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 보수전에 전원을 차단하십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 판넬이 열린 상태로 작동치 마십시오.</li> </ul>	Korean <b>위험</b>
<ul style="list-style-type: none"> <li>● ابعء رأسك بعيداً عن الدخان.</li> <li>● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها.</li> </ul>	<ul style="list-style-type: none"> <li>● اقطع التيار الكهربائي قبل القيام بأية صيانة.</li> </ul>	<ul style="list-style-type: none"> <li>● لا تشغيل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه.</li> </ul>	Arabic <b>تحذير</b>

LEIA E COMPREENDA AS INSTRUÇÕES DO FABRICANTE PARA ESTE EQUIPAMENTO E AS PARTES DE USO, E SIGA AS PRÁTICAS DE SEGURANÇA DO EMPREGADOR.

使う機械や溶材のメーカーの指示書をよく読み、まず理解して下さい。そして貴社の安全規定に従って下さい。

請詳細閱讀並理解製造廠提供的說明以及應該使用的銀焊材料，並請遵守貴方的有關勞動保護規定。

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

اقرأ بتمعن وافهم تعليمات المصنع المنتج لهذه المعدات والمواد قبل استعمالها واتبع تعليمات الوقاية لصاحب العمل.

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