

OPERATING MANUAL

REDI-MIG 4D Remote Semi Automatic Wire Feeder

This manual applies to

Part No.	Code	Description	Volts
KA 1435	1568	REDI-MIG 4D	42



EMC Compliant

SAFETY DEPENDS ON YOU

Lincoln Electric welders are designed and built with safety in mind. However, your overall safety can be increased by proper installation . . . and thoughtful operation on your part. Read and observe the general safety precautions on page 2 and follow specific installation and operating instructions included in this manual.

Most importantly, think before you act and be careful.

**THE LINCOLN ELECTRIC COMPANY
(AUSTRALIA) PTY. LTD. A.B.N. 36 000 040 308**

SYDNEY, AUSTRALIA

A Subsidiary of

THE LINCOLN ELECTRIC CO. U.S.A.

Associated Subsidiaries in Australasia, Asia, Europe, North and South America.

THE WORLD'S LEADER IN WELDING AND CUTTING PRODUCTS

PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. READ AND UNDERSTAND BOTH THE SPECIFIC INFORMATION GIVEN IN THE OPERATING MANUAL FOR THE WELDER AND/OR OTHER EQUIPMENT TO BE USED AS WELL AS THE FOLLOWING GENERAL INFORMATION.

ARC WELDING SAFETY PRECAUTIONS



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.
- b. In semi-automatic and automatic wire welding, the electrode, electrode reel, welding head and nozzle or semi-automatic welding gun are also electrically "hot".
- c. Insulate yourself from work and ground using dry insulation. When welding in damp locations, on metal framework such as floors, gratings or scaffolds, and when in positions such as sitting or lying, make certain the insulation is large enough to cover your full area of physical contact with work and ground.
- 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.
- e. Ground the work or metal to be welded to a good electrical (earth) ground.
- f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.
- g. Never dip the electrode holder in water for cooling.
- 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.
- i. When working above floor level, protect yourself from a fall should you get a shock.
- j. Also see items 4c and 6.



FUMES AND GASES can be dangerous

2. 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 on galvanised, lead or cadmium plated steel and other metals which produce toxic fumes, even greater care must be taken.
- b. Do not weld in locations near chlorinated hydrocarbon vapours coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapours to form phosgene, a highly toxic gas, and other irritating products.
- c. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to ensure breathing air is safe.
- 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.
- e. Also see Item 7b.



ARC RAYS can burn

3. 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 AS 1674.2-2003 AS1337-1992 and AS1338-1992 standards.
- b. Use suitable clothing made from durable flame resistant material to protect your skin and that of your helpers from the arc rays.
- c. Protect other nearby personnel with suitable non flammable screening and/or warn them not to watch the arc or expose themselves to the arc rays or to hot spatter or metal.



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. Have a fire extinguisher readily available.
- b. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to AS1674 Parts 1 & 2 "Safety in Welding and Allied Processes", WTIA Technical Note 7 "Health and Safety in Welding" and the operating information for the equipment being used.
- 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.
- 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 vapours from substances inside. These can cause an explosion even though the vessel has been "cleaned". For information purchase AS 1674-1990.
- e. Vent hollow castings or containers before heating, cutting or welding. They may explode.
- 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.
- g. Connect the work cable to the work as close to the welding area as possible. 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.
- 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.
- b. Always keep cylinders in an upright position and securely chained to an undercarriage or fixed support.
- 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.
- d. Never allow the electrode, electrode holder, or any other electrically "hot" parts to touch a cylinder.
- e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- f. Valve protection caps should always be in place and hand-tight except when the cylinder is in use or connected for use.
- g. Read and follow the instructions on compressed gas cylinders and associated equipment, and AS 2030 Parts 1 & 2.



FOR ELECTRICALLY powered equipment

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



FOR ENGINE powered equipment

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



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



- c. Do not add fuel near an open flame, welding arc or when the engine is running. Stop the engine and allow it to cool before refuelling 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.



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



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

HAVE ALL INSTALLATIONS, OPERATION, MAINTENANCE AND REPAIR WORK PERFORMED BY QUALIFIED PEOPLE

For more detailed information it is strongly recommended that you purchase a copy of "Safety in Welding and Allied Processes AS1674 Parts 1 & 2" and WTIA Technical Note 7. All WTIA publications are available from the Welding Technology Institute of Australia, P.O. Box 6165, Silverwater NSW 2128. For copies of various Australian Standards contact your local S.A.A. office.

HOW TO ORDER REPLACEMENT PARTS

To ensure that you receive the correct replacement part the following procedure should be followed:

1. Quote Serial Number and Code Number.
2. Quote the Description, Item Number and Parts List Number of the desired part. When ordering parts for items carrying brand names of other companies, such as fan motors, drive shafts, etc., be sure to include the other company's name and part number and other relevant information.
3. Should the primary cord be damaged, a special cord is required, and is available from Lincoln Electric.
4. Parts should be ordered from Lincoln, its offices or the nearest Authorised Service Facilities. (The "Lincoln Service Directory" listing these shops geographically is available on request.)

Note: "Hardware" in the Lincoln Parts Lists are not Lincoln stock items but can be obtained via the Authorised Service Facilities.

Component parts of assemblies such as stator coils or armature coils, etc., which require electrical testing or locating fixtures are not considered replaceable items. This is to ensure that the customer receives parts which will keep the welder in the best operating condition.

BUY ONLY GENUINE REPAIR PARTS

WELDING, EMF & PACEMAKERS

All welders should follow safe practices that minimise their exposure to electric and magnetic fields (EMF).

For welders wearing implanted pacemakers, safe welding practices are particularly important and additional procedures should be followed by those who have decided to continue to weld. (Hopefully in keeping with a doctor's advice).

The following procedures will not eliminate exposure to EMF or the possibility of arc welding having an effect on a pacemaker, however if followed, they will significantly reduce exposure to electric and magnetic fields. Electric and magnetic fields are created any time electric current flows through a conductor, however it is not clear whether such exposure affects one's health.

Some researchers have reported that exposure to EMF may cause leukemia or other illnesses. These claims originally arose in relation to high voltage electric power lines and are very much in dispute in the medical and scientific arena, however the best advice is to minimise your exposure to EMF to protect your health should doctors eventually decide there is a risk.

There are four fundamental facts about EMF:

- With direct current (DC), the field strength is relatively constant and does not change.
- With alternating current (AC), the field strength constantly changes.
- The greater the current flow, i.e. the higher the amps, the stronger the field created by the current
- The closer the conductor or electrical device is to the body, the greater the exposure to the field.

Minimising exposure

All welders should use the following procedures to minimise EMF exposure.

- Route electrode or gun and work cables together. Secure them with tape if possible.
- Never coil the electrode lead around your body.
- Do not place your body between the electrode and work cables. If your electrode cable is on your right side the work cable should also be on your right side.
- Connect the work cable to the work piece as close as possible to the area being welded. (This is also a good practice to eliminate a common problem on welding - a poor work connection.
- Do not work next to the welding power source.

Welders with pacemakers

There is no question that the fields in arc welding can interfere with a pacemaker's function. Generally the interference does not permanently damage the pacemaker. Once the wearer leaves the arc welding environment or stops welding, the pacemaker returns to normal functioning. The welding arc has little or no effect on the operation of some pacemakers, especially designs that are bipolar or designed to filter out such interference.

For a welder or anyone working around electrical equipment the selection of a pacemaker is very important. Get a doctor's advice about which pacemaker is the least sensitive to interference from welding while still being medically suitable.

In addition to the normal safety precautions, the following additional procedures should be adopted by welders with pacemakers.

- Use gas welding when the application is suitable.
- Use the lowest current setting appropriate for the application. Do not exceed 400 amps. Low current (75-200 amps) direct current (DC) welding should be used if arc welding is necessary. Do not TIG weld with high frequency.
- Do not use repeated, short welds. Wait about ten seconds between stopping one weld and starting the next. When having difficulty starting an electrode, do not re-strike the rod repeatedly.
- If you feel light headed, dizzy or faint, immediately stop welding. Lay the electrode holder down so that it does not contact the work and move away from any welding being performed. Arrange your work in advance so that, if you become dizzy and drop the electrode holder, the electrode holder will not fall on your body or strike the work.
- Do not work on a ladder or other elevated position or in a cramped, confined place.
- Do not work alone. Work only in the presence of an individual who understands these precautions and the possible effect welding may have on your pacemaker.
- Do not work near spot welding equipment.
- If you have a pacemaker and wish to continue arc welding, discuss this and any other questions you may have with your physician and follow his or her advice. The doctor may wish to contact the pacemaker manufacturer for a recommendation. As mentioned before, the design of the pacemaker significantly affects the degree to which it is subject to interference from a welding circuit. Do not rely on the fact that you know another welder with a pacemaker who has welded for years without experiencing a problem. That welder and his or her pacemaker may be quite different from you and your pacemaker.

INSTRUCTIONS FOR ELECTROMAGNETIC COMPATIBILITY



WARNING

This welding machine must be used by trained operators only. Read this manual carefully before attempting to use the welding machine.

Conformance

Products displaying the C-Tick mark are in conformity with Australian/New Zealand requirements for Electromagnetic Compatibility (EMC) according to standard AS/NZS "Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement".

Products displaying the CE mark are in conformity with European Community Council Directive 89/336/EEC requirements for EMC by implementing EN60974-10 "Arc Welding Equipment - Part 10: Electromagnetic Compatibility (EMC) requirements".

- manufactured in conformity with Australian/New Zealand Standard (Emission):- AS/NZS 3652 'Electromagnetic Compatibility - Arc Welding Equipment' (Identical to and reproduced from British Standard EN 50199)

Products are:

- for use with other Lincoln Electric/LiquidArc equipment.
- designed for industrial and professional use.

Introduction

All electrical equipment generates small amounts of electromagnetic emission. Electrical emission may be transmitted through power lines or radiated through space, similar to a radio transmitter. When emissions are received by other equipment, electrical interference may result. Electrical emissions may effect many kinds of electrical equipment: other nearby welding equipment, radio and TV transmitters and receivers, numerical controlled machines, telephone systems, computers, etc. Be aware that interference may result and extra precautions may be required when a welding power source is used in a domestic establishment.

Installation and Use

The purchaser/user is responsible for installing and using the welding equipment according to the manufacturer's instructions. If electromagnetic disturbances are detected then it shall be the responsibility of the purchaser/user of the welding equipment to resolve the situation with the technical assistance of the manufacturer. In some cases this remedial action may be as simple as earthing (grounding) the welding circuit (see note below). In other cases it could involve constructing an electromagnetic screen enclosing the power source and the work complete with associated input filters. In all cases electromagnetic disturbances must be reduced to the point where they are no longer troublesome.

NOTE: The welding circuit may or may not be earthed for safety reasons according to national codes. Changing the earthing arrangements should only be authorised by a person who is competent to assess whether the changes increase the risk of injury, eg. by allowing parallel welding current return paths which may damage the earth circuits of other equipment.

Assessment of Area

Before installing welding equipment the purchaser/user shall make an assessment of potential problems in the surrounding area.

The following shall be taken into account:

- Other supply cables, control cables, signalling and telephone cables above, below and adjacent to the welding equipment;
- Radio and television transmitters and receivers;
- Computer and other control equipment;
- Safety critical safety equipment, eg. guarding of industrial equipment;
- The health of people around, eg. the use of pacemakers and hearing aids;
- Equipment used for calibration or measurement;
- The immunity of other equipment in the environment. The purchaser/user shall ensure that other equipment being used

in the environment is compatible. This may require additional protection measures;

- The time of the day that welding or other activities are to be carried out.

The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.

Methods of Reducing Emissions

Mains Supply

Welding equipment should be connected to the mains supply according to the manufacturer's recommendations. If interference occurs, it may be necessary to take additional precautions such as filtering the mains supply. Consideration should be given to shielding the supply cable of permanently installed welding equipment in metallic conduit or equivalent. Shielding should be electrically continuous throughout its length. The shielding should be connected to the welding power source so that good electrical contact is maintained between the conduit and the welding power source enclosure.

Maintenance of the Welding Equipment

The welding equipment should be routinely maintained according to the manufacturer's recommendations. All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustment covered in the manufacturer's instructions. In particular, the spark gaps of arc initiation and stabilising devices should be adjusted and maintained according to the manufacturer's recommendations.

Welding Cables

The welding cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

Equipotential Bonding

Bonding of all metallic components in the welding installation and adjacent to it should be considered. However, metallic components bonded to the work piece will increase the risk that the operator could receive a shock by touching these metallic components and the electrode at the same time. The operator should be insulated from all such bonded metallic components.

Earthing of the workpiece

Where the workpiece is not bonded to earth for electrical safety, nor connected to earth because of its size and position, eg. ship's hull or building steelwork, a connection bonding the workpiece to earth may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of work pieces increasing the risk of injury to users, or damage to other electrical equipment. Where necessary, the connection of the workpiece to earth should be made by direct connection to the workpiece, but in some countries where direct connection is not permitted, the bonding should be achieved by suitable capacitance, selected according to national regulations.

Screening and Shielding

Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening of the entire welding installation may be considered for special applications.*

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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 or information on this equipment, always supply the information you have recorded above.

Read this Operator's 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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CONNECTION & OPERATION

Section 1 - Description

The REDI-MIG 4D Wire Feeder has a drive plate with four drive rolls (all driven). It has been designed for use with continuous electrodes with or without an externally applied shielding gas. The welding gun must have a standard "Euro" connector at the machine end. Input power requirements are 42V AC 50Hz, which is supplied by the REDI-MIG Remote power source. The units also feature electrical contacts to allow the power source output to be switched on and off, so that the gun and electrode will be electrically "cold" when not in use. A gas solenoid is provided to automatically control gas flow when shielding gas is used.

Front panel controls are:

- (a) Electrode wire feed speed control
- (b) Spot weld time switch and control
- (c) "2 Step/4 Step" trigger mode switch for gun trigger
- (d) "Gas Purge"/"Wire Inch" toggle switch
- (e) A burnback control is situated in the wire bay area

Section 2 - Rating

Wire feeder rating is 400 amps max. at 60% duty cycle or 300 amps max. at 100% duty cycle. The current and duty cycle must also be within the rated capacity of the power source.

The wire feeder may be used with 0.6mm to 1.2mm dia. solid wire, 1.0mm to 1.6mm aluminium wire and up to 1.6mm flux cored electrodes on standard spools (with a 50mm I.D. boss, 300mm max. O.D. and 15kg max. capacity). Wire feed speed range is approximately 1 to 20 metres/min. (40 to 790 inch/min.)

Weight is approximately 27kg.



Section 3 - Connections

The wire feeder is connected electrically to the power source by two cables.

1. The control/power cable includes a 4-pin amphenol plug and carries the following circuits:
 - a) 42V, 50Hz AC control power (isolated from chassis)
 - b) A closing contact to switch on the welders output (provides 42V switched on pins 'a' and 'b')
 - c) 42V, 50Hz AC control power (isolated from chassis)
 - d) Earth. Chassis of power source to chassis of wire feeder
2. The welding power cable from the power source's "electrode" output.

* Electrode polarity is determined by the wire and welding process. Refer to the appropriate handbook or the electrode packaging.

For gas shielded processes, connect the gas hose (included with standard input cable assembly) to the gas bottle regulator. Incoming gas pressure must not exceed 1000kPa and a gas regulator must be used.

Connect a suitable welding gun and cable assembly to the "Euro" connector on the front panel. The REDI-MIG Remote power sources are supplied with REDI-MIG guns as follows:

Machine	Torch
REDI-MIG 255 Remote	REDI-MIG 240
REDI-MIG 325 Remote	REDI-MIG 360

Section 4 - 42V AC 50Hz Supply

If the welding power source to be used does not have a 42V AC auxiliary supply, a step-down transformer will be required. This transformer must have a minimum rating of 220VA and an output voltage of 42V + 5% 50Hz AC. Contact Lincoln for further details required.

Section 5 - Control Panel

5.1 Wire Feeder Speed Control

Use this control to adjust the speed at which the electrode wire feeds when welding. This is in effect a current control as the power source will deliver the current necessary to melt the wire. The higher the speed, the more current will be required. Wire feed speed range is approximately 1 to 20 metres/min. (40 to 790 inch min.)

Operation of the gun trigger, switches the wire feed motor on and off, depending upon the trigger mode setting. The wire feed motor is dynamically braked to minimise wire overrun after welding has ceased.

Welding voltage is available immediately the gun trigger is operated. When welding is stopped there is a delay to allow the electrode to burn back slightly and prevent sticking in the crater.



5.2 2 Step/4 Step Operation

A two position toggle switch on the front panel provides two modes of operation of the gun trigger. In 2 Step mode, the gun trigger is pressed to start welding and released to stop.

In 4 Step mode, pressing the gun trigger only operates the gas solenoid, allowing shielding gas to flow. Releasing the trigger activates the contactor which starts the wire feed motor and connects welding current to the wire so that welding may commence. To stop welding, the trigger must again be operated; pressing it stops the wire feed, activates the burn back time delay and opens the contactor after the pre-set burn back time. Releasing the trigger stops the gas flow.

To recommence welding, the above cycle must be repeated.

5.3 Spot Welding

In spot welding mode, welding takes place for a pre-set time and then stops automatically. Welding time is adjustable between approx. 0.5 sec and 4 sec by operation of the spot weld control on the front panel. There is a positive click in the extreme anticlockwise position to indicate that the spot weld feature is "off".

5.4 Gas Purge / Wire Inch

Use the gas purge momentary toggle switch to operate the gas solenoid to purge air from the hose after connecting a new gas cylinder. Gas purge will only operate while the toggle switch is held upwards.

Use this same toggle switch to operate the wire feed motor and "cold" inch the wire without operating the power source contactor or gas solenoid, by pushing the toggle switch downwards.

5.5 Burnback Control

This control is located in the wire feed bay. The burnback control adjusts the time period from when the drive motor stops until the power source and gas solenoid are switched off. [Approx 0.1 seconds (when fully counterclockwise) to approx 1.1 seconds (when fully clockwise)].

The purpose of the burnback control is to prevent the electrode wire sticking in the weld crater at the finish of the weld.

Section 6 - Setting Up for Welding

The following items are required:

1. REDI-MIG Remote or other suitable constant voltage power source.
2. A reel of wire of suitable size and type.
3. A control/power cable assembly to connect the wire feeder to the power source.
4. A suitable gun and cable assembly with a "Euro" connector and the correct contact tip and, if necessary, gas nozzle for the consumable being used. See "Connections" on Page 8 for details of recommended REDI-MIG guns for use with REDI-MIG Remote power sources.
5. Correct drive rolls for the wire size and type to be used. The wire feeder is supplied with a 0.9/1.2mm solid wire feed roll as standard; drive rolls for other types and sizes are available as spare parts.
6. A work return cable and clamp.
7. Normal welding accessories including helmet or hand shield with suitable lens, gloves etc.
8. If a gas shielded process is to be used; appropriate gas cylinder, regulator/flowmeter and hose.

Connect the control and welding cables to the welding power source.

If gas shielding is required, connect the gas hose.

Remember that gas cylinders may explode if damaged, so ensure that all gas cylinders are securely mounted.



CYLINDER may explode if damaged

Ensure that the correct type and size wire feed rolls are fitted.

When replacing wire feed rolls, ensure that the key and keyway are correctly positioned and tighten the knurled locking screw securely.

Fit the spool of wire on to the 50mm spool hub so that as wire is drawn from the spool, the spool turns clockwise when looking at the spool. Carefully release the end of the wire from the spool ensuring that the released end is held to stop the wire from unravelling. Cut off the end kink to give a smooth straight end of wire.

Obtain a gap between the wire feed roll and the pressure roll by opening the cam latch. Feed the wire end into the guide tube, between the drive rolls, and into the "Euro" connector guide until it protrudes about 20mm out of the front of the "Euro" connector. Close the drive rolls by securing the cam latch. Ensure the rolls firmly hold the wire.

Fit the gun and cable assembly into the "Euro" connector by slipping the end of wire into the cable wire hole. Tighten the "Euro" connector lock ring.

Activate the power source, set the wire feed speed to approximately one quarter turn and momentarily press the gas purge/wire inch toggle switch downwards. The wire feed roll should have turned, feeding the wire further up the gun and cable assembly. Adjust the tension so that wire feed smoothly. **Do not overtighten.**

Ensure there are no kinks or sharp bends in the gun cable and press the wire inch toggle switch downwards until the wire emerges from the gun. It is good practice to remove the tip when first feeding a new coil of wire, then refit the tip over the wire and tighten. Cut off the end of the wire leaving 10mm to 15mm stick-out from the tip.

The wire feeder is now ready to weld.

Section 7 - Welding

Put in 2 Step trigger mode. Before beginning to weld, ensure the wire protrudes from the gun tip by approximately 10-15mm. Ensure welding shield and other protective clothing are in place. Present the protruding electrode just off the work. Maintain a steady grip on the gun, protect your eyes with a welding mask, then press and hold the gun trigger to create the arc.

Adjust the wire feed speed and power source output to suit the job. At the completion of the weld, release the gun trigger and pull the gun away from the work to stop the arc. 4 Step trigger mode should only be used for long welds with an experienced operator.

7.1 Changing Electrode Size and Type

When changing the electrode size or type, ensure the wire feed drive roll is the correct size and type for the electrode. Wire feed drive rolls have two grooves each of different sizes.

Ensure the roll is located by the key and key way and firmly secured by knurled screw.

When changing to aluminium welding a new drive roll, cable liner and contact tip should be used.

All required equipment for aluminium welding is supplied in the optional 1.2mm Aluminium Feeding Kit (KA1440-1 for use with REDI-MIG 2 Guns or KA1440-4 for use with REDI-MIG 240 Guns).

When changing to cored wire welding a new drive roll should be used.

All required equipment for cored wire welding is supplied in the optional 1.2mm Flux Cored Feeding Kit (KA1441-1 for use with REDI-MIG 2 Guns or KA1441-4 for use with REDI-MIG 240 Guns).

Also check electrode polarity, as different processes require different polarity.

Ensure the correct gun liner and contact tip are used for different wire sizes and processes.

Available Drive Rolls

Part No.	Size (mm)	Use with
AS4449-9	0.6 - 0.8	Solid Wire
AS4449-11	0.8 - 0.9	Solid Wire
AS4449-8	0.9 - 1.2	Solid Wire*
AS4449-2	1.0 - 1.2	Solid Wire
AS4449-5	0.8 - 1.0	Aluminium Wire
AS4449-12	0.9 - 1.2	Aluminium Wire
AS4449-6	1.2 - 1.6	Aluminium Wire
AS4449-3	0.8 - 1.0	Cored Wire
AS4449-13	0.9 - 1.2	Cored Wire
AS4449-4	1.2 - 1.6	Cored Wire

* Standard on REDI-MIG Integrated and Remote machines

7.2 Gun Tip

The gun tip should be replaced when worn. Replace with the correct type and size for the wire type and diameter. Too large a tip for the electrode wire will cause arcing within the gun cable and possible jamming of the wire within the cable. Gun tips screw in and out.

7.3 Adjusting Spool Tension

The spool should stop rotating when the wire feed roll stops. Overrun of the spool can cause the coil of wire to unravel. The spool hub should be tensioned so that it neither drags nor overruns. The tension can be set by adjusting the large nut inside the hub with a tube spanner.

7.4 Liner Removal, Installation and Trimming Instructions for REDI-MIG Torch

Note: The variation in cable lengths prevents the interchangeability of liners between guns. Once a liner has been cut for a particular gun, it should not be installed in another gun unless it can meet the liner cutoff length requirement.

1. Remove the gas nozzle and nozzle insulator, (if used), to locate the set screw in the gas diffuser which is used to hold the old liner in place. Loosen the set screw with an Allen key.
2. Remove the gas diffuser from the gun tube.
3. Lay the gun and cable out straight on a flat surface. Loosen the liner nut cap located in the brass connector at the feeder end of the cable and pull the liner out of the cable.
4. Insert a new untrimmed liner into the connector end of the cable.
5. Fully seat the liner bushing into the Euro connector. Tighten the liner nut cap on the brass cable connector. The gas diffuser, at this time, should not be installed onto the end of the gun tube.
6. With the gas diffuser still removed from the gun tube, be sure the cable is straight, and then trim the liner to length. Remove any burrs from the end of the liner.
7. Screw the gas diffuser onto the end of the gun tube and securely tighten. Be sure the gas diffuser is correct for the liner being used.
8. Tighten the set screw in the side of the gas diffuser against the cable liner using an Allen key. Do not overtighten.

Procedure for Changing PC Boards

Before replacing a PC board suspected of being defective, visually inspect the PC board in question for any visible damage to any of its components and conductors on the back of the board.

1. If there is no visible damage to the PC board, install a new one and see if this remedies the problem. If the problem is remedied, reinstall the original PC board to see if the problem still exists. If the problem no longer exists with the old PC board:
 - a) Check the PC board harness connector pins for corrosion, contamination, or looseness.
 - b) Check leads in the plug harness for loose or intermittent connection.
2. If PC board is visibly damaged, before possibly subjecting the new PC board to the same cause of failure, check for possible shorts, opens or grounds caused by:
 - a) Frayed or pinched lead insulation.
 - b) Poor lead termination, such as a poor contact or a short to an adjacent connection or surface.
 - c) Shorted or open motor leads, or other external leads.
 - d) Foreign matter or interference behind the PC board.
3. If PC board is visibly damaged, inspect for cause, then remedy before installing a replacement PC board.

Procedure for Changing Settings for

Motor Acceleration

Motor Acceleration needs to be altered from factory setting because of the welding procedure being used, locate the PCB in the power source.

On the PC board there is a trimmer labelled 'Rampa', this trimmer controls the acceleration rate of the drive motor from stationary to the set wire feed speed. Maximum acceleration when fully counter-clockwise to minimum acceleration when fully clockwise. This is particularly important when welding aluminium wire. The factory setting is fully clockwise.

Section 8 - Ground Test Procedure



WARNING

This procedure is only suitable for applications using DC mega tester up to 500V.

Note: This procedure is for 'machines as built' many modifications could have taken place over the life of a machine, so details of this procedure may need to be adjusted to suit these modifications.

For prompt service contact your local authorised Lincoln Field Service Shop.

The insulation resistance values listed below are from Australian Standard AS1966-1.

1. Disconnect input cable (control and electrode) from welding power source. Remove gun from wire feeder.
2. Remove roof panel.
3. Disconnect the PCB Plug and insert a 20 way shorting plug into the harness.
4. Connect Pins A (42), B (4) and C (41) in the Amphenol together, this connection forms the 'control line' group.
5. 'Control line' Group Test: Connect one lead of the mega tester to the frame of the machine and the other lead to the 'control line' group. Apply the test. (Min. resistance 1M Ω)
6. Welding Circuit Test: Connect one lead of the mega tester to the frame of the machine and the other lead to the electrode lead. Apply the test. (Min. resistance 1M Ω)
7. Welding Circuit to 'Control Line' Group Test: Connect one lead of the mega tester to the electrode lead and the other lead to the 'control line' group. Apply the test. (Min. resistance 1M Ω)
8. Remove all jumpers and reconnect all leads.
9. Refit the roof panel.

REDI-MIG 4D Remote

KA1435

Model Index

NUMBERS IN THE TABLE BELOW INDICATE WHICH COLUMN TO USE IN EACH PARTS LIST FOR EACH INDIVIDUAL CODE NUMBER.

DO NOT attempt to use this Parts List for machine if its code number is not listed. Contact the Service Department for any code numbers not listed. (Only those suffixes which require distinction from the basic codes are shown.)

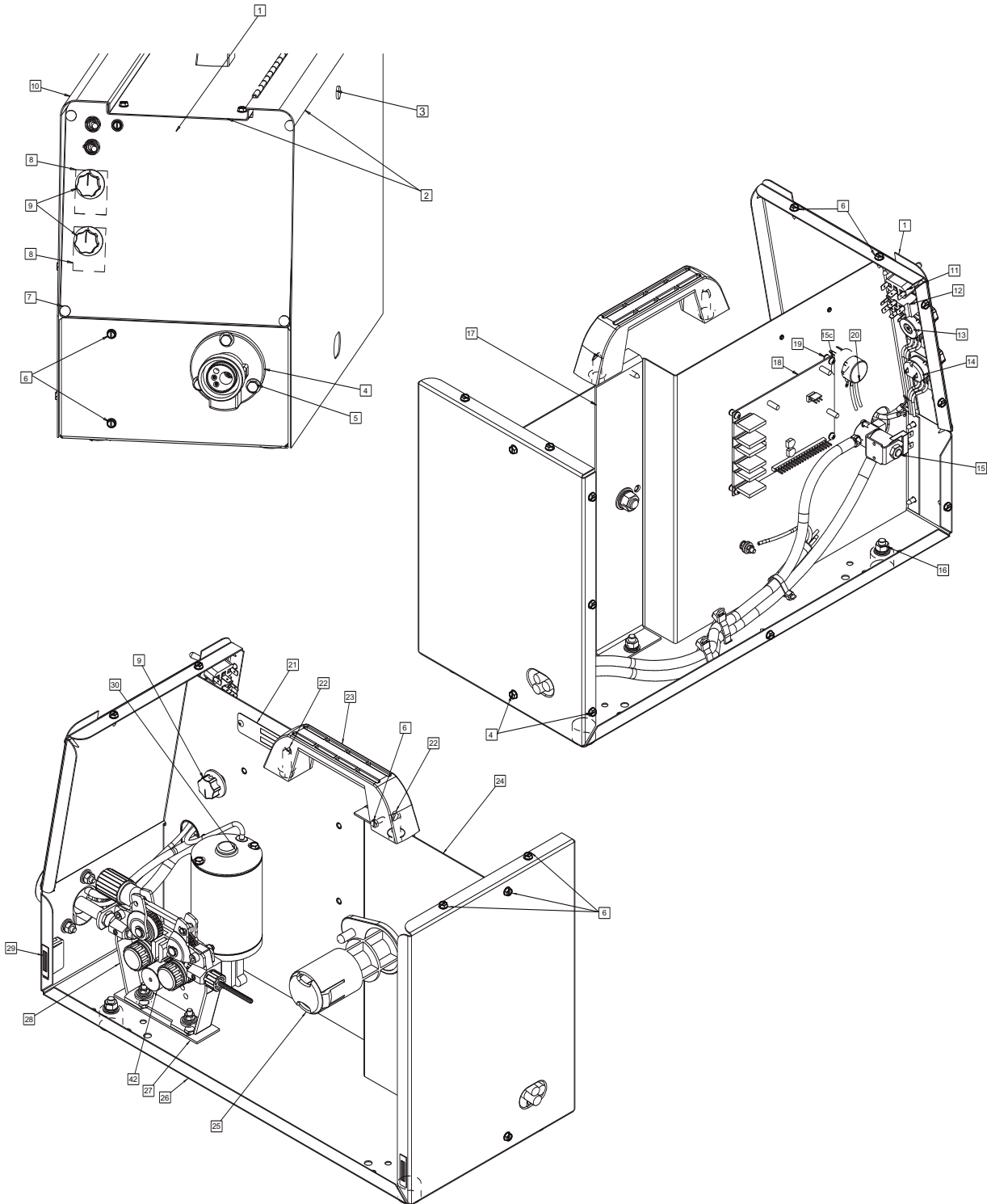
PARTS LIST TITLES	General Assembly		Wire Drive Assembly		Wiring Diagram		REDI-MIG Torches	REDI-MIG 360 Torch		
PARTS LIST NO. →	AP-56-C		AP-56-D		AP-56-W		AP-49-C	AP-49E		
CODE NO. ↓										
1568	1		1		1		2			

Operating ManualREDI-MIG 4D
 IMA 600A

Indicates a change this printing

Panel Assembly

Operative: AP-56C
Supersedes: Nov 2003
May 2001



**AG 1412-1
(A14-4-00)**

Indicates a change this printing.
 * Items not illustrated.

Recommended Spare Parts are highlighted in bold
 Nut, bolt and washer sizes are given so they may be procured locally.

Use only the parts marked "X" in the column under the heading number called for in the model index page.

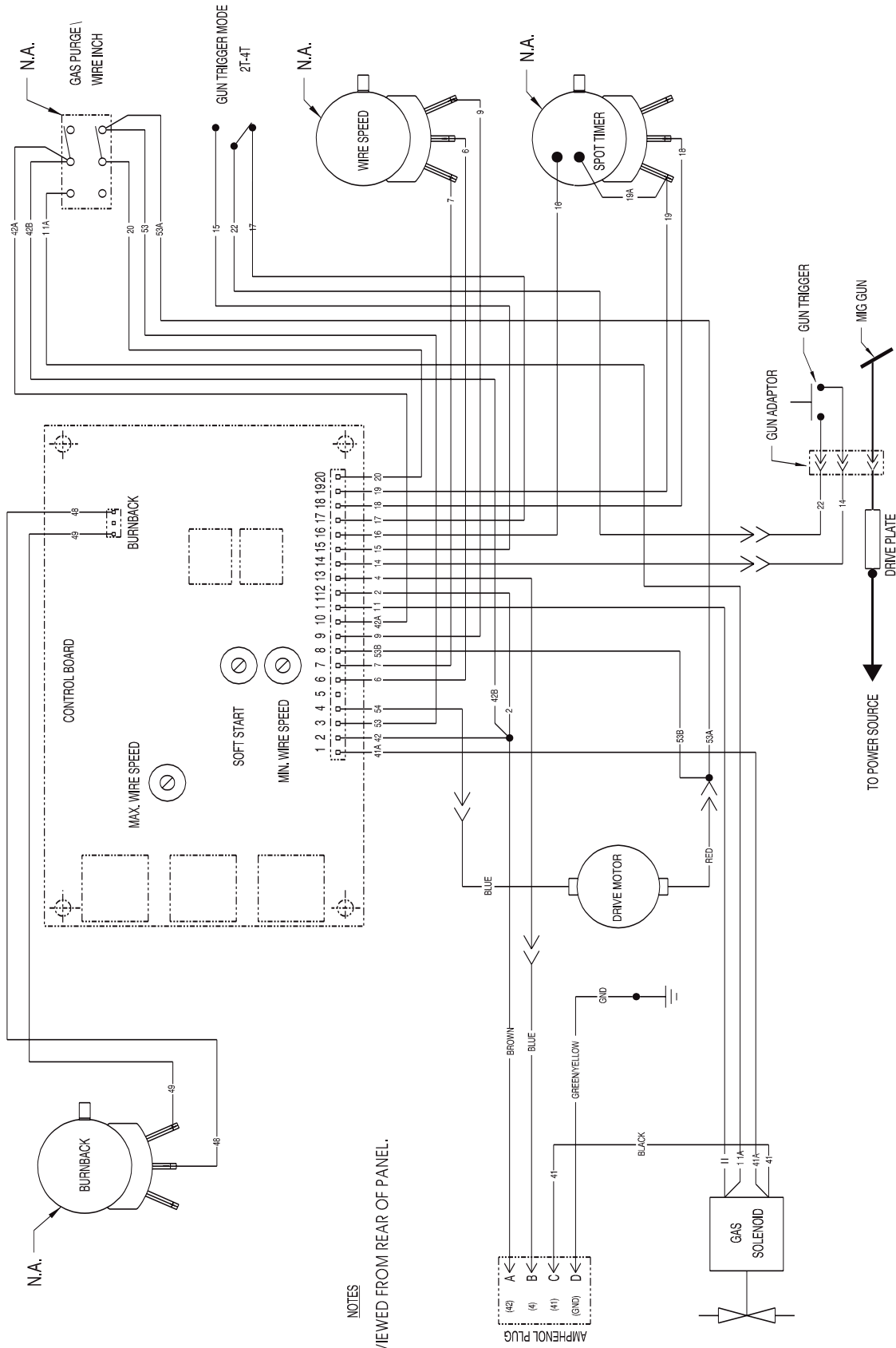
ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
1	Nameplate	AM3572-2	1	x								
2	Door & Roof Assembly	AG1411-1	1	x								
2	Rubber Buffer	AS4404-1	1	x								
4	Euro Gun Adapter	AM3025-2	1	x								
#4a	Plastic Insulator	AM3025A2	1	x								
5	1/4" UNC x 1" Hex Screw		3	x								
6	S/T Screw Hex	S8025-91	16	x								
7	Fastener Button	T14659-1	4	x								
8	Insulation	T12792-1	2	x								
9	Knob	S18425-1	3	x								
10	Side Panel	AL2650-1	1	x								
11	SPDT Toggle Switch	T13562	1	x								
12	DPDT Toggle Switch (Sprung)	AS4706	1	x								
13	Wirefeed Pot	AS4212-2	1	x								
#14	Spot Timer Switch	AS4212-1	1	x								
15	Solenoid Valve 42V	AM3399-1	1	x								
15a	1/4" NPT-1/4" Tube Straight Barb		1	x								
15b	1/4" NPT-1/4" Tube Elbow Barb		1	x								
15c	8ga x .32" Sems Screw	T10082-27	6	x								
16	Vibro Insulator	AS4404-3	4	x								
17	Bulkhead Support	AM3577	1	x								
18	Motor Control PCB / Burnback Header	AS4212-5SP	1	x								
19	Rivnut #8-32 x .25"	AT3937	4	x								
20	Burnback Pot Assembly includes	AS4711	1	x								
20a	Burnback Pot	T10812-40	1	x								
20b	PCB Connector	AS4212-7	1	x								
21	Code & Serial Decal (Typed)	NSS	1	x								
22	3/8" x 1" T/C Screw		2	x								
23	Handle	M15446	1	x								
24	Bulkhead	AL2648-1	1	x								
25	Spool Post Assembly	AM3387SP	1	x								
26	Base, Front & Rear	AG1410-1	1	x								
27	Drive Plate Insulation	AS4435	1	x								
28	4 Wheel Drive Plate Assembly	AM3391SP	1	x								
29	Magnetic Catch	AS4554	2	x								
30	Drive Motor	AM3185	1	x								
*31	Harness Assembly includes	AL2652-1	1	x								

NOTES

Wiring Diagram

4D Remote

Operative: AP- 56W
 May 2001
 Supersedes: NEW



NOTES

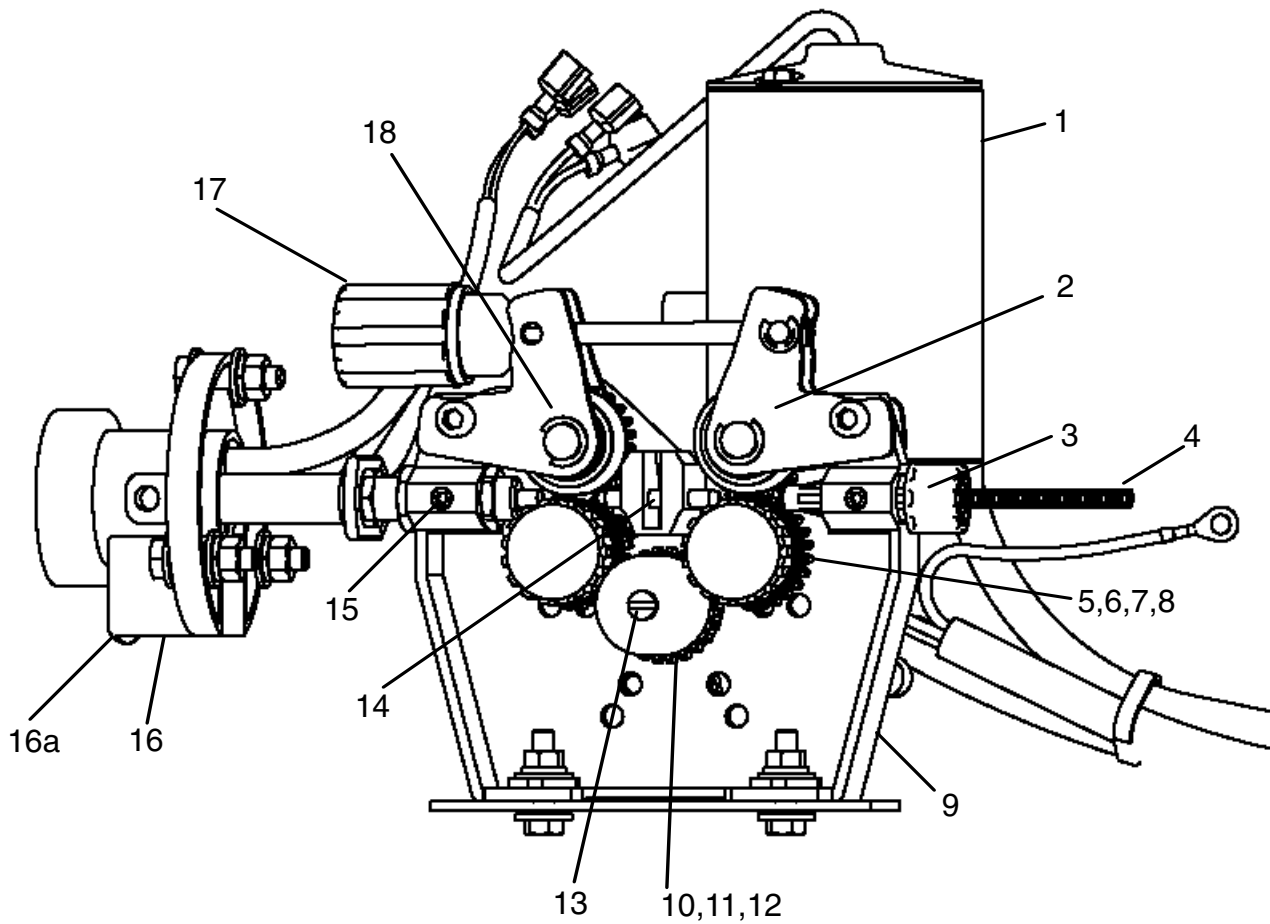
N.A.: UNITS VIEWED FROM REAR OF PANEL.

Ref: AM3596-5
 A13.10.99

Note: This diagram is for reference only. It may not be accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosed panels.

Wire Drive Assembly

Operative: AP-56-D
Supersedes: NEW



Ref: 4111

Indicates a change this printing.
 * Items not illustrated.

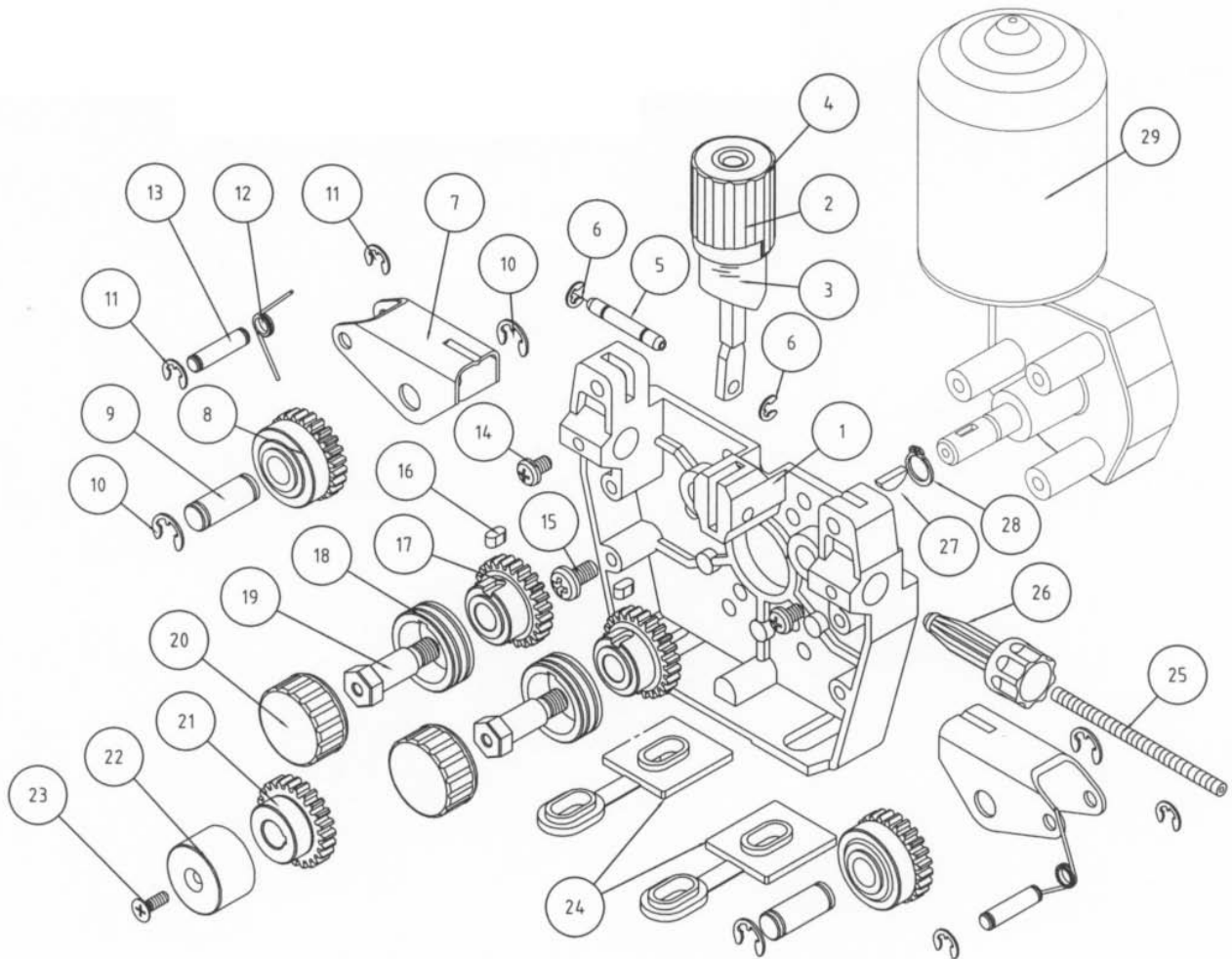
Recommended Spare Parts are highlighted in bold
 Nut, bolt and washer sizes are given so they may be procured locally.

Use only the parts marked "X" in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
	Items include items 2 thru 15	AM391SP										
1	Motor & Gearbox	AM3185	1	x								
2	Idle Roll Assy (R/H)	T07653R Ø	1	x								
3	Inlet Guide	018018	1	x								
4	Wire Guide Tube	018019	1	x								
5	Gear Wheel	T07615	2	x								
6	Fixing Cap	T07540	2	x								
7*	Parallel Key	T01594	2	x								
8*	Spacer	020004	8	x								
9	Drive Plate	024001 Ø	1	x								
10	Main Drive Gear	022016	1	x								
11	Fixing Cap	022002	1	x								
12*	Woodruff Key	AM3391-1U	1	x								
13	Screw M4x212	24890-040012	1	x								
14	Middle Wire Guide	T08560	1	x								
15	Screw M6x6	T11285	x	x								
16	Euro Adapter Assy includes Plastic Insulator	AM3025-2	1	x								
16a		AM3025A2	1	x								
17	Calibrated Fixing Arm Assy	T07650 Ø	1	x								
18	Idle Roll Assy (L/H)	T07653L Ø	1	x								
CONSUMABLE ITEMS OPTIONAL DRIVE ROLLS												
	0.8-0.9mm Solid Steel	AS4449-11										
	0.9-1.2mm Solid Steel	AS4449-8										
	1.0-1.2mm Solid Steel	AS4449-2										
	0.8-1.0mm Aluminium	AS4449-5										
	0.9-1.2mm Aluminium	AS4449-12										
	0.8-1.0mm Flux Cored	AS4449-3										
	0.9-1.2mm Flux Cored	AS4449-13										
	1.2-1.6mm Flux Cored	AS4449-4										

Wire Drive Assembly

Operative: AP-56-E
Supersedes: Apr 2004
NEW



Ref: 410

Indicates a change this printing.

* Items not illustrated.

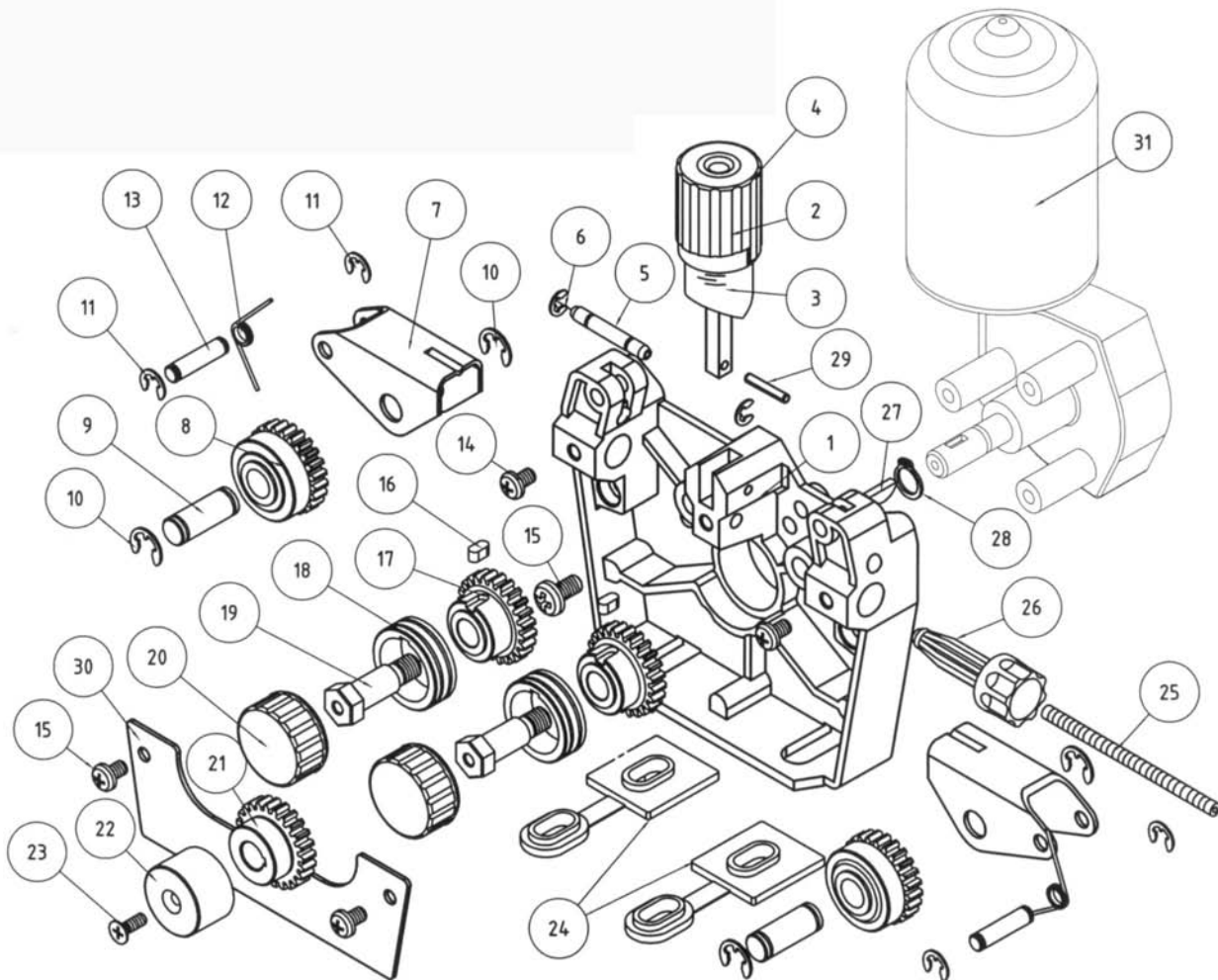
Recommended Spare Parts are highlighted in bold
 Nut, bolt and washer sizes are given so they may be procured locally.

Use only the parts marked "X" in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
1	Feed Plate	T08559	1									
2	Fixing Arm Compl (includes items 2-4)	T07635	1									
3	Calibrated part for fixing arm	NSS										
4	Cap for the fixing shaft	NSS	1									
5	Intermediate guide Ø5x35/Ø3 Intermediate guide Ø55x35/Ø2	T08560 T07618	1 1									
6	Retaining washer for shaft RA4	T06946	2									
7	Pressure Arm (complete) (includes items 7-13)	NSS	2									
8	Gear Wheel complete special with nut Gear Wheel complete	NSS NSS	2 2									
9	Shaft Ø10	NSS	2									
10	Retaining washer for shaft RA7	NSS	4									
11	Retaining ring for shaft RA5	NSS	4									
12	Spring for pressure arm	NSS	2									
13	Shaft Ø6	NSS	2									
14	Screw M5x8	T11285	2									
15	Screw M6x12 Screws M6x16	T07080 T07081	3 3									
16	Parallel Key 4x4-8	T01594	2									
17	Gear Wheel	T07615	2									
18	Feed Roll Ø30x10/Ø22	T07538	2									
19	Shaft	T11784	2									
20	Fixing Cap	T07540	2									
21	Gear Wheel	T07613	1									
22	Fixing Cap	T07614	1									
23	Screw M4x12	T01550	1									
24	Insulating Washer	T11785	2									
25	WireGuide Tube	T07553	1									
26	Inlet Guide	T12879	1									
27	Woodruff Key 3x6.5	T01595	1									
28	Retaining Ring for Shaft A10	T01597	1									
29	Motor	AM3185	1									
30*	Euro Adaptor includes	AM3025-2	1									
30a	Plastic Insulator	AM3025A2	1									

Wire Drive Assembly

Operative: AP-56-F
Supersedes: Apr 2004
NEW



Ref: 410-2

Indicates a change this printing.

* Items not illustrated.

Recommended Spare Parts are highlighted in bold
Nut, bolt and washer sizes are given so they may be procured locally.

Use only the parts marked "X" in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
1	Feed Plate	T15327	1									
2	Fixing Arm complete (includes Items 2-4)	T11790	1									
3	Calibrated part for fixing arm	NSS	1									
4	Cap for the Fixing Shaft	NSS	1									
5	Intermediate guide Ø5x35/Ø3 Intermediate guide Ø5x35/Ø2	T08560 T07618	1 1									
6	Retaining Washer for Shaft RA4	T06946	2									
7	Pressure Arm (L/H) complete (includes Items 7-13)	T11796	2									
8	Gear Wheel complete special with nut (L/H) Gear Wheel complete (R/H)	T11796 T11797	1 1									
9	Shaft Ø10	NSS	2									
10	Retaining Washer for Shaft RA7	NSS	4									
11	Retaining Ring for Shaft RA5	NSS	4									
12	Spring for Pressure Arm	NSS	2									
13	Shaft Ø6	NSS	2									
14	Screw M5x8	T11285	4									
15	Screw M6x12 Screw M6x16	T07080 T07081	3 3									
16	Parallel Key 4x4-8	T01594	2									
17	Gear Wheel	T07615	2									
18	Feed Roll Ø30x10/Ø22	T07538	2									
19	Shaft	T11784	2									
20	Fixing Cap	T07540	2									
21	Gear Wheel	T07613	1									
22	Fixing Cap	T07614	1									
23	Screw M4x12	T01550	1									
24	Insulating Washer	T11785	2									
25	Wire Guide Tube	T07553	1									
26	Inlet Guide	T12879	1									
27	Woodruff Key 3x6.5	T01595	1									
28	Retaining Ring for Shaft A10	T01597	1									
29	Spring Type Straight Pins	T01590	1									
30	Metal Cover	T15338	1									
31	Motor	AM3185	1									
32*	Euro Adaptor includes	AM3025-2	1									
32a	Plastic Insulator	AM3025A2	1									

NOTES

NOTES

STATEMENT OF LIMITED WARRANTY

The Lincoln Electric® Company (Australia) Pty Limited ("Lincoln") warrants all new machinery and equipment ("goods") manufactured by Lincoln® against defects in workmanship and material subject to certain limitations hereinafter provided.

This warranty is void if Lincoln® or its Authorised Service Facility finds that the equipment has been subjected to improper installation, improper care or abnormal operations.

PERIOD OF WARRANTY "LINCOLN BRANDED GOODS"

The period from the commencement of the warranty in respect of goods covered by this warranty shall be as follows:

Three Years

All Lincoln® welding machines, wire feeders and plasma cutting machines unless listed below.

Two Years

All Weldanpower®, Ranger®, Italian Invertec® welders, PC65 and PC105 Plasmas.

One Year

- PC60 & PC100 Plasmas
- All water coolers (internal and external).
- Arc welding and cutting robots and robotic controllers.
- All stick electrodes, welding wires and fluxes.
- All Environmental Systems equipment, including portable units, central units and accessories. (Does not include consumable items listed under 30-day warranty).
- All welding and cutting accessories including wire feed modules, undercarriages, field installed options that are sold separately, unattached options, welding supplies, standard accessory sets, replacement parts. (Does not include expendable parts and guns/torches listed under 90 and 30 day warranties).

90 Days

- All Gun and Cable Assemblies (manufactured by Lincoln®) and Spool guns.
- All MIG, TIG and Plasma Torches.
- All "Pro Torch" TIG Torches.

30 Days

- All consumable items that may be used with the environmental systems described above. This includes hoses, filters, belts and hose adapters.
- Expendable Parts - Lincoln® is not responsible for the replacement of any expendable part that is required due to normal wear.

ENGINE WARRANTY

To the extent permitted by law Lincoln® shall be entitled to in its absolute discretion repair all engines and engine accessories however Lincoln® shall not be held responsible for any such repair which shall be the sole responsibility of the engine manufacturer which provides for warranties for the period and subject to any limitations provided for by those manufacturers of the respective engines and engine accessories.

Three Years*

Deutz 912 Engine and Accessories
(Warranty service can only be carried out an authorised Deutz service dealer)

*Subject to conditions imposed by Deutz.

Cummins B3.3 Engine and Accessories
(Warranty service can only be carried out an authorised Cummins service dealer)

*Subject to conditions imposed by Cummins

Two Years

Perkins Engines and Accessories
(The Perkins Distributor Organisation provides all warranty service (accessories included) for the Perkins Engines powering goods manufactured by Lincoln.

*Subject to conditions imposed by Perkins

Briggs & Stratton Vanguard Engines and Accessories. (Warranty service can only be carried out by an authorised Briggs & Stratton service dealer).

*The Magneton ignition system is warranted by Briggs & Stratton for 5 years.

Kubota Engines and Accessories
(Warranty service can only be carried out an authorised Kubota service dealer)

*Subject to conditions imposed by Kubota.

One Year*

Ruggerini Engines and Accessories
(Warranty service can only be carried out by authorised Lincoln Field Service Shop or the engine distributors authorised by the Lincoln® branch office).

BATTERY WARRANTY

Lincoln® supplies certain batteries in connection with its supply of goods and the purchaser acknowledges that any such battery is warranted by its manufacturer and any claim in respect of such a battery whether as to a defect in the battery or as to damage consequential upon a defect in a battery shall be made by the purchaser to the manufacturer of the battery and the purchaser shall not hold Lincoln® in any way liable for the operation, non-operation or malfunction of any such battery.

CONDITION OF WARRANTY TO OBTAIN WARRANTY COVERAGE:

The purchaser must contact Lincoln® or Lincoln's Authorised Service Facility about any defect claimed under Lincoln's warranty.

Determination of warranty on welding and cutting equipment will be made by Lincoln® or Lincoln's Authorised Service Facility.

WARRANTY REPAIR

If Lincoln® or Lincoln's Authorised Service Facility confirms the existence of a defect covered by this warranty, the defect will be corrected by repair or replacement at Lincoln's option.

At Lincoln's request, the purchaser must return, to Lincoln® or its Authorised Service Facility, any "Goods" claimed defective under Lincoln's warranty.

FREIGHT COSTS

The purchaser is responsible for shipment to and from the Lincoln® Authorised Service Facility.

WARRANTY LIMITATIONS

Certain conditions warranties and obligations are implied by law (for example under the Trade Practices Act 1974) and cannot be excluded or modified ("the statutory warranties").

Where the statutory warranties do apply then any express warranties given by Lincoln® (the "express warranties") are given in addition and without derogation from the statutory warranties. Apart from the express warranties and (in cases where they apply by law but not otherwise) the statutory warranties Lincoln® gives no warranties whether express or implied by operation of law or otherwise in respect of any goods manufactured or supplied by Lincoln® or by its authorised distributor.

Any warranty whether express or statutory and the term of any such warranty as set out herein commences on the date Lincoln® or Lincoln's authorised distributorship forwards the goods from the premises of Lincoln® or Lincoln's authorised distributor to the purchaser.

In respect of any claim under the warranty herein provided a purchaser must furnish Lincoln® with written notice of any claim under the warranty within the time period of the warranty as further specified herein.

The extent of Lincoln's warranty whether express or statutory is limited to a liability to repair, replace or pay to the purchaser an amount equal to:

- a) The cost of replacing the goods;
- b) The cost of obtaining equivalent goods; or
- c) cost of having the goods repaired whichever remedy in its absolute discretion Lincoln® chooses.

Upon request by Lincoln® the purchaser must permit Lincoln® to inspect the goods the subject of any claim under this warranty and Lincoln® may at its absolute discretion repair or replace the goods F.O.B. at its own premises or at such other premises as Lincoln® may designate provided that all freight charges to and from Lincoln's premises or such other premises as Lincoln® may designate shall be paid by the purchaser.

Subject to the express and statutory warranties hereinbefore provided Lincoln® provides no other warranties in respect of the manufacture or sale of goods and in particular Lincoln® shall have no responsibility or liability in respect of:

- a) Repairs done to Lincoln's goods and undertaken by the purchaser outside Lincoln's premises without written authority from Lincoln® obtained prior to any such repair;
- b) Any damage or failure of the goods as a result of normal wear and tear or the neglect misuse abuse or failure to properly service goods by any purchaser.

The liability of Lincoln® is limited as hereinbefore provided and Lincoln® shall not be liable for any incidental special or consequential damage suffered by a purchaser whether or not arising out of circumstances known or foreseeable known by Lincoln® and in particular arising out of the supply of goods to a purchaser or the use of goods by a purchaser whether based on breach of contract negligence or tort.

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric® for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric® is not in a position to warrant or guarantee such advice and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

Lincoln Electric® is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric® is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric® affect the results obtained in applying this type of fabrication methods and service requirements.



THE WELDING EXPERTS®

**The Lincoln Electric Company
(Australia) Pty. Ltd.** A.B.N. 36 000 040 308

35 Bryant Street, Padstow, Sydney 2211, Australia

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In Australia, Lincoln Technical Sales Representatives are located in, Mackay, Brisbane, Newcastle, Sydney, Melbourne, Adelaide and Perth. To contact your local Lincoln Technical Sales Representative, call 1300 728 720 (for the cost of a local call). Lincoln products are sold primarily through its distributors. Our Regional Office locations are:

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Central Region: 35 Bryant Street, Padstow, NSW, 2211 (02) 9772 7222

Southern Region: Unit 8/2 Sarton Rd, Clayton, VIC, 3168 (03) 9590 0143

Western Region: 25 Barker Street, Belmont, WA, 6104 (08) 9277 8744

New Zealand: 7B/761 Great South Rd, Penrose, Auckland (9) 580 4008

Singapore: 11 Pandan Crescent, Singapore (65) 6773 6689

THE LINCOLN ELECTRIC CO.

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