## Operator's Manual

# Fume Extraction Arms

For use with extraction arms having Product Numbers:

**For Wall Mount:**

**K1655-8 - LFA 3.1** (10FT) with Flange
**K1655-9 - LFA 4.1** (13FT) with Flange
**K1655-10 - LTA 2.0** Telescopic
**K1655-14 - LTA 2.0-CW** Telescopic
**K1655-12 - LFA 2.0** (6.5FT)
**K1655-13 - LFA 4.1-LC** (13FT)

**For Mobiflex®:**

**K2633-5 - LFA 3.1** (10FT)
**K2633-6 - LFA 3.1** (10FT) with Lamp Arc Sensor
**K2633-7 - LFA 4.1** (13FT)
**K2633-8 - LFA 4.1** (13FT) with Lamp Arc Sensor

**Authorized Service and Distributor Locator:**
www.lincolnelectric.com/locator

**Save for future reference**

Date Purchased

Code: (ex: 10859)

Serial: (ex: U1060512345)

**IM10344** | Issue Date Feb - 20


**THE LINCOLN ELECTRIC COMPANY**
22801 St. Clair Avenue • Cleveland, OH • 44117-1199 • U.S.A.
Phone: +1.216.481.8100 • www.lincolnelectric.com

# THANK YOU FOR SELECTING A QUALITY PRODUCT BY LINCOLN ELECTRIC.

## 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.

## 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.

**⚠ 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.

## KEEP YOUR HEAD OUT OF THE FUMES.

**DON'T** get too close to the arc. Use corrective lenses if necessary to stay a reasonable distance away from the arc.

**READ** and obey the Safety Data Sheet (SDS) and the warning label that appears on all containers of welding materials.

**USE ENOUGH VENTILATION** or exhaust at the arc, or both, to keep the fumes and gases from your breathing zone and the general area.

**IN A LARGE ROOM OR OUTDOORS**, natural ventilation may be adequate if you keep your head out of the fumes (See below).

**USE NATURAL DRAFTS** or fans to keep the fumes away from your face.

If you develop unusual symptoms, see your supervisor. Perhaps the welding atmosphere and ventilation system should be checked.

## WEAR CORRECT EYE, EAR & BODY PROTECTION

**PROTECT** your eyes and face with welding helmet properly fitted and with proper grade of filter plate (See ANSI Z49.1).

**PROTECT** your body from welding spatter and arc flash with protective clothing including woolen clothing, flame-proof apron and gloves, leather leggings, and high boots.

**PROTECT** others from splatter, flash, and glare with protective screens or barriers.

**IN SOME AREAS**, protection from noise may be appropriate.

**BE SURE** protective equipment is in good condition.

Also, wear safety glasses in work area **AT ALL TIMES.**

## SPECIAL SITUATIONS

**DO NOT WELD OR CUT** containers or materials which previously had been in contact with hazardous substances unless they are properly cleaned. This is extremely dangerous.

**DO NOT WELD OR CUT** painted or plated parts unless special precautions with ventilation have been taken. They can release highly toxic fumes or gases.

### Additional precautionary measures

**PROTECT** compressed gas cylinders from excessive heat, mechanical shocks, and arcs; fasten cylinders so they cannot fall.

**BE SURE** cylinders are never grounded or part of an electrical circuit.

**REMOVE** all potential fire hazards from welding area.

**ALWAYS HAVE FIRE FIGHTING EQUIPMENT READY FOR IMMEDIATE USE AND KNOW HOW TO USE IT.**

# SECTION A: WARNINGS

### CALIFORNIA PROPOSITION 65 WARNINGS

**WARNING:** Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects, or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an exposed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

**For more information go to www.P65 warnings.ca.gov/diesel**

**WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code § 25249.5 *et seq.)***

**WARNING: Cancer and Reproductive Harm www.P65warnings.ca.gov**

**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. 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.**

## FOR ENGINE POWERED EQUIPMENT.

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

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

1.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.

1.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.

1.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.

1.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.

1.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.

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

## ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS

2.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

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

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

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

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

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

2.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.

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

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

## ELECTRIC SHOCK CAN KILL.

3.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.

3.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.

3.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically “hot”.

3.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.

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

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

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

3.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.

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

3.j. Also see Items 6.c. and 8.

## ARC RAYS CAN BURN.

4.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. I standards.

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

4.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.

5.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 hardfacing (see instructions on container or SDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and within applicable OSHA PEL and ACGIH TLV limits using local exhaust or mechanical ventilation unless exposure assessments indicate otherwise. In confined spaces or in some circumstances, outdoors, a respirator may also be required. Additional precautions are also required when welding on galvanized steel.**

5. b. The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

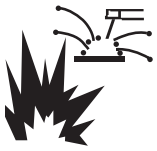
5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

5.d. 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.

5.e. Read and understand the manufacturer’s instructions for this equipment and the consumables to be used, including the Safety Data Sheet (SDS) and follow your employer’s safety practices. SDS forms are available from your welding distributor or from the manufacturer.

5.f. Also see item 1.b.

## WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION.



6.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.

6.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.

6.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.

6.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).

6.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.

6.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.

6.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.

6.h. Also see item 1.c.

6.I. Read and follow NFPA 51B "Standard for Fire Prevention During Welding, Cutting and Other Hot Work", available from NFPA, 1 Batterymarch Park, PO box 9101, Quincy, MA 022690-9101.

6.j. Do not use a welding power source for pipe thawing.

## CYLINDER MAY EXPLODE IF DAMAGED.

7.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.

7.b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.

7.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.

7.d. Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.

7.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

7.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

7.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-I, "Precautions for Safe Handling of Compressed Gases in Cylinders," available from the Compressed Gas Association, 14501 George Carter Way Chantilly, VA 20151.

## FOR ELECTRICALLY POWERED EQUIPMENT.

8.a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.

8.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.

8.c. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.

**Refer to http://www.lincolnelectric.com/safety for additional safety information.**

As a rule of thumb, for many mild steel electrode, if the air is visibly clear and you are comfortable, then the ventilation is generally adequate for your work. The most accurate way to determine if the worker exposure does not exceed the applicable exposure limit for compounds in the fumes and gases is to have an industrial hygienist take and analyze a sample of the air you are breathing. This is particularly important if you are welding with stainless, hardfacing or Special Ventilation products. All Lincoln MSDS have a maximum fume guideline number. If exposure to total fume is kept below that number, exposure to all fume from the electrode (not coatings or plating on the work) will be below the TLV.

There are steps that you can take to identify hazardous substances in your welding environment. Read the product label and material safety data sheet for the electrode posted in the work place or in the electrode or flux container to see what fumes can be reasonably expected from use of the product and to determine if special ventilation is needed. Secondly, know what the base metal is and determine if there is any paint, plating, or coating that could expose you to toxic fumes and/or gases. Remove it from the metal being welded, if possible. If you start to feel uncomfortable, dizzy or nauseous, there is a possibility that you are being overexposed to fumes and gases, or suffering from oxygen deficiency. Stop welding and get some fresh air immediately. Notify your supervisor and co-workers so the situation can be corrected and other workers can avoid the hazard. Be sure you are following these safe practices, the consumable labeling and MSDS to improve the ventilation in your area. Do not continue welding until the situation has been corrected.

NOTE: The MSDS for all Lincoln consumables is available on Lincoln's web-site: www.lincolnelectric.com

Before we turn to the methods available to control welding fume exposure, you should understand a few basic terms:

**Natural Ventilation** is the movement of air through the workplace caused by natural forces. Outside, this is usually the wind. Inside, this may be the flow of air through open windows and doors.

**Mechanical Ventilation** is the movement of air through the workplace caused by an electrical device such as a portable fan or permanently mounted fan in the ceiling or wall.

**Source Extraction** (Local Exhaust) is a mechanical device used to capture welding fume at or near the arc and filter contaminants out of the air.

The ventilation or exhaust needed for your application depends upon many factors such as:

- Workspace volume
- Workspace configuration
- Number of welders
- Welding process and current
- Consumables used (mild steel, hardfacing, stainless, etc.)
- Allowable levels (TLV, PEL, etc.)
- Material welded (including paint or plating)
- Natural airflow

Your work area has adequate ventilation when there is enough ventilation and/or exhaust to control worker exposure to hazardous materials in the welding fumes and gases so the applicable limits for those materials is not exceeded. See chart of TLV and PEL for Typical Electrode Ingredients, the OSHA PEL (Permissible Exposure Limit), and the recommended guideline, the ACGIH TLV (Threshold Limit Value), for many compounds found in welding fume.

**Ventilation**

There are many methods which can be selected by the user to provide adequate ventilation for the specific application. The following section provides general information which may be helpful in evaluating what type of ventilation equipment may be suitable for your application. When ventilation equipment is installed, you should confirm worker exposure is controlled within applicable OSHA PEL and/or ACGIH TLV. According to OSHA regulations, when welding and cutting (mild steels), natural ventilation is usually considered sufficient to meet requirements, provided that:

1. The room or welding area contains at least 10,000 cubic feet (about 22' x 22' x 22') for each welder.
2. The ceiling height is not less than 16 feet.
3. Cross ventilation is not blocked by partitions, equipment, or other structural barriers.
4. Welding is not done in a confined space.

Spaces that do not meet these requirements should be equipped with mechanical ventilating equipment that exhausts at least 2000 CFM of air for each welder, except where local exhaust hoods or booths, or air-line respirators are used.

**Important Safety Note:**

**When welding with electrodes which require special ventilation such as stainless or hardfacing (see instructions on container or MSDS) or on lead or cadmium plated steel and other metals or coatings which produce hazardous fumes, keep exposure as low as possible and below exposure limit values (PEL and TLV) for materials in the fume using local exhaust or mechanical ventilation. In conned spaces or in some circumstances, for example outdoors, a respirator may be required if exposure cannot be controlled to the PEL or TLV. (See MSDS and chart of TLV and PEL for Typical Electrode Ingredients.) Additional precautions are also required when welding on galvanized steel.**

**BIBLIOGRAPHY AND SUGGESTED READING**

ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, American National Standards Institute, 11 West 42nd Street, New York, NY 10036.

Arc Welding and Your Health: A Handbook of Health Information for Welding. Published by The American Industrial Hygiene Association, 2700 Prosperity Avenue, Suite 250, Fairfax, VA 22031-4319.

NFPA Standard 51B, Cutting and Welding Processes, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9146, Quincy, MA 02269-9959.

OSHA General Industry Standard 29 CFR 1910 Subpart Q. OSHA Hazard Communication Standard 29 CFR 1910.1200. Available from the Occupational Safety and Health Administration at http://www.osha.org or contact your local OSHA office.

The following publications are published by The American Welding Society, P.O. Box 351040, Miami, Florida 33135. AWS publications may be purchased from the American Welding society at http://www.aws.org or by contacting the AWS at 800-443-9353.

ANSI, Standard Z49.1, Safety in Welding, Cutting and Allied Processes. Z49.1 is now available for download at no charge at http://www.lincolnelectric.com/community/safety/ or at the AWS website http://www.aws.org.

AWS F1.1, Method for Sampling Airborne Particulates Generated by Welding and Allied Processes.

AWS F1.2, Laboratory Method for Measuring Fume Generation Rates and Total Fume Emission of Welding and Allied Processes.

AWS F1.3, Evaluating Contaminants in the Welding Environment: A Strategic Sampling Guide.

AWS F1.5, Methods for Sampling and Analyzing Gases from Welding and Allied Processes.

AWS F3.2, Ventilation Guide for Welding Fume Control

AWS F4.1, Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances.

AWS SHF, Safety and Health Facts Sheets. Available free of charge from the AWS website at http://www.aws.org.

**LISTED BELOW ARE SOME TYPICAL INGREDIENTS IN WELDING ELECTRODES AND THEIR TLV (ACGIH) GUIDELINES AND PEL (OSHA) EXPOSURE LIMITS**

| INGREDIENTS | CAS No. | TLV mg/m³ | PEL mg/m³ |
|---|---|---|---|
| Aluminum and/or aluminum alloys (as Al)***** | 7429-90-5 | 1.0 | 15 |
| Aluminum oxide and/or Bauxite***** | 1344-28-1 | 1.0 | 5** |
| Barium compounds (as Ba)***** | 513-77-9 | 0.5 | 0.5 |
| Chromium and chromium alloys or compounds (as Cr)***** | 7440-47-3 | 0.5(b) | 0.5(b) |
| Hexavalent Chromium (Cr VI) | 18540-29-9 | 0.05(b) | .005(b) |
| Copper Fume | 7440-50-8 | 0.2 | 0.1 |
| Cobalt Compounds | 7440-48-4 | 0.02 | 0.1 |
| Fluorides (as F) | 7789-75-5 | 2.5 | 2.5 |
| Iron | 7439-89-6 | 10* | 10* |
| Limestone and/or calcium carbonate | 1317-65-3 | 10* | 15 |
| Lithium compounds (as Li) | 554-13-2 | 15 | 10* |
| Magnesite | 1309-48-4 | 10 | 15 |
| Magnesium and/or magnesium alloys and compounds (as Mg) | 7439-95-4 | 10* | 10* |
| Manganese and/or manganese alloys and compounds (as Mn)***** | 7439-96-5 | 0.02 | 5.0(c) |
| Mineral silicates | 1332-58-7 | 5** | 5** |
| Molybdenum alloys (as Mo) | 7439-98-7 | 10 | 10 |
| Nickel***** | 7440-02-0 | 0.1 | 1 |
| Silicates and other binders | 1344-09-8 | 10* | 10* |
| Silicon and/or silicon alloys and compounds (as Si) | 7440-21-3 | 10* | 10* |
| Strontium compounds (as Sr) | 1633-05-2 | 10* | 10* |
| Zirconium alloys and compounds (as Zr) | 12004-83-0 | 5 | 5 |

**Supplemental Information:**

(*) Not listed. Nuisance value maximum is 10 milligrams per cubic meter. PEL value for iron oxide is 10 milligrams per cubic meter. TLV value for iron oxide is 5 milligrams per cubic meter.

(**) As respirable dust.

(*****) Subject to the reporting requirements of Sections 311, 312, and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40CFR 370 and 372.

(b) The PEL for chromium (VI) is .005 milligrams per cubic meter as an 8 hour time weighted average. The TLV for water-soluble chromium (VI) is 0.05 milligrams per cubic meter. The TLV for insoluble chromium (VI) is 0.01 milligrams per cubic meter.

(c) Values are for manganese fume. STEL (Short Term Exposure Limit) is 3.0 milligrams per cubic meter. OSHA PEL is a ceiling value.

(****) The TLV for soluble barium compounds is 0.5 mg/m³.

TLV and PEL values are as of October 2013. Always check Safety Data Sheet (SDS) with product or on the Lincoln Electric website at http://www.lincolnelectric.com

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**PARTS LIST ..... PARTS.LINCOLNELECTRIC.COM**

CONTENT/DETAILS MAY BE CHANGED OR UPDATED WITHOUT NOTICE. FOR MOST CURRENT INSTRUCTION MANUALS, GO TO PARTS.LINCOLNELECTRIC.COM.

## GENERAL DESCRIPTION

The extraction arms have been specially designed for extracting harmful fumes and gasses which are released during the most common welding processes. Thanks to the patented construction and the unique principle of the rotating of the hood the extraction arm is easily maneuverable which enables constant adaptation of the working reach to the specific requirements of the user.

### LFA

Lincoln's LFA extraction arms are spring-balanced for easy positioning. They are intended for use with a low-vacuum, high-volume extraction fan. The LFA arms are commonly installed on a Mobiflex® 200-M or 400-MS mobile base unit with filter or with an SF2400 Wall-Mounted Extraction Fan, with or without a Statiflex® 200-M or 400-MS Wall-Mounted Filter Unit.

### LTA

Lincoln's LTA 2.0 fume extraction arms telescope 3-5 ft. long, making them ideal for small workstation or booth applications. They are intended for use with a low-vacuum, high-volume extraction fan.

The telescopic arm is commonly installed with a SF2400 Wall-mounted Fan. Extracted air can be vented outside through the Air Exhaust Silencer, or filtered through a Statiflex 200-M or 400-MS Wall-Mounted Filter Unit. The Starter/Overload Switch for the SF2400 Extraction Fan protects the motor against overcurrent.

The optional Arc Sensor/LampKit for Wall-Mounted Systems provides a work lamp and remote, hood-mounted switches for the lamp and extraction fan, replacing the starter/overload switch.

## RECOMMENDED PROCESSES

- GMAW
- FCAW

## EQUIPMENT LIMITATIONS

- Never use the product for extracting inflammable, glowing or burning particles or solid liquids.
- Never use the product for extracting aggressive fumes (such as hydrochloric acid).
- Never use the product for extracting paint mists.
- Never use the product for extracting fumes containing alkaline or acid.

**NOTE: This list is not all inclusive.**

## RECOMMENDED FILTER UNITS

See Page A-1 for compatability

- Mobiflex 200, Mobiflex 200 HE
- Statiflex 200-M

## DESIGN FEATURES

### Standard:

- Ultra-easy positioning
- Minimal maintenance
- 360° rotatable hood

### Optional:

- The Automatic Start/Stop Arc Sensor can be installed with the Lamp Kit to turn the extraction fan on and off automatically when it detects a welding arc flash.
- Extension Cranes are available in 7 ft. and 14 ft. lengths.

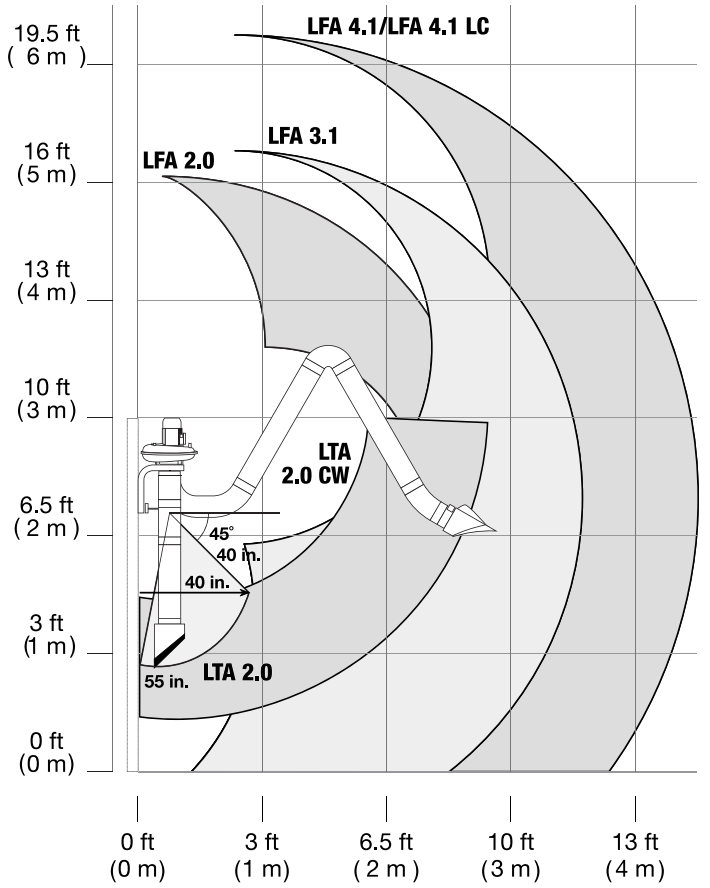
## TECHNICAL SPECIFICATIONS -

| EXTRACTION ARM MOUNTING COMPATIBILITY | | | | |
|---|---|---|---|---|
| **Product Number** | **Description** | **Mobiflex - 50 Hz, 230V** K2497-(2,4) K2497-(12,14) | **Mobiflex - 60 Hz, 115V** K1653-(2,3), K1741-(1,2) K1653-(4,5), K1741-(3,4) | **Wall Mount Application** |
| K1655-8 | LFA 3.1 (10FT.) WITH FLANGE | – | – | YES |
| K1655-9 | LFA 4.1 (13FT.) WITH FLANGE | – | – | YES |
| K1655-10 | LTA 2.0 (6.5FT) TELESCOPIC | – | – | YES |
| K1655-14 | LTA 2.0-CW (6.5FT) TELESCOPIC | – | – | YES |
| K1655-12 | LFA 2.0 (6.5FT) | – | – | YES |
| K1655-13 | LFA 4.1-LC (13FT) | – | – | YES |
| K2633-5 | LFA 3.1 | YES | YES | – |
| K2633-6 | LFA 3.1 w/ LAS | YES | YES | – |
| K2633-7 | LFA 4.1 | YES | YES | – |
| K2633-8 | LFA 4.1 w/ LAS | YES | YES | – |

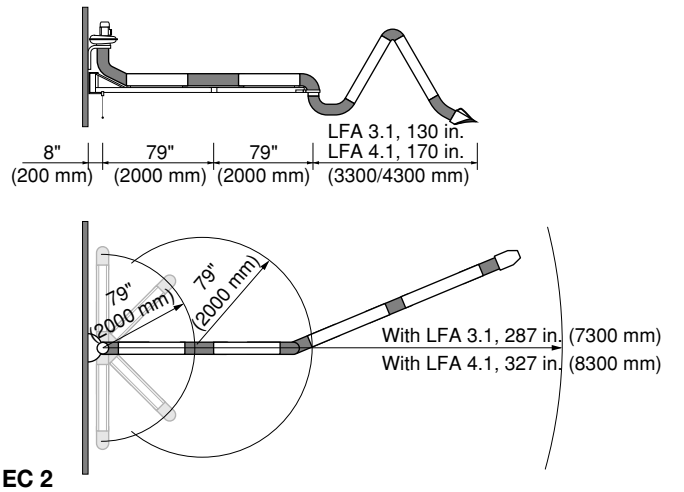
| PHYSICAL DIMENSIONS | | | | |
|---|---|---|---|---|
| **Product Number** | **Net Weight** | **Arm Length** | **Nominal Arm Diameter** | **Extraction Capacity Range** |
| K1655-8 | 33 LBS. (15 KG) | 10 FT. (3 M) | 8 IN. (203 MM) | 350-940 CFM (600-1,600 $M^3$/H) |
| K1655-9 | 37 LBS. (17 KG) | 13 FT. (4 M) | | |
| K1655-10 | 15.4 LBS. (7 KG) | 39.5 - 55 IN. (1000 - 1400 MM) | | |
| K1655-14 | 59.5 LBS (27KG) | 60 - 98.4 IN. (1524 - 2500 MM) | | |
| K1655-12 | 33 LBS. (15 KG) | 6.5 FT. (2 M) | | |
| K1655-13 | 33 LBS. (15 KG) | 13 FT. (4 M) | | |
| K2633-5 | 32.8 LBS. (14.9 KG) | 10 FT. (3 M) | | |
| K2633-6 | 37.3 LBS. (16.9 KG) | 13 FT. (4 M) | | |
| K2633-7 | 33.5 LBS. (15.2 KG) | 10 FT. (3 M) | | |
| K2633-8 | 38 LBS. (17.2 KG) | 13 FT. (4 M) | | |

| AMBIENT CONDITIONS | | |
|---|---|---|
| **Min. Temperature** | **Max. Temperature** | **Max. Rel. Humidity** |
| 41ºF (5ºC) | 113ºF (45ºC) | 80% |

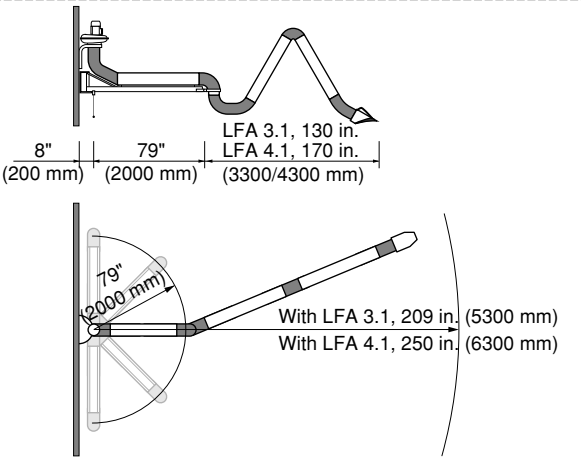
## REACH

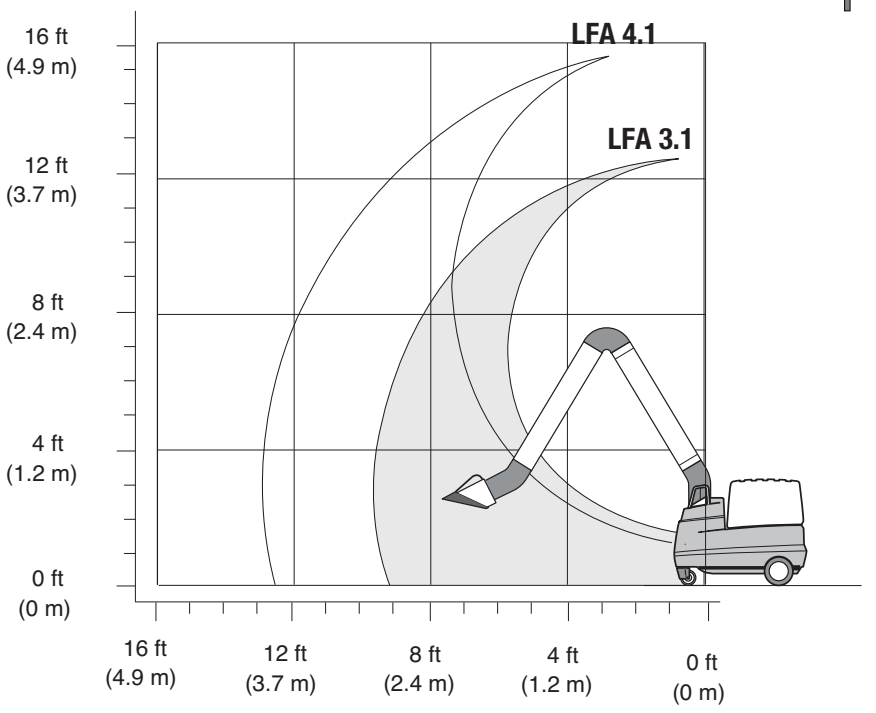



**EC 4**



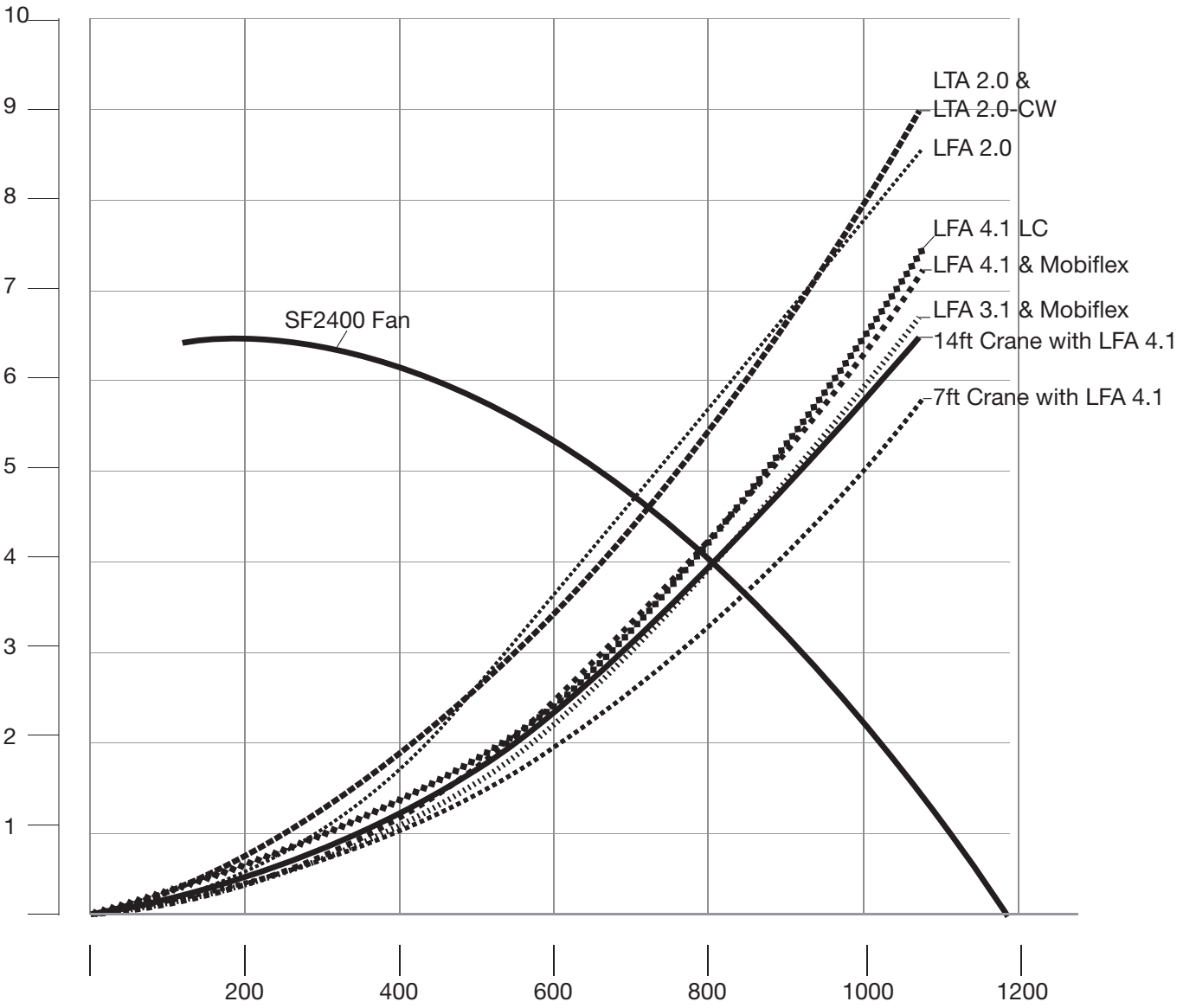

**EC 2**



**PRESSURE DROP**

Vacuum (inches WG) vs. Air Flow (CFM)



**Read this entire installation section before you start installation.**

# INSTALLATION

## ⚠ WARNING

**ELECTRIC SHOCK CAN KILL.**

- **Only qualified personnel should perform this installation.**
- **Turn the input power OFF and unplug the machine from the receptacle before working on this equipment.**
- **Insulate yourself from the work and ground.**
- **Always connect the machine to a power supply grounded according to the National Electrical Code and local codes.**

---

**MOVING PARTS can injure.**

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

## ⚠ CAUTION

**TIPPING Hazard**

**Unit is to be used on flat surface only.**

---

**The extraction arm must be fastened in an upright and folded position during transport of the unit.**

---

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

### SELECT SUITABLE LOCATION

- Inspect the product and check it for damage. Verify the functioning of the safety features.
- During use, always use Personal Protective Equipment (PPE) to avoid injury. This also applies for persons who enter the work area.
- Check the working environment. Do not allow unauthorized persons to enter the working environment.
- Protect the product against water and humidity.
- Make sure the room is always sufficiently ventilated; this applies especially to confined spaces.

## ⚠ WARNING

**The installer is responsible for following local safety codes and regulations.**

**Before drilling, verify locations of existing gas, water, or electrical conduits.**

---

**For mounting compatibility see "EXTRACTION ARM MOUNTING COMPATIBILITY" table located on page A-1.**

### For wall mounting applications:

Install wall mounting brackets as detailed in the section titled "INSTALLATION OF WALL MOUNTING BRACKETS" for Operator Manual IM10320 SF2400 Stationary Fan.

- **LTA 2.0-CW includes mount assembly. See wall mounting instruction on page A-11.**
- **FOR LAMP KIT APPLICATIONS: Install the wiring for the lamp kit as detailed in the section titled "Installing the Lamp Kit" for operator manual IM10366 Lamp Kit for Wall Mounted Systems**

### For Mobiflex mounting applications:

Install the base swivel mount on top of the machine as detailed in the section titled "INSTALLATION" for Operator Manual IM10335 Mobiflex 200 & 200 HE.

### Tools and requirements

The following tools are needed to mount and maintain extraction arms.

- 9/16" wrench and socket
- 1/2" wrench and socket
- 7/16" wrench and socket
- Oil lubricant
- Grease lubricant
- Utility knife
- PPE - safety glasses and gloves
- 1/8" hex bit

# WALL MOUNTING THE LFA 3.1 (10FT.) OR LFA 4.1 (13FT.) ARM

### For wall mounting applications:

Install wall mounting brackets as detailed in the section titled "INSTALLATION OF WALL MOUNTING BRACKETS" for Operator Manual IM10320 SF2400 Stationary Fan.

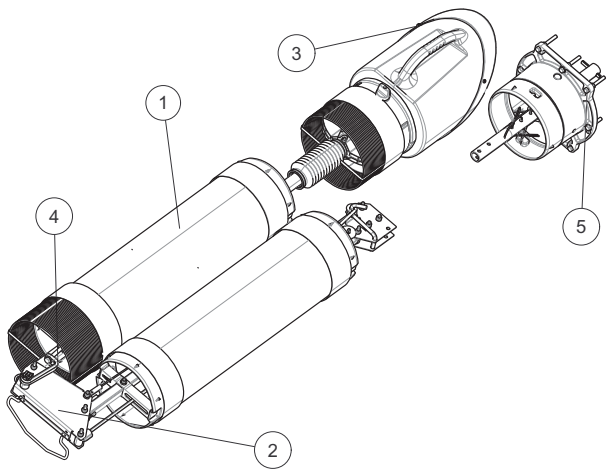
### Components

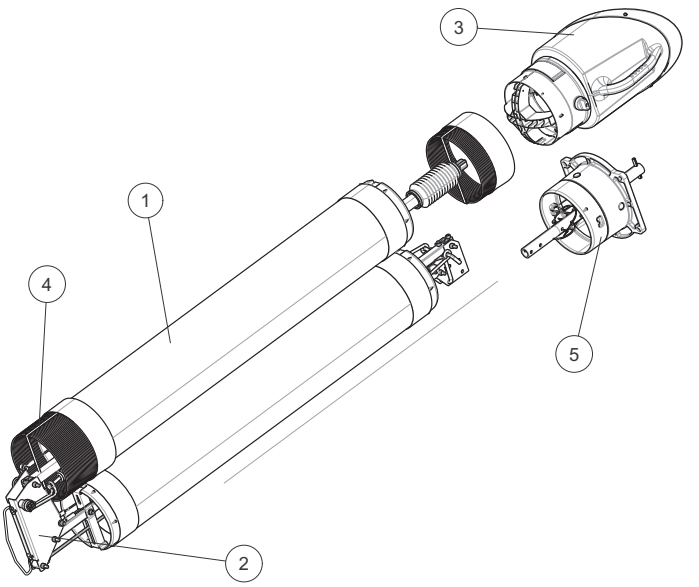
| K1655-8 – LFA 3.1, 10FT EXTRACTION ARM | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY | 1 |
| 2 | HOSE SUPPORT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 2 |
| 5 | MOUNTING ASSEMBLY | 1 |
| 6* | INSTRUCTION MANUAL | 1 |
| 7* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN
See Parts Page for Hardware Bag Contents

| K1655-9 – LFA 4.1, 13FT EXTRACTION ARM | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY | 1 |
| 2 | HOSE SUPPORT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 2 |
| 5 | MOUNTING ASSEMBLY | 1 |
| 6* | INSTRUCTION MANUAL | 1 |
| 7* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN
See Parts Page for Hardware Bag Contents



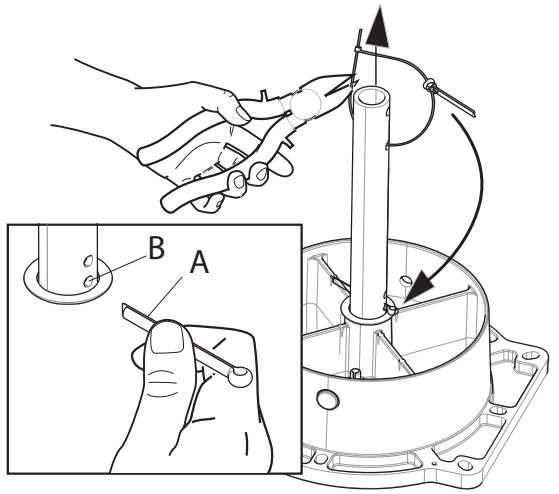



## MOUNTING THE LFA 3.1 OR 4.1 ARM TO THE WALL-MOUNTING BRACKET

See Figure A.1 for steps 1-4

1. Cut through the upper cable tie to release the cotter pin (Item A).
2. Lift the post of the base swivel mount by the lower cable tie.
3. Put the cotter pin through the lowest hole in the post (Item B) and bend it around.
4. Cut the lower cable tie and let down the post.

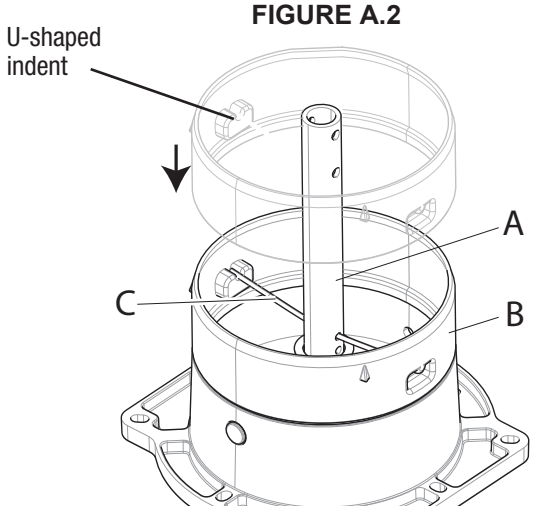
**FIGURE A.1**




2. The mounting assembly of the arm comes in three pieces: (See to Figure A.2)
   - Metal rotating rod (Item A),
   - red plastic ring (Item B),
   - and metal spring collar pivot rod (Item C).

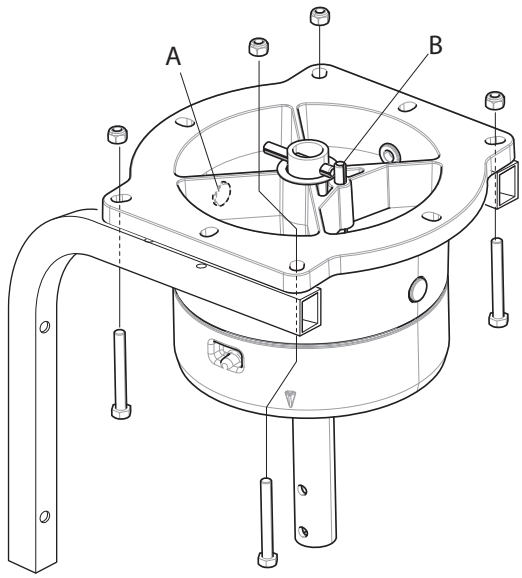
   Mount the red plastic ring to the metal mounting assembly by fitting the metal spring collarpivot rod through the hole in the rotating rod, and snapping it into place on the U-shaped indents on the red plastic ring. The lip of the ring should fit securely against the top edge of the mounting assembly yet rotate with the rod.

**FIGURE A.2**



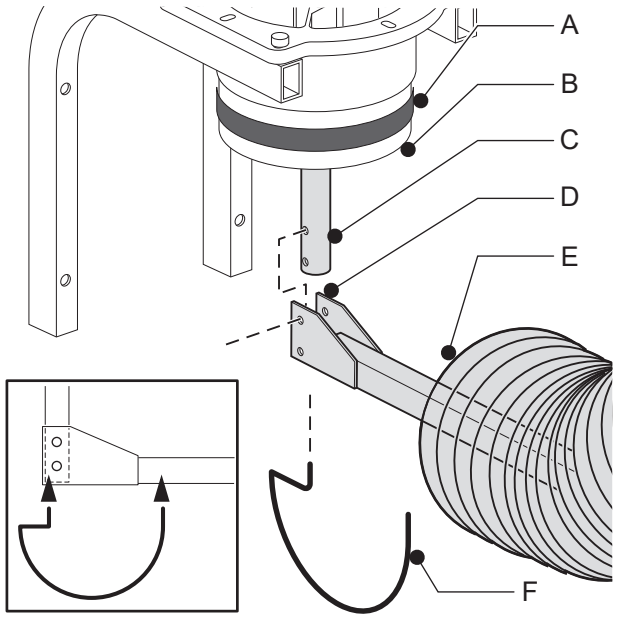

3. Position the mounting assembly on a wall mounting bracket (See Figure A.3) so that the cable hole (Figure A.3, Item A) is on the wall side. Use the four 2.5” bolts and nuts to secure the mounting assembly to the wall mounting bracket. Rotate the hinge rod (Fig. 3, Item D) so the stop pin (Figure A.3, Item B) is in the front.

**FIGURE A.3**




4. Mount the hanging adapter (Fig. A.4, Item D) to the hinge rod using (2) 1.75” bolts with washers and nuts. Mount the spring bracket (Fig. 5, Item F) into the two holes as shown. Position one 8” rubber band (Fig. 5, Item A) and the flexible hose supplied with the mounting bracket (Fig. 5, Item E) on the red plastic ring of the rotating hinge.

**FIGURE A.4**



5. Put another rubber band on the top of the arm. Use (2) 2" long bolts with nuts to mount the arm (Figure A.5, Item B) to the hanging adapter (Figure A.5, Item A), using both holes as indicated. Install stopper (Figure A.6, Item C) as shown to ensure proper arm operation.

**FIGURE A.5**

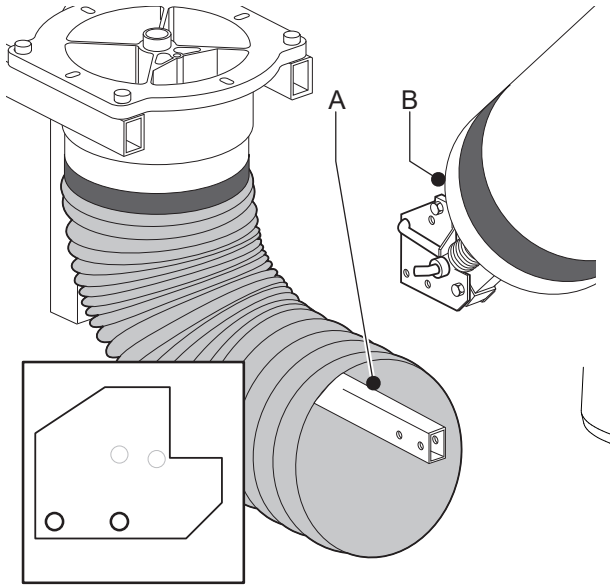
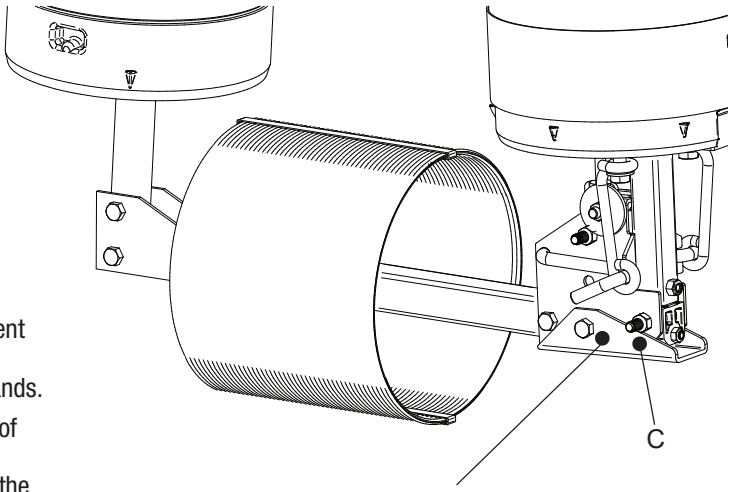


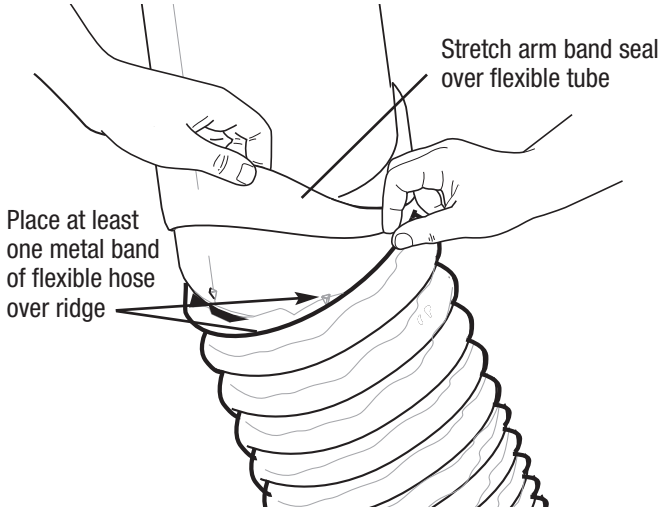

**FIGURE A.6**




NOTE: CRITICAL COMPONENT INSTALLATION INSTALL STOPPER AS SHOWN TO ENSURE PROPER ARM OPERATION

6. Remove the plastic and tape packaging from the arm sections. Adjust the friction of the arm and hood movement as described in the maintenance section of this manual. When set, seal all hose connections with the arm seal bands.
7. Fold back 2/3 of both arm seal bands. Remove the wrap of the flexible hose. Place the flexible hose over both arm sections. To secure the hose, at least one metal rings of the hose should be applied over the ridges at each arm section. Fold back the arm seal bands and place them over the hose. The arm seal band should cover the arm section 0.5-1 in. See Figure A.7

**FIGURE A.7**

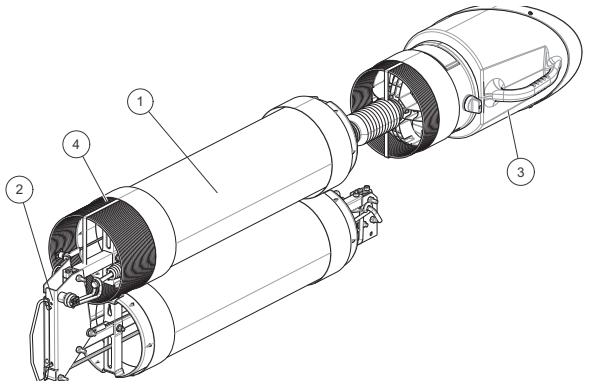


# MOBIFLEX MOUNTING LFA 3.1 / 4.1 ARM

## Components

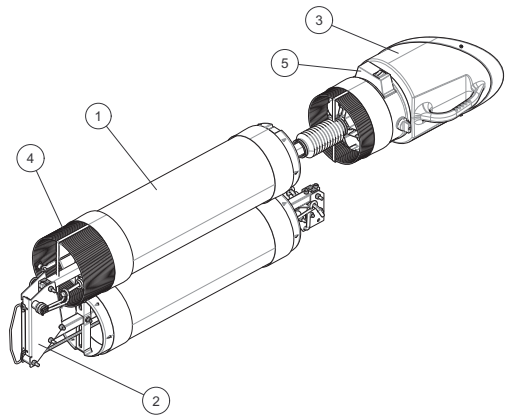
| K2633-5 – LFA 3.1, 10FT EXTRACTION ARM | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY | 1 |
| 2 | HOSE SUPPORT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 2 |
| 5* | INSTRUCTION MANUAL | 1 |
| 6* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN
See Parts Page for Hardware Bag Contents




| K2633-6 – LFA 3.1, 10FT EXTRACTION ARM WITH LAMP AND ARC SENSOR | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY | 1 |
| 2 | HOSE SUPPORT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 2 |
| 5 | LIGHT/POWER CONTROL SWITCH PANEL | 1 |
| 6* | INSTRUCTION MANUAL | 1 |
| 7* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN
See Parts Page for Hardware Bag Contents

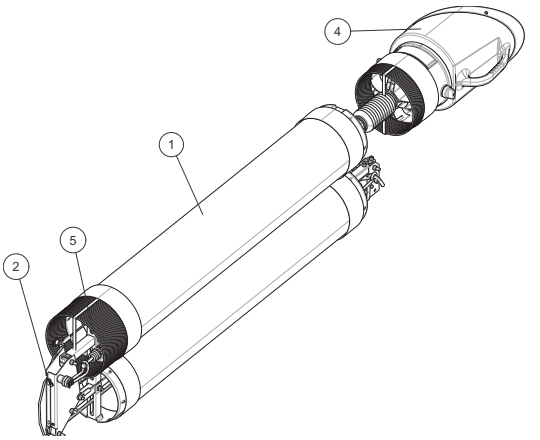



## For Mobiflex mounting applications:

Install the base swivel mount on top of the machine as detailed in the section titled “INSTALLATION” for Operator Manual IM10335 Mobiflex 200 & 200 HE.

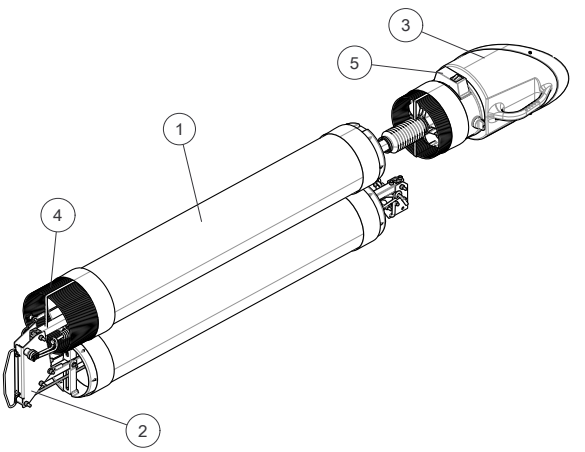
| K2633-7 – LFA 4.1, 13FT EXTRACTION ARM | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY | 1 |
| 2 | HOSE SUPPORT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 2 |
| 5* | INSTRUCTION MANUAL | 1 |
| 6* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN
See Parts Page for Hardware Bag Contents




| K2633-8 – LFA 4.1, 13FT EXTRACTION ARM WITH LAMP AND ARC SENSOR | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY | 1 |
| 2 | HOSE SUPPORT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 2 |
| 5 | LIGHT/POWER CONTROL SWITCH PANEL | 1 |
| 6* | INSTRUCTION MANUAL | 1 |
| 7* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN
See Parts Page for Hardware Bag Contents

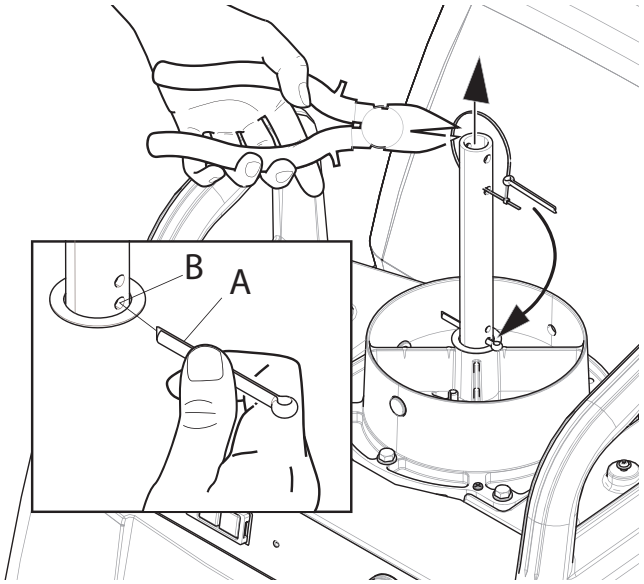


## MOUNTING THE LFA 3.1 OR 4.1 ARM TO THE MOBIFLEX

See Figure A.8 for steps 1-4

1. Cut through the upper cable tie to release the cotter pin (Item A).
2. Lift the post of the base swivel mount by the lower cable tie.
3. Put the cotter pin through the lowest hole in the post (Item B) and bend it around.
4. Cut the lower cable tie and let down the post.

**FIGURE A.8**

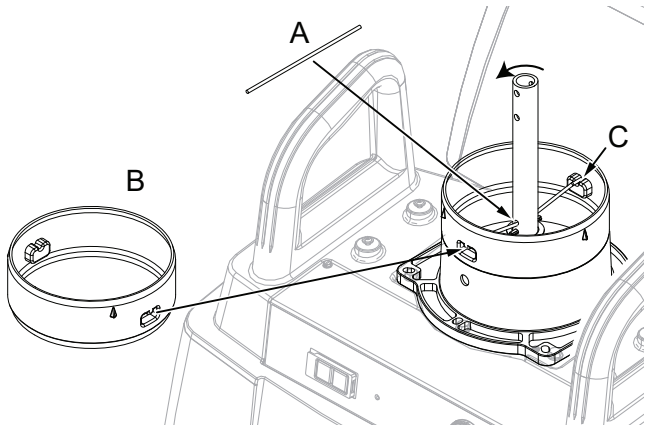



5. Remove clamping pin from under arm seal band of the base swivel mount.
6. Fold down the arm seal band and take off the red plastic ring.

See Figure A.9 for steps 7-8

7. Insert the clamping pin (Item A) through the hole in the post located above the split pin.
8. Position the red plastic ring (Item B) and place the clamping pin into the ridges (Item C). Rotating the red plastic ring may be necessary.

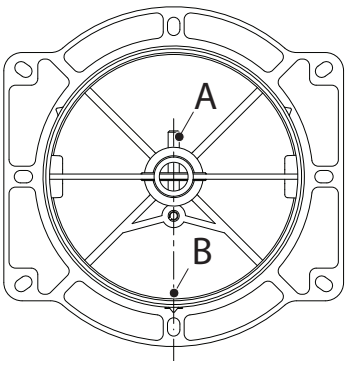
**FIGURE A.9**




See Figure A.10 for steps 9-12

9. Turn the base swivel mount so, that the stop pin (A) is in line with the cable lead-through hole (B).

**FIGURE A.10**




**Note:** The supply cable inside the base swivel mount of the Mobiflex 200 OR 200 HE Base Unit is not used when mounting a K2633-5 or K2633-7 LFA 3.1/4.1 Mobile Manual arm.

**⚠ WARNING**

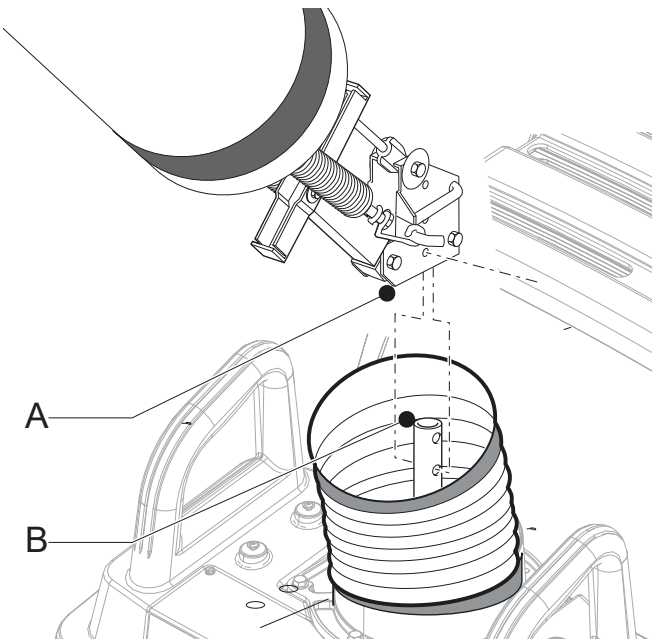
**Do not remove the yellow tape attaching both arm sections.**

---

See Figure A.11 for steps 1-3

1. Mount the extraction arm LFA 3.1/4.1 Mobile Manual (A) on the post (B) using the two 5/16-18 bolts and two self-locking 5/16-18 nuts with washers.
2. Remove the yellow tape from both arm sections.
3. Proceed to Balance Check and adjust the friction of the arm and hood movement as described in the maintenance section of this manual.

**FIGURE A.11**



### Electrical Connection for Lamp and Arc Sensor

The K2633-6 or K2633-8 LFA 3.1/4.1 Mobile Automatic extraction arm contains an integrated Lamp & Arc Sensor Kit.

**⚠ ATTENTION**

**The supply cable inside the base swivel mount should hang down vertically. Do not remove the wire bridge.**

---

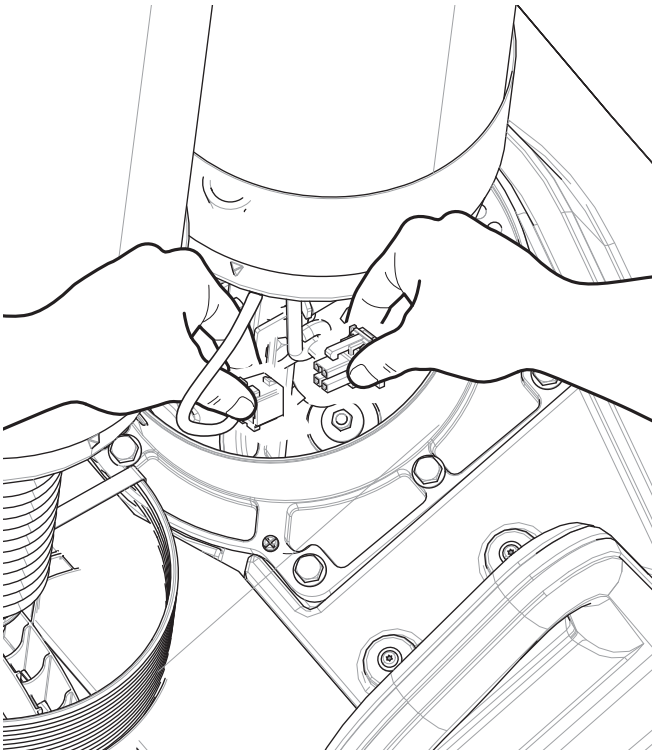
See Figure A.12 for steps 4-7

4. Remove the wire bridge from the supply cable inside the base swivel mount.
5. Connect the supply cables of the Mobiflex 200 or 200 HE Base Unit and the extraction arm.

NOTE: If you are using an older Mobiflex 200-M with an older connection on the supply side, use the supplied adapter cable S31224-62 in the loose hardware kit.

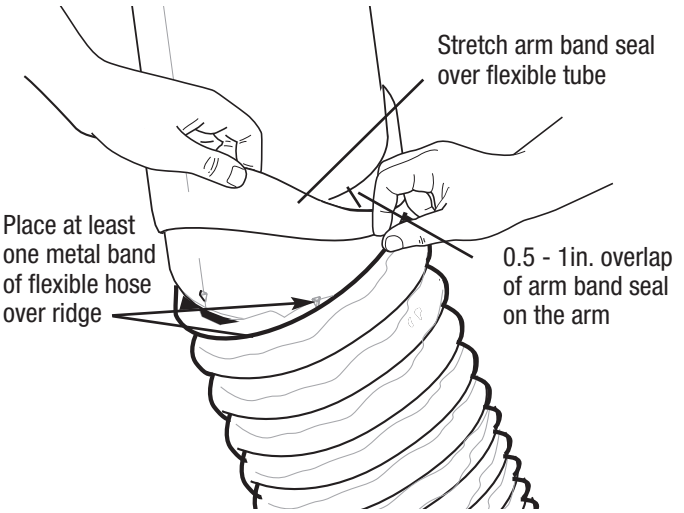
6. Remove the yellow tape from both arm sections.
7. Turn the extraction arm 359° and check whether the supply cable is long enough. If necessary, pull the supply cable of the Mobiflex 200 or 200 HE Base Unit to a sufficient length.

**FIGURE A.12**



8. Remove the plastic and tape packaging from the arm sections. Adjust the friction of the arm and hood movement as described in the maintenance section of this manual. When set, seal all hose connections with the arm seal bands.
9. Fold back 2/3 of both arm seal bands. Remove the wrap of the flexible hose. Place the flexible hose over both arm sections. To secure the hose, at least one metal rings of the hose should be applied over the ridges at each arm section. Fold back the arm seal bands and place them over the hose. The arm seal band should cover the arm section 0.5-1 in. See Figure A.13

**FIGURE A.13**



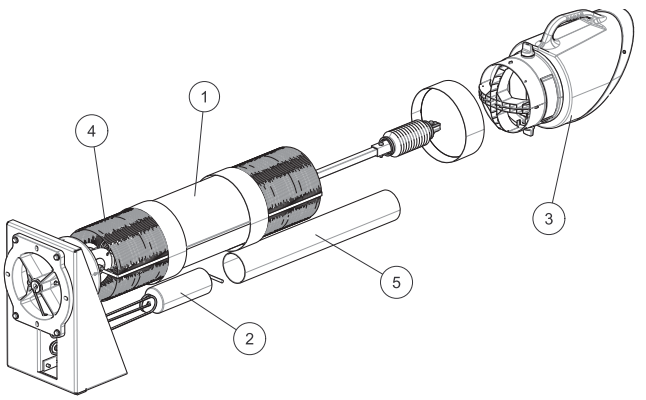
# WALL MOUNTING LTA 2.0-CW ARM

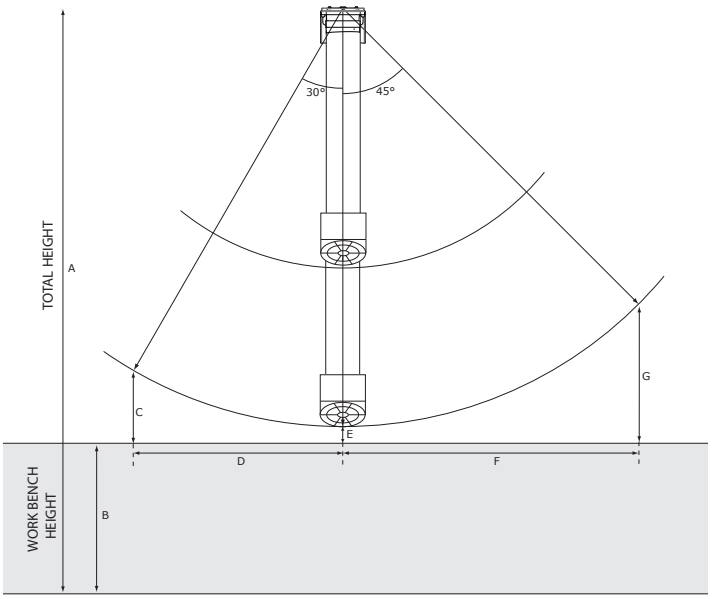
## Components

| K1655-14 – LTA 2.0 – CW TELESCOPIC EXTRACTION ARM | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY AND MOUNTING BRACKET | 1 |
| 2 | COUNTER WEIGHT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 2 |
| 5 | COUNTER WEIGHT GUIDE TUBE | 1 |
| 6* | INSTRUCTION MANUAL | 1 |
| 7* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN

See Parts Page for Hardware Bag Contents




| | MM | INCH | FEET |
|---|---|---|---|
| A | 3500 | 138.8 | 11.5 |
| B | 900 | 35.4 | 3 |
| C | 450 | 17.7 | 1.5 |
| D | 1250 | 49.2 | 4.1 |
| E | 100 | 4.0 | 0.3 |
| F | 1800 | 70.9 | 5.9 |
| G | 800 | 31.5 | 2.6 |

### MOUNTING THE LTA 2.0-CW EXTRACTION ARM ON THE MOUNT ASSEMBLY

The recommended installation height of the wall mounting bracket is 11.5 ft. (3500 mm). If the subject work bench is lower than the standard height of 3.0 ft. (900 mm), it is advisable to install the wall mounting bracket at a height of 9.8-10.6 ft. (3000-3250 mm). See Figures A.14 and A.15.

The package contains no mounting hardware for the Mount Assembly since the required mounting hardware depends on the wall type. The Mount Assembly can be mounted on:

- A thin brick or concrete wall (min. thickness of 4 inches/100 mm), using four threaded rods M10.
- A thick brick or concrete wall, using four cotter bolts M10x120x60.
- Steel profile (e.g. H-profile), using four threaded rods M10.

**NOTE: For central extraction systems, connection of the LTA 2.0-CW to an 8 inch duct drop is made easier with K1657-5 Connector. See options/Accessories on page C-1.**

**Mount the wall mounting bracket to the wall. See Figure A.17 and A.18**

**FIGURE A.14**

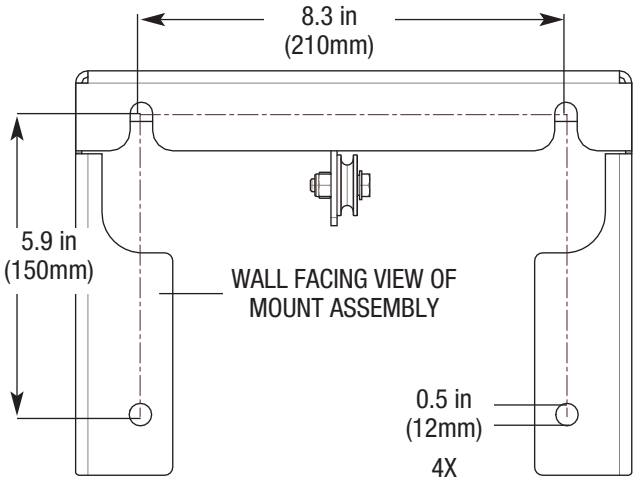
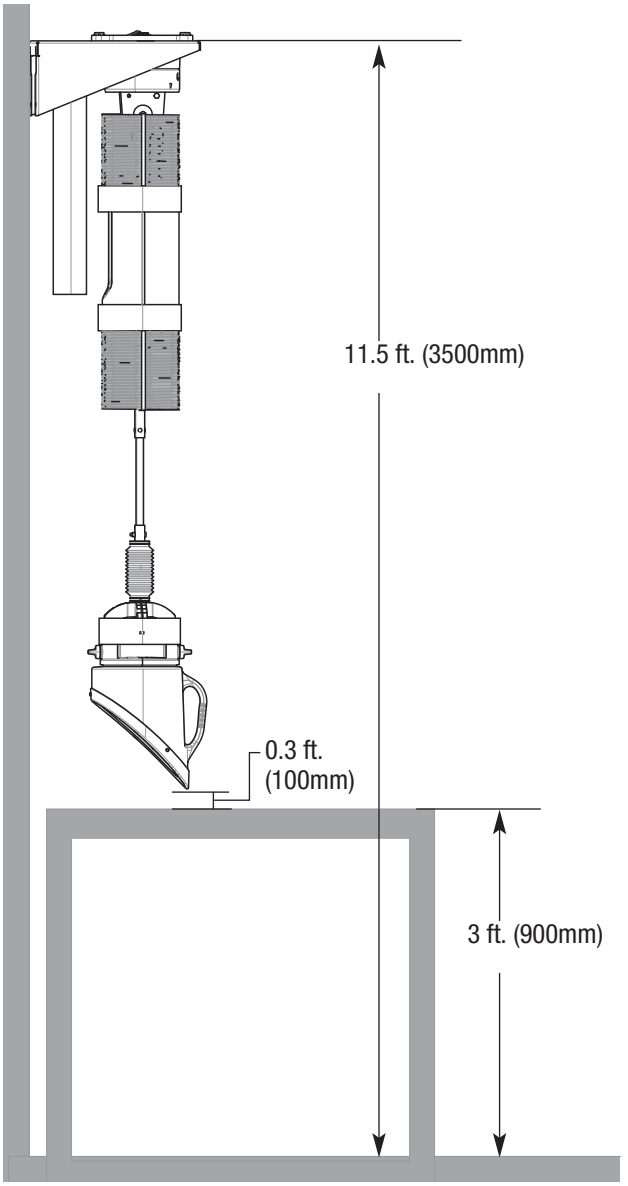


FIGURE A.15



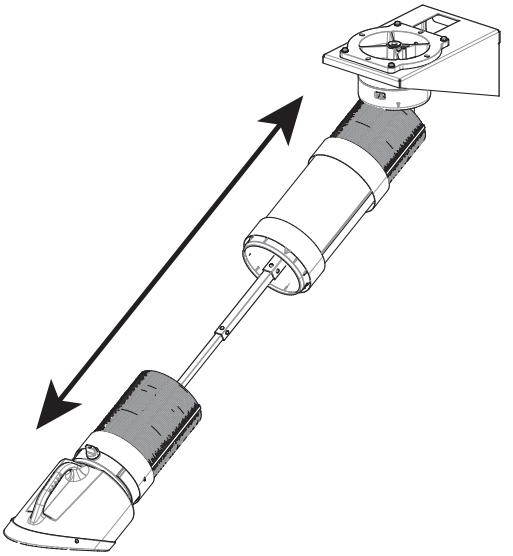

## ATTACHING THE ROPE

**⚠ CAUTION**

**Tying the counterweight too low will affect the reach of the extraction arm.**

1. **Pull the arm to the longest position (See Figure A.16)**.

FIGURE A.16

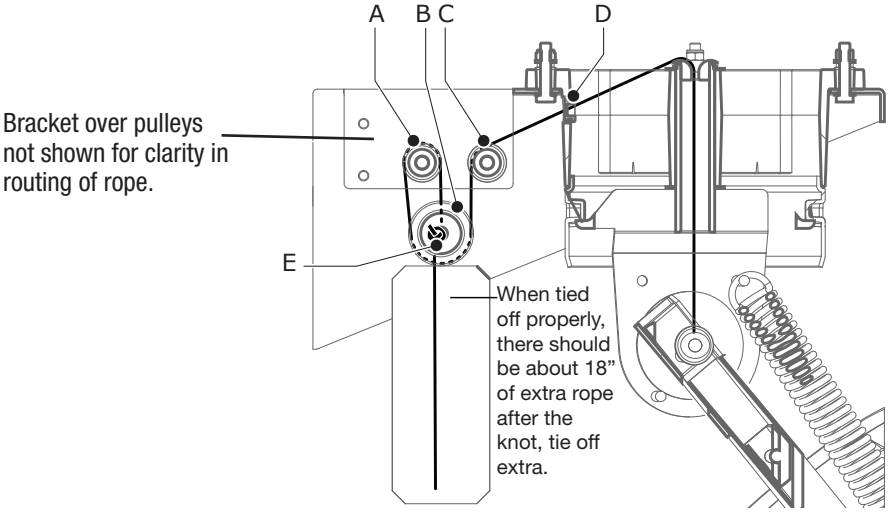


**⚠ WARNING**

**Failure to securely knot rope could cause injury.**

2. Guide the rope through the mounting assembly (D) and over the pulley (C), the counterweight pulley (B) and the other small pulley (A). (See Figure A.17)
3. Keep the counterweight in the highest position, which means just below the small pulleys. Securely fasten the rope to the counterweight by tying a knot (E) . The rope should be threaded through the hole in the counterweight pulley. **The knot must be large enough so the rope cannot slip back through the hole - take measures to make sure knot does NOT untie itself.** (See Figure A.17)

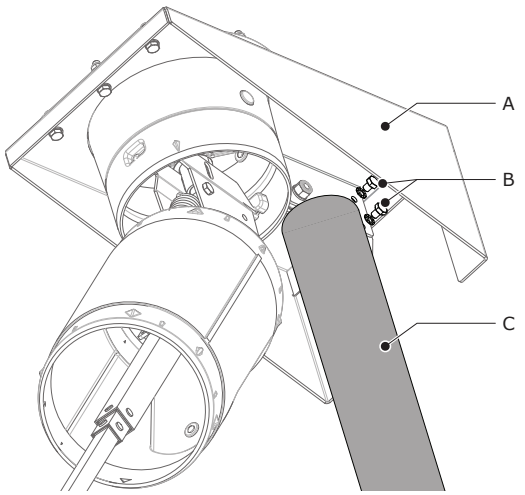
FIGURE A.17



## ATTACHING THE COUNTERWEIGHT CASING

4. Slide the counterweight casing (C) over the counterweight. (See Figure A.18)
5. Using a 1/2” wrench, fasten the casing to the wall mounting bracket (A) using (2) 5/16-18 x .75 bolts and (2) 5/16-18 locknuts.
6. Securely tighten bolts.

**FIGURE A.18**

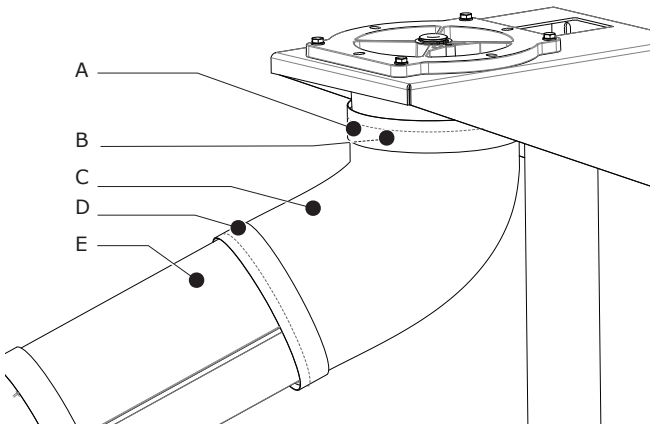



## ATTACHING THE HOSE TO THE MOUNTING ASSEMBLY

The mounting assembly and the tube are both provided with a rubber gaskets. To attach the shorter flexible hose proceed as follows:

7. Remove the banding straps from the flexible hose.
8. Fold back 2/3 of both rubber gaskets. (A+D). (See Figure A.19)
9. Place the flexible hose (C) over the collar (B) and the tube (E). To secure the hose, at least one metal ring of the hose should be applied over the ridges of the collar. The same goes for the tube.
10. Fold back the gaskets and place them over the hose. Make sure the upper gasket overlaps the aluminum mounting assembly approximately 0.4 in. (10 mm).

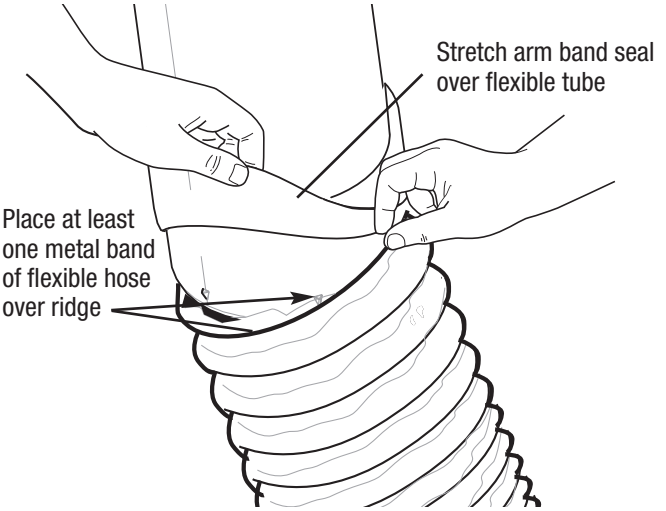
**FIGURE A.19**




## MOUNTING OF THE EXTRACTION HOOD

11. Remove the plastic and tape packaging from the arm sections. Adjust the friction of the arm and hood movement as described in the maintenance section of this manual. When set, seal all hose connections with the arm seal bands.
12 Fold back 2/3 of both arm seal bands. Remove the wrap of the flexible hose. Place the flexible hose over both arm sections. To secure the hose, at least one metal rings of the hose should be applied over the ridges at each arm section. Fold back the arm seal bands and place them over the hose. The arm seal band should cover the arm section 0.5-1 in. See Figure A.20.

**FIGURE A.20**




* Supplied hose clamp to be used in combination with mounting kit K1657-2.

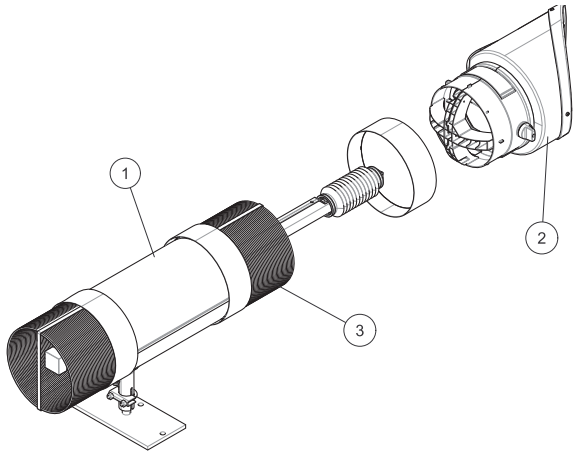
# WALL MOUNTING THE LTA 2.0 TELESCOPIC ARM

### Components

| K1655-10 – LTA 2.0 TELESCOPIC EXTRACTION ARM | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY | 1 |
| 2 | HOOD ASSEMBLY | 1 |
| 3 | FLEXIBLE HOSES | 2 |
| 4* | INSTRUCTION MANUAL | 1 |
| 5* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN

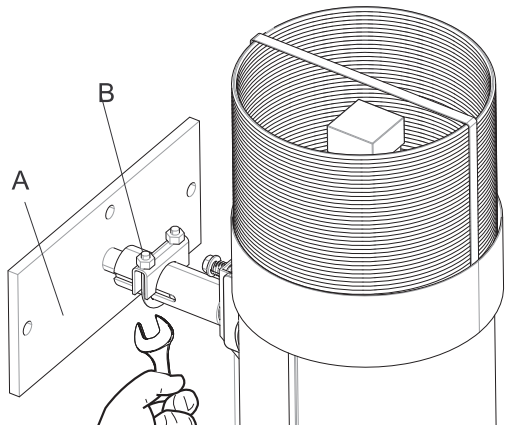
See Parts Page for Hardware Bag Contents




### MOUNTING THE LTA 2.0 TELESCOPIC EXTRACTION ARM ON THE WALL MOUNTING BRACKET

1. Disconnect the mounting bracket from the arm before mounting by using a ½" wrench and loosening the U-clamp (B) and sliding the post out of the friction tube (See Figure A.21).

**FIGURE A.21**




2. Mount the telescoping arm mounting bracket (A) to the wall. Standard mounting height is 63" (1600mm) from the work table to the center of the bracket. Refer to Figure A.22 for drilling dimensions.

**FIGURE A.22**

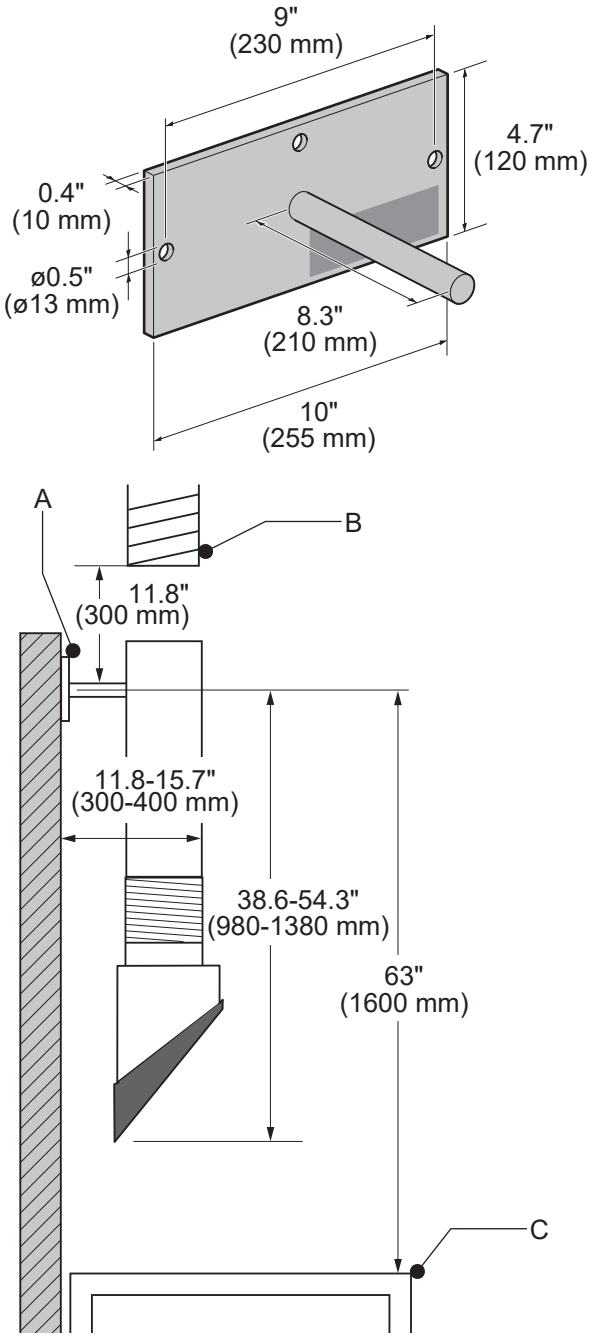
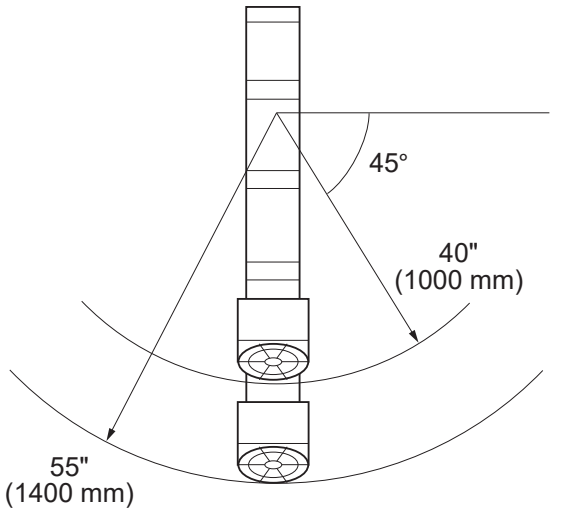
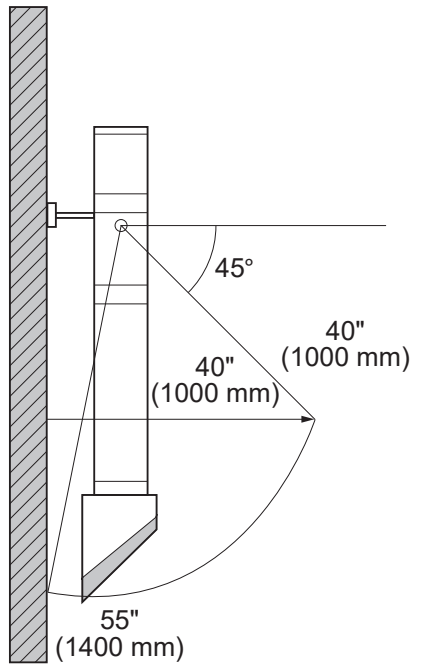


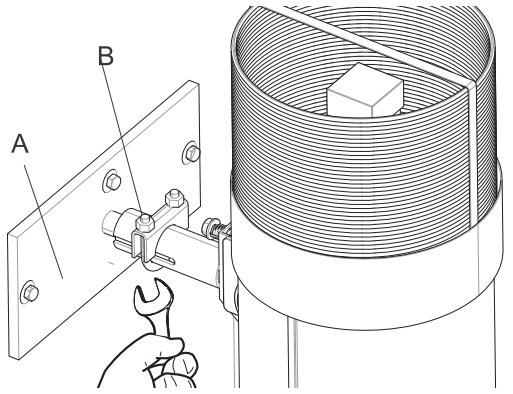
**FIGURE A.23**



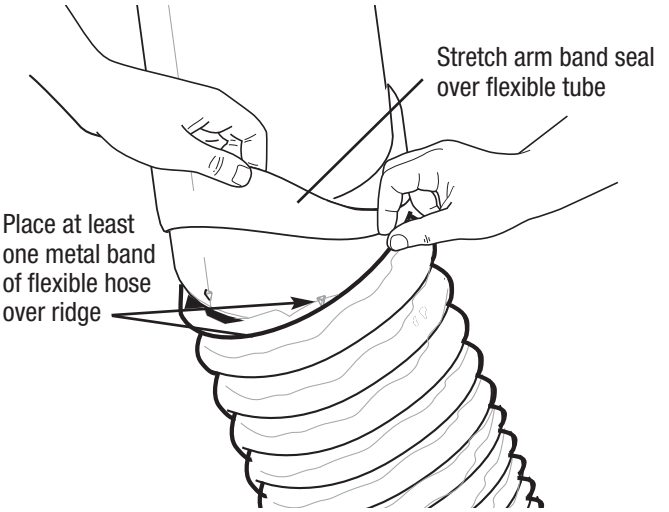

3. Slide the arm friction tube onto mounting bracket. Using a ½" wrench, tighten the U-clamp (B)

**FIGURE A.24**




4. Remove the plastic and tape packaging from the arm sections. Adjust the friction of the arm and hood movement as described in the maintenance section of this manual. When set, seal all hose connections with the arm seal bands.
5. Fold back 2/3 of both arm seal bands. Remove the wrap of the flexible hose. Place the flexible hose over both arm sections. To secure the hose, at least one metal rings of the hose should be applied over the ridges at each arm section. Fold back the arm seal bands and place them over the hose. The arm seal band should cover the arm section 0.5-1 in. See Figure A.25

**FIGURE A.25**



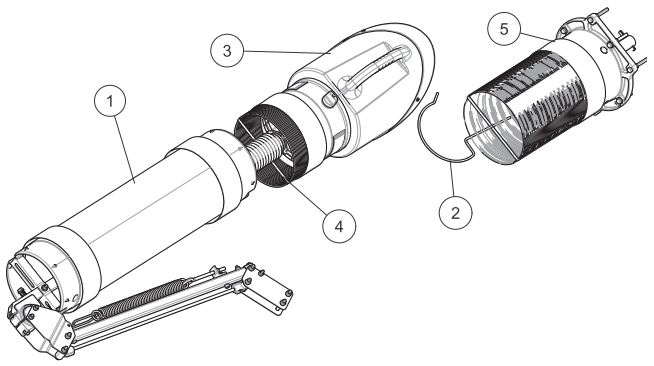
# WALL MOUNTING LFA 2.0 ARM

### Components

| K1655-12 – LFA 2.0 WALLMOUNT EXTRACTION ARM | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY | 1 |
| 2 | HOSE SUPPORT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 2 |
| 5 | MOUNTING ASSEMBLY | 1 |
| 6* | INSTRUCTION MANUAL | 1 |
| 7* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN

See Parts Page for Hardware Bag Contents




### For wall mounting applications:

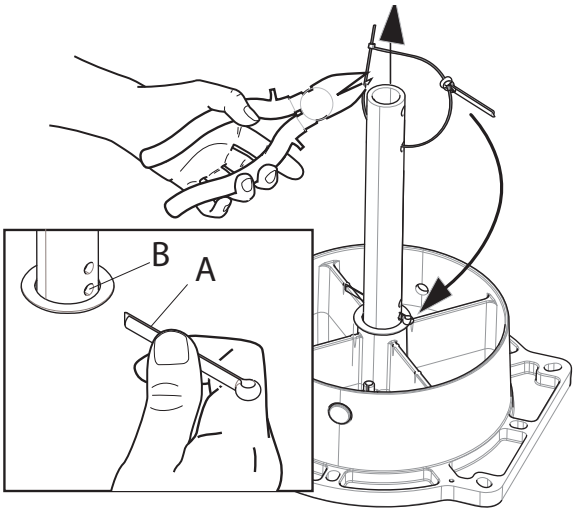
Install wall mounting brackets as detailed in the section titled "INSTALLATION OF WALL MOUNTING BRACKETS" for Operator Manual IM10320 SF2400 Stationary Fan.

### MOUNTING THE LFA 2.0 EXTRACTION ARM ON THE WALL MOUNTING BRACKET

See Figure A.26 for steps 1-4

1. Cut through the upper cable tie to release the cotter pin (Item A).
2. Lift the post of the base swivel mount by the lower cable tie.
3. Put the cotter pin through the lowest hole in the post (Item B) and bend it around.
4. Cut the lower cable tie and let down the post.

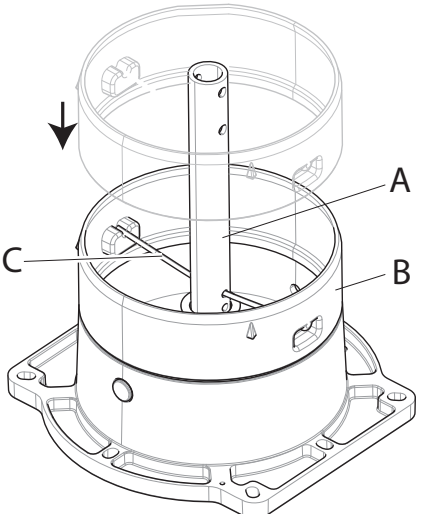
**FIGURE A.26**




2. The mounting assembly of the arm comes in three pieces: (See to Figure A.27)
   - Metal rotating rod (Item A),
   - red plastic ring (Item B),
   - and metal spring collar pivot rod (Item C).

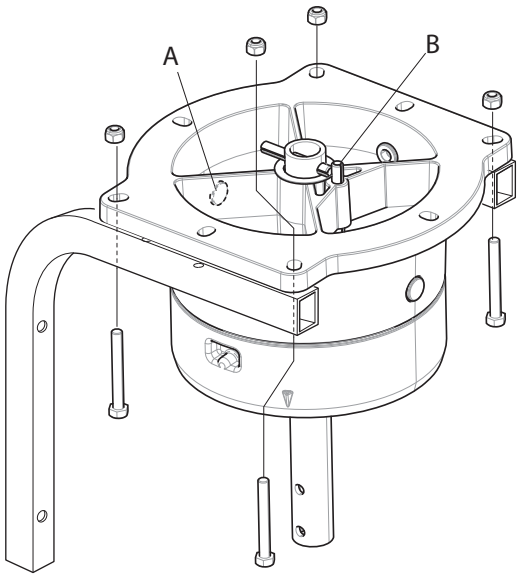
   Mount the red plastic ring to the metal mounting assembly by fitting the metal spring collarpivot rod through the hole in the rotating rod, and snapping it into place on the U-shaped indents on the red plastic ring. The lip of the ring should fit securely against the top edge of the mounting assembly yet rotate with the rod.

**FIGURE A.27**



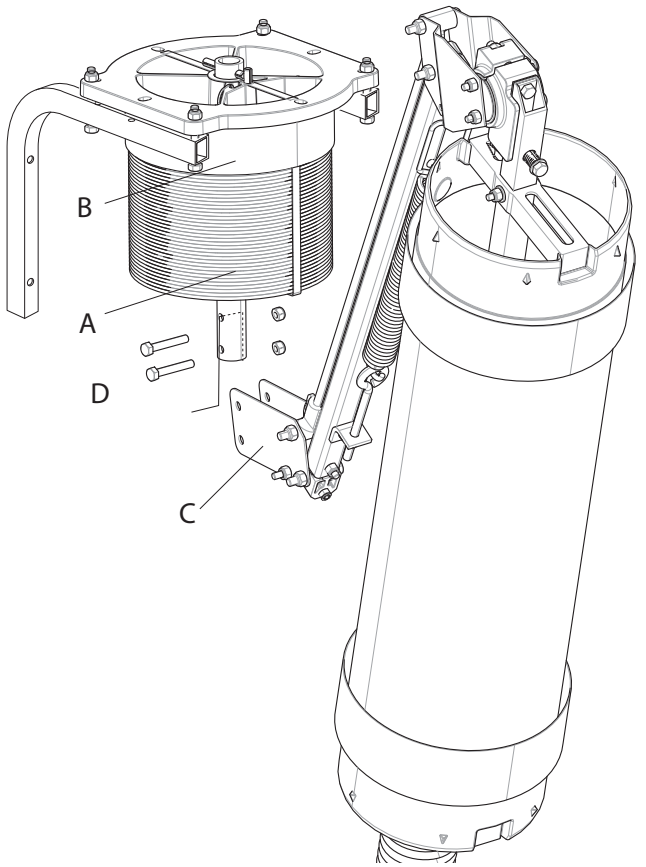
3. Position the mounting assembly on a wall mounting bracket (See Figure A.28) so that the cable hole (Figure A.28, Item A) is on the wall side. Use the four 3" bolts and nuts to secure the mounting assembly to the wall mounting bracket. Rotate the hinge rod (Fig. A.28, Item D) so the stop pin (Figure A.28, Item B) is in the front.

**FIGURE A.28**



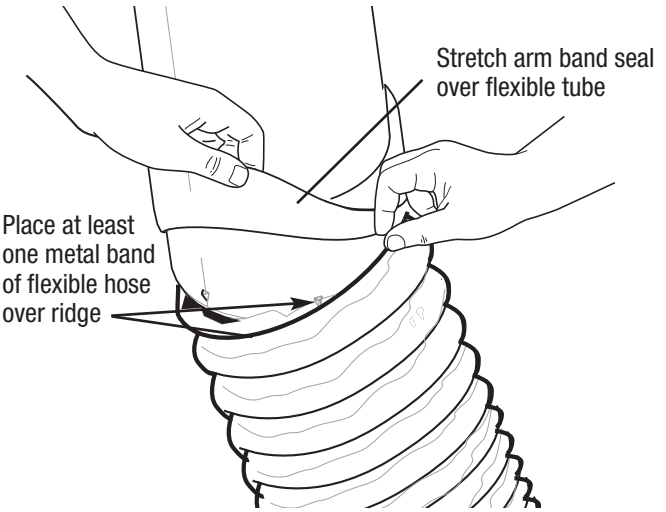

4. Position one 8" arm seal band and a flexible hose on the red plastic ring of the mounting assembly (Figure A.29 Item A & B). Put another arm seal band on the top of the arm Body (Figure A.29 Item C). Mount the arm body (Figure A.29, Item D) to the mounting assembly using (2) 1.75" bolts and nuts.

**FIGURE A.29**




5. Mount the spring bracket and position the arm seal band and the flexible hose around the connection flange.
6. Remove the plastic and tape packaging from the arm sections. Adjust the friction of the arm and hood movement as described in the maintenance section of this manual. When set, seal all hose connections with the arm seal bands.
7. Fold back 2/3 of both arm seal bands. Remove the wrap of the flexible hose. Place the flexible hose over both arm sections. To secure the hose, at least one metal rings of the hose should be applied over the ridges at each arm section. Fold back the arm seal bands and place them over the hose. The arm seal band should cover the arm section 0.5-1 in. See Figure A.30

**FIGURE A.30**



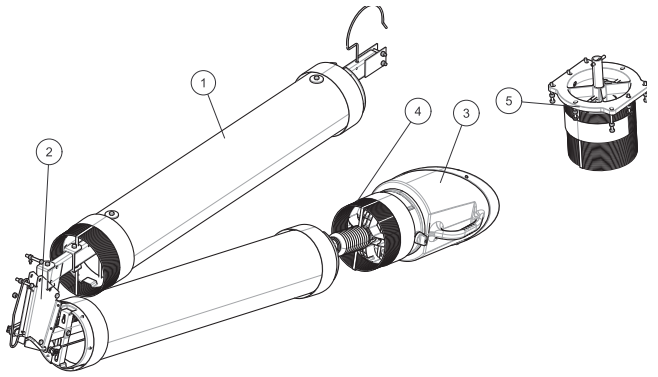
# MOUNTING LFA 4.1-LC LOW CEILING ARM

## Components

| K1655-13 – LFA 4.1-LC, 13FT EXTRACTION ARM | | |
|---|---|---|
| **ITEM** | **DESCRIPTION** | **QTY** |
| 1 | ARM BODY (2 SEPARATE PIECES) | 1 |
| 2 | HOSE SUPPORT | 1 |
| 3 | HOOD ASSEMBLY | 1 |
| 4 | FLEXIBLE HOSES | 3 |
| 5 | MOUNTING ASSEMBLY | 1 |
| 6* | INSTRUCTION MANUAL | 1 |
| 7* | LOOSE HARDWARE BAG | 1 |

*NOT SHOWN

See Parts Page for Hardware Bag Contents




## For wall mounting applications:

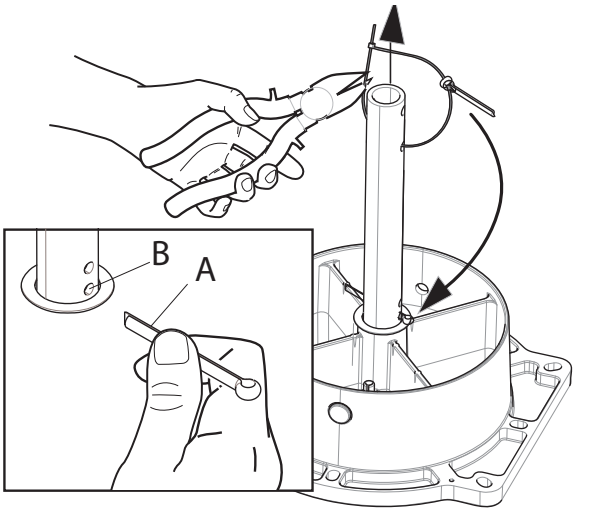
Install wall mounting brackets as detailed in the section titled “INSTALLATION OF WALL MOUNTING BRACKETS” for Operator Manual IM10320 SF2400 Stationary Fan.

## MOUNTING THE LFA 4.1-LC EXTRACTION ARM ON THE WALL BRACKET

See Figure A.31 for steps 1-4

1. Cut through the upper and lower cable ties (Item A). The cotter pin is not used for wall mount applications.

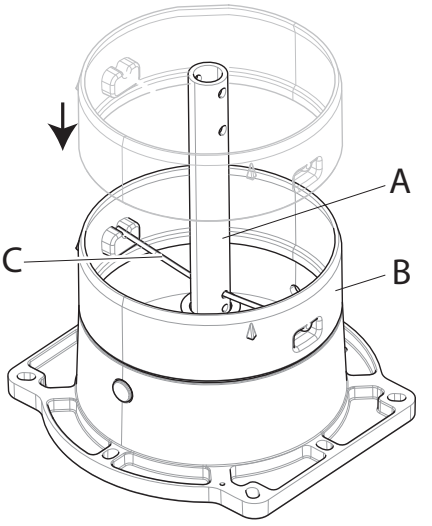
**FIGURE A.31**




2. The mounting assembly of the arm comes in three pieces: (See to Figure A.32)
   - Metal rotating rod (Item A),
   - red plastic ring (Item B),
   - and metal spring collar pivot rod (Item C).

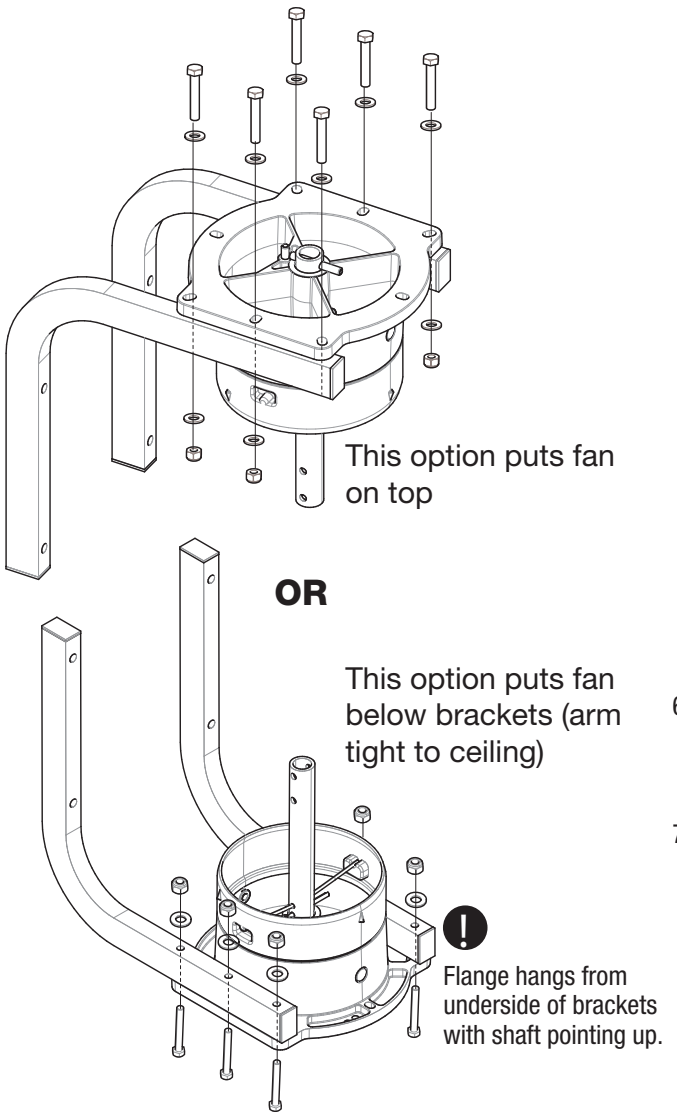
   Mount the red plastic ring to the metal mounting assembly by fitting the metal spring collarpivot rod through the hole in the rotating rod, and snapping it into place on the U-shaped indents on the red plastic ring. The lip of the ring should fit securely against the top edge of the mounting assembly yet rotate with the rod.

**FIGURE A.32**



3. Position the mounting assembly on a wall mounting bracket (See Figure A.33) so that the cable hole is on the wall side. Use the six 3" bolts and nuts to secure the mounting assembly to the wall mounting bracket. Rotate the hinge rod so the stop pin is in the front.

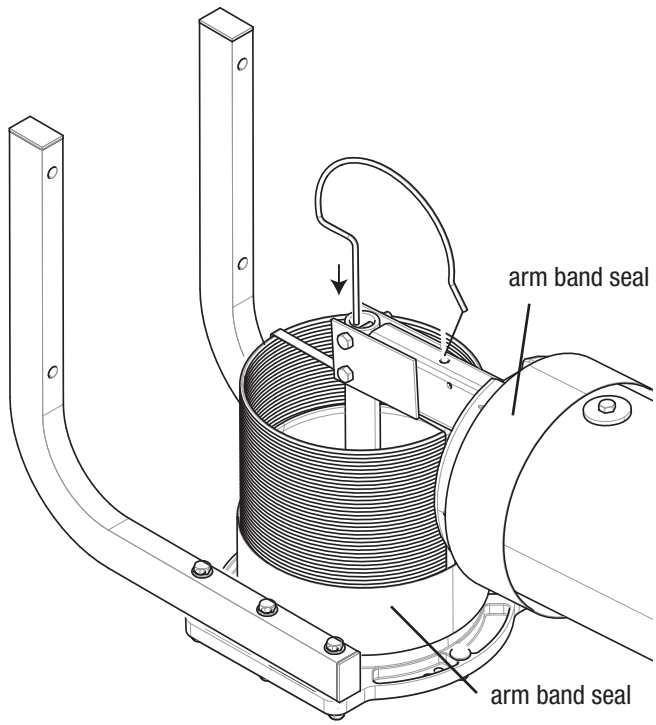
**FIGURE A.33**




4. Position one 8" arm seal band and a flexible hose on the red plastic ring of the mounting assembly. Put another arm seal band on the top of the arm. Mount the arm body (Figure A.34) to the mounting assembly using (2) 1.75" bolts and nuts.

5. Mount the spring bracket and position the arm seal band and the flexible hose around the connection flange. (See Figure A.34).

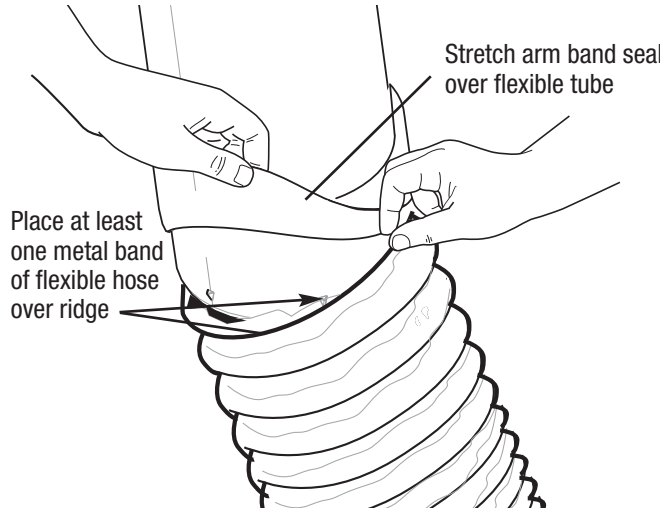
**FIGURE A.34**




6. Remove the plastic and tape packaging from the arm sections. Adjust the friction of the arm and hood movement as described in the maintenance section of this manual. When set, seal all hose connections with the arm seal bands.

7. Fold back 2/3 of both arm seal bands. Remove the wrap of the flexible hose. Place the flexible hose over both arm sections. To secure the hose, at least one metal rings of the hose should be applied over the ridges at each arm section. Fold back the arm seal bands and place them over the hose. The arm seal band should cover the arm section 0.5-1 in. See Figure A.35

**FIGURE A.35**



# EXTENSION CRANES

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.

**READ THIS ENTIRE INSTALLATION SECTION BEFORE YOU START INSTALLATION.**

## ⚠ WARNING

**The installer is responsible for following Federal, State and Local safety codes and regulations.**

**Before drilling, verify locations of existing gas, water, or electrical conduits.**

**ELECTRIC SHOCK can kill.**

- **Do not touch electrically live parts such as internal wiring.**
- **Turn the input power off at the fuse box before working on this equipment.**
- **Have a qualified person install and service this equipment.**

**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.**

This installation section describes installation of a:

- **K1671-1, 7 ft. Extension Crane (EC 2) OR K1671-2, 14 ft. Extension Crane (EC 4) with a K1655-8 LFA 3.1, 10 ft. Extraction Arm OR K1655-9 LFA 4.1, 13 ft. Extraction Arm**

**K1671-1 Extension Crane (EC 2), 7 ft. Includes:**

- 7 ft. Base Section, complete with wall bracket
- HandyStop handle
- (2) Arm Mounting Brackets
- Hanging Adapter
- Spring Bracket
- (2) 5/16-18 UNC, 2.50” long
- (2) 5/16-18 UNC, 1.75” long
- (2) 5/16-18 UNC, 5.00” long
- (13) Nuts, 5/16”, self-locking
- (14) Washers, 5/16”
- Total (2) Rubber Arm Band Seals, 8”
- (1) Flexible Connection Hose, 41.3” long
- (2) Flexible Connection Hose, 45.3” long
- (2) Max. 110/50kg Decal
- (2) Hose Clamps
- Self-adhesive Foam Seal
- Distance Spring

**K1671-2 Extension Crane (EC 4), 14 ft. Includes:**

all equipment listed above, as well as:

- 7 ft. Extension Section
- 3/4-10 UNC, 7.00 long
- Additional Flexible Connection Hose, 41.3” long, and (2) Rubber Arm Band Seals, 8”

## MOUNTING THE WALL BRACKET

**⚠ CAUTION**

**Before you install the wall bracket, make sure that the wall is strong enough [minimum wall thickness: 8 in. (200 mm)].**

**Locate any gas and water pipes and electric cables before drilling any holes.**

**Leave the tape and plastic packaging on the extraction arm sections until the arm is completely installed (including mounting the hood). The arm is spring-balanced to compensate for the weight of the hood and will spring out quickly if it is not mounted securely, with the hood in place.**

**1.) Disassemble the Wall Bracket (Fig. A.36, Item E) from the crane rail (Fig. A.36, Item F) by removing the bolt (Fig. A.36 Item A) and nut (Fig. A.36, Item D).**

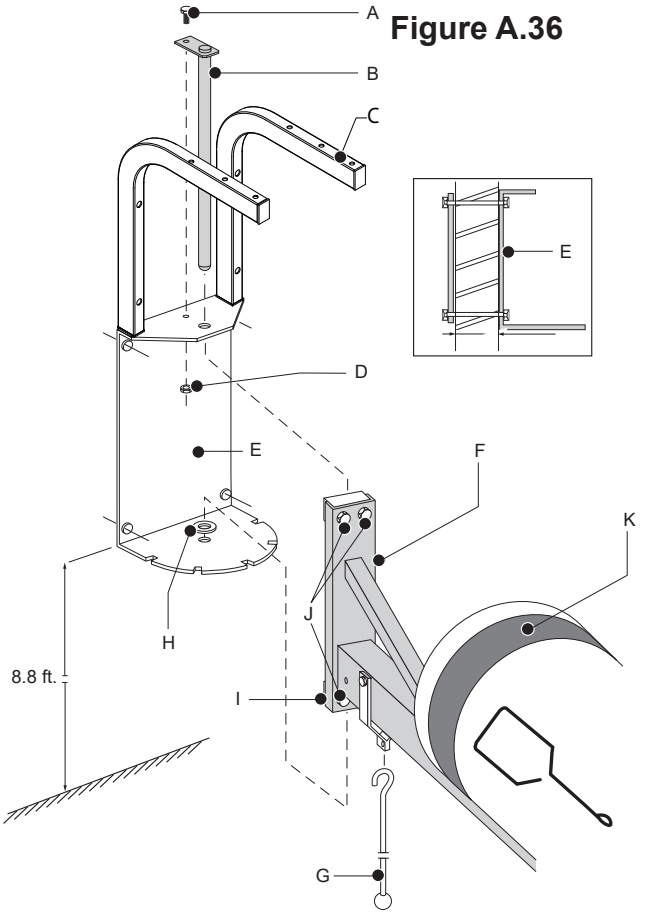



**Figure A.36**

**2.) Support the far end of the crane rail, and pull out the pivot pin (Figure A.36, Item B). Save all hardware for later use.**

**3.) Mount the Wall Bracket of the extension crane to the wall at 8 ft., 8 in. as shown in Figure A.37 Make sure the wall bracket is level.**

**Recommended method is (4) min. 3/8" bolts through the wall, with 0.2 in. (5mm) thick steel plate on the back side of the wall for support (see Figure A.37 Inset).**

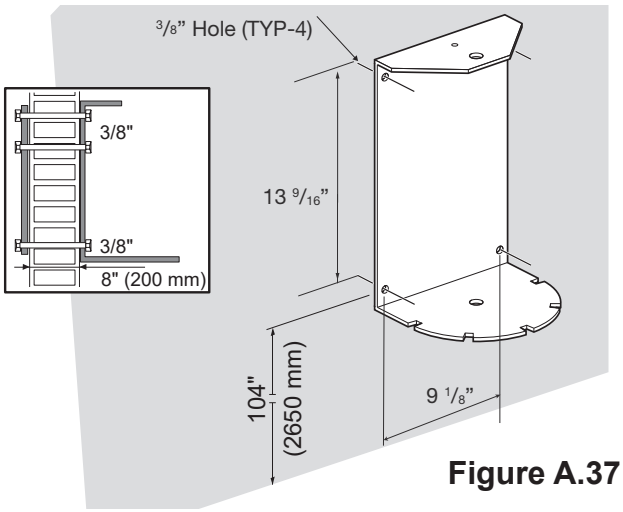



**Figure A.37**

**4.) Remount the Crane Rail to the Wall Bracket (See Figure A.36) per the following steps:**

- **a) Put the crane rail base (F) between the upper and lower part of the wall bracket (E) and hold it in place.**
- **b) Insert the locking pin (B) through the upper part of the wall bracket and subsequently through both plastic hinge joints of the crane rail base (I).**
- **c) Lift the crane rail base to touch the upper part of the wall bracket.**
- **d) Put a washer (H) over the hole in the lower part of the wall bracket (between lower plastic hinge joint and wall bracket).**
- **e) Push the locking pin further through the washer and the hole.**
- **f) Secure the locking pin using the bolt (A) and the nut 5/16" (D).**
- **g) Hang the HandyStop handle (G) through the loop in the locking mechanism.**
- **h) Fold back 2/3 of the rubber seal.**
- **i) Cut the wrap of the flexible hose.**
- **j) Place one end of the flexible hose over the tube. To secure the hose, at least one metal ring of the hose should be applied over the ridges at the tube.**
- **k) Fold back the rubber seal and place it over the hose. The rubber seal should cover 0.5 to 1 inch (13 to 25 mm) of the tube.**

**⚠ CAUTION**

**To prevent damage to the flexible hose, position the extension crane in the middle of its turning circle when mounting the hose to a fan or central duct.**

- **l) Connect the other end of the flexible hose to one of the following:**

  **SF4200 Fan – see SF4200 instruction manual for details.**

  **Central Fan – connect flexible hose to central duct.**

## MOUNTING THE CRANE RAIL EXTENSION (EC 4)

**K1671-2, 14 ft. Extension Crane**
**(See Figure A.38)**

5) **Lift the extension part (I) and align it with the base (O).**

6) **Insert a bolt 3/4-10 UNC, 7.00" long (C) subsequently through:**
   - **steel plate (B)**
   - **composite washer (D)**
   - **upper synthetic bearing, applied to extension piece (N)**
   - **base (O)**
   - **lower synthetic bearing, applied to extension piece (M)**
   - **nylon washer (J)**
   - **steel washer (K)**

7) **Secure bolt with selflocking nut 3/4" (L).**

8) **Both tubes contain a supply wire, each attached with a tie wrap. Cut both tie wraps.**

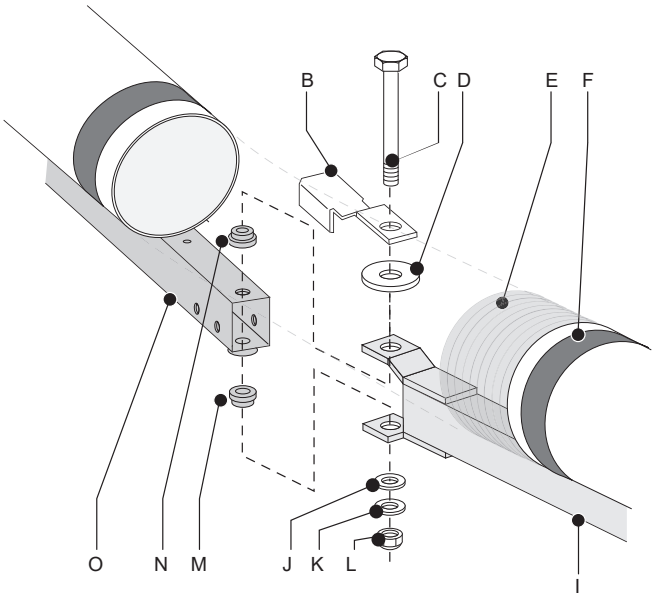
9) **Fold back 2/3 of both rubber seals (F).**

10) **Cut the wrap of the flexible hose (E).**

11) **Place the flexible hose over the tubes. To secure the hose, at least one metal ring of the hose should be applied over the ridges at the tubes.**

12) **Fold back both rubber seals and place them over the hose. The rubber seals should cover the red plastic ring 0.5-1 in.**

**Figure A.38**

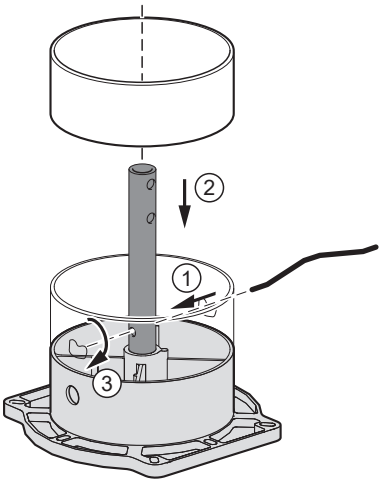


## MOUNTING THE EXTENSION ARM

13.) Mount the (2) Arm Mounting Brackets (Figure A.43, Item B) using the (2) 5/16-18 UNC, 5.00" long bolts with nuts.

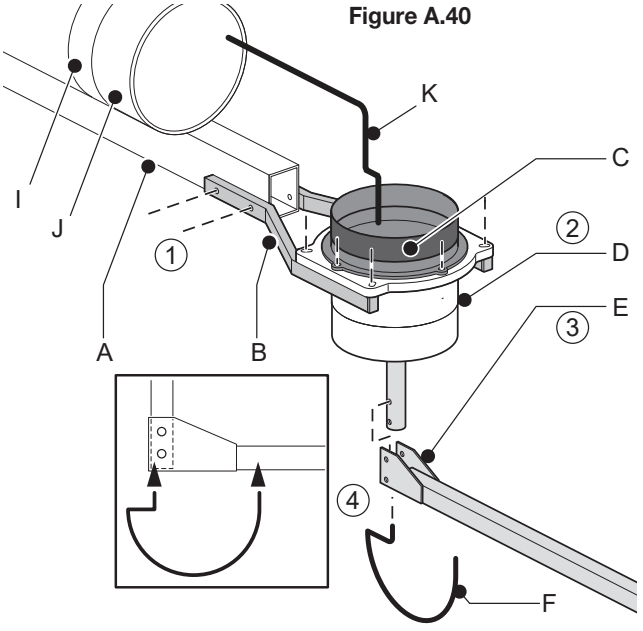
14). The Extraction Arm's Rotating Hinge consists of three pieces: The metal base swivel mount, red plastic ring and clamping pin. Note: these items are packaged with the LFA 3.1 and LFA 4.1 extraction arms. See Figure A.39.

Figure A.39




Mount the red plastic ring to the metal base swivel mount by fitting the clamping pin through the hole in the rotating rod, and snapping it into place on the U-shaped indents on the red plastic ring. The lip of the ring should fit securely against the top edge of the base swivel mount, yet rotate with the rod.

Figure A.40




The assembly should look like Item D in Figure A.40.

15.) Mount the Rotating Hinge (D) on the Arm Mounting Brackets using the (4) 5/16-18UNC, 2.25" long, (4) washers and (4) nuts. Make sure the cable hole is positioned in the back, pointing toward the crane rail.

16.) Remove protective paper from the self-adhesive foam seal and attach the foam seal onto the base swivel mount. The foam which is sandwiched between the base swivel mount and the tapered connection flange will help to make the system airtight.

Mount the tapered connection flange (C) onto the base swivel mount using (2) 5/16-18x1.75 HHCS, (2) 5/16-18x2.50 HHCS, (6) washers and (4) nuts.

17.) Fold back 2/3 of the rubber seal.

18.) Cut the wrap of the flexible hose and place one end of the flexible hose over the tube. To secure the hose, at least one metal ring of the hose should be applied over the ridges at the tube.

19.) Fold back the rubber seal and place it over the hose. The rubber seal should cover 0.5 to 1 inch of the tube.

20.) Place the Distance Spring (K) in the clamping bush in the middle section of the base swivel mount. Feed the other end of the Distance Spring into the open end of the flexible hose.

21.) Secure end of hose to inlet ring with hose clamp.

22.) Place a rubber seal over the lower part of the tapered connection flange (D) and fold back 2/3 of the rubber seal.

23.) Place the lose end of the flexible hose over the lower part of the tapered connection flange and secure the hose with rubber seal.

24.) Turn the hinge rod so the long side of the stop pin at its base points away from the wall, and mount the hanging adapter (Fig. A.40, Item E) to the hinge rod using the (2) 1.75" bolts with nuts.

25.) Mount the spring bracket (Figure A.40, Item F) into the two holes as shown.

**⚠ CAUTION**

Leave the tape and plastic packaging on the extraction arm sections until the arm is completely installed (including mounting the hood). The arm is spring-balanced and will spring out quickly if not mounted securely with the hood in place.

26.) Adjust the friction resistance of the swinging motion of the extension crane according to maintenance section.

27.) Use the rubber seals and connecting hoses to close all gaps between arm sections on the Extension Crane and the Extraction Arm.

At this stage, the LFA 3.1 or LFA 4.1 extraction arm can be mounted onto the extension crane. Please refer to the extraction arm instruction manual for the next steps.

# OPERATION

## SAFETY PRECAUTIONS

**⚠ WARNING**

**ELECTRIC SHOCK can kill.**

- **Do not touch electrically live parts or electrode with skin or wet clothing.**
- **Insulate yourself from work and ground.**
- **Always wear dry insulating gloves.**

---

**MOVING PARTS can injure.**

- **Do not operate with doors open or guards off.**
- **Stop engine before servicing.**
- **Keep away from moving parts.**

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**Observe additional Safety Guidelines detailed in the beginning of this manual.**

The serviceability of a product or structure utilizing the Fume Extraction Arms is and must be the sole responsibility of the builder/user. Many variables beyond the control of The Lincoln Electric Company affect the results obtained in using the Fume Extraction Arms wirefeeder. These variables include, but are not limited to, welding procedure, plate chemistry and temperature, weldment design, fabrication methods and service requirements. The available range of the Fume Extraction Arms may not be suitable for all applications, and the builder/user is and must be solely responsible for welding settings.

### GRAPHIC SYMBOLS THAT APPEAR ON THIS MACHINE OR IN THIS MANUAL

**WARNING OR CAUTION**


**INPUT VOLTAGE**


**OUTPUT ON**

**READ INSTRUCTION MANUAL**

**PROTECTIVE GROUND**

### GENERAL DESCRIPTION

Located in the hood is a throttle valve that can be fully opened, partially opened or completely closed to control airflow. The arm features a focus extraction spoiler which directs the air into the hood.

### MANUAL OPERATION

The extracted welding fume enters the extraction arm via the rotatable hood. The arm discharges the polluted air to a filter unit or directly to the atmosphere. The hood of the arm is fitted with a throttle valve, which can be controlled using the rotary knob(s). The throttle valve is mostly used when several extraction arms are integrated in a line installation; in such configurations closing the throttle valve prevents the loss of costly heated air.

NOTE: If an automatic damper system is part of the assembly, keep the manual damper open at all times.

- Everyone working on or with the product, must be familiar with the contents of this manual and must strictly observe the instructions therein. The management should instruct the personnel in accordance with the manual and observe all instructions and directions given.

### USERS

- The use of this product is exclusively reserved to well authorized, trained and qualified users. Temporary personnel and personnel in training can only use the product under supervision and responsibility of skilled engineers.
- Use common sense. Stay alert and keep your attention on your work. Do not use the product when you are under the influence of drugs, alcohol or medicine.
- The product is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.

### INTENDED USE

This product has been designed exclusively for extracting gases and particles which are released during the most common welding processes. Using this product for other purposes is considered contrary to its intended use. The manufacturer accepts no liability for any damage or injury resulting from such use. The product has been built in accordance with state-of-the art standards and recognized safety regulations. Only use this product when in technically perfect condition in accordance with its intended use and the instructions explained in the user manual.

## PRODUCT COMBINATIONS

If the product is used in combination with other products or machines, the safety instructions in the documentation of these products also apply.

## CONTROLS

The Extraction Arms are provided with a handle for easy positioning and a throttle valve for adjustment of the airflow. All movement of the arm is controlled from the hood.

A. Rotary knobs for adjustment of throttle valve.

NOTE: Throttle valve rotational resistance can be adjusted using a phillips screw driver. Find the knob (A) with a center opening then insert phillips screw driver into knob to adjust rotational resistance. Clockwise increases resistance, counterclockwise decreases resistance. Adjust in minor increments only.

B. Handle for positioning of the extraction arm and hood.

- Using the handle (B), position the hood of the extraction arm in the desired position at approximately 6-20 inches (15-50 cm) from the source of fume.

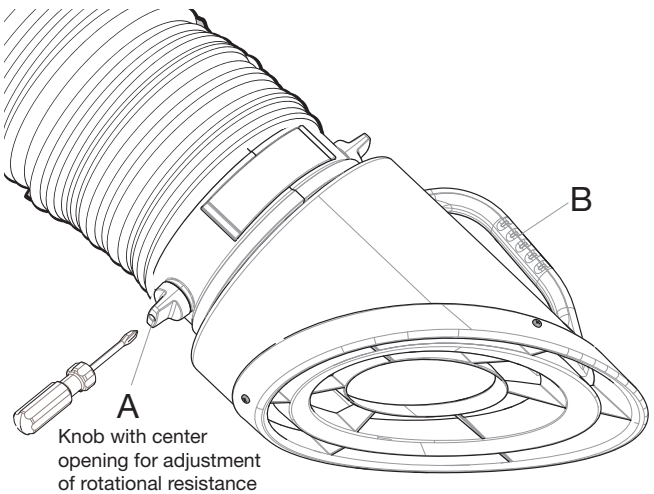
NOTE: Retraction movement must happen slowly to allow counterweight to descend.

- Open the throttle valve (A).
- Turn on the connected extraction fan; refer to the corresponding manual.
- Start welding.
- If desired, adjust the airflow by turning the rotary knob of the throttle valve (A).

NOTE: If an automatic damper system is part of the assembly, keep the manual damper open at all times.

- Turn off the connected extraction fan approx. 50 seconds after finishing welding; refer to the corresponding manual.

**FIGURE B.1 - CONTROLS**




**⚠ WARNING**

### Fire hazard!

**Never use the product for extracting inflammable, glowing or burning particles or solid liquids. Never use the product for extracting aggressive fumes (such as hydrochloric acid).**

- **Inspect the product and check it for damage.**
- **Protect the product against water and humidity.**
- **Never install the product in front of entrances and exits which must be used by emergency services.**
- **Make sure the workshop contains sufficient approved fire extinguishers.**
- **Air containing particles such as chromium, nickel, beryllium, cadmium, lead etc., which is a health hazard, should never be recycled. This air must always be put outside the workshop.**
- **Never use the product for extracting paint mists.**
- **Never use the product for extracting fumes containing alkaline or acid.**

**Observe the maintenance intervals given in this manual. Overdue maintenance can lead to high costs for repairs and revisions and can render the guarantee null and void. Always use tools, parts, materials, lubricants and service techniques which have been approved by the manufacturer. Never use worn tools and do not leave tools behind in or on the product.**

# OPTIONS/ACCESSORIES

The following options/accessories are available for your
Fume Extraction Arms from your local Lincoln Electric Distributor.

| | | |
|---|---|---|
| K1657-1 SF2400 WALL MOUNTING BRACKET FOR LFA 3.1 & 4.1 | Kit allows mounting of SF2400 fan and extraction arm to wall. Use K1657-1 for LFA 3.1 and 4.1 extraction arms. Use K1657-2 for LFA 2.0, LTA 2.0 and LFA 4.1-LC extraction arms. |  |
| K1657-2 SF2400 WALL MOUNTING BRACKET FOR LTA 2.0, LFA 2.0 & LFA 4.1-LC | |  |
| K1669-4<br>LAMP KIT WITH ARC SENSOR (SF2400 FAN) | Mounted in the lamp housing, the arc sensor turns the fan on when sensing the arc flash, and turns off 50 seconds after the arc extinguishes. Hood mounted switches turn the unit on and off independently of the arc sensor. Kit includes lamp housing with arc sensor, control box, interconnect wire, hood mounted lamp/ fan switch and instruction manual. Required for Statiflex® 400-MS. For SF2400 Fan, use K1669-4. For SF4200 Fan, use K1669-10. |  |
| K1669-10<br>LAMP KIT WITH ARC SENSOR (SF4200 FAN) | | |
| K1657-5 CONNECTOR, 8 IN. DUCT TO EXTRACTION ARM. | Allows 8” duct work to be attached to all arms except K1655-10 and Mobiflex® arms K2633-5, K2633-6, K2633-7 and K2633-8 |  |

# MAINTENANCE

**⚠ WARNING**

**ELECTRIC SHOCK CAN KILL.**

- **Turn the input power OFF at the welding power source before installation or changing drive rolls and/or guides.**
- **Do not touch electrically live parts.**
- **When inching with the gun trigger, electrode and drive mechanism are "hot" to work and ground and could remain energized several seconds after the gun trigger is released.**

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**MOVING PARTS can injure.**

- **Do not operate with covers, panels or guards removed or open.**
- **Only qualified personnel should perform maintenance work.**

---

## DISPOSAL

After life of the product, dispose of product in accordance with federal, state or local regulations.

**⚠ WARNING**

**When cleaning equipment or replacing filter use personal protection equipment (PPE) such as gloves, respirators and protective clothing to protect against overexposure to particulate. It is recommended that a vacuum cleaner or wet methods be used to clean up any loose particulate that is present in the extraction arm. It is necessary to use a vacuum cleaner with HEPA rated filtration.**

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## SERVICE, MAINTENANCE AND REPAIRS

- Observe the maintenance intervals given in this manual. Overdue maintenance can lead to high costs for repair and can render the guarantee null and void.
- During service, maintenance and repair jobs, always use Personal Protective Equipment (PPE) to avoid injury. This also applies for persons who enter the work area.
- Always use tools, materials, lubricants and service techniques which have been approved by the manufacturer. Never use worn tools and do not leave any tools in or on the product.
- Safety features which have been removed for service, maintenance or repairs, must be put back immediately after finishing these jobs and it must be checked that they will still function properly.
- Use sufficient climbing gear and safety guards when working higher than 2 meters (local restrictions may apply).
- Ensure the workspace is well illuminated.

The product has been designed to function without problems for a long time with a minimum amount of maintenance. In order to guarantee this, some simple regular maintenance and cleaning activities are required which are described in this chapter. If you observe the necessary caution and carry out the maintenance at regular intervals, any problems occurring will be detected and corrected before they lead to a total breakdown. The indicated maintenance intervals can vary depending on the specific working and ambient conditions. Therefore it is recommended to thoroughly inspect the complete product once every year beside the indicated periodic maintenance. For this purpose contact your supplier. See Table D.1.

**⚠ WARNING**

**Risk of Fire**

**PAST due maintenance can cause fire.**

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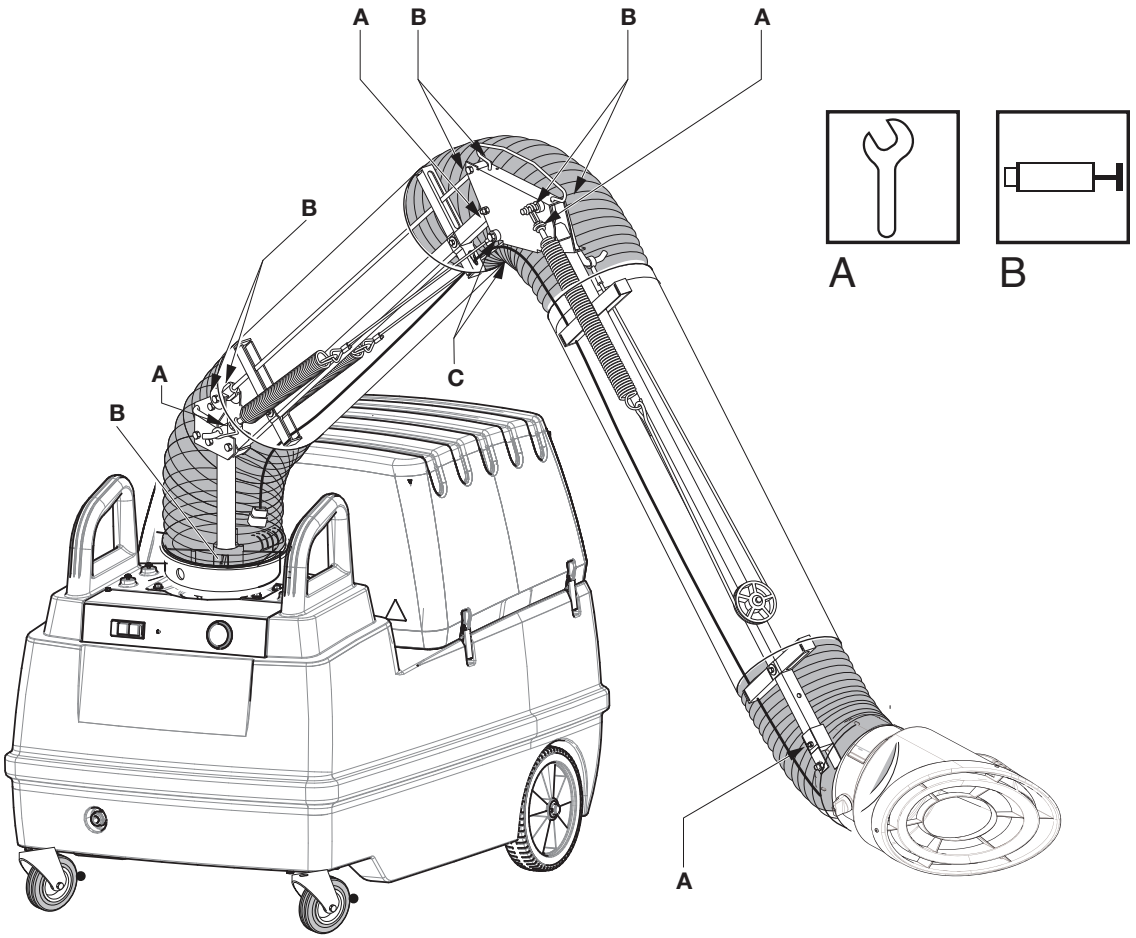
| TABLE D.1 - PERIODIC MAINTENANCE | | | |
|---|---|---|---|
| **Component** | **Action** | **FREQUENCY Every 3 mo.** | **FREQUENCY Every 6 mo.** |
| BALANCE SYSTEM (ITEM A) | CHECK THE BALANCE CONSTRUCTION OF THE EXTRACTION ARM. ADJUST MECHANISM IF NECESSARY. | | X |
| OUTSIDE ARM | CHECK AND CLEAN WITH A NON-AGGRESSIVE DETERGENT. | X | |
| FLEXIBLE HOSES | CHECK FOR CRACKS OR DAMAGES. REPLACE IF NECESSARY. | | X |
| INSIDE ARM | CHECK AND CLEAN THOROUGHLY. | | X |
| ARM MOVEMENT | CHECK HORIZONTAL, VERTICAL AND DIAGONAL ARM MOVEMENT. IF NECESSARY, ADJUST THE SPRING AND FRICTION. | | X |
| ROTATABLE ARM | CHECK THE FUNCTION OF THE HOOD HINGE. IF NECESSARY, ADJUST THE FRICTION. . | X | |
| THROTTLE VALVE | CHECK 90º ROTATION OF THE THROTTLE VALVE USING THE ROTARY KNOB | | X |
| HINGES (ITEM B) | CHECK AND LUBRICATE THE HINGE POINTS WITH BEARING GREASE. | | X |

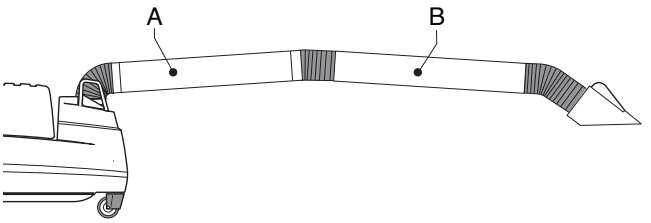


The extraction arms have been pre-balanced in the factory for optimal balance and positioning. However, they sometimes need adjustment. To check and adjust the balance system, proceed as follows.

**If the entire arm falls on its own:**

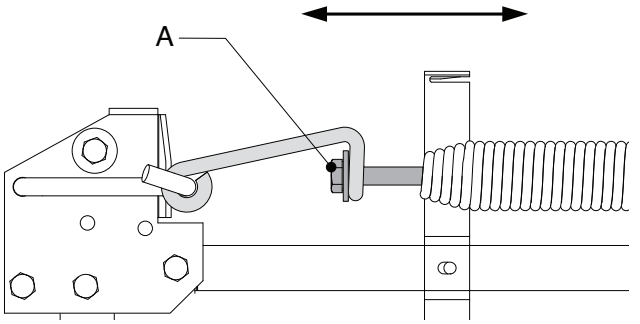
(See Figure F.1, items A and B)

**FIGURE F.1**




- Tighten bolt (A) on the hinge fan side to increase spring tension. Ensure spring does not turn as you tighten. Turn bolt on each spring equal amounts. See Figure F.2.

**FIGURE F.2**

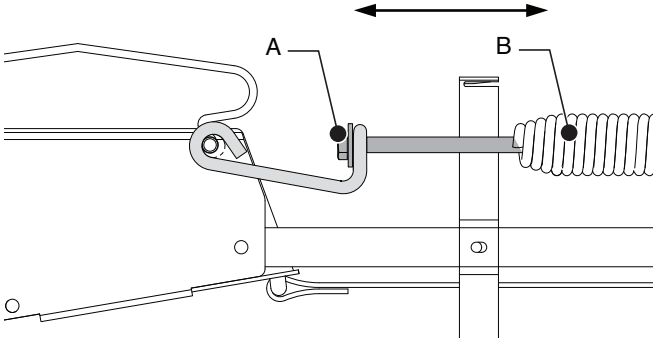



**If the hood section of the arm falls on its own:**

(See Figure F.3, item B)

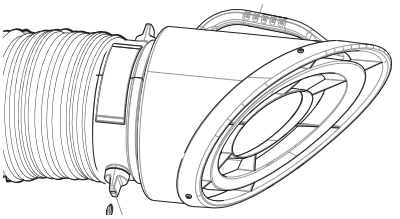
- Tighten bolt (A) in middle hinge to increase spring (B) tension. Ensure spring does not turn as you tighten. See Figure F.3.

**FIGURE F.3**




Bring the extraction hood to a horizontal position. The hood should stay in this position. See Figure F.4.

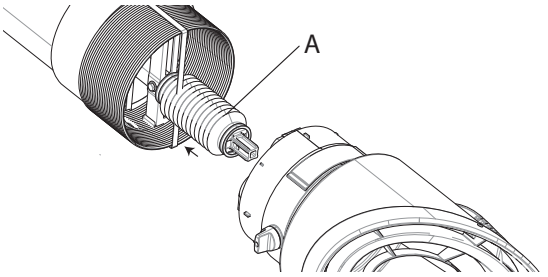
**FIGURE F.4 - HOOD ADJUSTMENT**



If the extraction hood falls on its own:

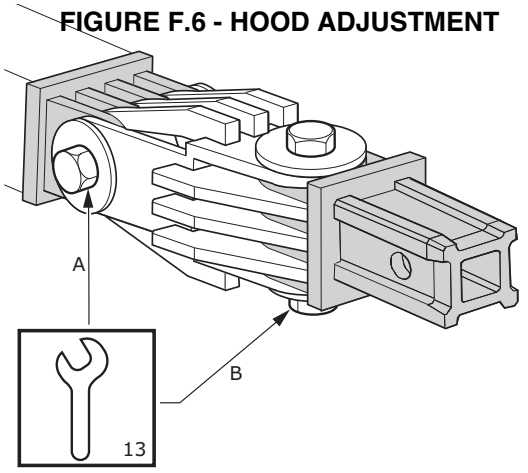
- Pull back the arm band seal and flexible hose.
- Push the corrugated cover (Item A Figure F.5) back to expose the wrist joint.

**FIGURE F.5 - HOOD ADJUSTMENT**




- Use a ½" wrench and ½" socket and ratchet to adjust the bolt/nut pairs as shown Turn bolt (See Figure F.6 Item A) in the hood hinge clockwise to tighten extraction hood.

**FIGURE F.6 - HOOD ADJUSTMENT**




- Replace the flexible hose and secure it with the arm band seal.

If the extraction hood does not maintain a horizontal position (left/right)

- Pull back the arm band seal and flexible hose.
- Turn bolt (See Figure F.6 Item B): in the hood hinge clockwise to tighten horizontal movement.
- Replace the flexible hose and secure it with the arm band seal.

1. Bring the arm (including extraction hood) to a horizontal position. The arm should maintain this position. See Figure F.4.

A. Rotary knobs for adjustment of throttle valve.

NOTE: Throttle valve rotational resistance can be adjusted using a phillips screw driver. Find the knob (A) with a center opening then insert phillips screw driver into knob to adjust rotational resistance. Clockwise increases resistance, counterclockwise decreases resistance. Adjust in minor increments only.

B. Handle for positioning of the extraction arm and hood.

- Using the handle (B), position the hood of the extraction arm in the desired position at approximately 6-20 inches (15-50 cm) from the source of fume.

NOTE: Retraction movement must happen slowly to allow counterweight to descend.

**FIGURE F.7- CONTROLS**

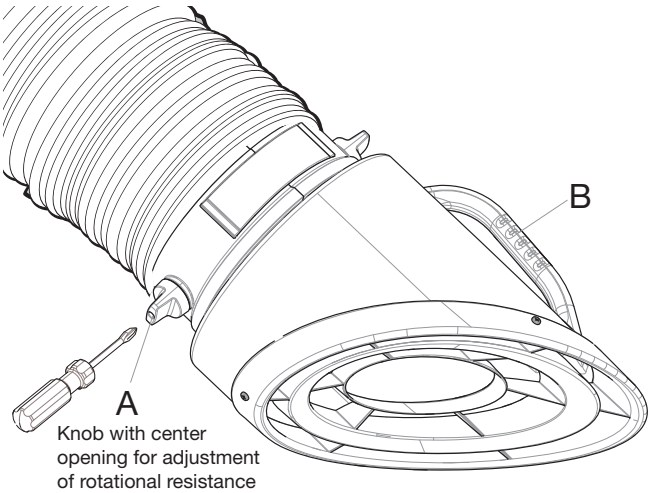
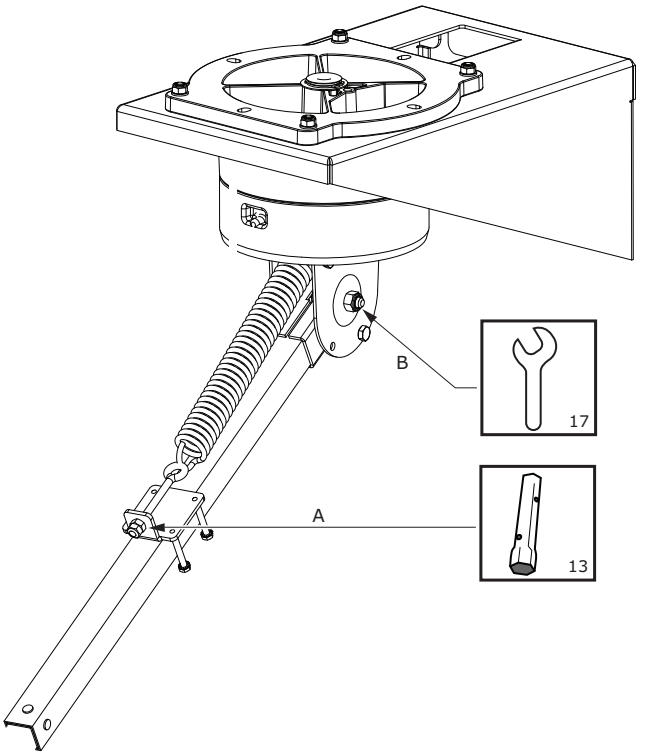


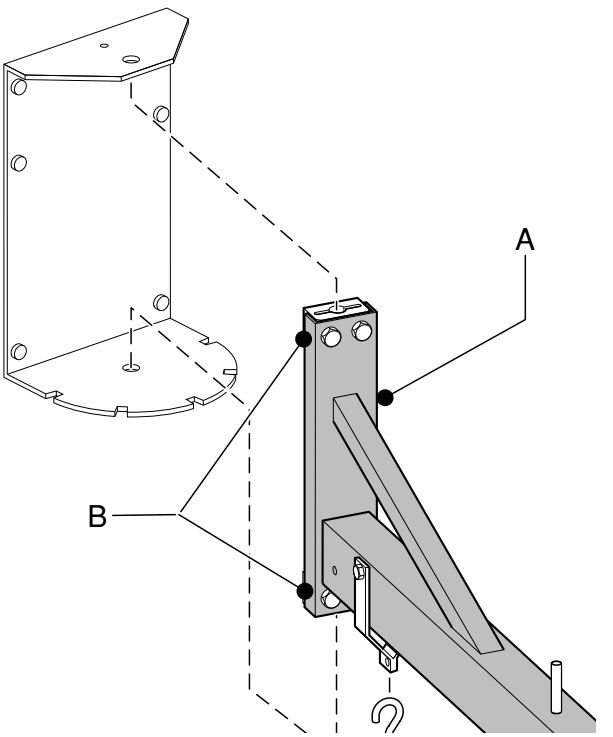

**FIGURE F.8 - ARM ADJUSTMENT**




**EXTENSION ARM ADJUSTMENT**

Adjust the (4) bolts (Fig. F.8, Item B) at the base (Fig. F.8, Item A) to squeeze the friction blocks around the pivot pin (see Figure F.8).

**FIGURE F.9**



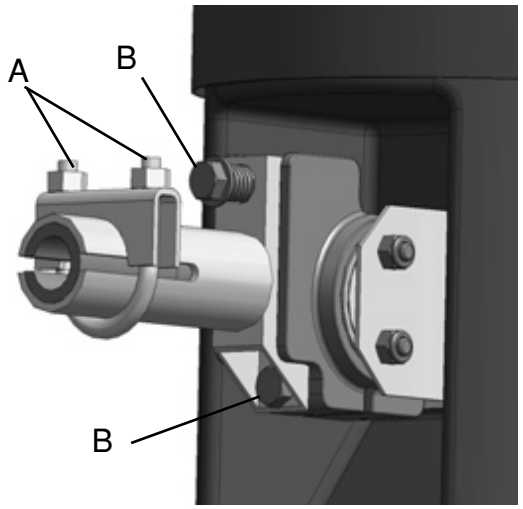
## LTA 2.0 TELESCOPIC ARM ADJUSTMENT

The amount of friction resistance should be set such that the arm is comfortable to move (always test both up and down movements), yet hold its position against gravity once positioned.

To adjust the friction setting for side to side movement of the arm, tighten or loosen the nuts on the u-clamp (Feigner F.9 Item A) with a ½" socket and ratchet.

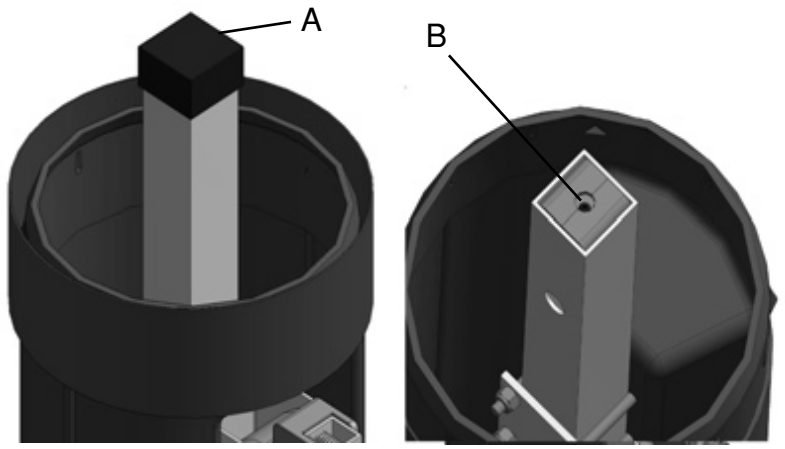
To adjust the friction setting for front to back movement, adjust the friction clamp bolts (Figure F.9 Item B) on the rotating hinge with a ½" socket and ratchet.

**FIGURE F.9**




To adjust the friction setting for the telescoping motion of the arm, remove the black cap (Figure F.10 Item A) and turn the set screw (Figure F.10 Item B) **COUNTERCLOCKWISE TO INCREASE FRICTION AND CLOCKWISE TO DECREASE IT** using a 1/8" T-handle hex bit.

**FIGURE F.10**



# TROUBLESHOOTING

## ⚠ 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.

**Step 2. POSSIBLE CAUSE.**
The second column labeled "POSSIBLE CAUSE" lists the obvious external possibilities that may contribute to the machine symptom.

**Step 3. RECOMMENDED COURSE OF ACTION**
This column provides a course of action for the Possible Cause, generally it states to contact you local Lincoln Authorized Field Service Facility.

If you do not understand or are unable to perform the Recommended Course of Action safely, contact your local Lincoln Authorized Field Service Facility.

Observe all Safety Guidelines detailed throughout this manual

| PROBLEM | POSSIBLE CAUSE | RECOMMENDED COURSE OF ACTION |
|---|---|---|
| EXTRACTION ARM CREAKS OR SQUEAKS. | INSUFFICIENT LUBRICATION. | LUBRICATE USING OIL OR GREASE. |
| EXTRACTION ARM NOT IN BALANCE. | TOO MUCH OR NOT ENOUGH FRICTION (AGEING). | ADJUST THE FRICTION USING THE UPPER BOLT ON THE MIDDLE HINGE |
| | ADJUSTING MECHANISM NOT STRONG ENOUGH. | ADJUST ADJUSTING MECHANISM. |
| EXTRACTION HOOD NOT IN BALANCE. | TOO MUCH OR NOT ENOUGH FRICTION (AGEING). | ADJUST THE FRICTION USING THE BOLT AND NUT ON THE PLASTIC PLUG. |
| EXTRACTION CAPACITY INSUFFICIENT. | THROTTLE VALVE CLOSED. | OPEN THE THROTTLE VALVE. |
| | FLEXIBLE HOSE(S) TORN OR LOOSE. | REPAIR OR REPLACE THE FLEXIBLE HOSE(S). |
| | RUBBER ARM BAND SEAL TORN. | REPAIR OR REPLACE THE RUBBER BAND SEAL(S). |

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

**WWW.LINCOLNELECTRIC.COM/LOCATOR**

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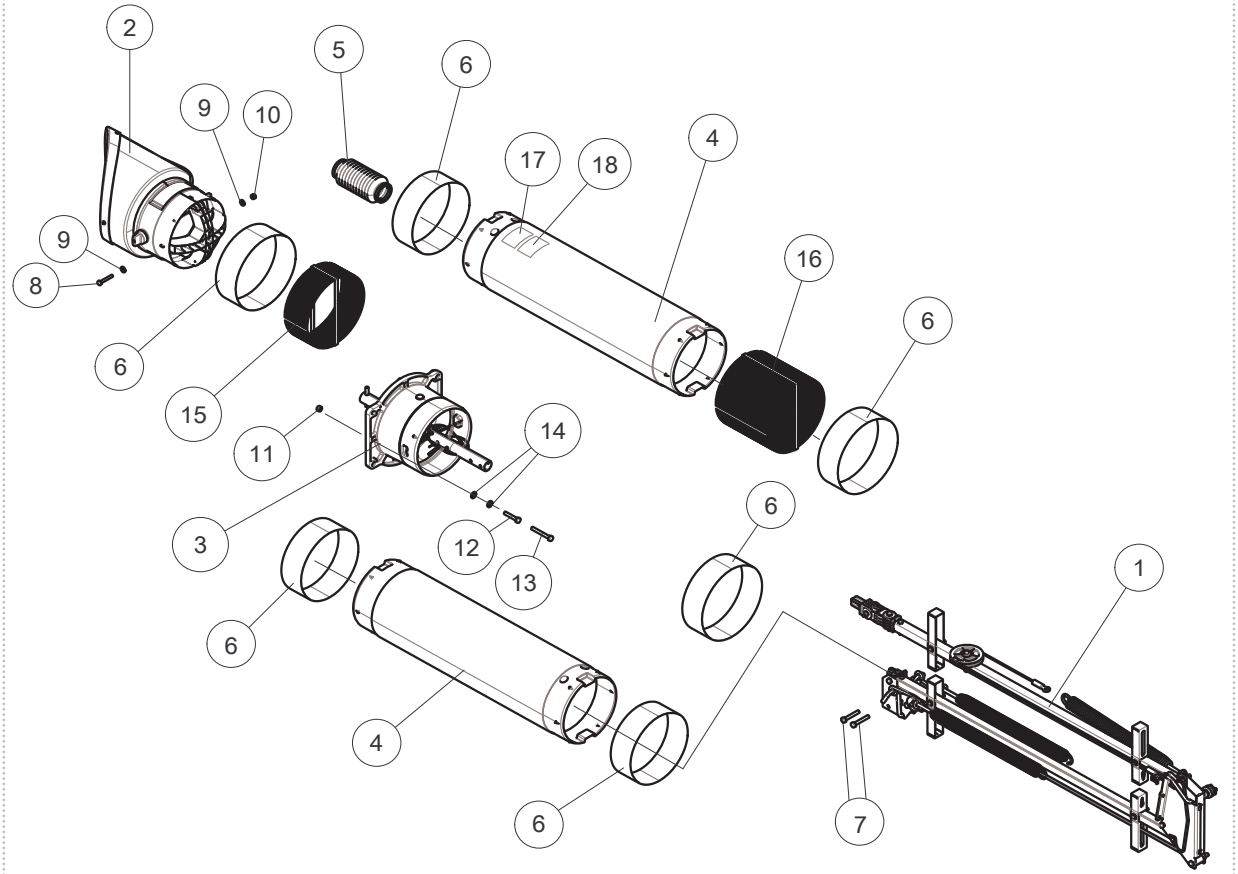
# LFA 3.1 WITH FLANGE - K1655-8 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-310 | LFA 3.1 10FT SUPP. STRUCT. ASSEM. | 1 |
| 2 | 9SS31226-320 | ROTAHOOD RND RED ASSEM. | 1 |
| 3 | 9SS31226-342 | BASE SWIVEL MOUNT +TUBE ASSEM. | 1 |
| 4 | 9SS31226-35 | TUBE RND EXTERNAL PLASTIC FA3 | 2 |
| 5 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| 6 | 9SFC0840101030 | ARM SEAL BAND | 6 |
| 7 | 9SCF000063 | 5/16-18X2.00HHCS | 2 |
| 8 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 9 | 9SS9262-98 | PLAIN WASHER | 2 |
| 10 | 9ST9187-16 | 1/4-20 HLN | 1 |
| 11 | 9ST9187-15 | 5/16-18HLN-SS | 10 |
| 12 | 9SCF000075 | 5/16-18X1.75HHCS | 2 |
| 13 | 9SCF000187 | 5/16-18X2.50HHCS | 6 |
| 14 | 9SS9262-121 | PLAIN WASHER | 4 |
| 15 | 9SS31256-9 | DUCT FLEXIBLE □8 x 19.7IN. LG. | 1 |
| 16 | 9SS31256-5 | DUCT FLEXIBLE □8 x 45.3IN. LG. | 1 |
| 17 | 9SM22196 | DECAL WARNING ENGLISH | 1 |
| 18 | 9SM22196-1 | DECAL WARNING FRENCH | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |

# LFA 3.1 WITH FLANGE - K1655-8 General Assembly

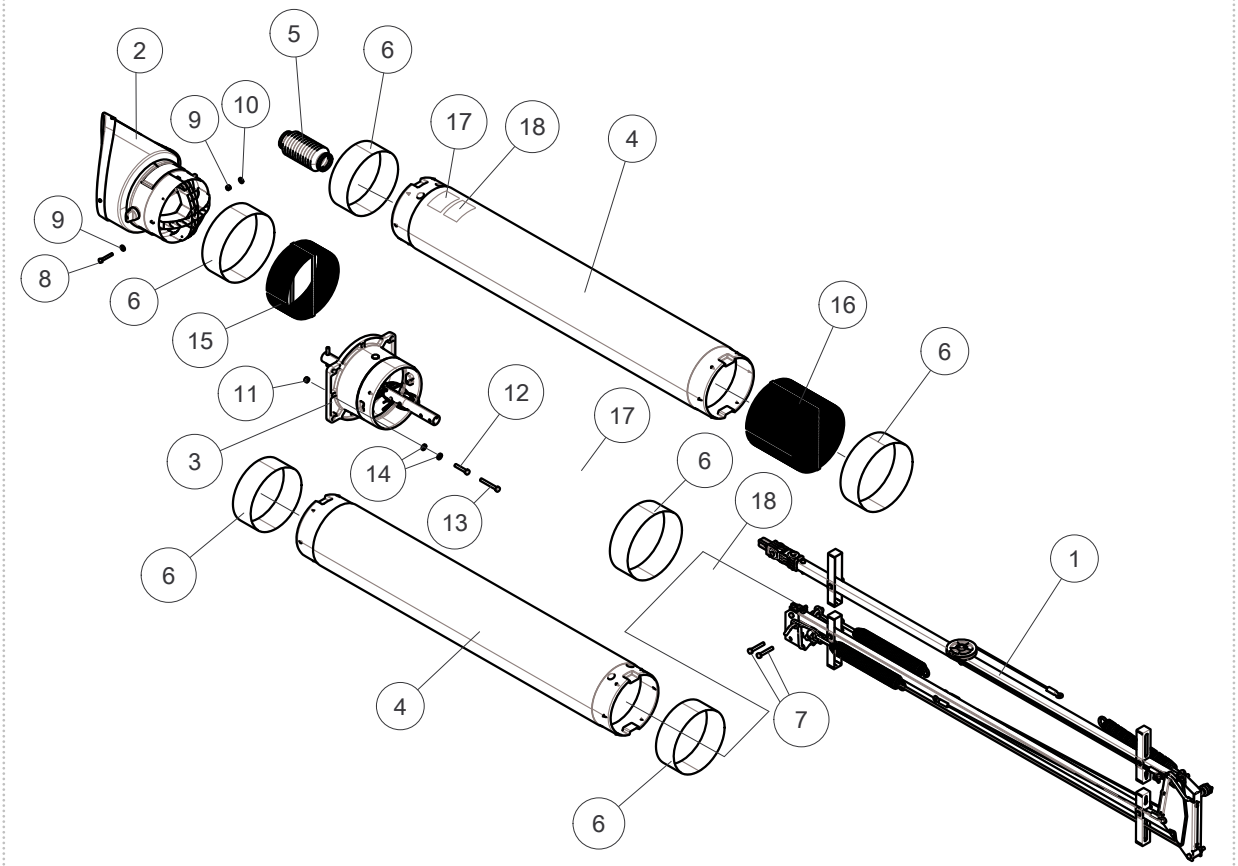



P-960-C.jpg

# LFA 4.1 WITH FLANGE - K1655-9 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-311 | LFA 4.1 13FT SUPP. STRUCT. ASSEM. | 1 |
| 2 | 9SS31226-320 | ROTAHOOD RND RED ASSEM. | 1 |
| 3 | 9SS31226-342 | BASE SWIVEL MOUNT +TUBE ASSEM. | 1 |
| 4 | 9SS31226-95 | TUBE RND EXTERNAL PLASTIC FA4 | 2 |
| 5 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| 6 | 9SFC0840101030 | ARM SEAL BAND | 6 |
| 7 | 9SCF000063 | 5/16-18X2.00HHCS | 2 |
| 8 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 9 | 9SS9262-98 | PLAIN WASHER | 2 |
| 10 | 9ST9187-16 | 1/4-20 HLN | 1 |
| 11 | 9ST9187-15 | 5/16-18HLN-SS | 10 |
| 12 | 9SCF000075 | 5/16-18X1.75HHCS | 2 |
| 13 | 9SCF000187 | 5/16-18X2.50HHCS | 6 |
| 14 | 9SS9262-121 | PLAIN WASHER | 4 |
| 15 | 9SS31256-9 | DUCT FLEXIBLE □8 x 19.7IN. LG. | 1 |
| 16 | 9SS31256-5 | DUCT FLEXIBLE □8 x 45.3IN. LG. | 1 |
| 17 | 9SM22196 | DECAL WARNING ENGLISH | 1 |
| 18 | 9SM22196-1 | DECAL WARNING ENGLISH | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |

# LFA 4.1 WITH FLANGE - K1655-9 General Assembly



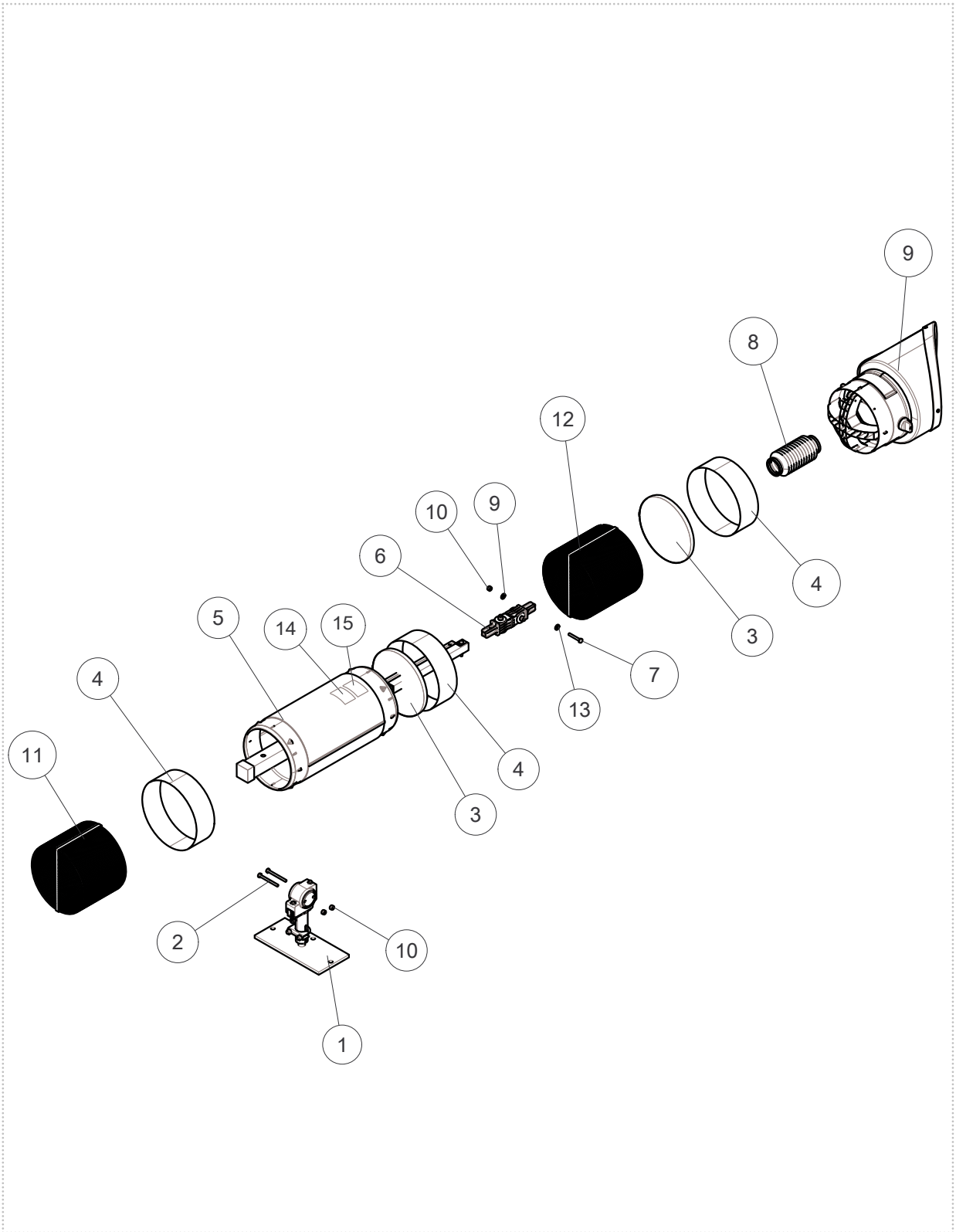

P-961-C.jpg

# LTA 2.0 T FLEX - K1655-10 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-337 | BASE LTA 2.0 ASSEM. | 1 |
| 2 | 9SCF000055 | 1/4-20X2.75HHCS | 2 |
| ● 3 | 9SS10888-47 | HOSE CLAMP 8” | 2 |
| ● 4 | 9SFC0840101030 | ARM SEAL BAND | 3 |
| 5 | 9SS31226-314 | LTA 2.0 SUPP.STRUCT.ASSEM. | 1 |
| 6 | 9SS31226-332 | WRIST HINGE ASSEM. | 1 |
| 7 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 8 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| 9 | 9SS31226-320 | ROTAHOOD RND RED ASSEM. | 1 |
| ● 10 | 9ST9187-16 | 1/4-20 HLN | 3 |
| 11 | 9SS31256-4 | DUCT FLEXIBLE □8 x 41.3IN. LG. | 1 |
| 12 | 9SS31256-5 | DUCT FLEXIBLE □8 x 45.3IN. LG. | 1 |
| 13 | 9SS9262-98 | PLAIN WASHER | 2 |
| 14 | 9SM22196 | DECAL WARNING ENGLISH | 1 |
| 15 | 9SM22196-1 | DECALWARNINGENVIRONMENTAL EQUIP | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 1 |

● **IN HARDWARE PACKAGE**

# LTA 2.0 T FLEX - K1655-10 General Assembly



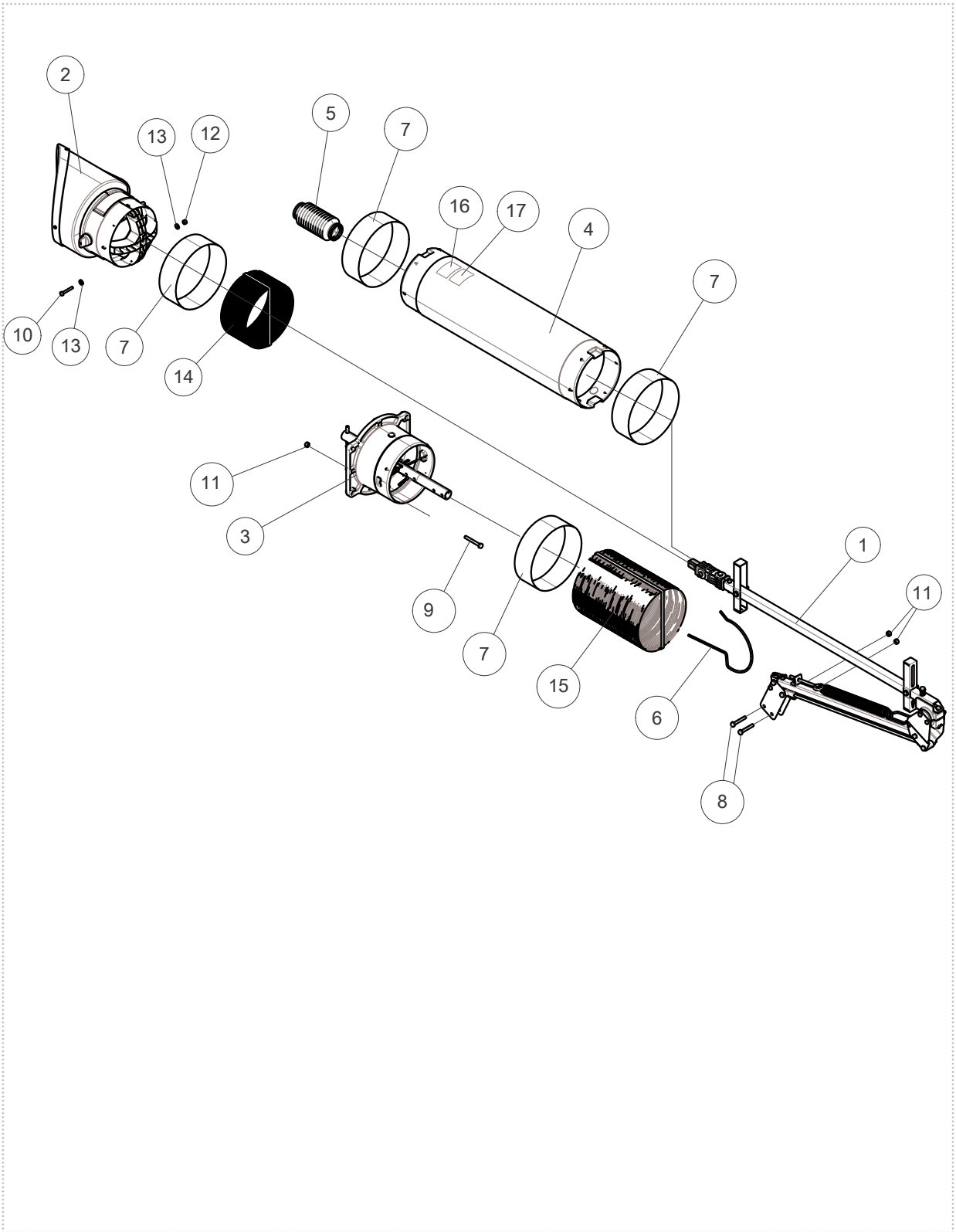

P-962-C.jpg

# LFA 2.0 FLEXIBLE ARM - K1655-12 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-313 | LFA 2.0 6.5FT SUPP. STRUCT. ASSY. | 1 |
| 2 | 9SS31226-320 | ROTAHOOD RND RED ASSEM. | 1 |
| 3 | 9SS31226-342 | BASE SWIVEL MOUNT +TUBE ASSEM. | 1 |
| 4 | 9SS31226-35 | TUBE RND EXTERNAL PLASTIC FA3 | 1 |
| 5 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| ● 6 | 9SFC0703030260 | SPACER SPRING HOSE HANG. | 1 |
| ● 7 | 9SFC0840101030 | ARM SEAL BAND | 4 |
| 8 | 9SCF000063 | 5/16-18X2.00HHCS | 2 |
| ● 9 | 9SCF000187 | 5/16-18X2.50HHCS | 6 |
| 10 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| ● 11 | 9ST9187-15 | 5/16-18HLN-SS | 10 |
| 12 | 9ST9187-16 | 1/4-20 HLN | 1 |
| 13 | 9SS9262-98 | PLAIN WASHER | 2 |
| 14 | 9SS31256-9 | DUCT FLEXIBLE □8 x 25.6IN. LG. | 1 |
| 15 | 9SS31256-8 | DUCT FLEXIBLE □8 x 68.9IN. LG. | 1 |
| 16 | 9SM22196 | DECALWARNING ENGLISH | 1 |
| 17 | 9SM22196-1 | DECALWARNING FRENCH | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |

● **IN HARDWARE PACKAGE**

# LFA 2.0 FLEXIBLE ARM - K1655-12 General Assembly



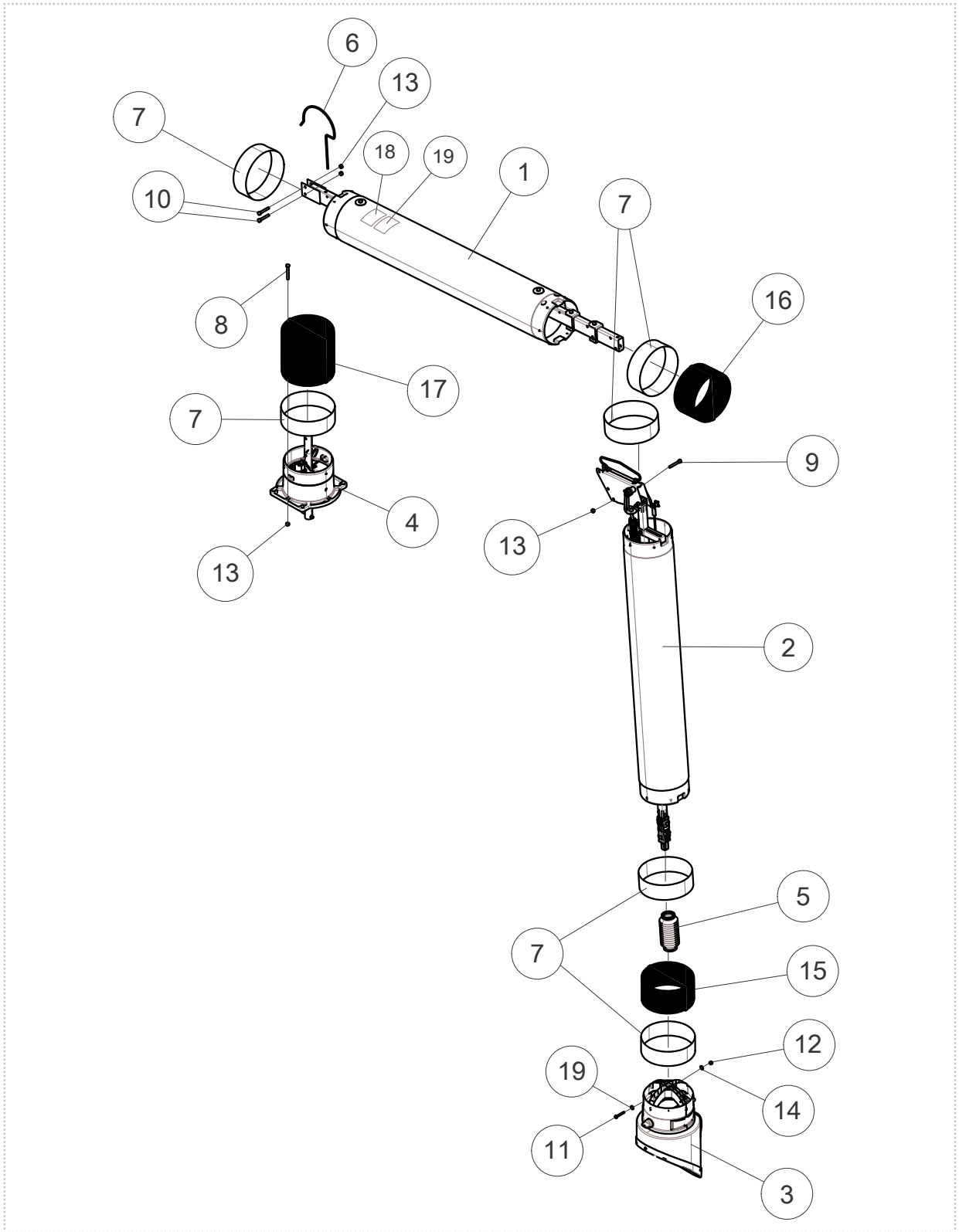

P-963-C.jpg

# General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-312 | LFA 4.1 13FT LC CAB-SIDE ARM ASSEM. | 1 |
| 2 | 9SS31226-309 | LFA 4.1 13FT LC CAP-SIDE ASSEM. | 1 |
| 3 | 9SS31226-320 | ROTAHOOD RND RED ASSEM. | 1 |
| 4 | 9SS31226-342 | BASE SWIVEL MOUNT +TUBE ASSEM. | 1 |
| 5 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| ● 6 | 9SFC0703030260 | SPACER SPRING HOSE HANG. | 1 |
| ● 7 | 9SFC0840101030 | ARM SEAL BAND | 6 |
| ● 8 | 9SCF000187 | 5/16-18X2.50HHCS | 4 |
| 9 | 9ST8833-4 | HEX HD CAP SCREW | 3 |
| 10 | 9SCF000063 | 5/16-18X2.00HHCS | 2 |
| 11 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 12 | 9ST9187-16 | 1/4-20 HLN | 1 |
| ● 13 | 9ST9187-15 | 5/16-18HLN-SS | 13 |
| 14 | 9SS9262-98 | PLAIN WASHER | 2 |
| 15 | 9SS31256-9 | DUCT FLEXIBLE 8 X 19.7IN. LG. | 1 |
| 16 | 9SS31256-3 | DUCT FLEXIBLE □8 x 27.6IN. LG. | 1 |
| 17 | 9SS31256-6 | DUCT FLEXIBLE □8 x 51.2IN. LG. | 1 |
| 18 | 9SM22196 | DECAL WARNING ENGLISH | 1 |
| 19 | 9SM22196-1 | DECAL WARNING FRENCH | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |

● **IN HARDWARE PACKAGE**

# LFA 4.1 FLEXIBLE ARM - K1655-13 General Assembly



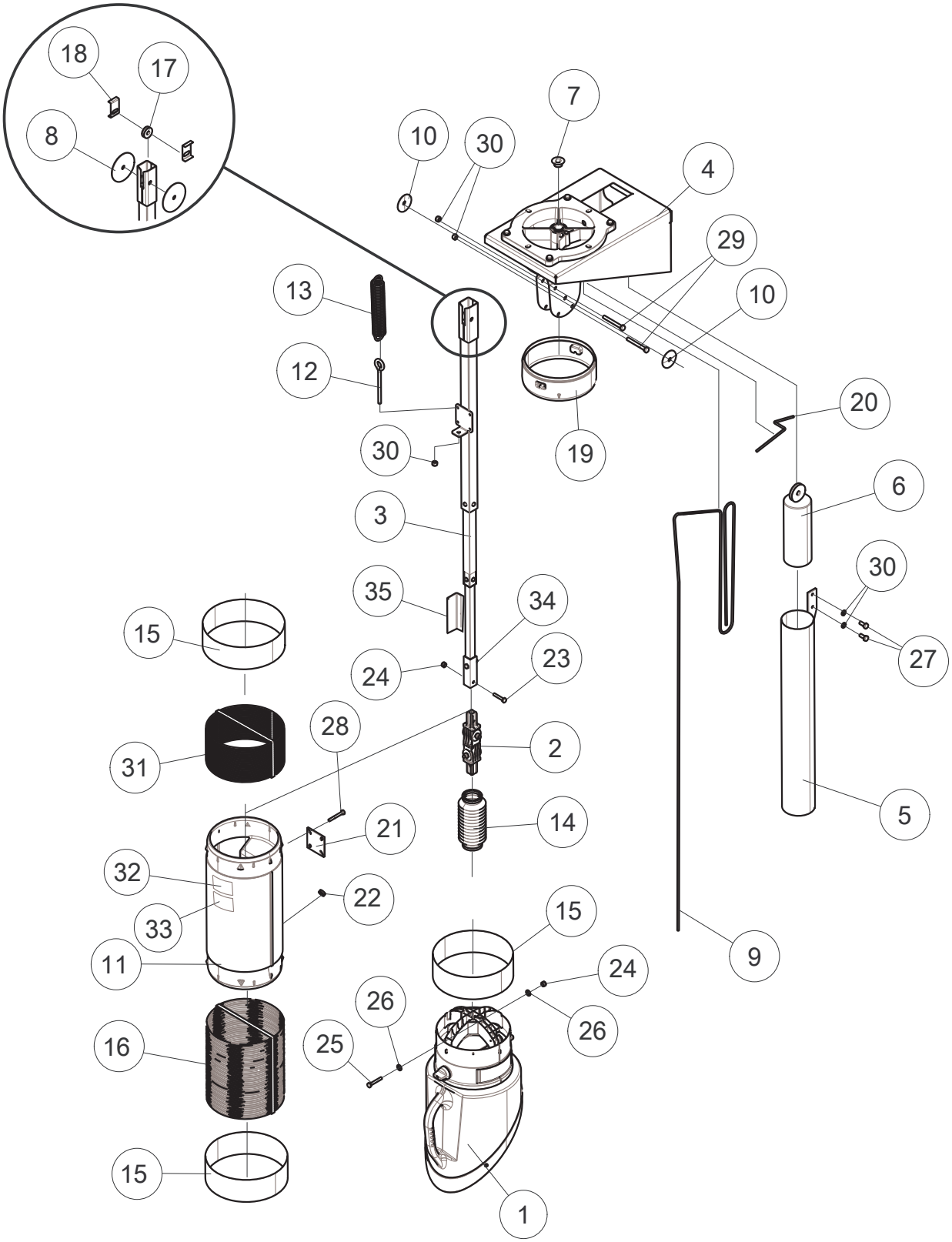

P-964-C.jpg

# LTA 2.0 TELESCOPIC ARM - K1655-14 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-320 | ROTAHOOD RND RED ASSEM. | 1 |
| 2 | 9SS31226-332 | WRIST HINGE ASSEM. | 1 |
| 3 | 9SS31226-315 | INTERNAL LTA 2.0 CW ASSEMBLY | 1 |
| 4 | 9SS31226-339 | MOUNT + PIVOT LTA 2.0 CW ASSEM. | 1 |
| 5 | 9SS31226-61 | WEIGHT GUIDE LTA2 CW ASSEMBLY | 1 |
| 6 | 9SFC0850101080 | COUNTER WEIGHT LTA 2.0 ASSEM. | 1 |
| 7 | 9SS31226-62 | ROPE GUIDE | 1 |
| 8 | 9SFC0711011130 | BREAK/WEAR RING | 2 |
| 9 | 9SFC0692000000 | ROPE LTA 2.0 CW | 1 |
| 10 | 9SFC0609260140 | DISC SPRING | 2 |
| 11 | 9SFC0801860180 | OUTER TUBE T-FLEX/LTA | 1 |
| 12 | 9SS31226-135 | EYE BOLT | 1 |
| 13 | 9SS31226-66 | EXTENSION SPRING SNG | 1 |
| 14 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| 15 | 9SFC0840101030 | ARM SEAL BAND | 3 |
| 16 | 9SS31256-7 | FLEXIBLE DUCT 8” x 59.1IN. LG. | 2 |
| 17 | 9SS31226-65 | ROPE WHEEL | 1 |
| 18 | 9SFC0711010150 | SIDE PLATE LTA2 CW | 2 |
| 19 | 9SS31226-96 | COLLAR HINGE PIVOT | 1 |
| 20 | 9SFC0703090160 | LTA 2.0 CW WIRE SPRING | 1 |
| 21 | 9SFC0711010360 | LOCKING PLATE | 1 |
| 22 | 9SFC0342000070 | GROMMET CLOSED | 1 |
| 23 | 9SCF000141 | 1/4-20X1.50HHCS | 2 |
| 24 | 9ST9187-16 | 1/4-20 HLN | 3 |
| 25 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 26 | 9SS9262-98 | PLAIN WASHER | 2 |
| 27 | 9SCF000040 | 5/16-18X.75HHCS | 2 |
| • 28 | 9ST8833-22 | HEX HD CAP SCREW | 4 |
| • 29 | 9ST8833-91 | 5/16-18X2.75HHCS | 2 |
| • 30 | 9ST9187-15 | 5/16-18HLN-SS | 5 |
| 31 | 9SS31256-9 | FLEXIBLE DUCT 8” x 19.7IN. LG. | 1 |
| 32 | 9SM22196 | DECAL WARNING ENGLISH | 1 |
| 33 | 9SM22196-1 | DECAL WARNING FRENCH | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |
| 34 | 9SFC0711010010 | CONNECTOR LTA/LM2 | 1 |
| 35 | 9SFC0711011110 | L PROFILE FILLING | 1 |

• **IN HARDWARE PACKAGE**

# LTA 2.0 TELESCOPIC ARM - K1655-14 General Assembly



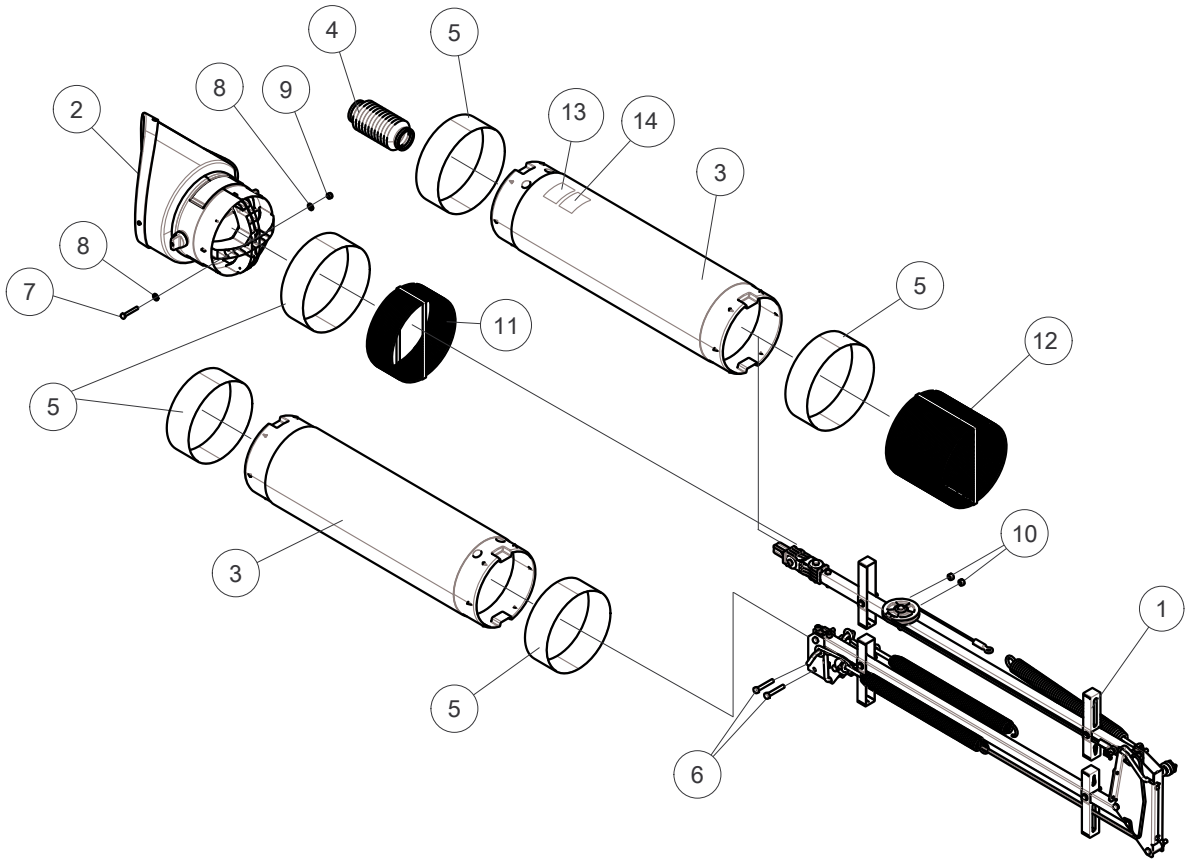

P-965-C.jpg

# LFA 3.1 - K2633-5 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-310 | LFA 3.1 10FT SUPP. STRUCT. ASSEM. | 1 |
| 2 | 9SS31226-320 | ROTAHOOD RND RED ASSEM. | 1 |
| 3 | 9SS31226-35 | TUBE RND EXTERNAL PLASTIC FA3 | 2 |
| 4 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| ● 5 | 9SFC0840101030 | ARM SEAL BAND | 5 |
| ● 6 | 9SCF000063 | 5/16-18X2.00HHCS | 2 |
| 7 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 8 | 9SS9262-98 | PLAIN WASHER | 2 |
| 9 | 9ST9187-16 | 1/4-20 HLN | 1 |
| ● 10 | 9ST9187-15 | 5/16-18HLN-SS | 2 |
| 11 | 9SS31256-9 | DUCT FLEXIBLE □8 x 19.7IN. LG. | 1 |
| 12 | 9SS31256-5 | DUCT FLEXIBLE □8 x 45.3IN. LG. | 1 |
| 13 | 9SM22196 | DECAL WARNING ENGLISH | 1 |
| 14 | 9SM22196-1 | DECAL WARNING FRENCH | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |

● **IN HARDWARE PACKAGE**

# LFA 3.1 - K2633-5 General Assembly

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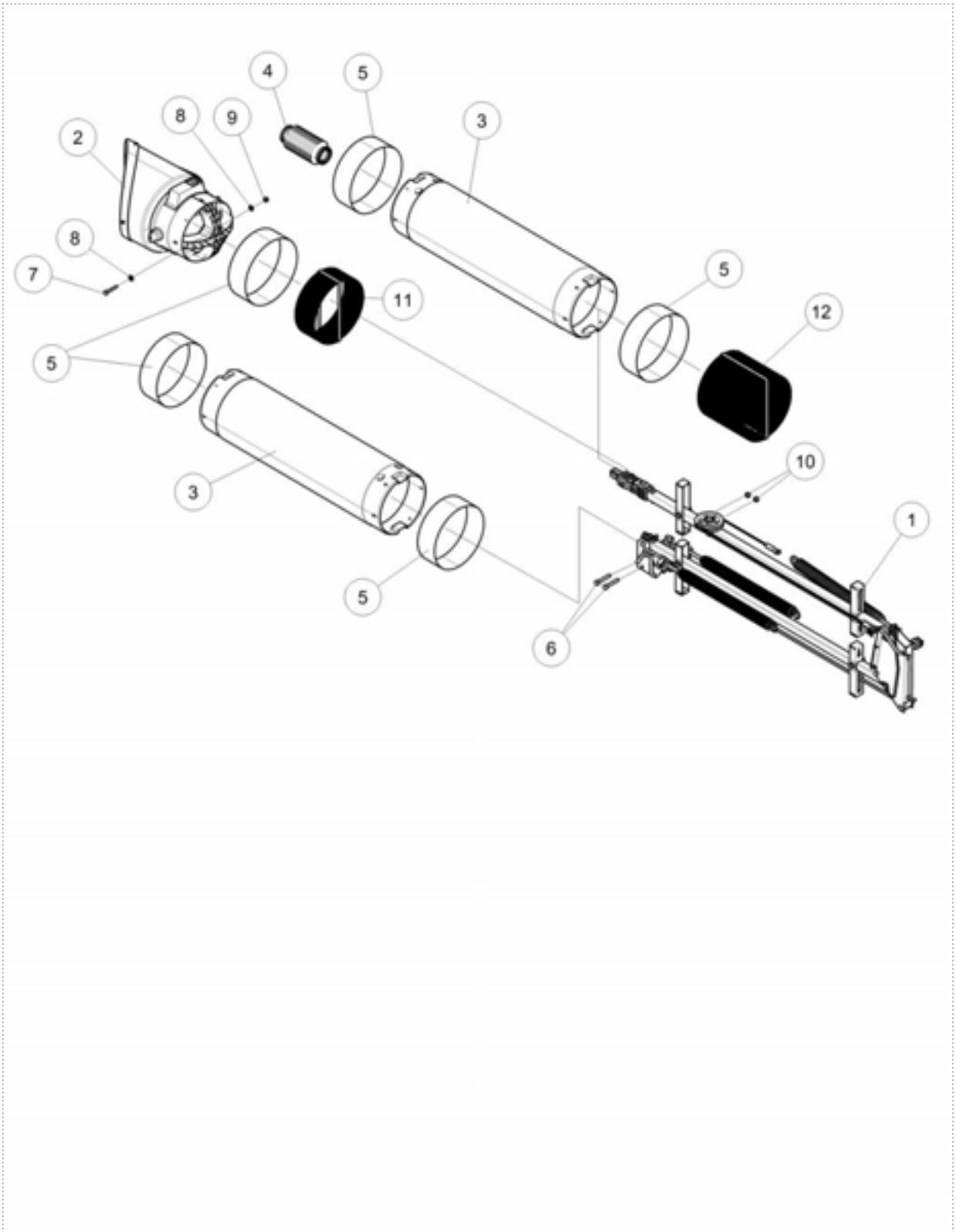
# LFA 3.1 - K2633-6 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-310 | LFA 3.1 10FT SUPP. STRUCT. ASSEM. | 1 |
| 2 | 9SS31226-322 | ROTAHOOD RND RED WL-AST ASSEM. | 1 |
| 3 | 9SS31226-35 | TUBE RND EXTERNAL PLASTIC FA3 | 2 |
| 4 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| ● 5 | 9SFC0840101030 | ARM SEAL BAND | 5 |
| ● 6 | 9SCF000063 | 5/16-18X2.00HHCS | 2 |
| 7 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 8 | 9SS9262-98 | PLAIN WASHER | 2 |
| 9 | 9ST9187-16 | 1/4-20 HLN | 1 |
| ● 10 | 9ST9187-15 | 5/16-18HLN-SS | 2 |
| 11 | 9SS31256-9 | DUCT FLEXIBLE □8 x 19.7IN. LG. | 1 |
| 12 | 9SS31256-5 | DUCT FLEXIBLE □8 x 45.3IN. LG. | 1 |
|  | 9SM22196 | DECALWARNINGENVIRONMENTAL EQUIP | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |
| ● |  | 9SS31224-62 | CONNECTOR ADAPTER | 1 |

● **IN HARDWARE PACKAGE**

# General Assembly



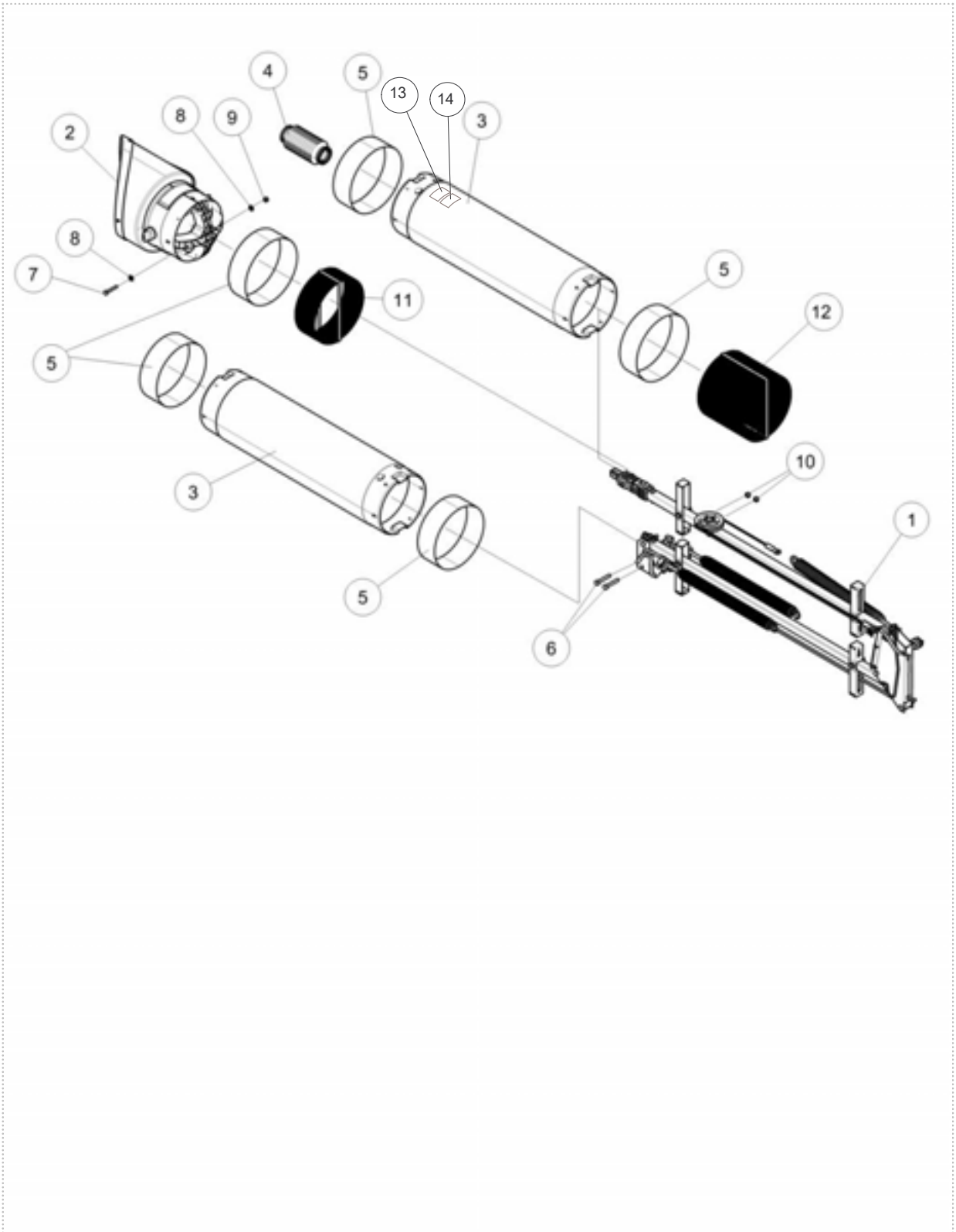

P-967-C.jpg

# LFA 4.1 - K2633-7 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-311 | LFA 4.1 13FT SUPP. STRUCT. ASSEM. | 1 |
| 2 | 9SS31226-320 | ROTAHOOD RND RED ASSEM. | 1 |
| 3 | 9SS31226-95 | TUBE RND EXTERNAL PLASTIC FA4 | 2 |
| 4 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| ● 5 | 9SFC0840101030 | ARM SEAL BAND | 5 |
| ● 6 | 9SCF000063 | 5/16-18X2.00HHCS | 2 |
| 7 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 8 | 9SS9262-98 | PLAIN WASHER | 2 |
| 9 | 9ST9187-16 | 1/4-20 HLN | 1 |
| ● 10 | 9ST9187-15 | 5/16-18HLN-SS | 2 |
| 11 | 9SS31256-9 | DUCT FLEXIBLE □8 x 19.7IN. LG. | 1 |
| 12 | 9SS31256-5 | DUCT FLEXIBLE □8 x 45.3IN. LG. | 1 |
| 13 | 9SM22196 | DECAL WARNING ENGLISH | 1 |
| 14 | 9SM22196-1 | DECAL WARNING FRENCH | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |

- **IN HARDWARE PACKAGE**

# LFA 4.1 - K2633-7 General Assembly

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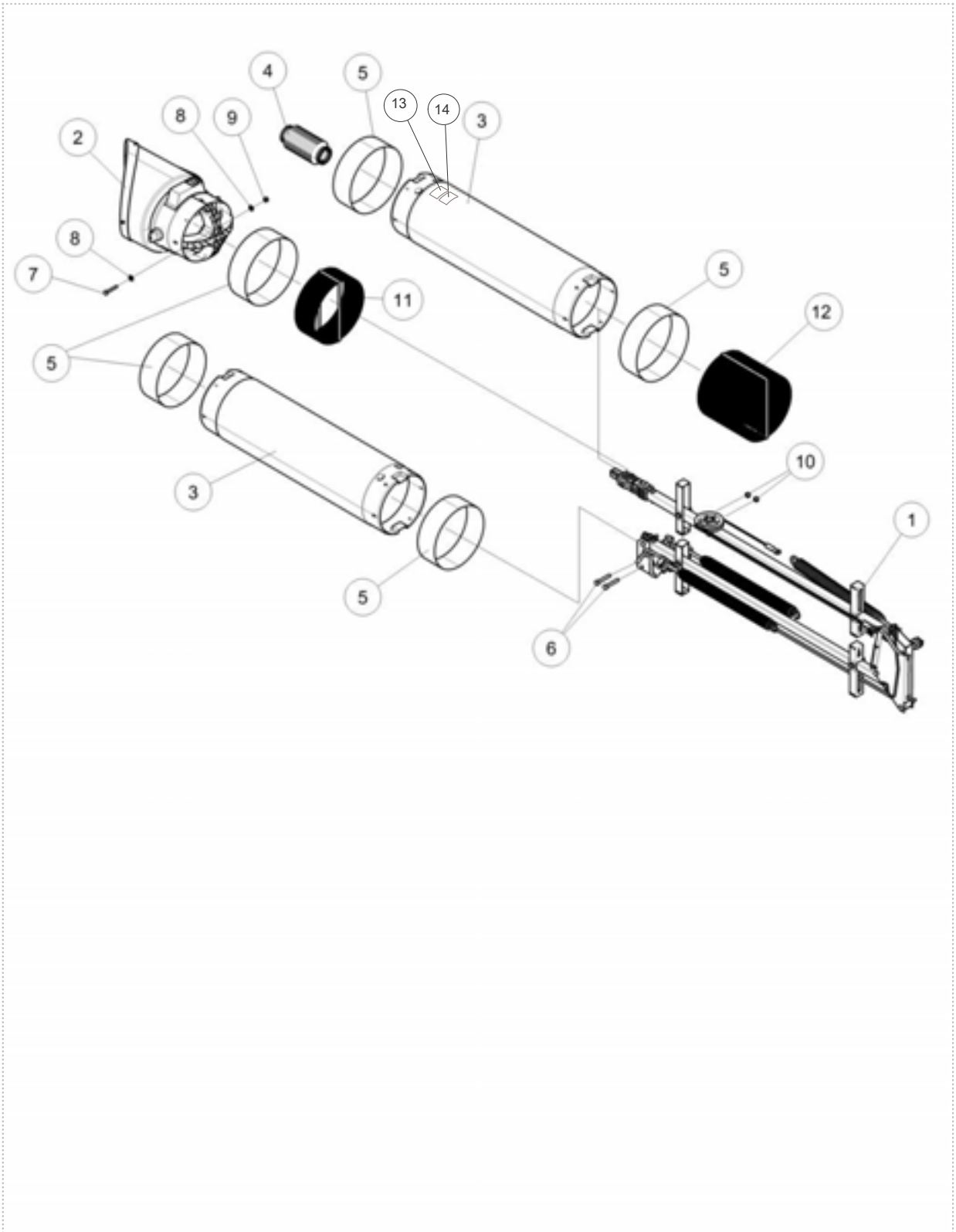
# LFA 4.1 - K2633-8 General Assembly

| KEY | PART NUMBER | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | 9SS31226-311 | LFA 4.1 13FT SUPP. STRUCT. ASSEM. | 1 |
| 2 | 9SS31226-321 | ROTAHOOD RND RED WL-AST ASSEM. | 1 |
| 3 | 9SS31226-95 | TUBE RND EXTERNAL PLASTIC FA4 | 2 |
| 4 | 9SS31226-24 | COVER FLEX WRIST HINGE | 1 |
| ● 5 | 9SFC0840101030 | ARM SEAL BAND | 5 |
| ● 6 | 9SCF000063 | 5/16-18X2.00HHCS | 2 |
| 7 | 9SCF000016 | 1/4-20X1.75HHCS | 1 |
| 8 | 9SS9262-98 | PLAIN WASHER | 2 |
| 9 | 9ST9187-16 | 1/4-20 HLN | 1 |
| ● 10 | 9ST9187-15 | 5/16-18HLN-SS | 2 |
| 11 | 9SS31256-9 | DUCT FLEXIBLE □8 x 19.7IN. LG. | 1 |
| 12 | 9SS31256-5 | DUCT FLEXIBLE □8 x 45.3IN. LG. | 1 |
| 13 | 9SM22196 | DECAL WARNING ENGLISH | 1 |
| 14 | 9SM22196-1 | DECAL WARNING FRENCH | 1 |
|  | FC0308420220 | WIRE CONN. LFA 4.1(13FT) | 1 |
|  | 9SS27368-2 | DECAL - 7IN LINCOLN LOGO | 2 |
|  | 9SS31224-62 | CONNECTOR ADAPTER | 1 |

● **IN HARDWARE PACKAGE**

# LFA 4.1 - K2633-8 General Assembly

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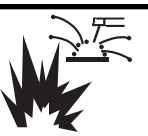
|  |  |  |  |
|---|---|---|---|
| **WARNING** | ● Do not touch electrically live parts or electrode with skin or wet clothing.<br>● Insulate yourself from work and ground. | ● Keep flammable materials away. | ● Wear eye, ear and body protection. |
| Spanish<br>**AVISO DE PRECAUCION** | ● No toque las partes o los electrodos bajo carga con la piel o ropa mojada.<br>● Aislese del trabajo y de la tierra. | ● Mantenga el material combustible fuera del área de trabajo. | ● Protéjase los ojos, los oídos y el cuerpo. |
| French<br>**ATTENTION** | ● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension.<br>● Isolez-vous du travail et de la terre. | ● Gardez à l'écart de tout matériel inflammable. | ● Protégez vos yeux, vos oreilles et votre corps. |
| German<br>**WARNUNG** | ● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung!<br>● Isolieren Sie sich von den Elektroden und dem Erdboden! | ● Entfernen Sie brennbarres Material! | ● Tragen Sie Augen-, Ohren- und Körperschutz! |
| Portuguese<br>**ATENÇÃO** | ● Não toque partes elétricas e electrodos com a pele ou roupa molhada.<br>● Isole-se da peça e terra. | ● Mantenha inflamáveis bem guardados. | ● Use proteção para a vista, ouvido e corpo. |
| Japanese<br>**注意事項** | ● 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。<br>● 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。 | ● 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。 | ● 目、耳及び身体に保護具をして下さい。 |
| Chinese<br>**警 告** | ● 皮肤或濕衣物切勿接觸帶電部件及銲條。<br>● 使你自己與地面和工件絕緣。 | ● 把一切易燃物品移離工作場所。 | ● 佩戴眼、耳及身體勞動保護用具。 |
| Korean<br>**위 험** | ● 전도체나 용접봉을 젖은 헝겁 또는 피부로 절대 접촉치 마십시요.<br>● 모재와 접지를 접촉치 마십시요. | ● 인화성 물질을 접근 시키지 마시요. | ● 눈, 귀와 몸에 보호장구를 착용하십시요. |
| Arabic<br>**تحذير** | ● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الالكترود بجلد الجسم أو بالملابس المبللة بالماء.<br>● ضع عازلا على جسمك خلال العمل. | ● ضع المواد القابلة للاشتعال في مكان بعيد. | ● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك. |

**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.**

- Keep your head out of fumes.
- Use ventilation or exhaust to remove fumes from breathing zone.

- Turn power off before servicing.

- Do not operate with panel open or guards off.

**WARNING**

- Los humos fuera de la zona de respiración.
- Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases.

- Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio.

- No operar con panel abierto o guardas quitadas.

Spanish

**AVISO DE PRECAUCION**

- Gardez la tête à l'écart des fumées.
- Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail.

- Débranchez le courant avant l'entretien.

- N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés.

French

**ATTENTION**

- Vermeiden Sie das Einatmen von Schweibrauch!
- Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes!

- Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!)

- Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen!

German

**WARNUNG**

- Mantenha seu rosto da fumaça.
- Use ventilação e exhaustão para remover fumo da zona respiratória.

- Não opere com as tampas removidas.
- Desligue a corrente antes de fazer serviço.
- Não toque as partes elétricas nuas.

- Mantenha-se afastado das partes moventes.
- Não opere com os paineis abertos ou guardas removidas.

Portuguese

**ATENÇÃO**

- ヒュームから頭を離すようにして下さい。
- 換気や排煙に十分留意して下さい。

- メンテナンス・サービスに取りかかる際には、まず電源スイッチを必ず切って下さい。

- パネルやカバーを取り外したままで機械操作をしないで下さい。

Japanese

**注意事項**

- 頭部遠離煙霧。
- 在呼吸區使用通風或排風器除煙。

- 維修前切斷電源。

- 儀表板打開或沒有安全置時不準作業。

Chinese

**警 告**

- 얼굴로부터 용접가스를 멀리하십시요.
- 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시요.

- 보수전에 전원을 차단하십시요.

- 판넬이 열린 상태로 작동치 마십시요.

Korean

**위 험**

- ابعد رأسك بعيداً عن الدخان.
- استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها.

- اقطع التيار الكهربائي قبل القيام بأية صيانة.

- لا تشغل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه.

Arabic

**تحذير**

**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，並請遵守貴方的有関勞動保護規定。

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.

## 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 these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

## WELD FUME CONTROL EQUIPMENT

The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

LINCOLN ELECTRIC

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