Aluminum Drive Roll Kits

KP1507 Series

IM614

October, 1997

INSTALLATION INSTRUCTIONS

Table of Contents

SAFETY

Follow all safety guidelines in your power source and feeder operators manuals and any additional guidelines covered in this manual.

GENERAL DESCRIPTION

The KP1507 series of drive roll kits contain a number of components, in addition to the drive rolls, to optimize the wire feeder for aluminum feeding. These components are specifically designed to protect the aluminum wire from abrasion and deformation, thereby avoiding many common aluminum feeding problems.

The provided plastic wire conduit and conduit bushing protect the wire from abrasion on it's way into the wire guides. The low friction plastic split wire guides protect the wire from abrasion, and support the wire as close as possible to the drive rolls. The drive rolls have a special groove shape and finish. In addition, lower pressure springs are provided for installation in the pressure door (except for kit KP1507-3/32A (2.4mm)). These springs are optimized for aluminum feeding.

KIT SIZES & CONTENTS

The table and figure below lists and illustrates the various K1507 series aluminum drive roll kits for the various wire sizes. Also listed are the components included in each kit.

Drive Roll Kit		KP1507-035A	KP1507-040A	KP1507-3/64A	KP1507-1/16A	KP1507-3/32A
Metric Wire Size English Wire Size		0,9 mm .035 in	1,0 mm .040 in	1,2 mm 3/64 in (.047)	1,6 mm 1/16 in (.063)	2,4 mm 3/32 in (.094)
Included Items						
1	Drive Rolls (Qty 4))	S22944-035A*	S22944-040A*	S22944-3/64A*	S22944-1/16A*	S22944-3/32A*
2	Inner Wire Guide	M18796-1	M18796-1	M18796-2	M18796-3	M18796-4
3	Outer Wire Guide	S22737-1	S22737-1	S22737-1	S22737-1	S22737-1
4	Conduit Bushing	S23750-1	S23750-1	S23750-1	S23750-1	S23750-2
5	Pressure Spring	T11862-57	T11862-57	T11862-57	T11862-57	Use Original
6	Knurled Knob Assembly	S22933	S22933	S22933	S22933	S22933
7	Flex Tube (Magnum Conduit)	T10642-226	T10642-226	T10642-226	T10642-226	T10642-226
8	Trust Washer (Qty 2)	T14043	T14043	T14043	T14043	T14043
9	1/8 Socket Key	(T11563-2)	(T11563-2)	(T11563-2)	(T11563-2)	(T11563-2)
10	5/32 Socket Key	(T11563-5)	(T11563-5)	(T11563-5)	(T11563-5)	(T11563-5)
11	7/64 Socket Key	(T11563-6)	(T11563-6)	(T11563-6)	(T11563-6)	(T11563-6)

*Drive rolls are packaged in quantities of 2 when ordered as a replacement part.

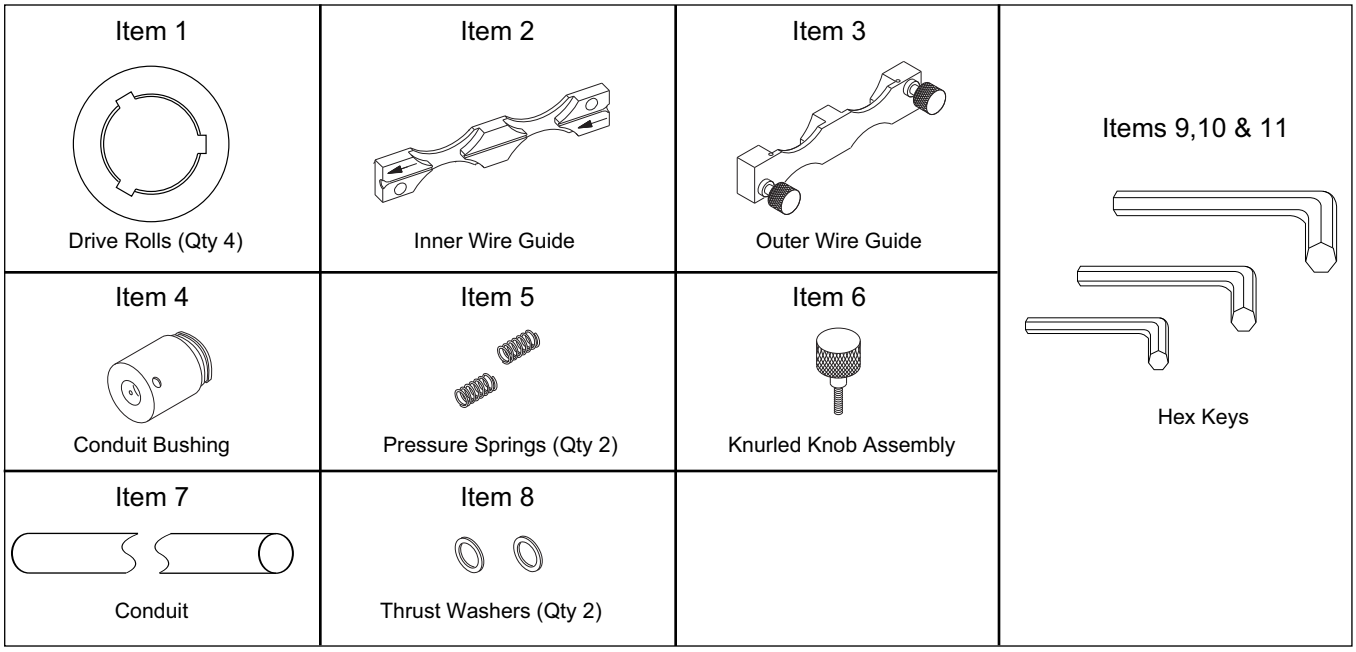


Figure 1 - Aluminum Drive Roll Kit Components

INSTALLATION INSTRUCTIONS

⚠ WARNING

ELECTRIC SHOCK Can Kill

- Only qualified persons should perform this installation.
- Turn off the welding power source before installing or changing drive rolls or guides.
- When inching with the gun trigger, the electrode and drive mechanism are electrically “hot”.

The installation instructions are divided into three sections:

1. Conduit bushing and conduit installation
2. Drive roll and wire guide installation
3. Pressure door spring installation (all kits except KP1507-3/32A).

Note: Installation of the included pressure door springs is not required, but is recommended for optimum wire feeding performance.

1. CONDUIT AND BUSHING INSTALLATION

Refer to figure 2 and follow the following steps:

1. Turn off the welding power source.

2. Loosen the set screw which secures the existing incoming guide bushing and remove the bushing.

3. Thread the thumb screw into the new bushing. Install the new conduit bushing into the wire feed head.

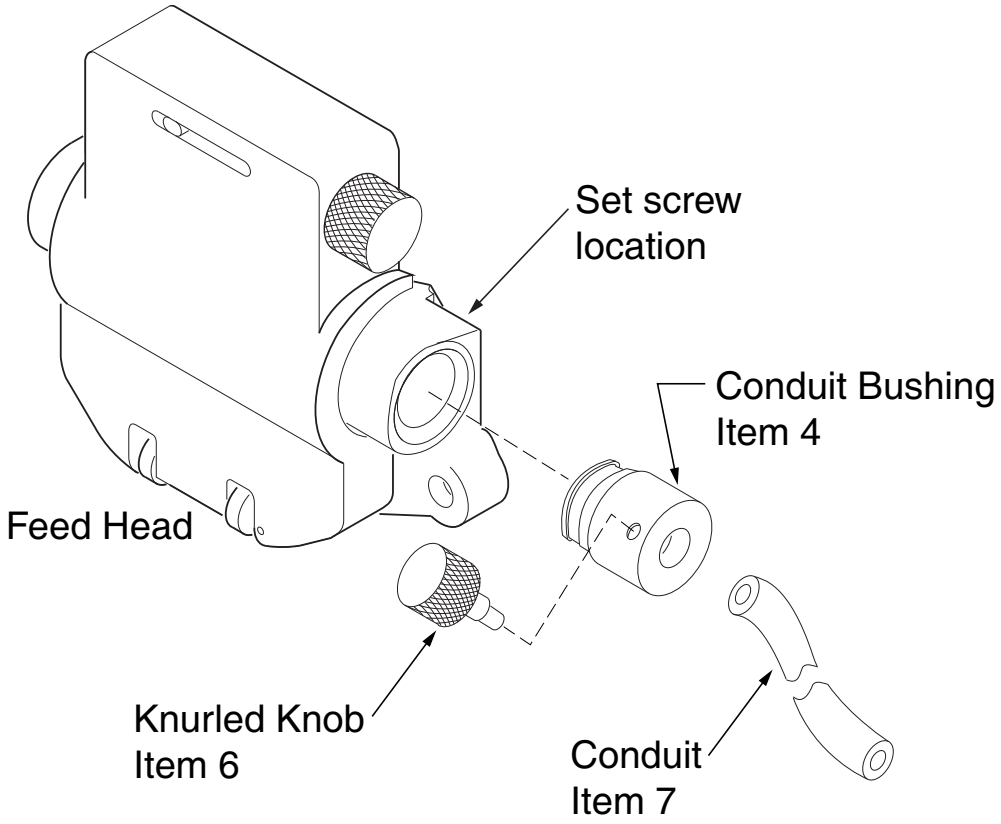
Recommended Conduit Length:

Power Feed 10	13.0 in.	(330 mm) as provided
LN-10, STT-10	11.5 in.	(290 mm)
DH-10	10.0 in	(250 mm)
Power Feed 11	1.0 in	(25 mm)

4. **FOR LINCOLN CONDUIT:** Measure the conduit and cut to the desired length. A tubing cutter makes the best cut. A hacksaw or utility knife may also be used.

5. Back out the thumb screw from the bushing insert the conduit. Tighten the thumb screw. The thumb screw threads will lock the conduit in place.

Figure 2 - Conduit Bushing and Conduit Installation



2. DRIVE ROLL AND WIRE GUIDE INSTALLATION

Refer to figure 3 and follow the following steps:

1. Turn off the welding power source.

2. Pull open the pressure door to expose the drive rolls and wire guides.

3. Unscrew the knurled knob thumb screws counter clockwise from the feed plate. Remove the outer wire guide

4. Remove any existing drive rolls by pulling them straight off the shaft. Wiggling the rolls makes removal easier

5. Remove the Inner guide.

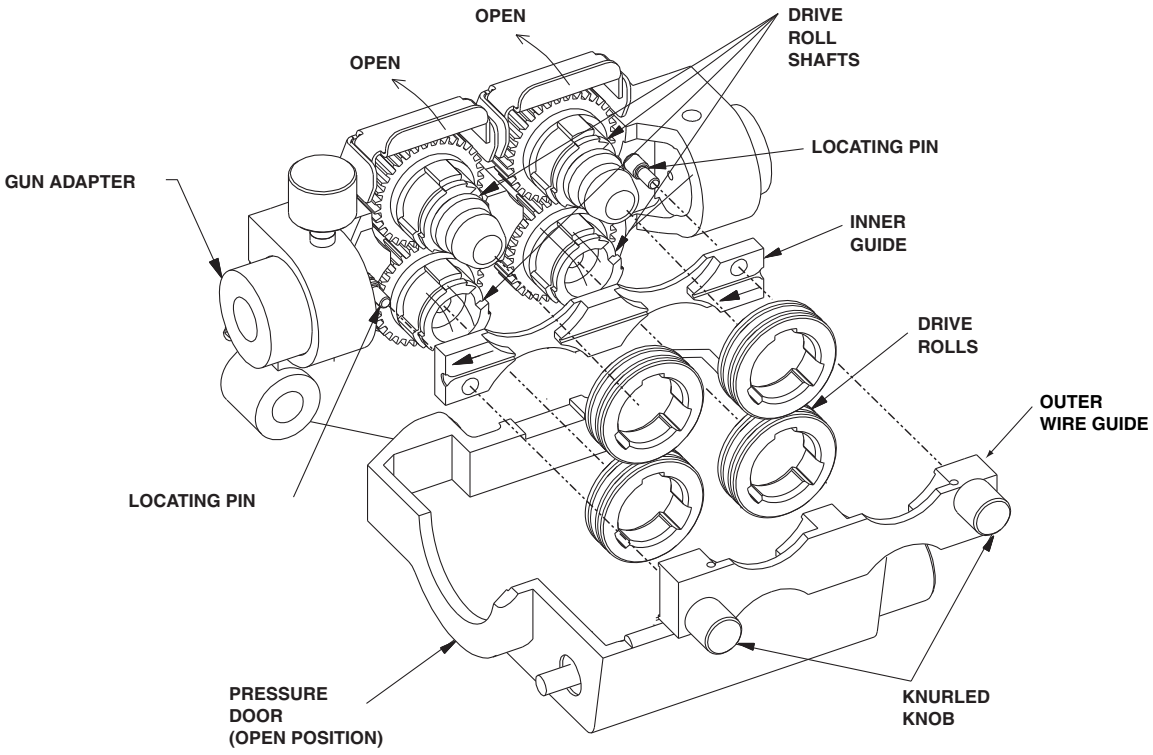
6. Orient the new inner wire guide that is supplied with the kit groove side out. Install on feed plate by locating over the two locating pins. Note: The inner wire guide has arrows on it and must be installed with the arrows pointing in the direction of wire travel.

7. Install each drive roll by pushing it over the shaft until it seats against the locating shoulder on the drive roll shaft.

8. Install the plastic outer wire guide, that is supplied with the kit, by sliding it over the locating pins and tightening the thumbscrews clockwise.

9. Engage the upper drive rolls if they are in the "open" position and close the pressure door.

Figure 3 - Drive Roll Installation



3. PRESSURE DOOR SPRING INSTALLATION

Note: This does not apply to the KP1507-3/32A kit, which retains the original springs in the door.

TOOLS REQUIRED: (supplied with kit)

- 7/64 HEX KEY WRENCH
- 5/32 HEX KEY WRENCH

HARDWARE REQUIRED: (supplied with kit)

- 2 STEEL THRUST WASHERS
- 2 SPRINGS

Refer to figure 4 and follow the following steps:

Procedure:

1.Turn OFF Welding Power Source.

Disassembly:

2.Pull Open Item 1 (Pressure Door).

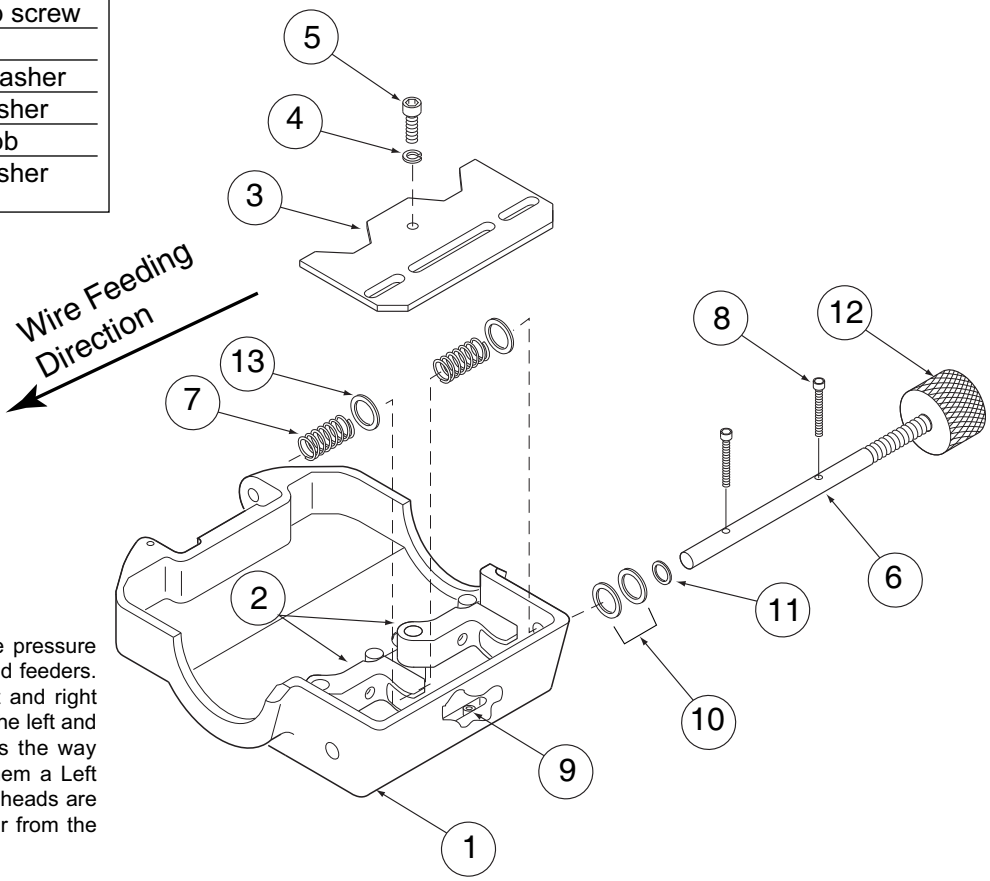
3.Using the 5/32 Hex Key Wrench remove Item 4 (#10-24 Socket Head Cap Screw), and Remove Item 3 (Cover Plate).

4.Turn Item 12 (Adjustment Knob) counter clockwise until Item 7 (Springs) are fully relaxed.

5.Using the 7/64 Hex Key Wrench remove both Item 8 (#6-32X1.00 Socket Head Cap Screws).

Figure 4 - Pressure Door Assembly

Item	Description
1	Pressure door
2	Pressure arm
3	Cover plate
4	#10-24x.62 cap screw
5	Lock washer
6	Spring retaining rod
7	Spring
8	#6-32x1.00 cap screw
9	Indicator
10	Plastic thrust washer
11	Steel thrust washer
12	Adjustment knob
13	Steel thrust washer



Note:
This view shown is for a right side pressure door assembly found on single head feeders. Dual head feeders will have a left and right side assembly. The parts used on the left and right assemblies are identical. It is the way they are assembled that makes them a Left side or a Right side. Right and left heads are designated by looking at the feeder from the front (gun end).

6 Remove Item 6 (Spring Retaining Rod) by grasping Item 12 (Adjustment Knob) and sliding it out of Item 1 (Pressure Door). Item 10 (Plastic Thrust Washers) and Item 11 (Steel Thrust Washer) will also be removed along with Item 6 (Spring Retaining Rod).

7. Remove Item 7 (Springs) from Item 1 (Pressure Door)

   Note: Be sure to save these springs for converting the Wire Feeder back to feeding solid steel or cored steel wire. Use these instructions for the conversion.

Reassembly with new springs:

8. Slide Item 6 (Spring Retaining Rod) into Item 1 (Pressure Door) until it is just past the first Item 2 (Pressure Arm)

   Note: Item 12 (Adjustment Knob), Item 10 (Plastic Thrust Washers), and Item 11 (Steel Thrust Washer) should still be on Item 6 (Retaining Rod)

9. Place 1 Item 13 (Steel Thrust Washer supplied with kit) and 1 Item 7 (Spring supplied with Kit) over Item 6 (Spring Retaining Rod).

   Note: Be sure that the springs being installed are for the proper type of wire to be fed. (Light springs for aluminum, heavy springs for steel)

10 Continue to slide Item 6 (Spring Retaining Rod) into Item 1 (Pressure Door) until it is just past the second Item 2 (Pressure Arm).

11. Repeat Step 9 and then go to step 12.

12. Continue to slide Item 6 (Spring Retaining Rod) into Item 1 (Pressure Door) until Item 12 (Adjustment Knob) is seated against Item 1 (Pressure Door).

13. Slide Item 7 (Springs) and Item 13 (Steel Thrust Washers) until they are against each of Item 2 (Pressure Arm).

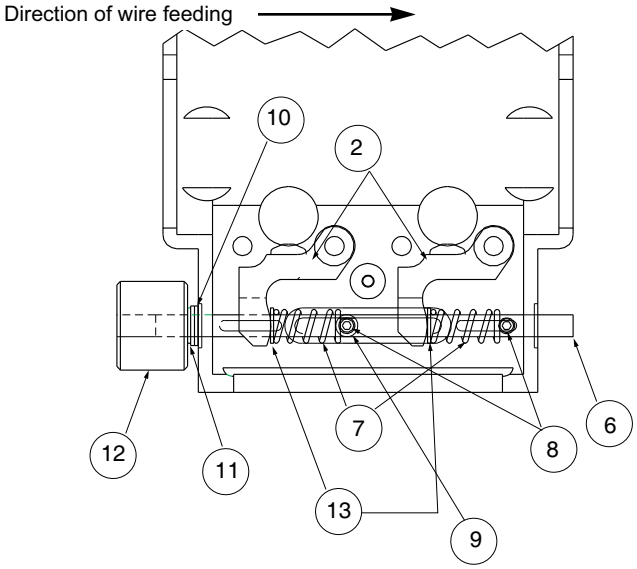
14. The threaded hole in item 6 (Spring Retaining Rod) nearest item 12 (Adjusting Knob) should be lined up with the hole in item 9 (Indicator). Thread item 8 (#6-32X1.00 Socket Head Cap Screw) into and thru item 6 (Spring Retaining Rod) and then approximately 2 turns into item 9 Indicator.

    Note: If the threaded hole and indicator are NOT lined up turn item 12 (Adjustment Knob) as required clockwise or counter clockwise to adjust the position of the threaded hole in item 6 (Spring Retaining Rod) until it lines up with the indicator or gently slide the indicator using the end of the 7/64 Hex Key Wrench until it is lined up.

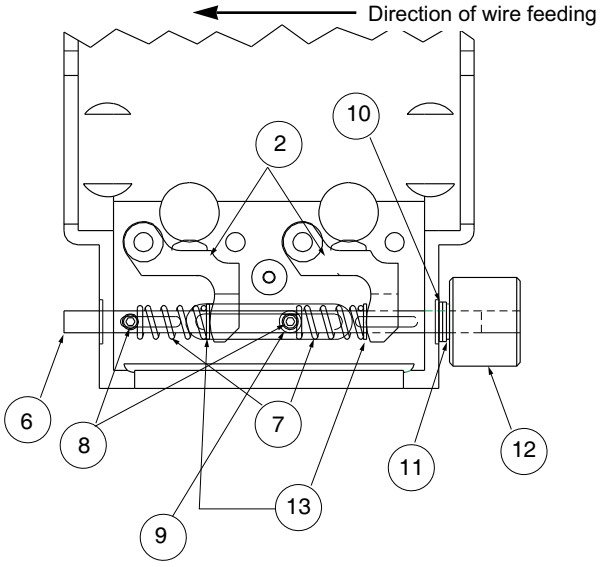
15. Thread the other item 8 (#6-32X1.00 Socket Head Cap Screw) into and thru the other threaded hole in item 6 (Spring Retaining Rod) until it bottoms on item 1 (Pressure Door) and then back off approximately 1 turn.

16 Before continuing, use the diagrams in figure 5 to check the orientation and position of items 2,6,7,8,9,10,11,12, and 13.

Figure 5 - Feed Head Component Orientation



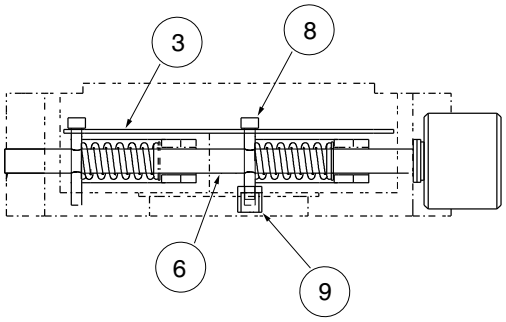
Left Side Feed Head
Orientation
Dual Head Feeders Only
(Left as viewed from front of wire feeder)



Right Side Feed Head
Orientation
Dual & Single Head Feeders

17. Place Item 3 (Cover Plate) into Item 1 (Pressure Door). Using the 7/64 Hex Key Wrench tighten Item 8 (#6-32 1.00 Socket Head Cap Screw) until the base of the screw head is even with the top surface of Item 3 (Cover Plate) This is the screw that was installed in Step 14 and is nearest to Item 12 (Adjustment Knob). See figure 6 below for reference.

Figure 6 - Cover Plate Installation (end view)



18. Using the 5/32 Hex Key Wrench secure Item 3 (Cover Plate) to Item 1 (Pressure Door) with Item 4 (#10-24X.625 Socket Head Cap Screw) and Item 5 (Lock washer).

19. Turn Item 12 (Adjustment Knob) until the Item 8 (#6-32X1.00 Socket Head Cap Screws) begins compressing Item 7 (Springs).

20. Close Item 1 (Pressure Door).

The Installation of the Pressure Door Springs is now complete.

OPERATION

Once installation of the kit is complete, the drive roll pressure should be set to the lowest setting that provides adequate wire feeding force. When adjusted in this manner, the drive rolls will not deform the wire. Also, if a wire feed stoppage does occur at the gun, the rolls will tend to slip on the wire rather than “bird nest” the wire at the drive rolls.

Depending on the operating conditions, it may be necessary to clean the drive roll grooves periodically. This operation removes any accumulated aluminum from the grooves. Cleaning the roll grooves is performed with the rolls removed from the wire feeder, and is best accomplished by using a commercially available abrasive impregnated string or cord.

ALUMINUM FEEDING RECOMMENDATIONS

- For optimum aluminum wire feeding, wire feeders equipped with Lincoln Fast-Mate gun adapters should be fitted with the appropriate S24129-* series plastic lined Fast-Mate guide tube. These Fast-Mate adapter guide tubes are designed specifically for feeding aluminum (See part number listings in table 1):

- Shorter guns will provide more robust wire feeding performance. A 10ft (3.0 meter) gun is an excellent choice. Longer guns should be reserved for the harder alloys of aluminum.

- Lincoln offers dedicated models of Magnum water cooled guns equipped specifically for aluminum welding.(See ***Guns, Liners and Tips*** section)

- The welding gun should be equipped with a plastic liner that is designed for aluminum welding. Lincoln sells liners designed for this purpose. (See ***Guns, Liners and Tips*** section):

- The K1634-1 Wire reel cover kit can be installed to keep the wire clean.

FAST-MATE GUIDE TUBES

Table 1 below shows the various plastic lined guide tubes that are recommended for use with Lincoln Fast-Mate gun adapters when feeding aluminum.

Table 1 S24129 Guide Tubes

Wire Size	.030-.035 in .8mm-.9mm	.035-3/64 in .9mm-1.2mm	1/16 in 1.6mm
Tube Color	Black	Blue	Red
FM Adapters K489-2	S24129-4	S24129-5	S24129-6
K487-7	S24129-13	S24129-14	S24129-15
PowerFeed-11	S24129-1	S24129-2	S24129-3

GUNS, LINERS and TIPS

The following are the various Magnum guns recommended for feeding aluminum when the appropriate liners and contact tips are installed .

MAGNUM 450WC WATER COOLED GUN

Complete guns set up for aluminum feeding:
- K684-7 10 ft (3.0 meter) length, .035-3/64 (.9mm - 1.2mm) wire
- K684-8 10 ft (3.0 meter) length, 1/16in (1.6 mm) wire

Aluminum Liners for 10 ft (3.0 meter) guns:
- M18732-1 (.030-.035 in, .8mm-.9mm) Black
- M18732-5 (.035-3/64 in, .9mm-1.2mm) Blue
- M18732-3 (1/16 in, 1.6mm) Red

Aluminum Liners for 15 ft (4.5 meter) and shorter guns:
- M18732-2 (.030-.035 in, .8mm-.9mm) Black
- M18732-6 (.035-3/64 in, .9mm-1.2mm) Blue
- M18732-4 (1/16 in, 1.6mm) Red

Aluminum Contact Tips:
- S22334-035A (.035 in, .9 mm)
- S22334-040A (.040 in, 1.0 mm)
- S22334-364A (3/64 in, 1.2 mm)
- S22334-116A (1/16 in, 1.6 mm)

MAGNUM 300, MAGNUM 300FM, MAGNUM 400, MAGNUM 400FM, MAGNUM 400DSFM GUNS

Aluminum Liners for 10 ft (3.0 meter) guns:
- M18732-1 (.030-.035 in, .8mm-.9mm) Black
- M18732-5 (.035-3/64 in, .9mm-1.2mm) Blue
- M18732-3 (1/16 in, 1.6mm) Red

Note: M17714-1 and -2 liners can be used, but the M18732 series is recommended.

Aluminum Liners for 15 ft (4.5 meter) and shorter guns:
- M18732-2 (.030-.035 in, .8mm-.9mm) Black
- M18732-6 (.035-3/64 in, .9mm-1.2mm) Blue
- M18732-4 (1/16 in, 1.6mm) Red

Note: M17714-1 and -2 liners can be used, but the M18732 series is recommended.

Aluminum Contact Tips:
- S18697-45 (.035 in, .9 mm) Notched
- S18697-46 (3/64 in, 1.2 mm) Notched
- S19391-9 (3/64 in, 1.2 mm)
- S19392-7 (3/64 in, 1.2 mm) Heavy Duty
- S19392-8 (1/16 in, 1.6 mm) Heavy Duty

MAGNUM 200 AND MAGNUM 200FM GUNS

Aluminum Liners:
- M17714-1 (.035-3/64, .9mm-1.2mm)

Aluminum Contact Tips:
- S18697-45 (.035 in, .9 mm) Notched
- S18697-46 (3/64 in, 1.2 mm) Notched
- S19391-9 (3/64 in, 1.2 mm)
- S19392-7 (3/64 in, 1.2 mm) Heavy Duty