

Elliott offers a complete line of precision tube tools, including:



**tube  
expanders**

- Boiler Expanders
- Heat Exchanger Expanders
- Condenser Expanders
- Refinery Expanders

**tube rolling motors  
& torque controls**

- Electric
- Pneumatic

**tube  
cleaners**

- Air & Water Driven Motors  
(Internal/External Drives)
- Jiffy Guns  
("Shoot-Thru" Devices)
- Roto-Jet  
(Rotating Flex Shaft)

**additional  
products**

- Tube and Joint Testers
- Tube Plugs  
(High & Low Pressure)

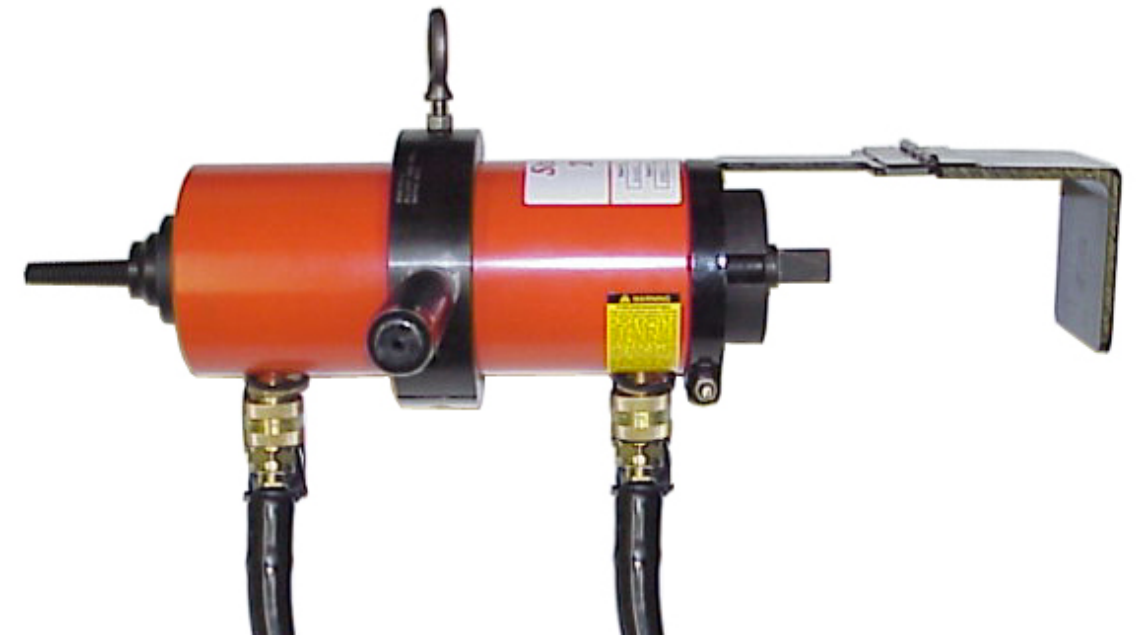
**retubing  
tools**

- Tube Gauges
- Tube Cutters
- Manual Tools
- Spear Type Tube Pullers
- Collet-Type Tube Pullers
- CYCLGRIP Tube Extractors
- Grooving Tools
- End-Prep Tools

**metal working  
products**

- Back Chamfering Tools
- Carbide Roller Burnishing Tools
- Diamond Burnishing Tools
- Elliptical Deburring Tools
- Fine Boring Tools
- Internal Recessing Tools
- Magic Vise
- Mechanical Joining Tools
- Roller Burnishing Tools
- Single Blade Reamers

**“STUB-TUGGER®”**  
For 3/8” – 3” Tube OD  
Model #80-40130

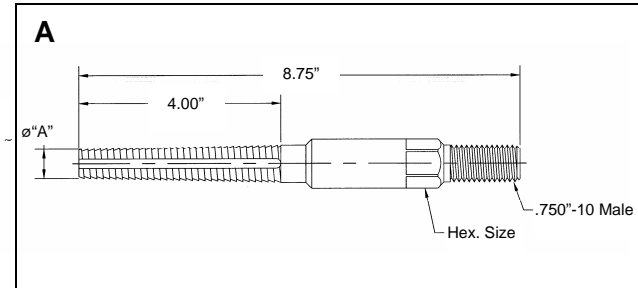


**Operating and Maintenance Instructions**



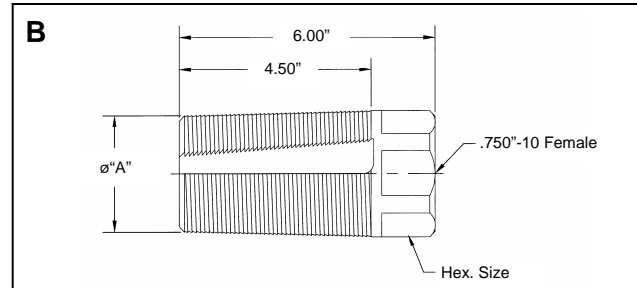
# TOOL SELECTION CHART

**Hex Drive Spear with Male Adapter Threads  
(1" O.D. and smaller)**



Size Range	Part No.	"A" Ø	Hex Size
3/8" x 20-22 Ga.	E375-20	.295"	5/8" Flat
1/2" x 20-22 Ga.	E500-20	.427"	7/8"
5/8" x 12-13 Ga.	E625-12	.402"	7/8"
5/8" x 14-15 Ga.	E625-14	.454"	7/8"
5/8" x 16-17 Ga.	E625-16	.489"	7/8"
5/8" x 18-19 Ga.	E625-18	.521"	7/8"
5/8" x 20-22 Ga.	E625-20	.545"	7/8"
3/4" x 8-9 Ga.	E750-8	.410"	7/8"
3/4" x 10-11 Ga.	E750-10	.470"	7/8"
3/4" x 12-13 Ga.	E750-12	.520"	7/8"
3/4" x 14-15 Ga.	E750-14	.579"	7/8"
3/4" x 16-17 Ga.	E750-16	.614"	7/8"
3/4" x 18-19 Ga.	E750-18	.646"	7/8"
3/4" x 20-22 Ga.	E750-20	.670"	7/8"
7/8" x 14-15 Ga.	E875-14	.699"	7/8"
7/8" x 16-17 Ga.	E875-16	.740"	7/8"
7/8" x 18-19 Ga.	E875-18	.760"	7/8"
7/8" x 20-22 Ga.	E875-20	.800"	7/8"
1" x 8-9 Ga.	E1000-8	.660"	7/8"
1" x 10-11 Ga.	E1000-10	.720"	7/8"
1" x 12-13 Ga.	E1000-12	.777"	7/8"
1" x 14-15 Ga.	E1000-14	.829"	7/8"
1" x 16-17 Ga.	E1000-16	.864"	7/8"
1" x 18-19 Ga.	E1000-18	.896"	7/8"
1" x 20-22 Ga.	E1000-20	.920"	7/8"

**Hex Drive Spear with Female Adapter Threads  
(1-1/4" O.D. and larger)**



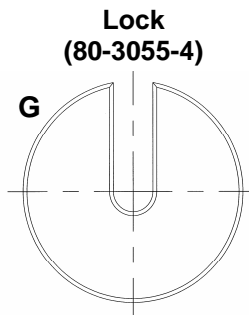
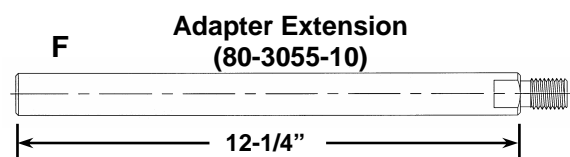
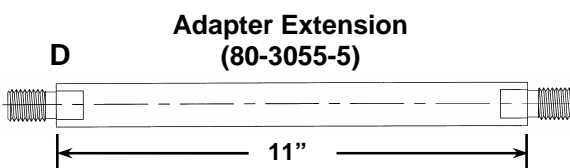
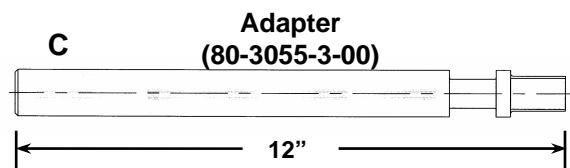
Size Range	Part No.	"A" Ø	Hex Size
1-1/4" x 8-9 Ga.	E1250-8	.900"	1-1/8"
1-1/4" x 10-11 Ga.	E1250-10	.977"	1-1/8"
1-1/4" x 12-13 Ga.	E1250-12	1.027"	1-1/8"
1-1/4" x 14-15 Ga.	E1250-14	1.079"	1-1/8"
1-1/4" x 16-17 Ga.	E1250-16	1.115"	1-1/8"
1-1/4" x 18-19 Ga.	E1250-18	1.145"	1-1/8"
1-1/2" x 10-11 Ga.	E1500-10	1.227"	1-1/4"
1-1/2" x 12-13 Ga.	E1500-12	1.255"	1-1/4"
1-1/2" x 14-15 Ga.	E1500-14	1.329"	1-1/4"
1-1/2" x 16-17 Ga.	E1500-16	1.365"	1-1/4"
1-3/4" x 10-11 Ga.	E1750-10	1.462"	1-5/8"
1-3/4" x 12-13 Ga.	E1750-12	1.512"	1-5/8"
1-3/4" x 14-15 Ga.	E1750-14	1.564"	1-5/8"
1-3/4" x 16-17 Ga.	E1750-16	1.600"	1-5/8"
2" x 7-9 Ga.	E2000-7	1.620"	1-5/8"
2" x 10-11 Ga.	E2000-10	1.710"	1-5/8"
2" x 12-13 Ga.	E2000-12	1.770"	1-5/8"
2" x 14-15 Ga.	E2000-14	1.820"	1-5/8"
2-1/2" x 7-9 Ga.	E2500-7	2.120"	2-1/4"
2-1/2" x 10-11 Ga.	E2500-10	2.220"	2-1/4"
2-1/2" x 12-13 Ga.	E2500-12	2.270"	2-1/4"
2-1/2" x 14-15 Ga.	E2500-14	2.320"	2-1/4"

## TABLE OF CONTENTS

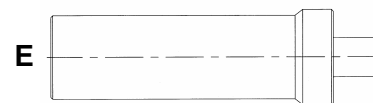
Introduction .....	2
Safety .....	3
Start-up .....	4
Quick Reference Diagram.....	5
Operation / Specifications .....	6-7
Tool Selection Guide.....	8

**Note:** Above sizes are standard. Additional sizes available upon request.

**Note:** Lubricant is recommended on pulling teeth.



**Extension Chair  
(part number below)**



Part No.	Tube O.D.
80-3055-7	1-1/4"
80-36307	1-1/2" - 1-3/4"
80-36308	2"
80-36309	2-1/4" - 2-1/2"
80-36311	3"

Extension Chair "E" is sized to allow tube being pulled to enter I.D. of chair. Items B, C, D, E, and G are required for sizes 1-1/4" O.D. and larger. F is optional for extra reach. Consult factory for other sizes.

A, C, and G are required for tube sizes under 1-1/4" O.D. F is optional for extra reach.

# INTRODUCTION

Thank you for purchasing this Elliott product. The design and manufacture of this machine represents the highest standard of quality, value and durability. Elliott tools have proven themselves in thousands of hours of trouble free field operation.

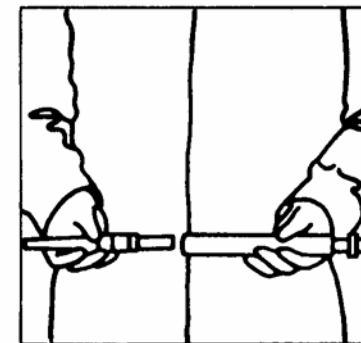
If this is your first Elliott purchase, welcome to our company; our products are our ambassadors. If this is a repeat purchase, you can rest assured that the same value you have received in the past will continue with all of your purchases, now and in the future.

The Elliott Stub-Tugger is a portable tube extractor for removing or extracting tubes from heat exchangers, condensers, chillers and boilers. This tube extractor is hydraulically driven and powered by a separate hydraulic power source: Manual, electric or pneumatic.

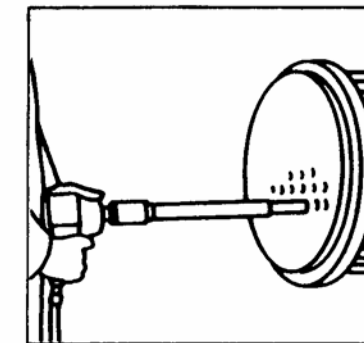
We at Elliott would like you to be completely satisfied with this machine and therefore recommend that this instruction manual be thoroughly read prior to use.

This machine has been designed and manufactured to the highest standards, using the latest in materials and technology. If the guidelines and maintenance schedules in this manual are followed, this unit will provide many years of trouble free operation.

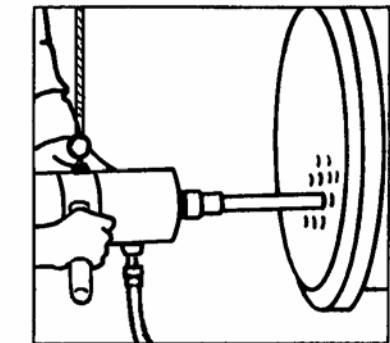
# OPERATION



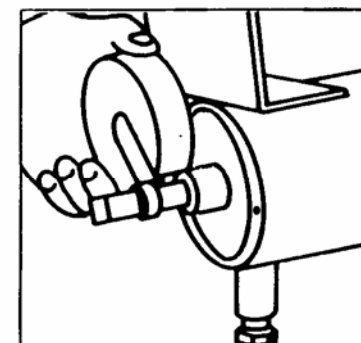
1. Thread the spear into the adapter.



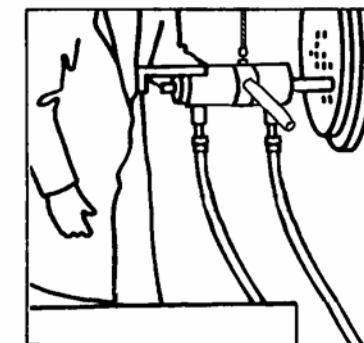
2. Using either a hand wrench or impact wrench, turn the spear into the tube.



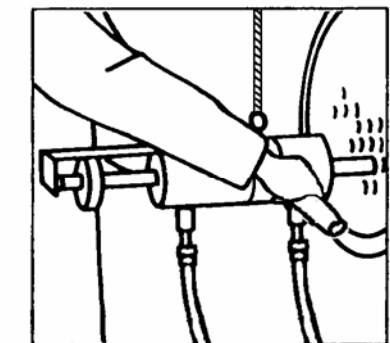
3. Place the double – acting ram unit over the spear – keep front of cylinder end clear of other tube ends and flush against the tube sheet.



4. Lift the safety shield and place the horseshoe lock into the adapter groove.



5. Drop the safety shield into working position, and apply pressure with the pump.



6. After cylinder pressure has pulled the tube through full stroke, return cylinder back into the ram unit. The ram can now be used to assist in the removal of tube by jolting the ram against the horseshoe lock.

**WARNING:**  
Do not stand behind cylinder when Stub-Tugger is in operation.

# SPECIFICATIONS

Item	Inch	Metric
Standard Tube OD Range	3/8" To 3"	9.5mm To 76mm
Cylinder Capacity	30 Tons	
Cylinder Length (with Nose Piece)	13-1/4"	337mm
Diameter	6"	152mm
Weight	40#	18 kg
Stroke	6"	152mm
Hydraulic Oil Type	ISO 32 Grade	

Elliott Tool Technologies Ltd shall not be liable for errors contained herein or for incidental or consequential damage in connection with the furnishing, performance, or use of this material.

# OPERATION

The Stub-Tugger has been designed for efficient use and optimum productivity.

The Stub-Tugger will extract tubes with outside diameters ranging from 3/8" to 3". Pulling spears are sized for the tube ID. Twenty-five standard spear sizes are available. The tool selection guide for this tube puller is listed on page 9.

1. Determine the ID of the tubes to be extracted.
2. Select the proper spear and adapter combination for the tube to be pulled.  
For tube OD's 3/8" to 1", tooling required: Spear, adapter, nose piece and lock (see figure A).  
For tube OD's 1-1/4" to 3", tooling required: Spear, adapter, adapter extension, extension chair and lock. (See figure B)
3. Screw tooling components together. Thread the self-feeding spear/adapter into the tube I.D. in clockwise rotation. This can be done by hand or with a pneumatic impact wrench.
4. Position the hydraulic cylinder over the spear/adapter with the nose piece or extension chair in place.
5. Slip the horseshoe lock retainer into its mating slot on the adapter.
6. Position the Ram nose piece or extension chair against the tube sheet.
7. Drop safety shield into position and initiate the stroke of the Stub-Tugger.
8. When the maximum cylinder stroke is reached the tube should have broken loose from the tube sheet.
9. Reverse the ram stroke returning the ram to home position.
10. If the tube does not pull free from the vessel, the ram can be used to break the tube loose by removing the strike plate against the lock.
11. After tube is removed from the tube sheet, remove spear from the tube.

# RECOMMENDED PUMP

Catalog Number	Pump Type	HP	Maximum Operating Pressure		Power Requirement	Weight	
			PSI	Bar		Lbs	Kg
M5773-00	115 Volt w/Pendant	1.13	10,000	700	25 amps @ 115V	88	39.95
M5775-00	*Pneumatic w/Pendant	3	10,000	700	50 cfm @ 80 psi	91	41.31
M5776-00	230 Volt w/Pendant	1.13	10,000	700	15 amps @ 230V	88	39.95
80-36102D3	Hand Pump	-	10,000	700	-	28	12.7

\*Includes 6070 Filter / Lubricator

# SAFETY

Every effort has been made to ensure the operation of the tube extractor is safe, although it is impossible to remove all possibilities of accidents.

It is very important that **all operators** of this machine are fully aware of the following safety considerations.

1. If you are unfamiliar with this Elliott Stub-Tugger, read this Operation Manual thoroughly before use.
2. Always wear safety glasses, protective gloves, safety shoes and protective clothing.
3. Do not allow other people in the area of the machine unless they are wearing suitable protective clothing and equipment.
4. As the machine is hydraulically driven, hydraulic oil leaks from the ram and hose connections are possible. If hydraulic oil is leaked, clean-up oil immediately to avoid slippery floor surfaces.
5. The cylinder stroke is controlled by a manual control on the hydraulic power source. It is important to read and understand the manual for the hydraulic power source.
6. Ensure all hydraulic connections are properly made and that the hydraulic hoses are in good condition.
7. Always be aware of hydraulic power shut off valve.
8. Always shut down the hydraulic power supply before changing tooling.
9. Do not operate the machine if there appears to be damage to the machine, if screws are loose or missing, or if performance appears to be unsatisfactory.
10. Never use the Elliott Stub-Tugger, or any other power tool when under the influence of medication, drugs or alcohol that decrease concentration and impair operator control.

# START-UP

## Unpacking

The Elliott Stub-Tugger is shipped in a carton complete with all accessories. On arrival, check for external damage to the box. If damage is found, notify the carrier and the supplier so insurance inspectors can examine the box before it is unpacked. When opened, check the contents against the packing and parts list. Report any damage or shortage to Elliott.

Ensure that there is no packaging material left inside the openings of the machine, especially in the hydraulic inlets.

## Connecting to Hydraulic Power Supply

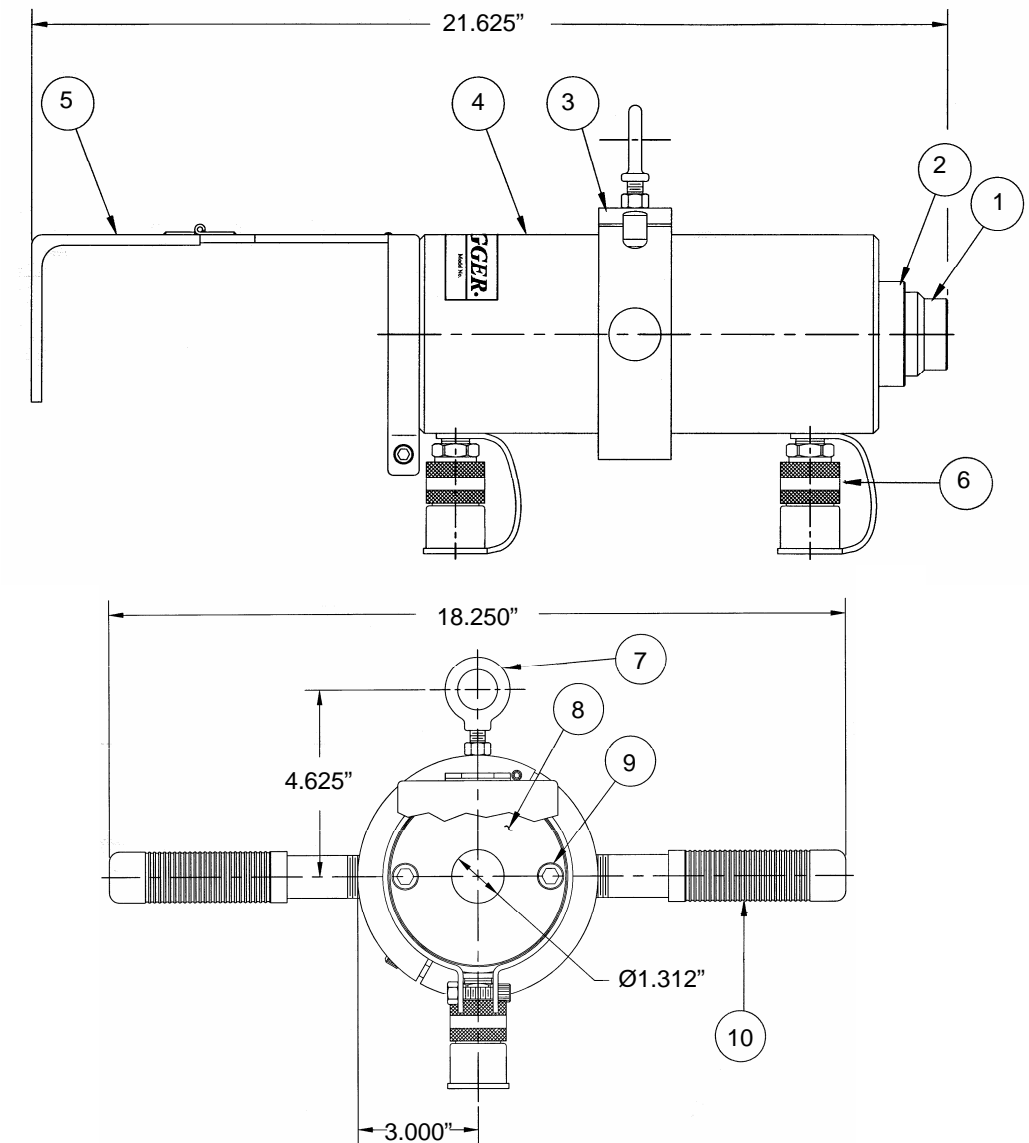
The Elliott Stub-Tugger requires a hydraulic power source. The hydraulic power source supplied by Elliott will be an electric, pneumatic or manual pump.

1. Position the Elliott Stub-Tugger and the hydraulic power source on a flat surface.
2. Connect counter balance eyebolt and fasten operator side handles to the Elliott Stub-Tugger if not already assembled.
3. Connect the two 15' hydraulic hoses to both units. **Important:** Make sure that the male hose fittings are totally in contact with female fitting shoulder on the tube pulling cylinder before threading down the locking fitting. Otherwise the cylinder's relief valve will activate and release a fog of hydraulic fluid and the cylinder will remain idle.
4. Follow the directions of the Elliott hydraulic pump manual to assure that hydraulic pump is working properly.
5. Cycle the Elliott Stub-Tugger several strokes to eliminate any air in the hydraulic lines.  
NOTE: The hydraulic hoses are pre-charged with oil by the factory.
6. The Elliott Stub-Tugger is ready for operation.

## Removing the Hydraulic Hoses

1. Neutralize the pressure before removing the hydraulic hoses.  
NOTE: On the hydraulic power units with remote control, flip the switch on the top of the hydraulic pump from "Remote" to "Off". Cycle both "Advance" and "Retract" switches on the remote control, to neutralize the pressure.

# QUICK REFERENCE DIAGRAMS



ITEM	DESCRIPTION	PART NUMBER
1	Load Cap	80-3055-22
2	Nose Piece Adapter	80-40130D6
3	Bracket Assembly	80RH303-1
4	30-Ton Hydraulic Cylinder	17RH306D
5	Safety Shield	80-40130D8
6	Hydraulic Coupling (2)	17-9796
7	*Eyebolt	512543
8	Strike Plate	80-40130D5
9	Hex. Socket Cap Screw (2)	P8302-151
10	*Side Handles (2)	80RH303-13
11 (Not Shown)	15' Hydraulic Hose (2)	80RH303-4
12 (Not Shown)	Seal Kit	17-300822
13 (Not Shown)	Hex. Allen Wrench – 5/16"	P8369K
14 (Not Shown)	Hex. Allen Wrench – 3/8"	P8369L

(\*) Included with Bracket Assembly.