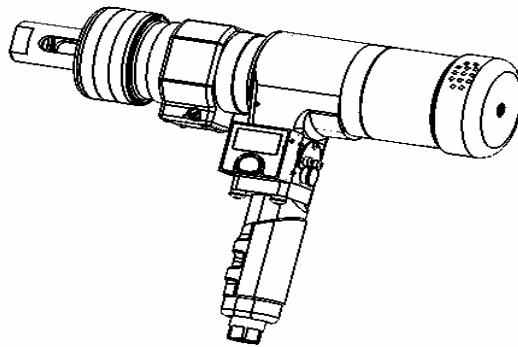


**MOAD**

**MOAD 200  
GENERAL OPERATOR'S SAFETY /  
SERVICE INSTRUCTIONS**



**Houston**  
Manufacturing Plant/Service Center  
11680 Brittmoore Park  
Houston, Texas 77041  
713 722-8501 Fax 713 722-8218

**Dallas**  
Sales/Service Center  
2345 Warrior Trail  
Grand Prairie, Texas 75052  
972-606-9737 Fax 972 602-9747

## **SAFETY INSTRUCTIONS:**

### **WARNING!**

*To prevent personal injury, make sure that you read and understand the safety and operating instructions before using this machine.*

- Proper eye and ear protection must be worn at all times by both the tool operator and bystanders.
- Always avoid inhaling dust resulting from drilling operations. Use a dust collection device or approved dust mask when necessary.
- Drilling machines present a risk of entanglement. Keep loose hair away from machine. Do not wear jewelry, loose clothing or neckwear around the machine. Keep work area clear of items that may become entangled in the machine.
- This machine is not insulated for contact with electrical circuits. Do not use near live circuits.
- This machine is not intended for use in an explosive atmosphere. Do not use near areas where flammable materials or explosives are stored or in use.
- Do not exceed the maximum inlet air pressure as stated on the machine or in the operating instructions.
- Never make any modification to the machine, its attachments or accessories.

## **OPERATING INSTRUCTIONS:**

### **WARNING!**

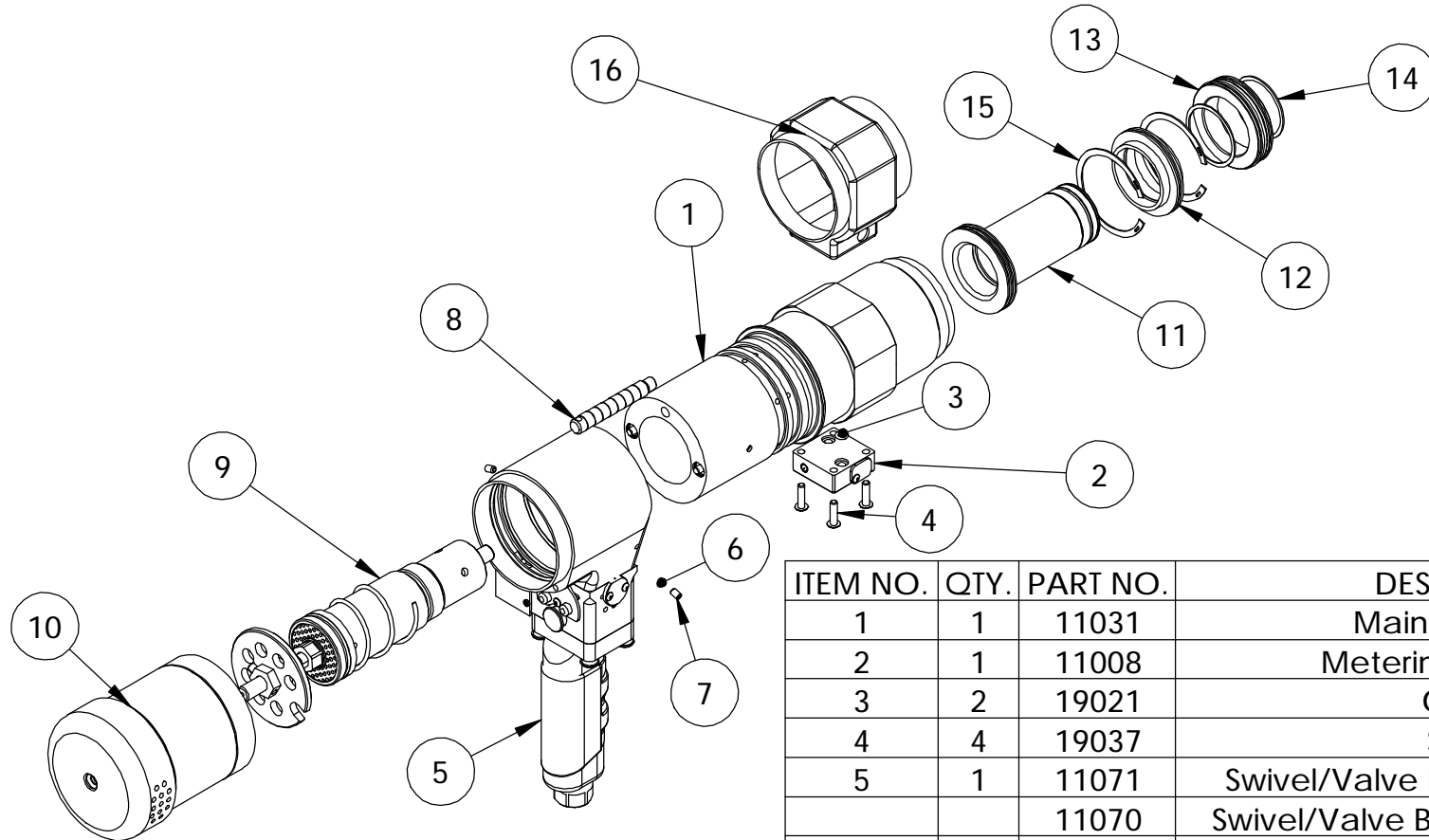
*Make sure you are familiar with the operating instructions before you use this machine.*

- For product liability and safety reasons, any modification to the machine, its attachments, or its accessories must be agreed to in advance by an authorized technical representative of Tooling Technologies Manufacturing (TTM).
- Do not exceed a maximum inlet air pressure of 90 psig/6.2 bar. Use an air pressure regulator to maintain proper air pressure.

- Make sure that all air hoses are oil resistant and rated for the proper working pressure. Do not use a machine with loose or damaged air hoses or fittings.
- This machine is designed for use with a lubrication-free air supply. However, there is no disadvantage for the operation of the machine if the air supply contains a small quantity of oil (1-5mg/m<sup>3</sup>).
- Never operate machine without the stop plate cover in place.
- Never operate the machine without locking the nose piece/bushing into the tooling plate. Do not use as you would a handheld power tool.
- Always disconnect machine from air supply before making any adjustments, changing accessories, or performing maintenance/service on the machine

### **Service Instructions**

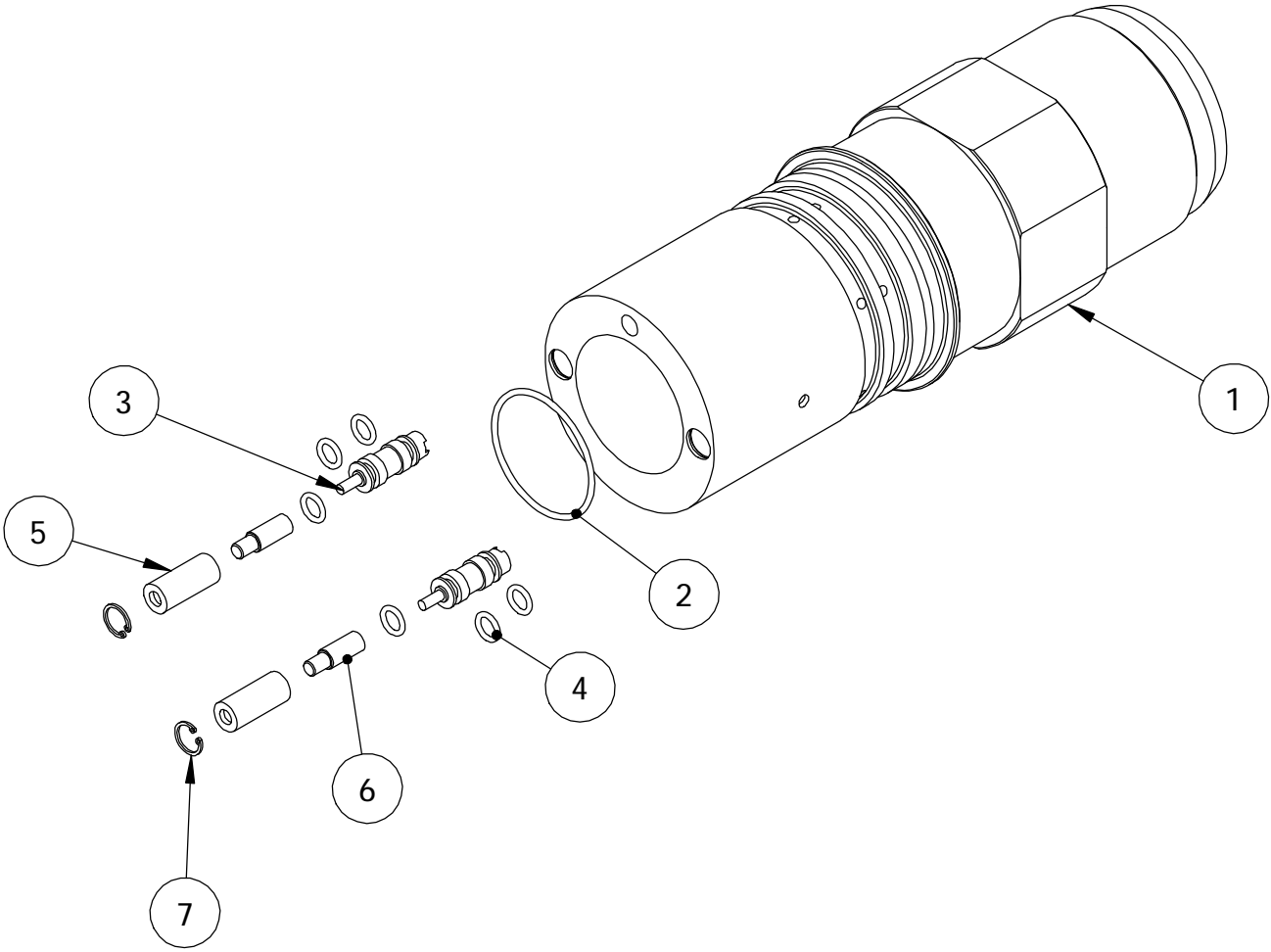
- Contact your Tooling Technologies Representative for Factory Service Training on the MOAD 200 or call 713 722-8501 for more information.



**MOAD  
MAIN ASSEMBLY**

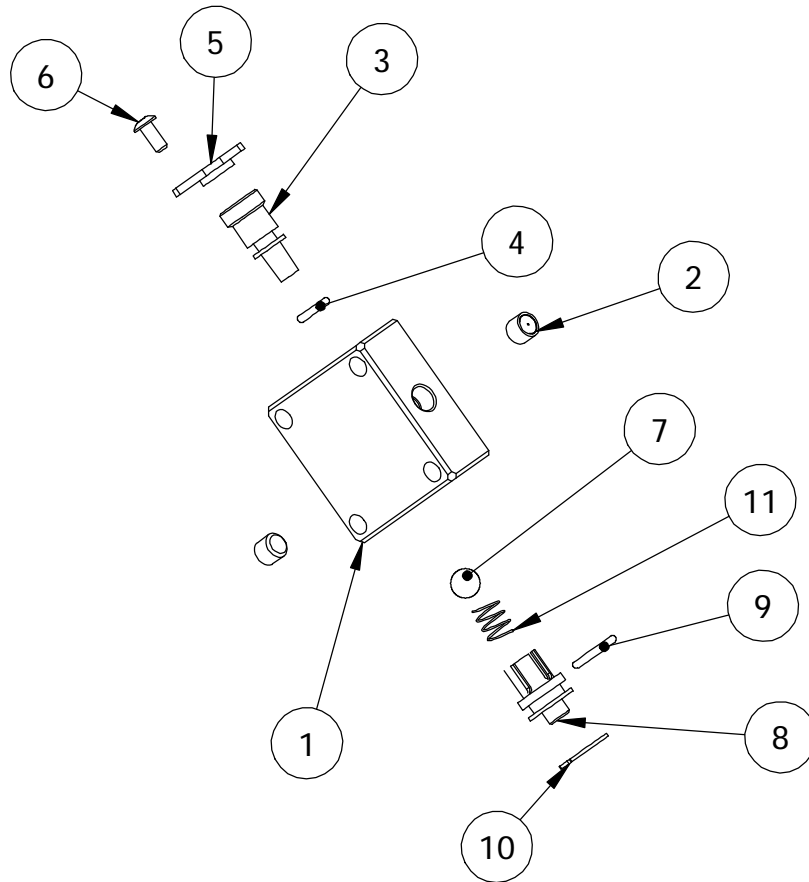
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	11031	Main Body Ass'y
2	1	11008	Metering Block Ass'y
3	2	19021	O-Ring
4	4	19037	Screw
5	1	11071	Swivel/Valve Block Ass'y W elect.
		11070	Swivel/Valve Block Ass'y WO elect.
6	2	19040	Ball
7	2	19041	Set Screw
8	1	10057	Post
9	1	11006	3300 RPM Motor Pack
		11009	500 RPM Motor Pack
		11068	1000 RPM Motor Pack
10	1	11030	Adjustment Cover Ass'y
11	1	11036	Piston Ass'y
12	1	11037	Bulkhead Ass'y
13	1	11065	Piston End Ass'y
14	2	19030	Retaining Ring
15	2	19031	Retaining Ring
16	1	19039	Grip Cover

# 11031 Main Body Assembly



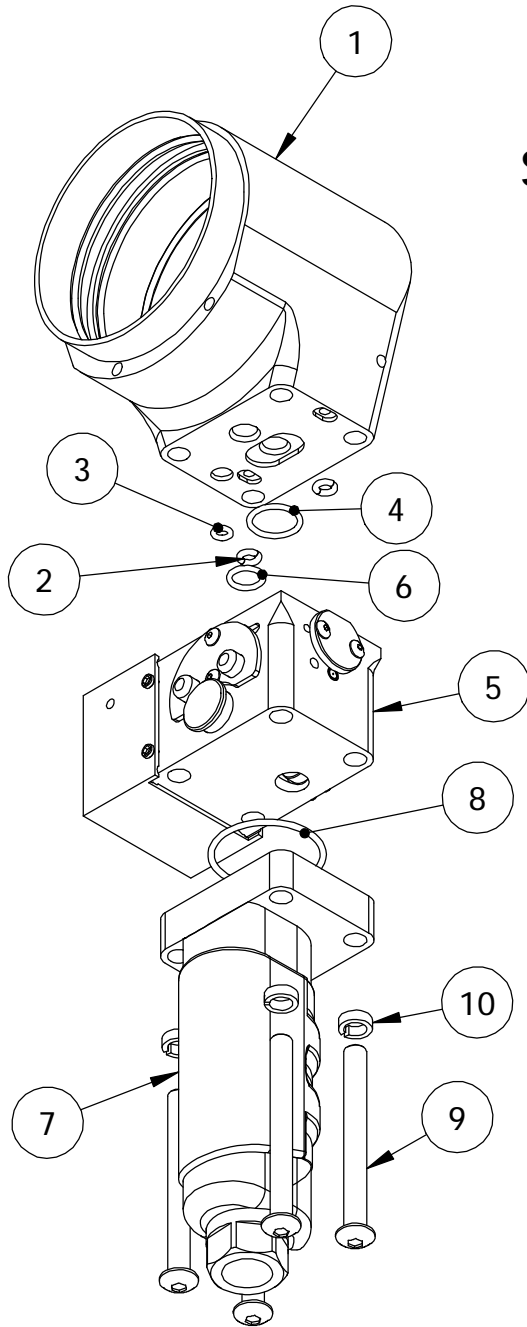
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10047	Body
2	1	19026	O-Ring
3	2	19004	MAV
4	6	19007	O-Ring
5	2	10065	Sleeve
6	2	10066	Button
7	2	19014	Retaining Ring

# 11008 Metering Block Assembly



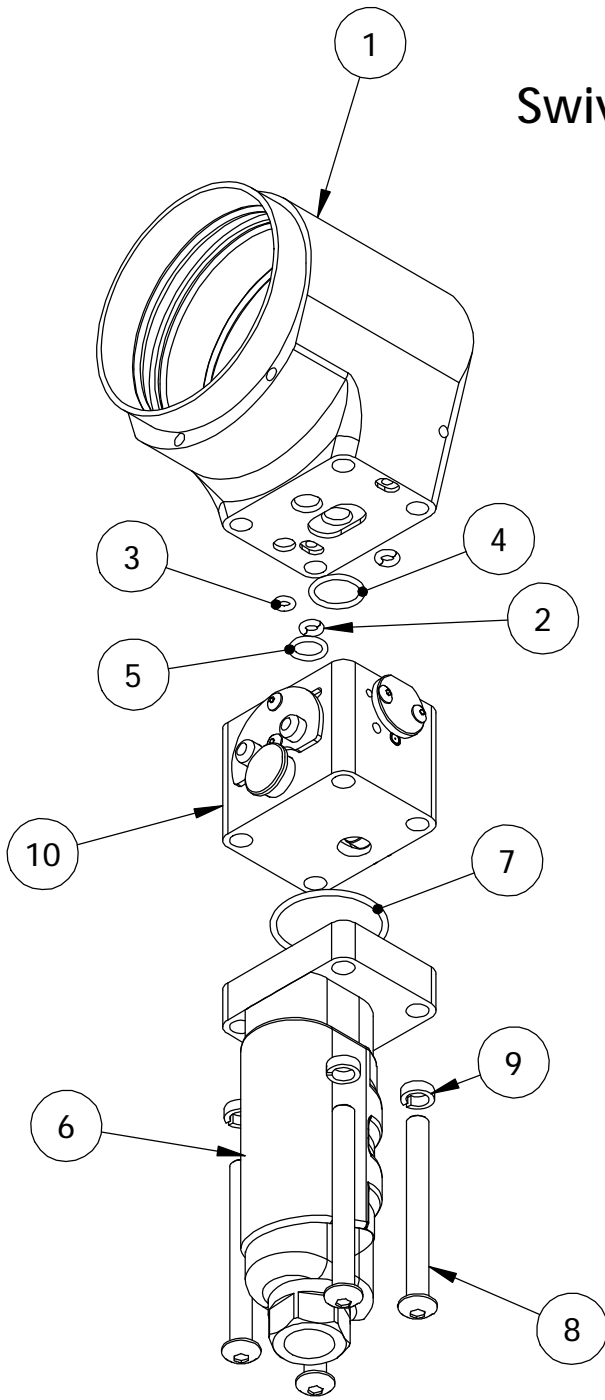
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10061	Metering Block
2	2	19024	Lee Plug
3	1	10063	Needle
4	1	19021	O-Ring
5	1	10284	Needle Cover
6	1	19034	Screw
7	1	19078	Ball
8	1	10108	Check Sleeve
9	1	19006	O-Ring
10	1	19067	Retaining Ring
11	1	19023	Spring

# 11071 Swivel/Valve Block/Handle Assembly With Electronics

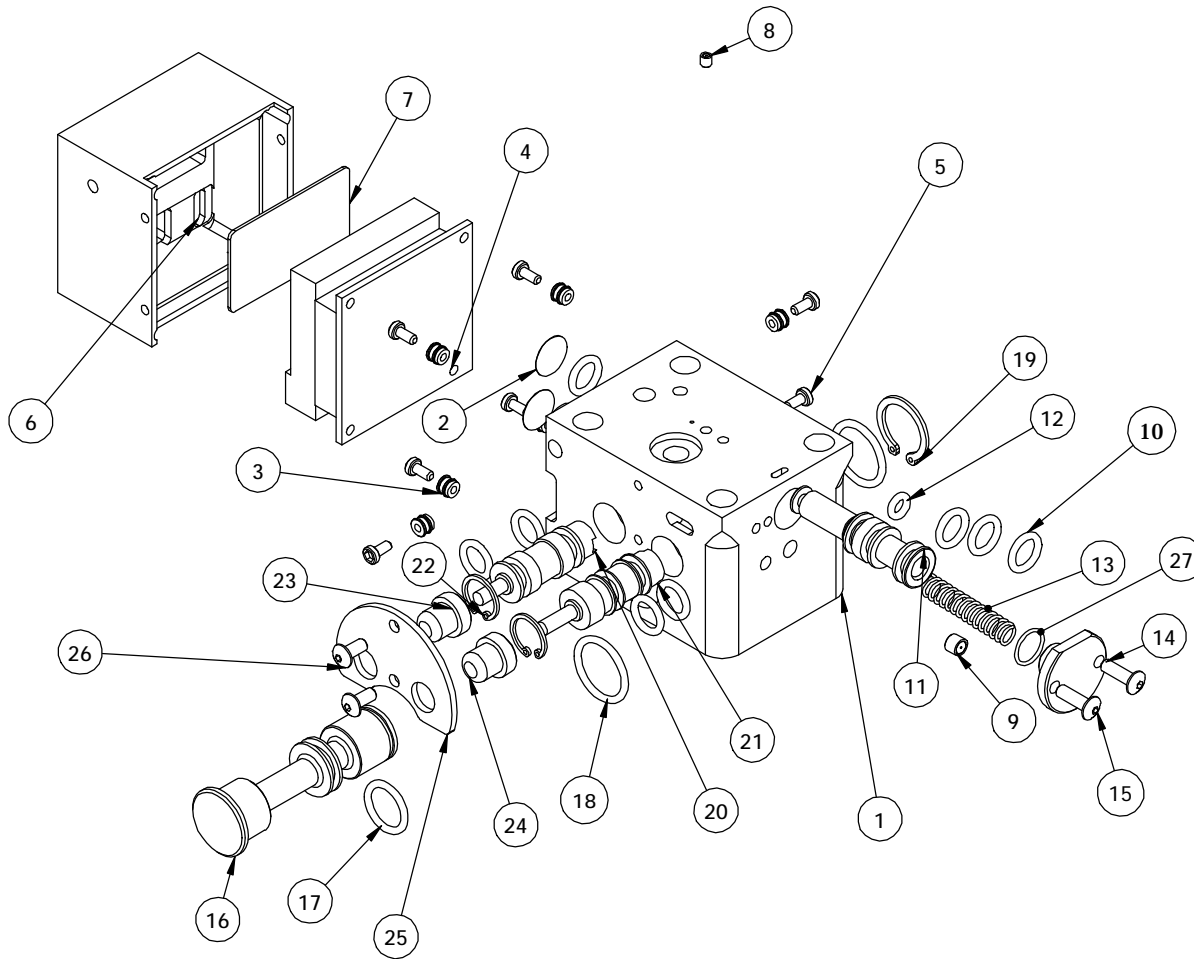


ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	11007	Swivel Assembly
2	2	19009	O-Ring
3	1	19008	O-Ring
4	1	19010	O-Ring
5	1	11005	Main Valve Block Ass'y
6	1	19006	O-Ring
7	1	11029	Handle Assembly
8	1	19064	O-Ring
9	4	19060	Screw
10	4	19079	Washer

# 11072 Swivel/Valve Block/Handle Assembly Without Electronics



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	11007	Swivel Assembly
2	2	19009	O-Ring
3	1	19008	O-Ring
4	1	19010	O-Ring
5	1	19006	O-Ring
6	1	11029	Handle Assembly
7	1	19064	O-Ring
8	4	19060	Screw
9	4	19079	Washer
10	1	11033	Main Valve Block Ass'y

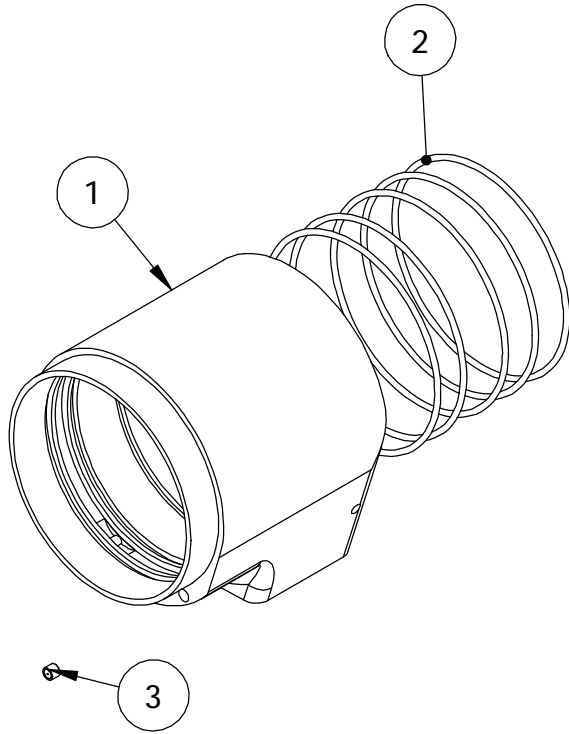


ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10044	Main Valve Block
2	2	19070	Tactile Dome
3	8	19061	Brass Insert
4	1	19080	Electronic Package
5	8	19081	Screw
6	1	10110	Electronic Enclosure
7	1	10107	Lens
8	1	19032	Lee Plug
9	1	19013	Lee Plug
10	9	19007	O-Ring
11	1	10045	Shuttle Piston
12	1	19008	O-Ring
13	1	19022	Spring
14	1	10054	Shuttle Piston Cap
15	2	19146	Screw
16	1	10048	Spool
17	1	19011	O-Ring
18	2	19010	O-Ring
19	1	19035	Retaining Ring
20	1	19004	MAV
21	1	19005	MAV
22	2	19014	Retaining Ring
23	1	10068	Feed Start Button
24	1	10069	Retract Button
25	1	10067	Button Plate
26	2	19034	Screw
27	1	19019	O-Ring

11005 Main Valve Block Assembly With Electronics

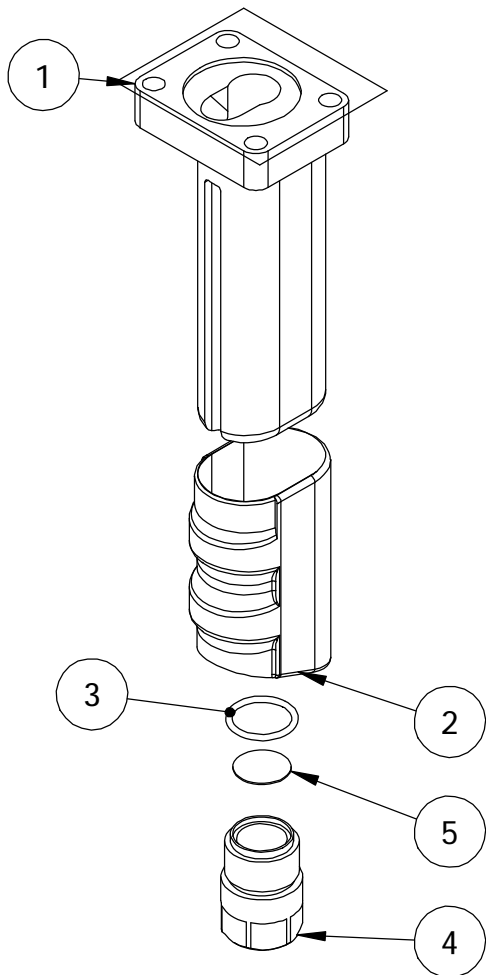


## 11007 Swivel Assembly



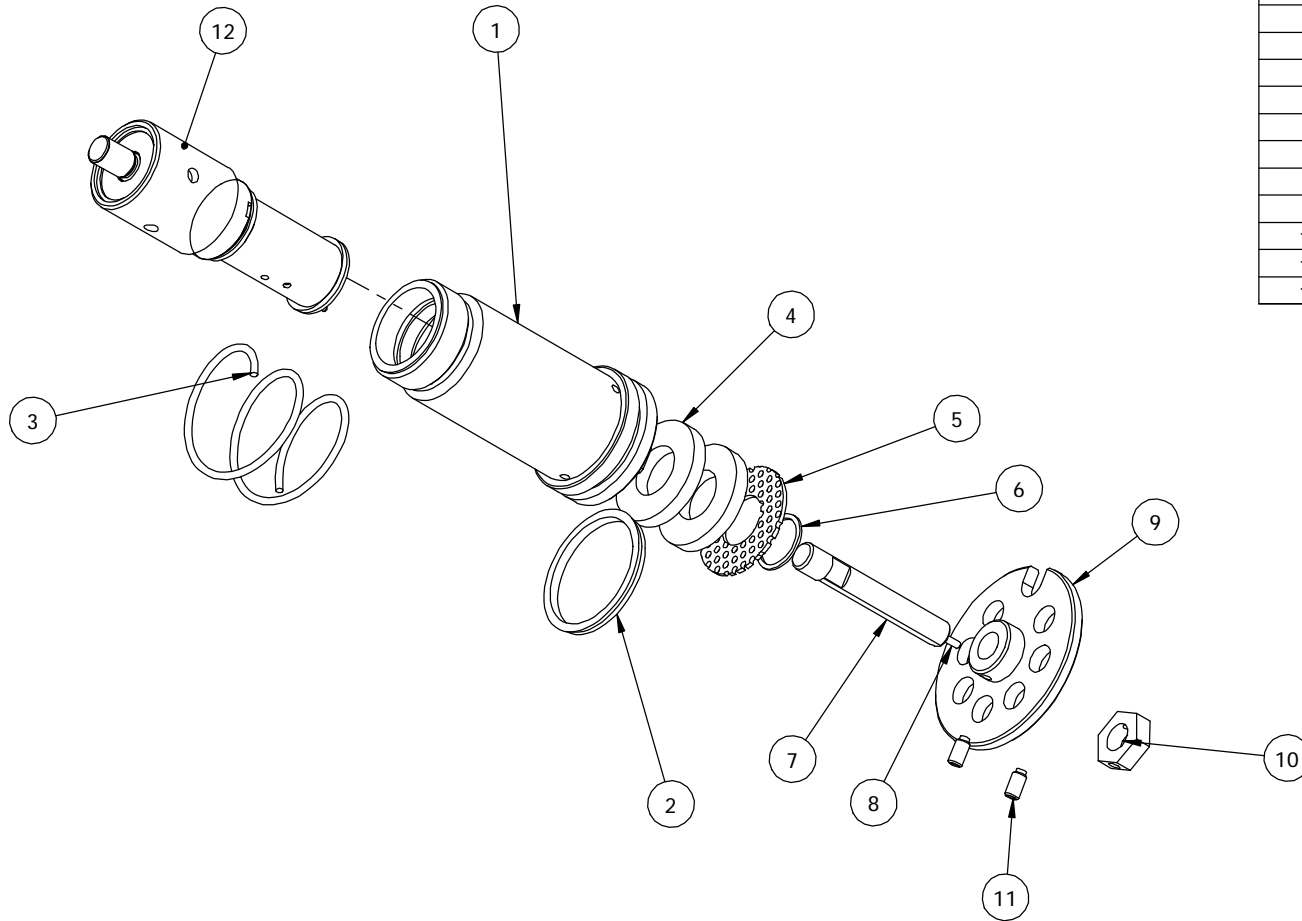
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10046	Swivel
2	5	19133	O-Ring
3	2	19013	Plug

## 11029 Handle Assembly



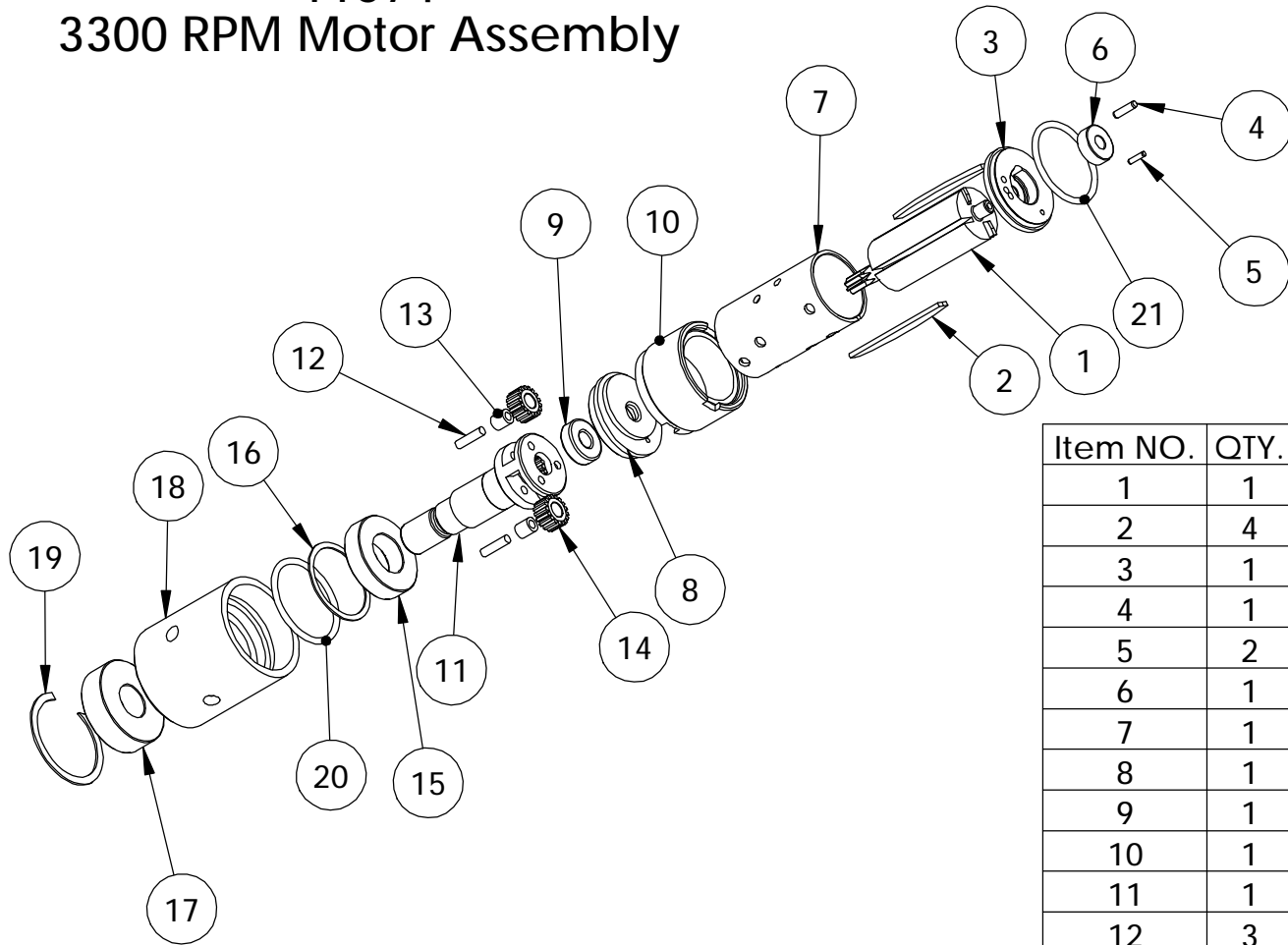
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10087	Handle
2	1	19068	Grip
3	1	19082	O-Ring
4	1	19077	Inlet Bushing
5	1	19151	Screen

### 11006 - 3300 RPM Motor Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10052	Motor Housing
2	1	19094	Seal
3	1	19084	Spring
4	2	19018	Muffler Filament
5	1	10074	Muffler Screen
6	1	19043	Retaining Ring
7	1	10055	Adjustment Rod
8	1	19020	Pin
9	1	10058	Stop Plate
10	1	10056	Adjustment Nut
11	2	19036	Set Screw
12	1	11074	3300 RPM Motor

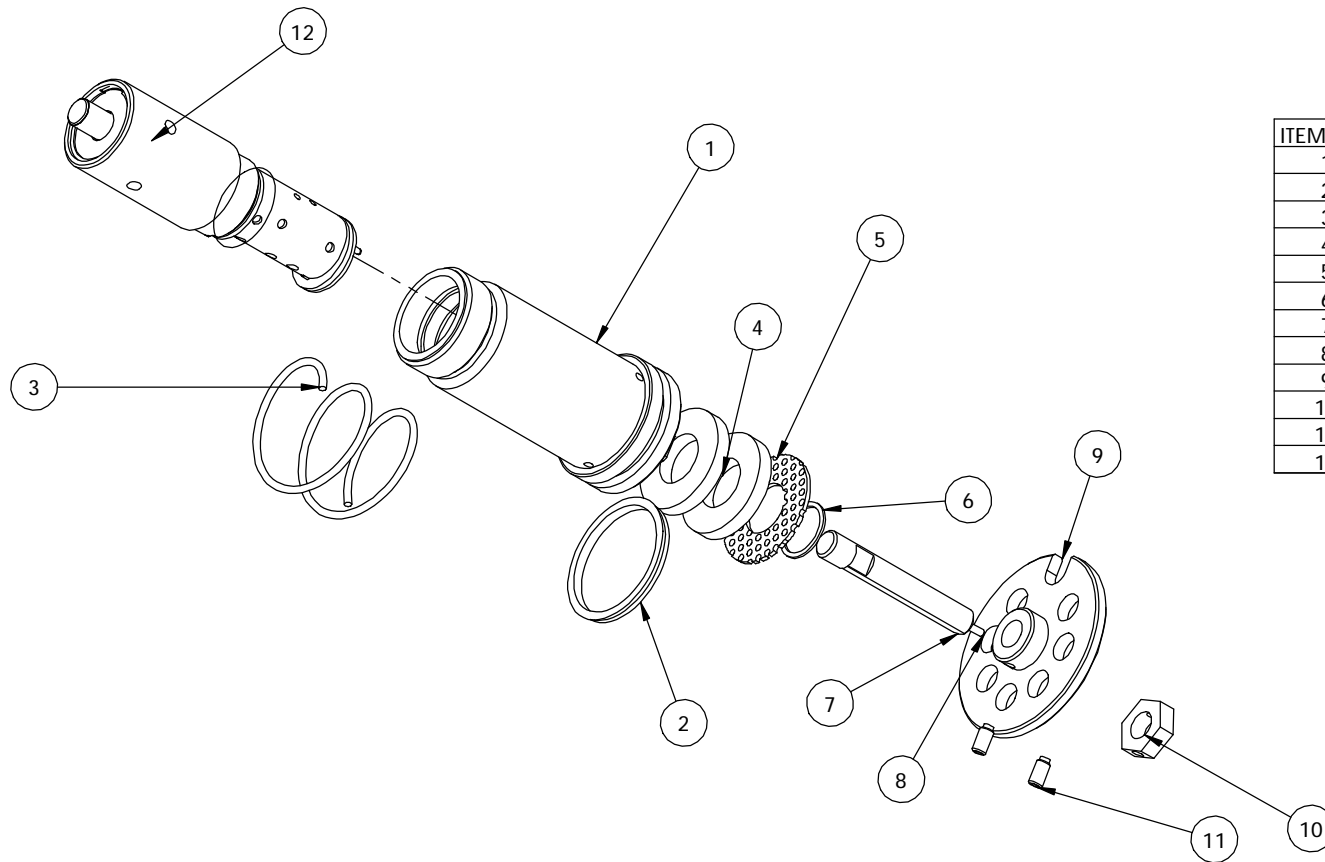
# 11074 3300 RPM Motor Assembly



\*\* Denotes Included in Service Kit 11075

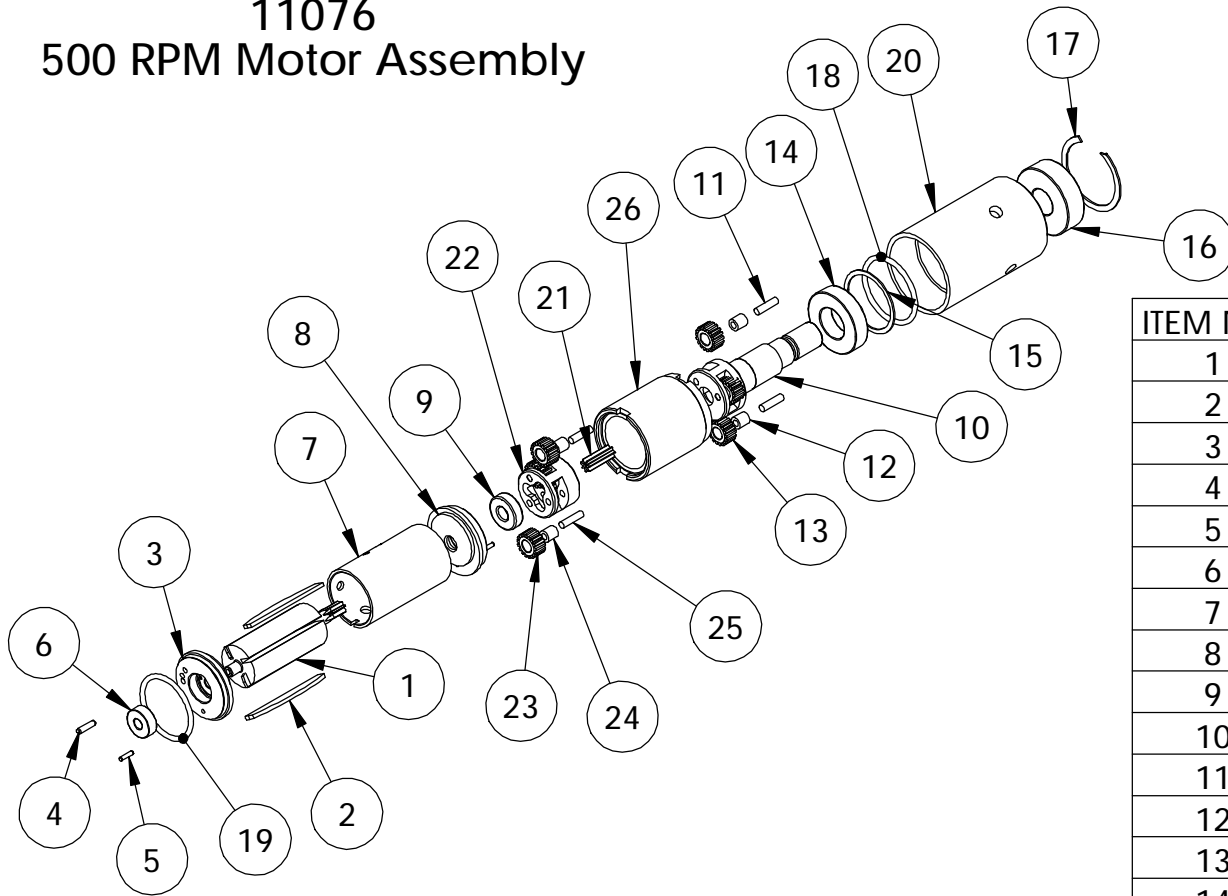
Item NO.	QTY.	PART NO.	DESCRIPTION
1	1	19153	Rotor
2	4	19154	Rotor Blade **
3	1	19156	Rear Bearing Plate
4	1	19159	Pin **
5	2	19158	Pin **
6	1	19155	Bearing **
7	1	19160	Cylinder
8	1	19161	Front Bearing Plate
9	1	19162	Bearing **
10	1	19152	Gear Case
11	1	19163	Caged Spider
12	3	19164	Pin
13	3	19165	Bearing
14	3	19166	Idler Gear
15	1	19167	Bearing
16	1	19168	Shim
17	1	19170	Bearing
18	1	10254	Gear Housing
19	1	19145	Retaining Ring
20	1	19169	O-Ring **
21	1	19157	O-Ring **

## 11009 - 500 RPM Motor Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10052	Motor Housing
2	1	19094	Seal
3	1	19084	Spring
4	2	19018	Muffle Filament
5	1	10074	Muffle Screen
6	1	19043	Retaining Ring
7	1	10055	Adjustment Rod
8	1	19020	Pin
9	1	10058	Stop Plate
10	1	10056	Adjustment Nut
11	2	19036	Screw
12	1	11076	500 RPM Motor

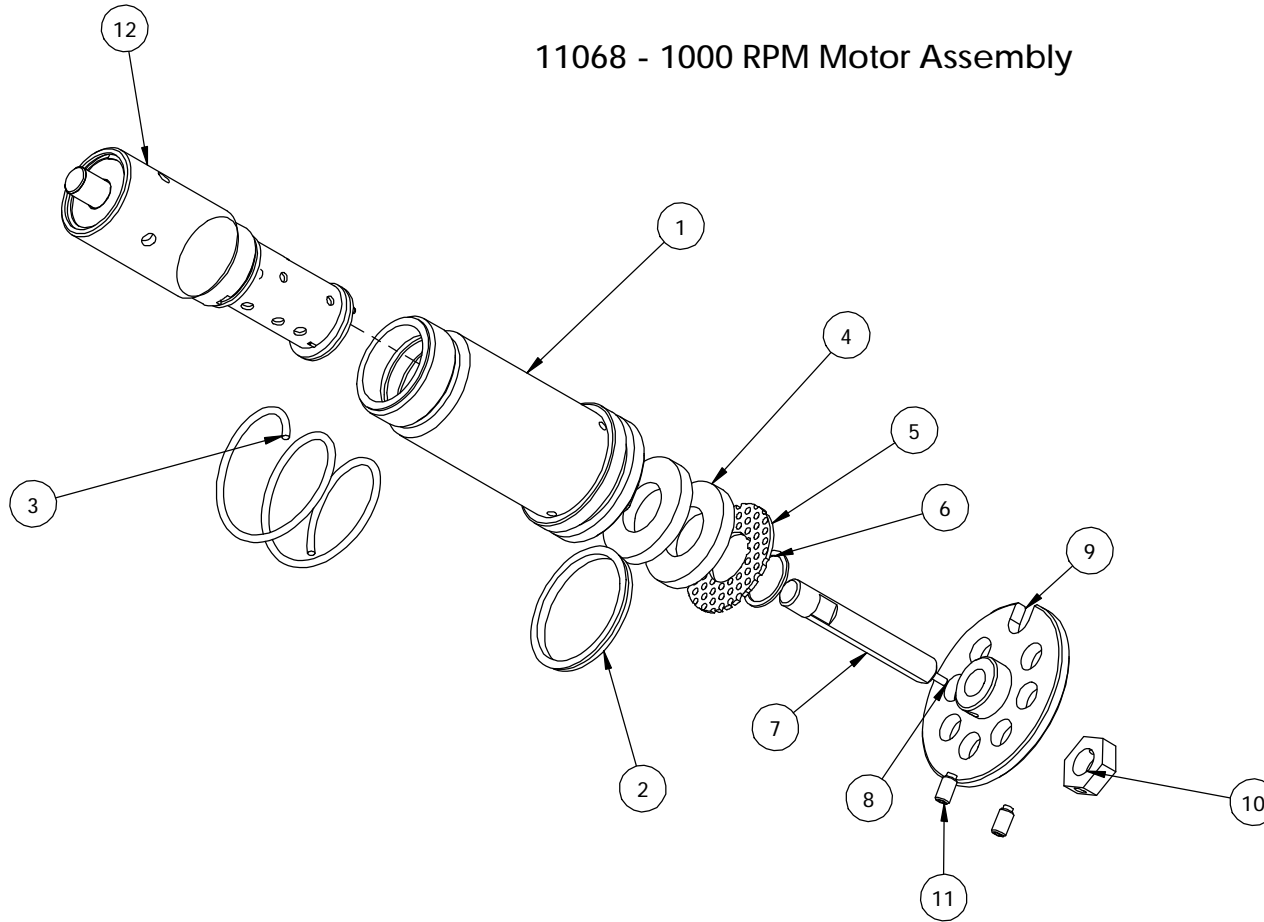
# 11076 500 RPM Motor Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	19153	Rotor
2	4	19154	Rotor Blade **
3	1	19156	Rear Bearing Plate
4	1	19159	Pin **
5	2	19158	Pin **
6	1	19155	Bearing **
7	1	19160	Cylinder
8	1	19161	Front Bearing Plate
9	1	19162	Bearing **
10	1	19163	Caged Spider
11	3	19164	Pin
12	3	19165	Bearing
13	3	19166	Idler Gear
14	1	19167	Bearing
15	1	19168	Shim
16	1	19170	Bearing
17	1	19145	Retaining Ring
18	1	19169	O-Ring **
19	1	19157	O-Ring **
20	1	10255	Gear Housing
21	1	19173	Sun Gear
22	1	19174	Planetary Gear
23	3	19175	Idler Gear
24	3	19176	Bearing
25	3	19177	Pin
26	1	19172	Gear Case

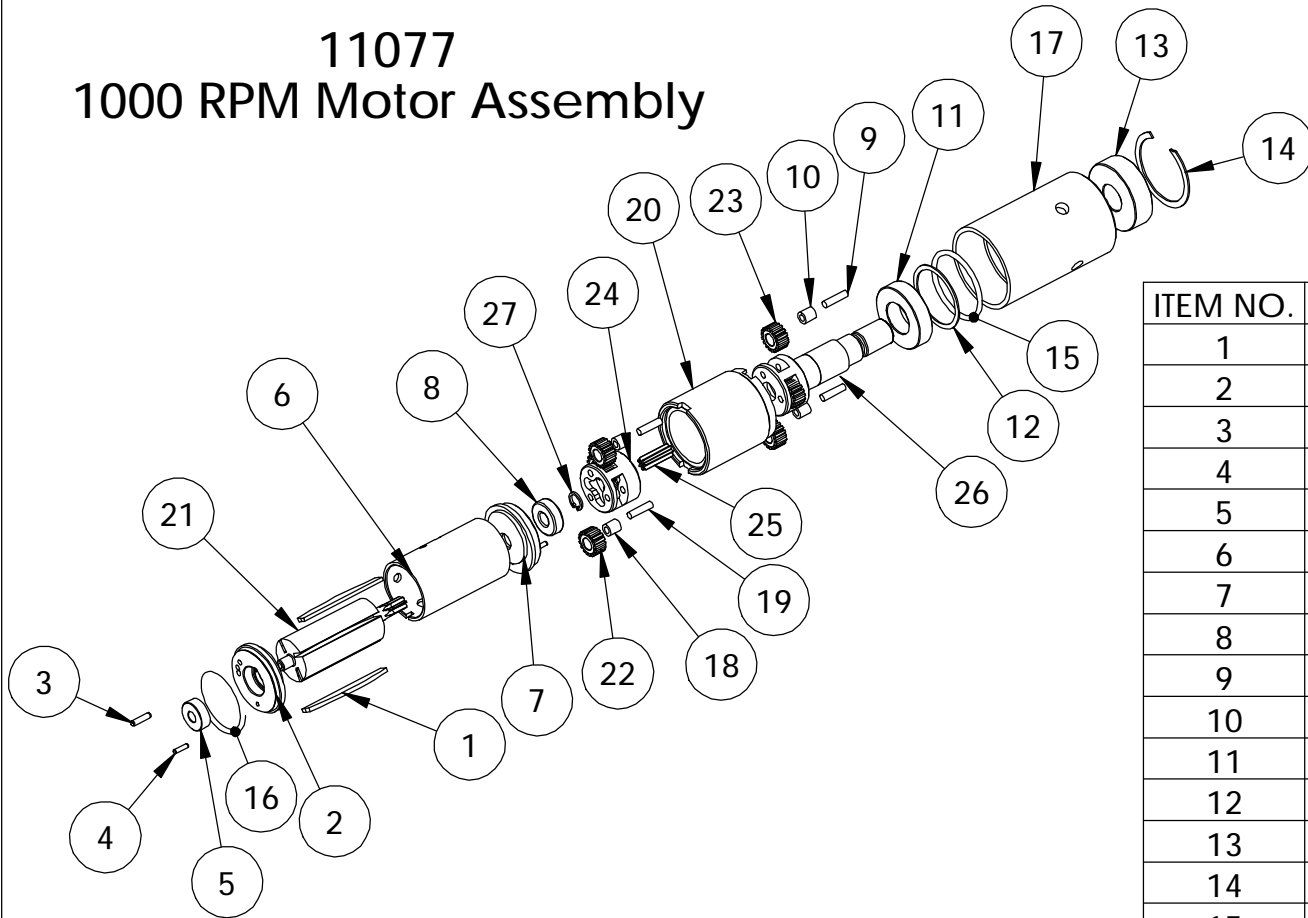
\*\* Denotes Included in Service Kit 11075

### 11068 - 1000 RPM Motor Assembly



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10052	Motor Housing
2	1	19094	Seal
3	1	19084	Spring
4	2	19018	Muffer Filament
5	1	10074	Muffer Screen
6	1	19043	Retaining Ring
7	1	10055	Adjustment Rod
8	1	19020	Pin
9	1	10058	Stop Plate
10	1	10056	Adjustment Nut
11	2	19036	Set Screw
12	1	11077	1000 RPM Motor

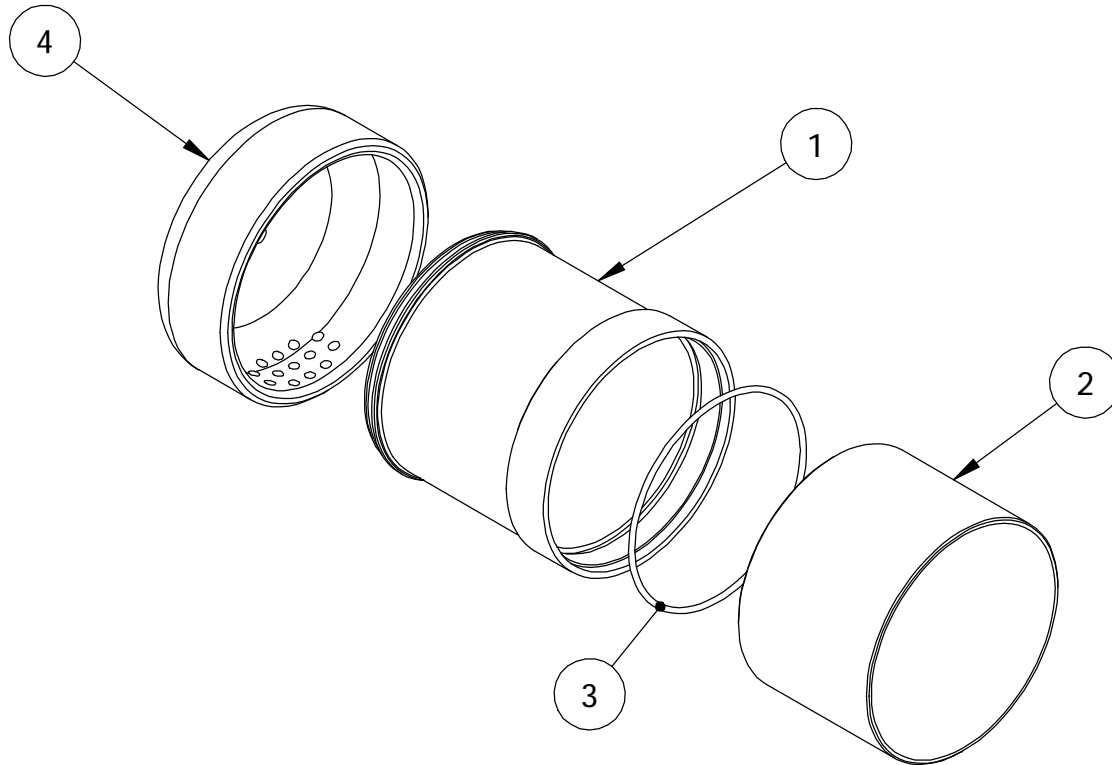
# 11077 1000 RPM Motor Assembly



\*\* Denotes Included in Service Kit 11075

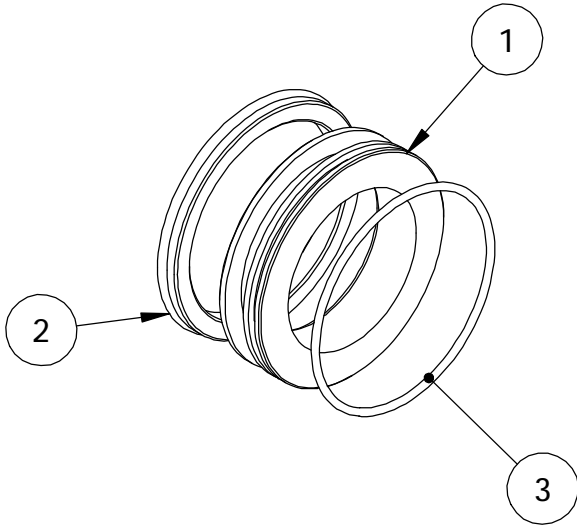
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	4	19154	Rotor Blade **
2	1	19156	Rear Bearing Plate
3	1	19159	Pin **
4	2	19158	Pin **
5	1	19155	Bearing **
6	1	19160	Cylinder
7	1	19161	Front Bearing Plate
8	1	19162	Bearing **
9	3	19164	Pin
10	3	19165	Bearing
11	1	19167	Bearing
12	1	19168	Shim
13	1	19170	Bearing
14	1	19145	Retaining Ring
15	1	19169	O-Ring **
16	1	19157	O-Ring **
17	1	10255	Gear Housing
18	3	19176	Bearing
19	3	19177	Pin
20	1	19172	Gear Case
21	1	19171	Rotor
22	3	19182	Idler Gear
23	3	19179	Idler Gear
24	1	19181	Planetary Gear
25	1	19180	Sun Gear
26	1	19178	Caged Spider
27	1	19183	Retaining Ring

# 11030 Adjustment Cover Assembly



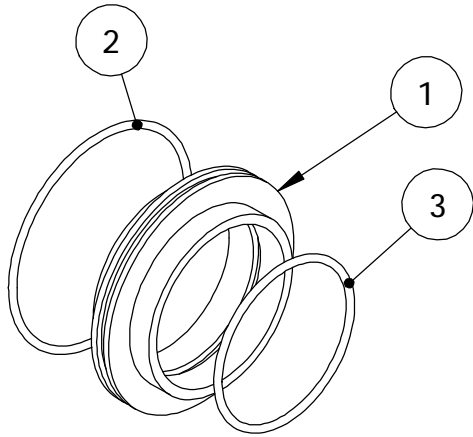
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10060	Adjustment Cover
2	1	19038	Grip Sleeve
3	1	19133	O-Ring
4	1	10059	Exhaust Deflector

## 11065 Piston End Assembly



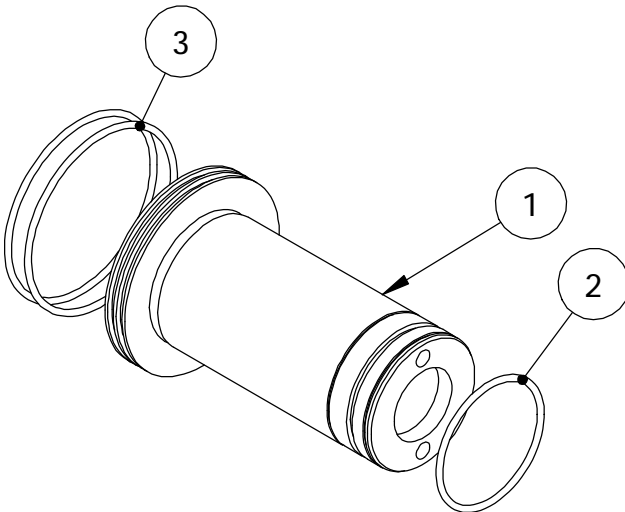
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10049	Piston End
2	1	19025	Seal
3	1	19027	O-Ring

## 11037 Bulkhead Assembly

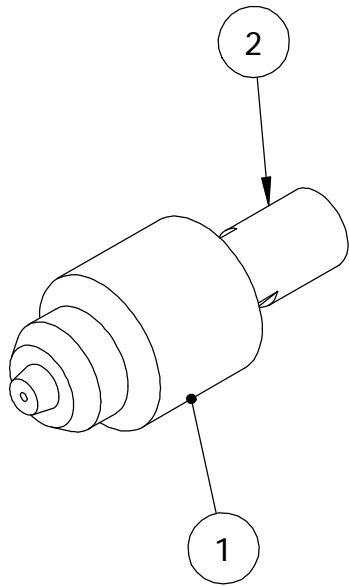


ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10050	Bulkhead
2	1	19027	O-Ring
3	1	19026	O-Ring

## 11036 Piston Assembly

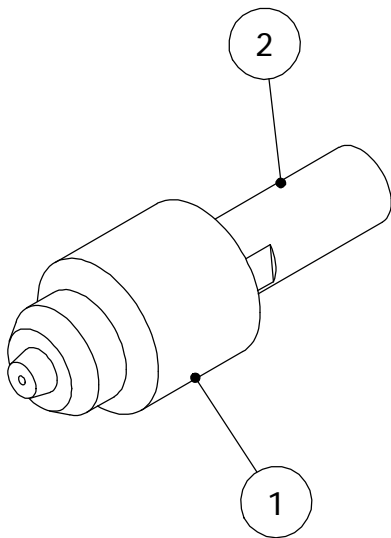


ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10051	Piston
2	1	19071	O-Ring
3	2	19027	O-Ring



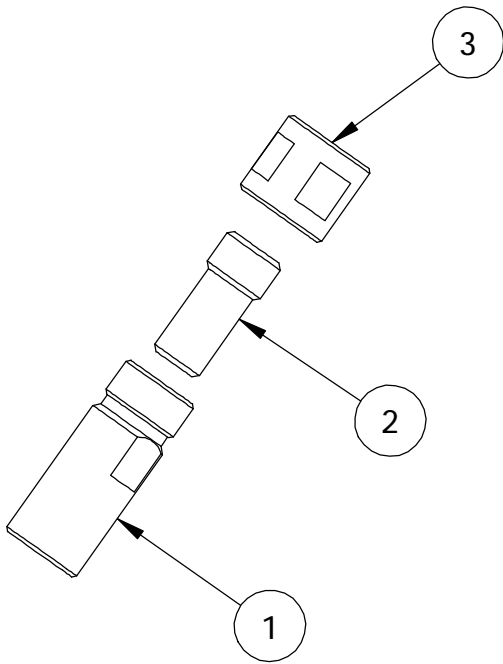
**11069**  
**500/1000 RPM**  
**Chuck Adapter**

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	19137	Chuck
2	1	10117	Adapter



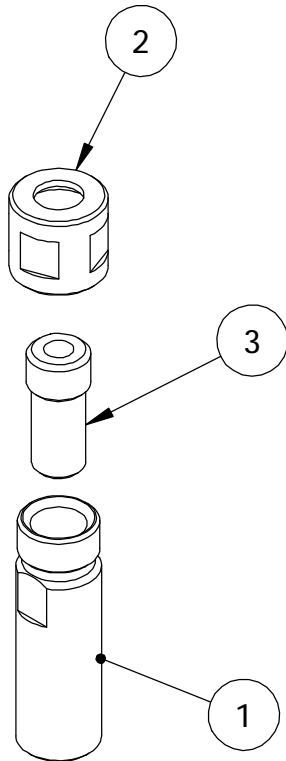
**11070**  
**3300 RPM**  
**Chuck Adapter**

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	19137	Chuck
2	1	10133	Adapter



## 11015 500/1000 RPM Collet Assembly

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	19015	Body
2	1	19029	1/4 Collet
3	1	19016	Nut



## 11016 3300 RPM Collet Assembly

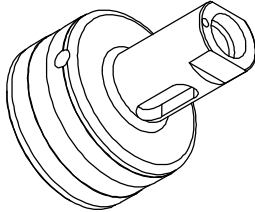
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	19058	Body
2	1	19016	1/4 Collet
3	1	19029	Nut

## Other Collets Available

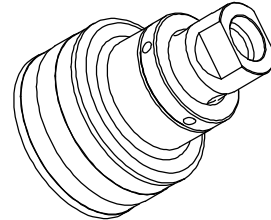
11/64 Dia. Collet	19150
7/32 Dia. Collet	19148
9/32 Dia. Collet	19147
5/16 Dia. Collet	19149

Use 10197 Special 5/8" Wrench & 10198 Special 3/4" Wrench  
To Install & Remove Cutters

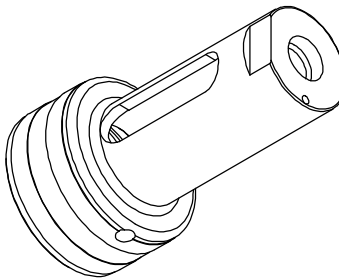
# MOAD 200 Nose Options



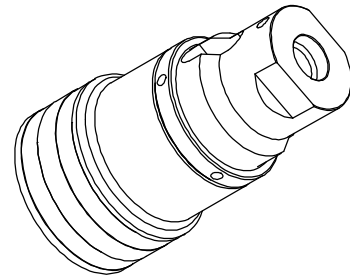
Series	Part Number
21000	10103
21000 Enclosed	10248
22000	10109
23000	10111



Adjustable Collet Noses	
Series	Part Number
21000	11063



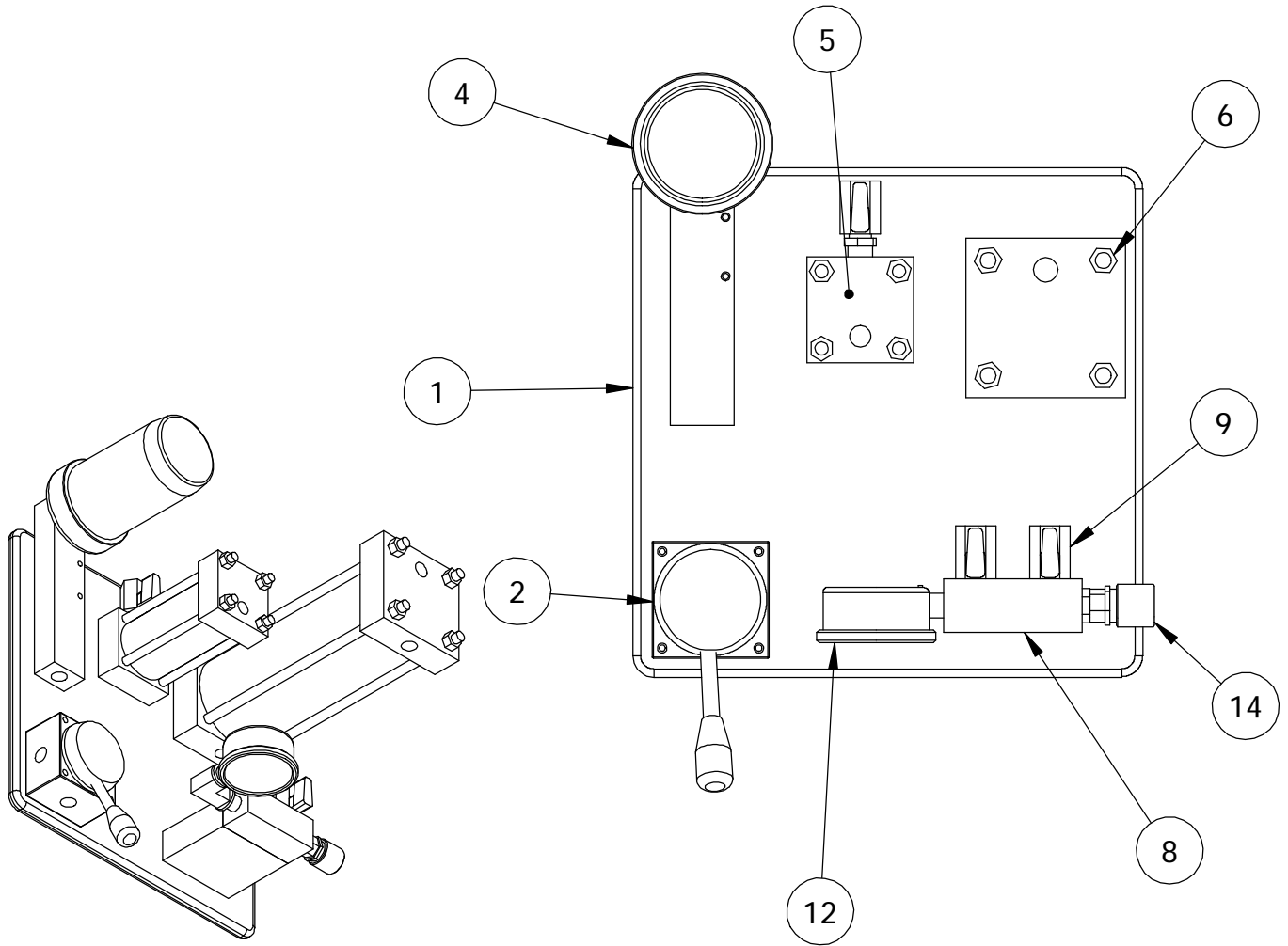
Standard Chuck Noses	
Series	Part Number
21000	10131
22000	10132
23000	10287



Adjustable Chuck Noses	
Series	Part Number
21000	11063
22000	11064
23000	11073

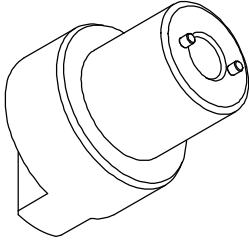
Non-Standard lengths available on request.

# 11054 MOAD Fill Machine

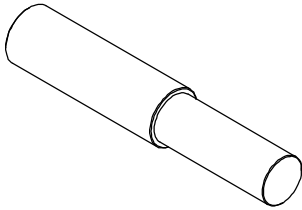
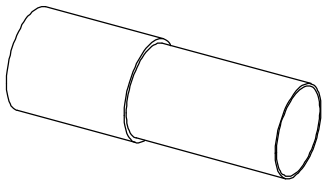


ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	10242	Base Plate
2	1	11054-1-1	Air Valve
4	1	11054-2	Vacuum
5	1	11054-3	Used Oil Reservoir
6	1	11054-4	Oil Reservoir
8	1	11054-5	Manifold
9	3	11054-9	Valve
12	1	11054-6	Pressure Gauge
14	1	11054-13	Quick Change Adapter

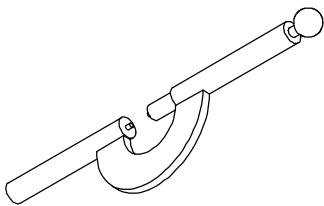
# MOAD Service Tools



10075 - Motor Pack Install/Removal Block



10288 & 10289 - Internal Retaining Ring/ Bulkhead Installation Tools



19184 - Gear Housing Removal/Install Tool



**Tooling Technologies Mfg**  
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[www.toolingtechnologies.net](http://www.toolingtechnologies.net)