

ROTTLER

F69ATC CNC MACHINING CENTER

OPTIONAL EQUIPMENT PARTS MANUAL



ORDERING PROCEDURE

Contact your regional Rottler sales rep for assistance in ordering optional equipment, replacement parts, or tooling.

If you are unable to contact your regional Rottler sales rep, call the factory at 253-872-7050 and ask to speak to the parts sales specialist.

Have the following information handy to expedite the ordering process:

1. Your name, business name, and contact number
2. Customer number
3. If you don't have a customer number, your billing address
4. Shipping address if different from billing address
5. Machine model and serial number
6. Part number and description of what you want to order
7. Preferred method of shipment

You may also contact us via e-mail with the above information. Send e-mail requests to:
parts@rottermfg.com

In some cases you may be requested to send a photo of the part you are ordering if it is a replacement part, or doesn't appear in the database.

If you are unsure which part you need to order, contact our service department and ask to speak to one of our service consultants. They will assist you in determining which part you require.

THERE IS A MINIMUM ORDER OF \$25.00

F69ATC OPTIONAL EQUIPMENT PARTS MANUAL

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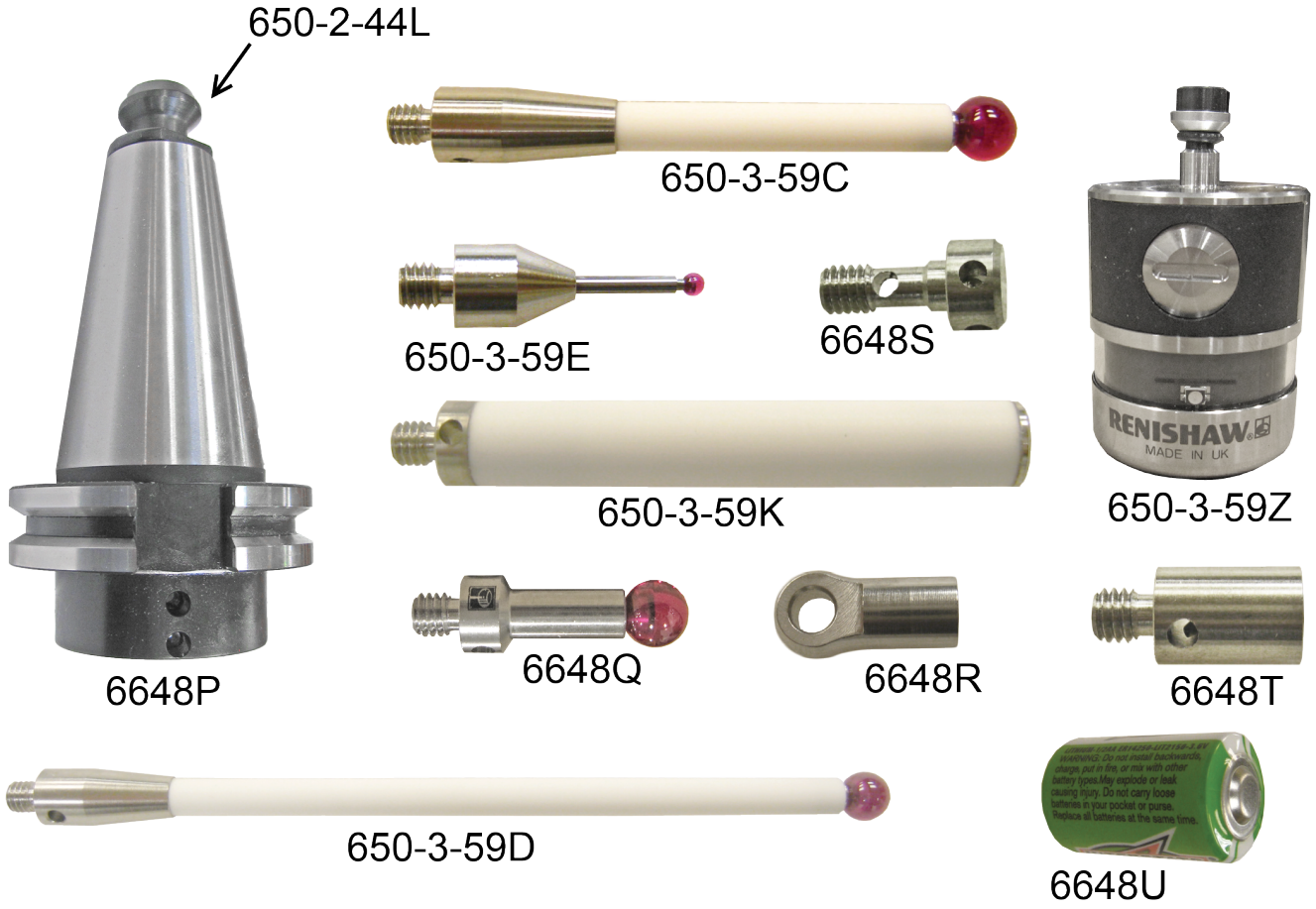
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Cylinder Bore Centering

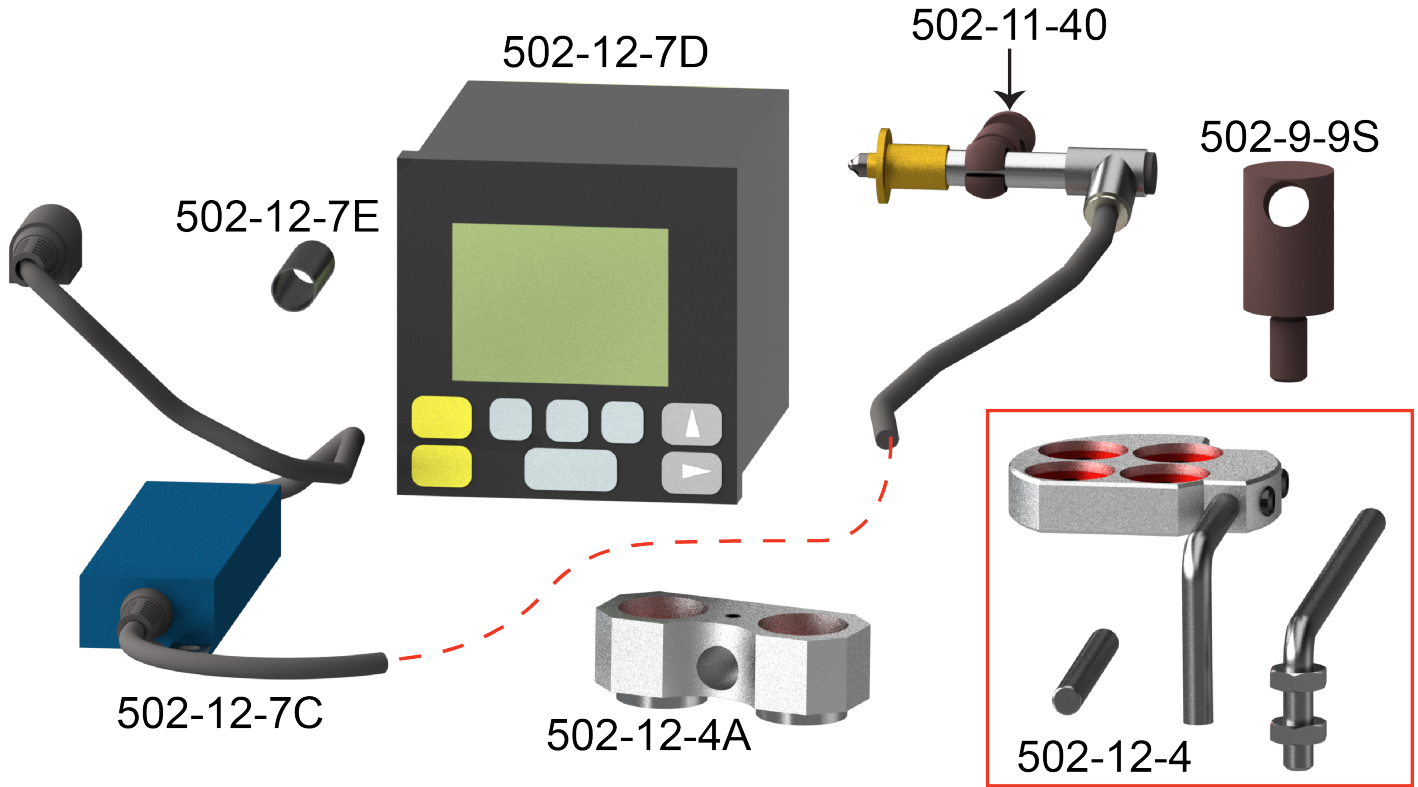
Automatic Centering

650-3-59Y Renishaw Wireless Probing System Parts



Manual Centering

502-12-7B Digital Runout Probe and Readout Parts

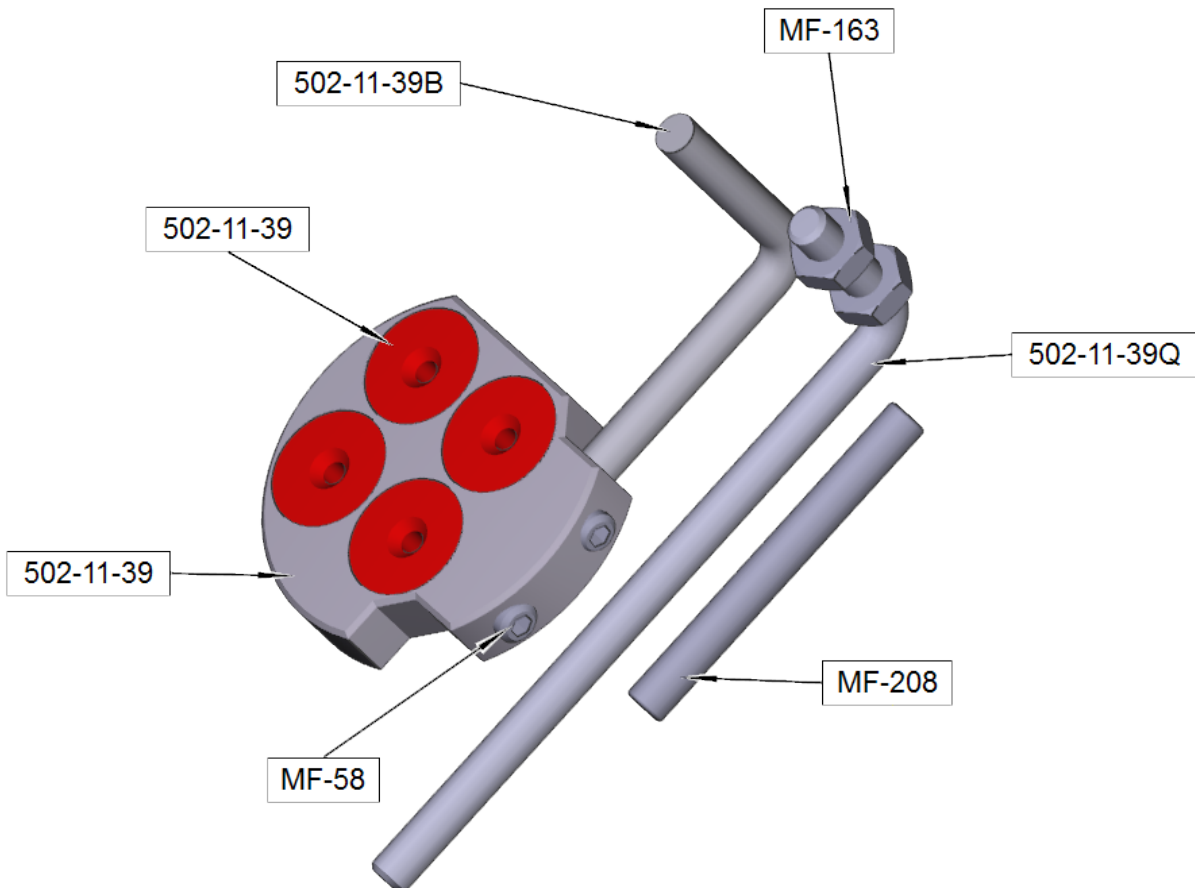


502-9-9A Mechanical Runout Indicator

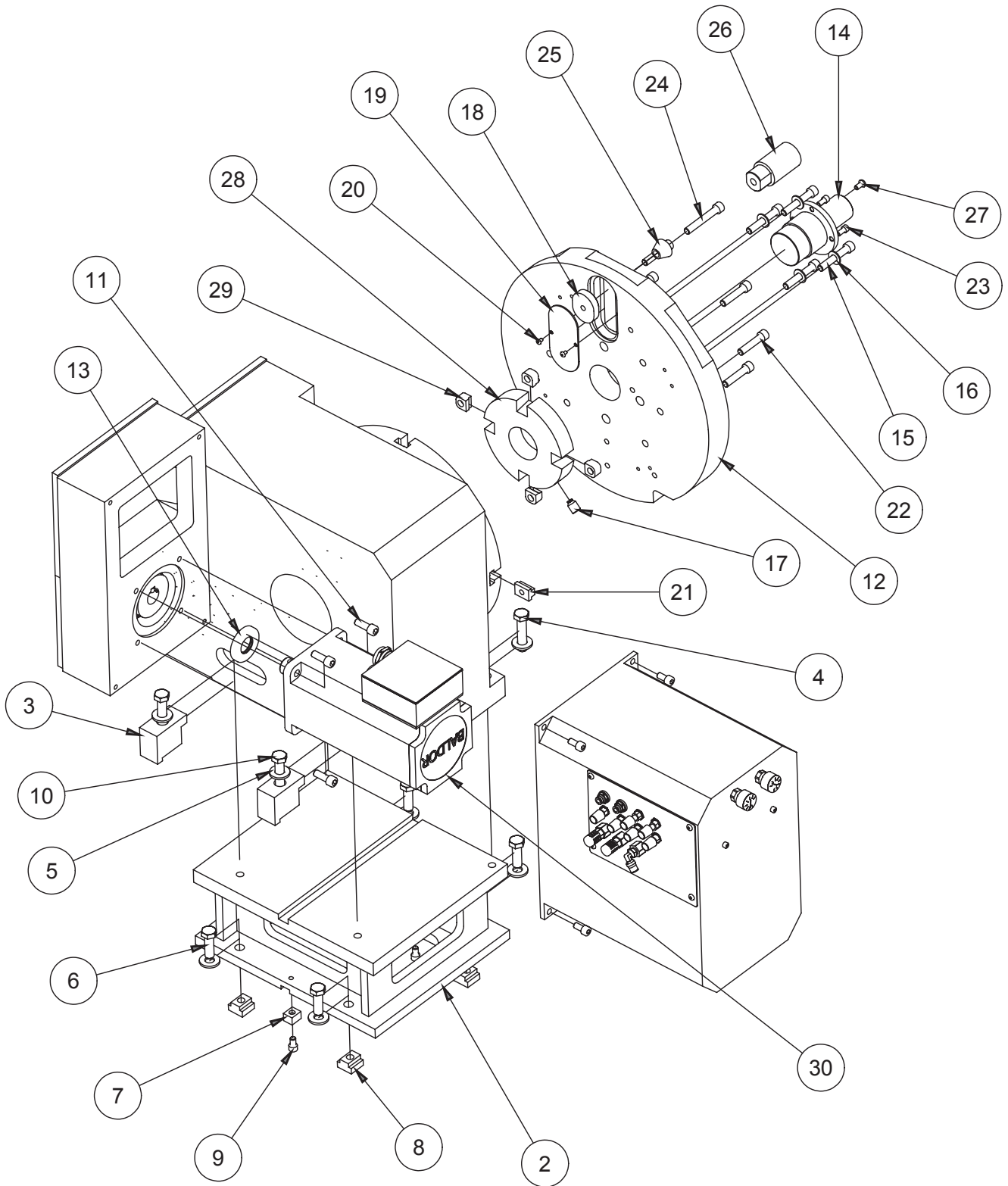
Sold as only complete assembly.



502-12-4 Magnetic Base Parts

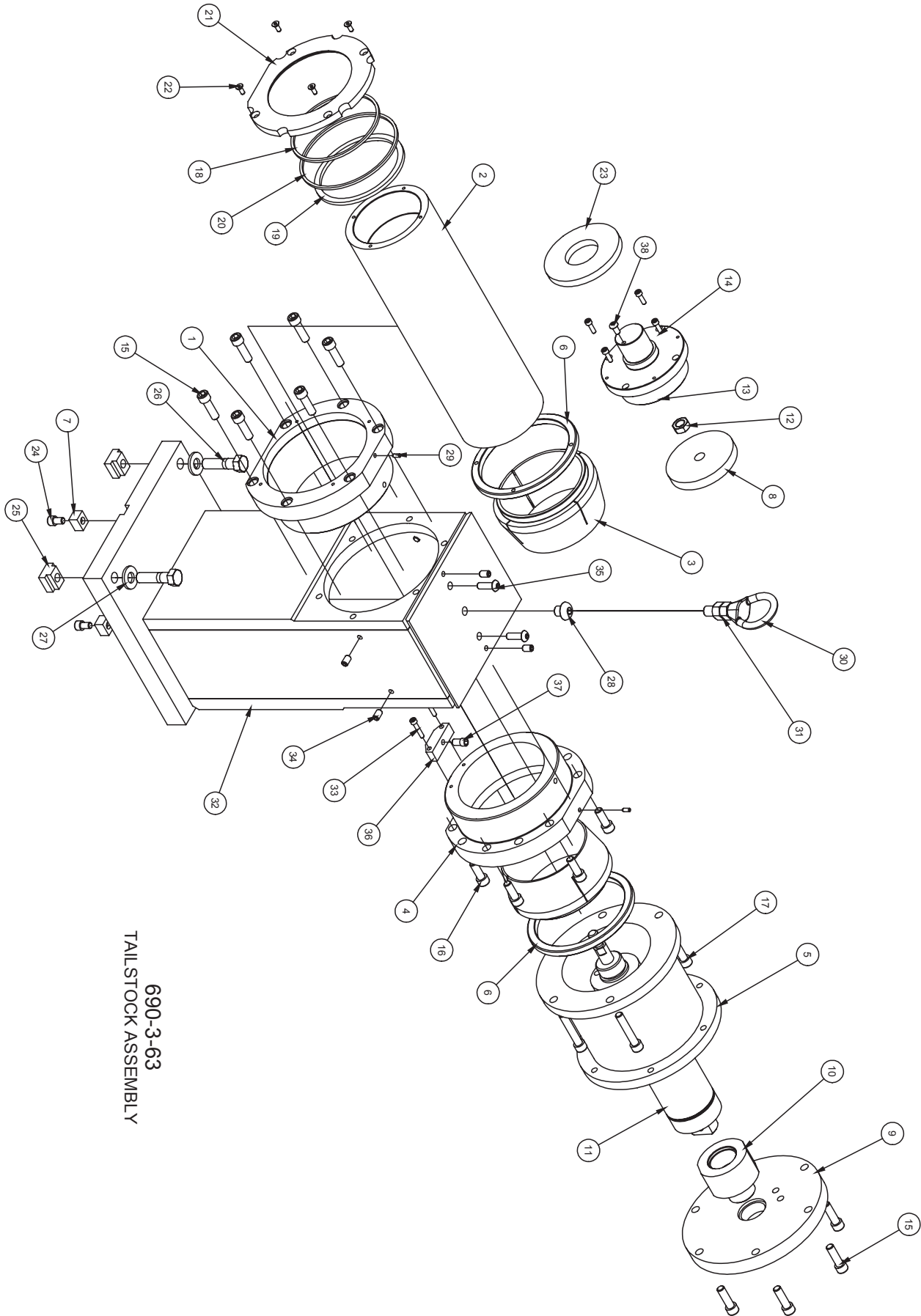


690-3-63 Automatic 4Th Axis Block Roll Over Fixture Parts



690-3-63
HEADSTOCK ASSEMBLY

690-3-63 4th AXIS FIXTURE TAILSTOCK ASSEMBLY			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	6225A	Lower Bearing Carrier
2	1	650-3-61G	PISTON TUBE, TAILSTOCK ASSEMBLY - 4TH AXIS FIXTURE
3	2	6222B	BUSHING, TAILSTOCK SPINDLE, 4TH AXIS FIXTURE
4	1	650-3-74	REAR BEARING CARRIER, TAILSTOCK - 4TH AXIS FIXTURE
5	1	650-3-61C	EXTENSION, TAIL STOCK - AUTO PERFORMANCE FIXTURE
6	2	6223	Outer Spindle Nut
7	2	650-3-9	Key
8	1	650-3-61J	NOSE PLATE, TAILSTOCK - AUTO PERFORMANCE FIXTURE
9	1	650-3-61L	ENDCAP, TAILSTOCK - AUTO PERFORMANCE FIXTURE
10	1	650-3-61M	SPACER, AIR CYLINDER, TAILSTOCK - AUTO PERFORMANCE FIXTURE
11	1	650-3-61E	STROKING CYLINDER, TAILSTOCK - AUTO PERFORMANCE FIXTURE
12	1	MF-172	1/2-20UNF HEX JAM NUT
13	1	650-3-61H	PISTON CAP, TAILSTOCK - AUTO PERFORMANCE FIXTURE
14	4	Mf-5	Socket Head Cap screw No. 10 - 24 UNC - 5/8
15	12	Mf-32	Socket Head Cap screw 3/8 - 16 UNC - 1 1/4
16	6	Mf-31	Socket Head Cap screw 3/8 - 16 UNC - 1
17	4	Mf-34	Socket Head Cap screw 3/8 - 16 UNC - 2
18	1	6248	Square Ring
19	1	6249	Felt Oiler
20	1	6251	Square Ring
21	1	6247A	Retainer Machining
22	4	Mf-79	Hexagon Socket Flat Countersunk Head Cap Screw
23	1	650-3-61K	CUSHION, TAILSTOCK - AUTO PERFORMANCE FIXTURE
24	2	Mf-21A	Socket Head Cap screw 5/16 - 18 UNC - 1/2
25	3	650-3-10	TN-5 T-Nut
26	3	MF-149C	1/2-13UNC x 2" LG. HEX BOLT
27	3	100-19A	Hardened washer 17/32 I.D.
28	1	650-3-61S	1/2-13UNC x 5/8" LG. SOCKET BUTTON HEAD SCREW
29	2	100-82-2B	Brassed Tipped Set Screw
30	1	502-3-13	Lift Eye
31	2	MF-171	1/2-13UNC HEX JAM NUT
32	1	650-3-61X	TAILSTOCK HOUSING (MACHINING) 4TH AXIS FIXTURE
33	2	MF-6A	S.H.C.S. 10 - 24 UNC - 1
34	6	MF-68D	5/16-18UNC x 1/2" LG. FLAT POINT SET SCREW
35	2	MF-95	5/16-18UNC x 1" SOCKET BUTTON HEAD SCREW
36	1	650-3-74A	KEY BLOCK
37	1	650-3-74B	KEY BOLT
38	1	MF-90	1/4-20UNC x 1/2" LG. Hexagon Socket Button Head Cap Screw



690-3-63
TAILSTOCK ASSEMBLY

690-3-63 4th AXIS FIXTURE TAILSTOCK ASSEMBLY			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	6225A	Lower Bearing Carrier
2	1	650-3-61G	PISTON TUBE, TAILSTOCK ASSEMBLY - 4TH AXIS FIXTURE
3	2	6222B	BUSHING, TAILSTOCK SPINDLE, 4TH AXIS FIXTURE
4	1	650-3-74	REAR BEARING CARRIER, TAILSTOCK - 4TH AXIS FIXTURE
5	1	650-3-61C	EXTENSION, TAIL STOCK - AUTO PERFORMANCE FIXTURE
6	2	6223	Outer Spindle Nut
7	2	650-3-9	Key
8	1	650-3-61J	NOSE PLATE, TAILSTOCK - AUTO PERFORMANCE FIXTURE
9	1	650-3-61L	ENDCAP, TAILSTOCK - AUTO PERFORMANCE FIXTURE
10	1	650-3-61M	SPACER, AIR CYLINDER, TAILSTOCK - AUTO PERFORMANCE FIXTURE
11	1	650-3-61E	STROKING CYLINDER, TAILSTOCK - AUTO PERFORMANCE FIXTURE
12	1	MF-172	1/2-20UNF HEX JAM NUT
13	1	650-3-61H	PISTON CAP, TAILSTOCK - AUTO PERFORMANCE FIXTURE
14	4	Mf-5	Socket Head Cap screw No. 10 - 24 UNC - 5/8
15	12	Mf-32	Socket Head Cap screw 3/8 - 16 UNC - 1 1/4
16	6	Mf-31	Socket Head Cap screw 3/8 - 16 UNC - 1
17	4	Mf-34	Socket Head Cap screw 3/8 - 16 UNC - 2
18	1	6248	Square Ring
19	1	6249	Felt Oiler
20	1	6251	Square Ring
21	1	6247A	Retainer Machining
22	4	Mf-79	Hexagon Socket Flat Countersunk Head Cap Screw
23	1	650-3-61K	CUSHION, TAILSTOCK - AUTO PERFORMANCE FIXTURE
24	2	Mf-21A	Socket Head Cap screw 5/16 - 18 UNC - 1/2
25	3	650-3-10	TN-5 T-Nut
26	3	MF-149C	1/2-13UNC x 2" LG. HEX BOLT
27	3	100-19A	Hardened washer 17/32 I.D.
28	1	650-3-61S	1/2-13UNC x 5/8" LG. SOCKET BUTTON HEAD SCREW
29	2	100-82-2B	Brassed Tipped Set Screw
30	1	502-3-13	Lift Eye
31	2	MF-171	1/2-13UNC HEX JAM NUT
32	1	650-3-61X	TAILSTOCK HOUSING (MACHINING) 4TH AXIS FIXTURE
33	2	MF-6A	S.H.C.S. 10 - 24 UNC - 1
34	6	MF-68D	5/16-18UNC x 1/2" LG. FLAT POINT SET SCREW
35	2	MF-95	5/16-18UNC x 1" SOCKET BUTTON HEAD SCREW
36	1	650-3-74A	KEY BLOCK
37	1	650-3-74B	KEY BOLT
38	1	MF-90	1/4-20UNC x 1/2" LG. Hexagon Socket Button Head Cap Screw

LOCATOR SETS

For 4th AXIS includes front & rear main locator and rear cam locator

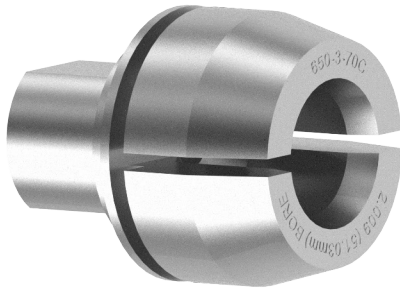
Note: When ordering multiple locator assemblies, please check that there are no duplicates of individual locators.

If Customer Requires Sizes Other than Available from Stock, Rottler Will Manufacture the Required Size. Customer Must Provide the Size, Including Tolerance of the Bore/s that the Locator will be used in. Rottler will use this information to Design the Actual Locators.

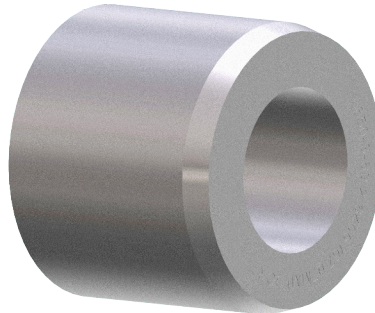
CHEVROLET SETS

650-3-68 Locator Assembly (Small Block Chevy)

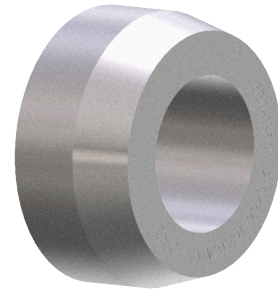
650-3-70C



650-3-69

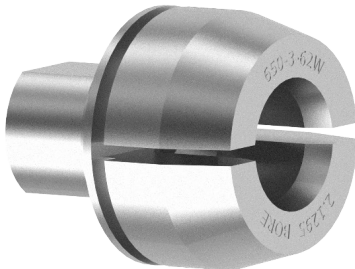


650-3-69E

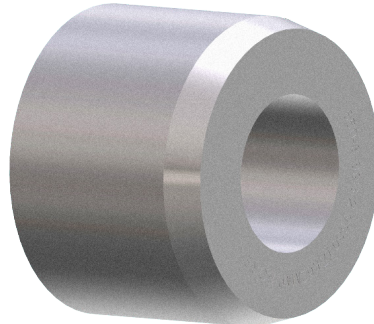


650-3-68B Locator Assembly (Big Block Chevy)

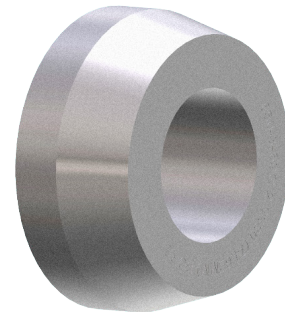
650-3-62W



650-3-69B

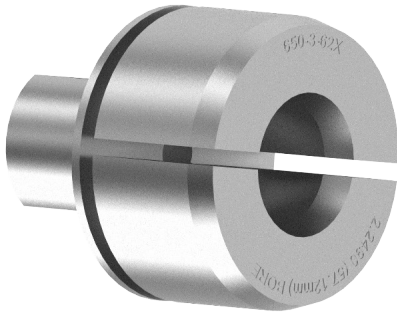


650-3-69G

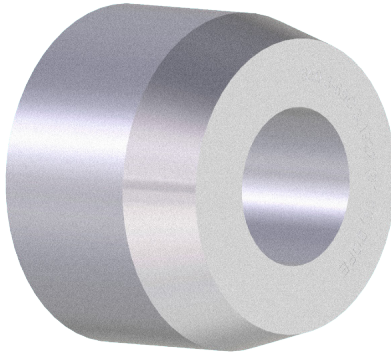


650-3-68L Locator Assembly (327 Small Journal Crank)

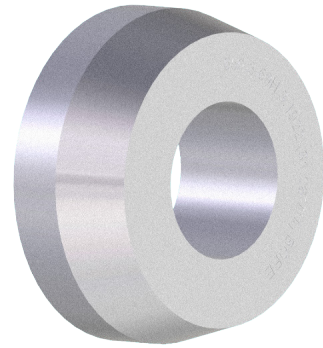
650-3-62X



650-3-69C

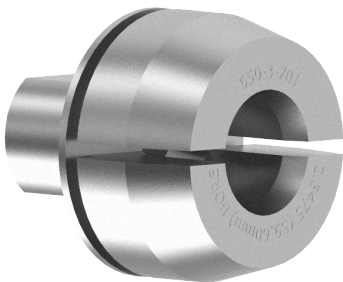


650-3-69H

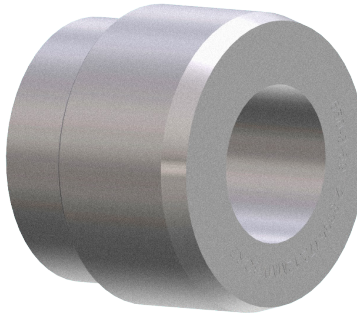


650-3-68J Locator Assembly (400 Small Block Chevy)

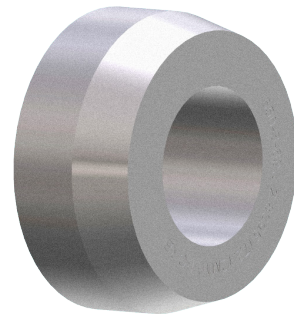
650-3-70C



650-3-69T

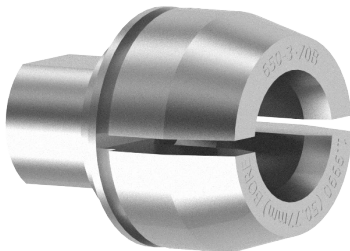


650-3-69U

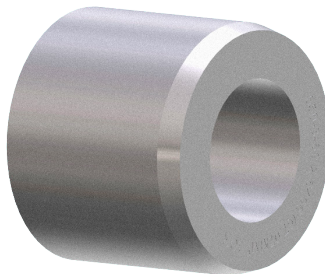


650-3-68G Locator Assembly (Chevy Bowtie Block)

650-3-70B



650-3-69

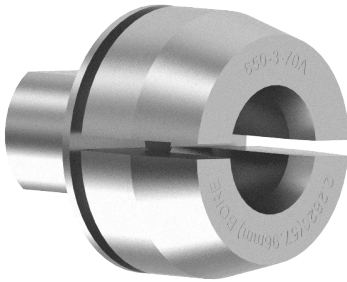


650-3-69E

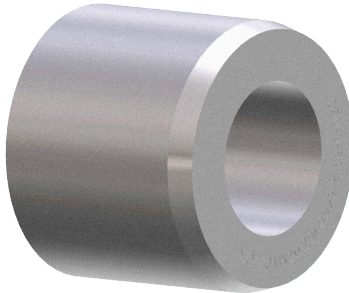


650-3-68F Locator Assembly (Chevy 58mm Cam Bore) for 55mm Cam Journal

650-3-70A



650-3-69

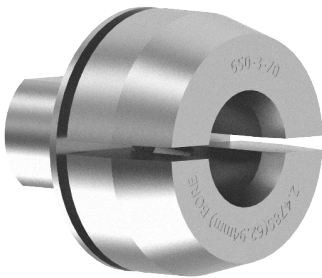


650-3-69E

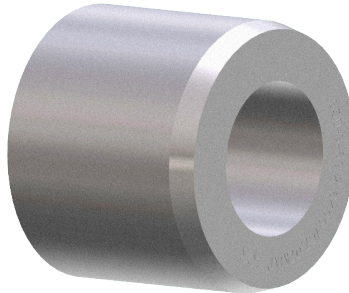


650-3-68E Locator Assembly (Chevy 63mm Cam Bore) for 60mm Cam Journal

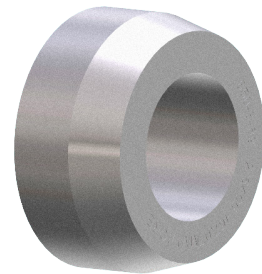
650-3-70



650-3-69

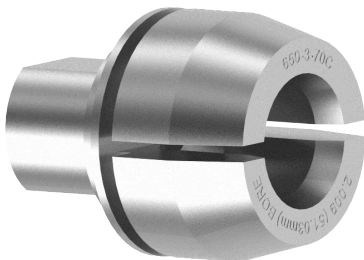


650-3-69E

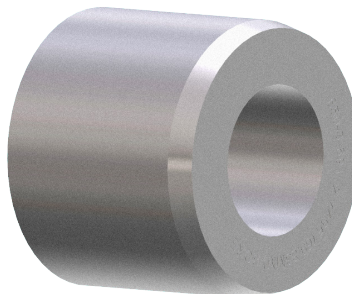


650-3-68M Locator Assembly (Chevy 5.3 liter 99 & Up)

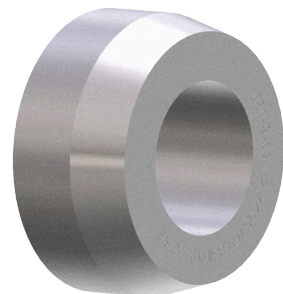
650-3-70C



650-3-69M

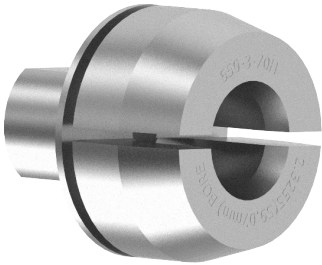


650-3-69N

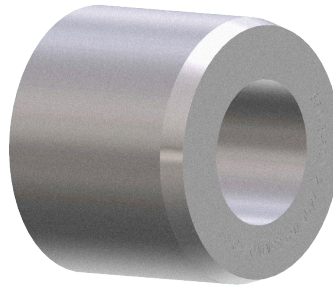


650-3-68R Locator Assembly (Chevy Gen3 LS1 to LS6)

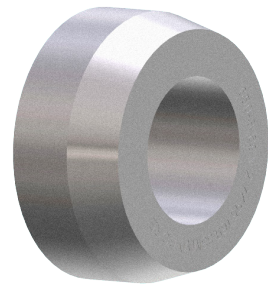
650-3-70H



650-3-69M



650-3-69N

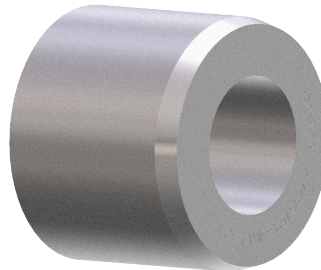


650-3-68T Locator Assembly (Chevy LS7)

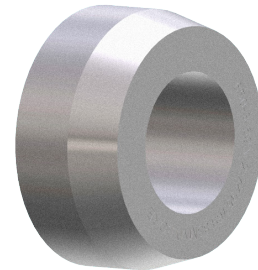
650-3-83M



650-3-69M



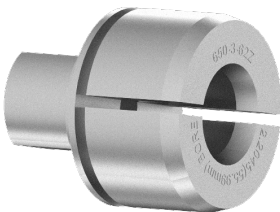
650-3-69N



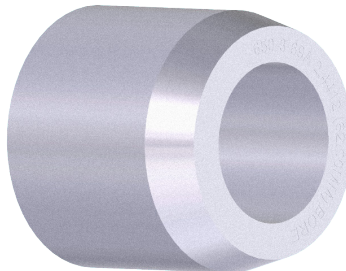
FORD SETS

650-3-68A Locator Assembly (Ford 289/302)

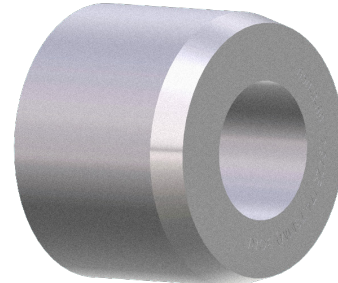
650-3-62Z



650-3-69A

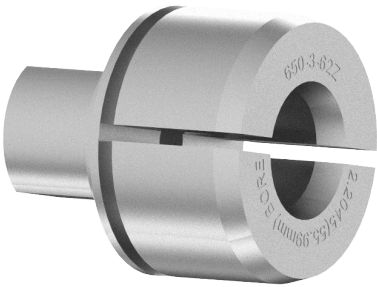


650-3-69Z

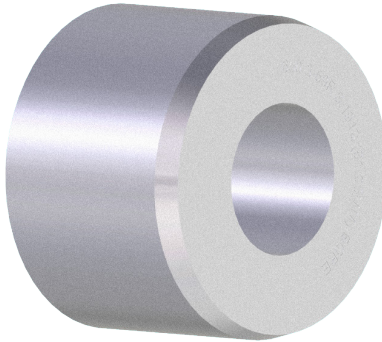


650-3-68H Locator Assembly (Ford 351W)

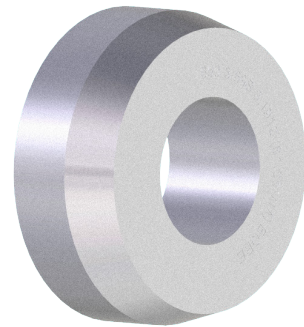
650-3-62Z



650-3-69R

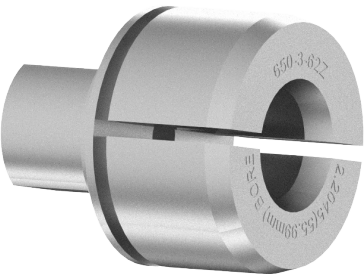


650-3-69S

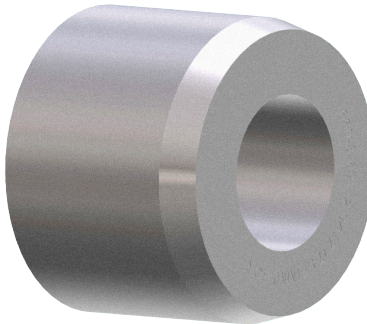


650-3-68P Locator Assembly (Ford 351C)

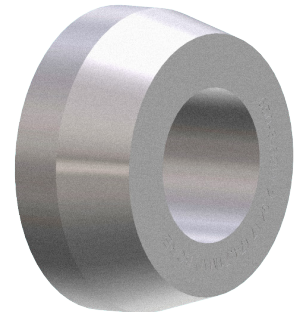
650-3-62Z



650-3-69V

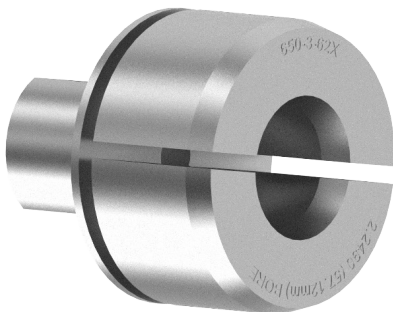


650-3-69W

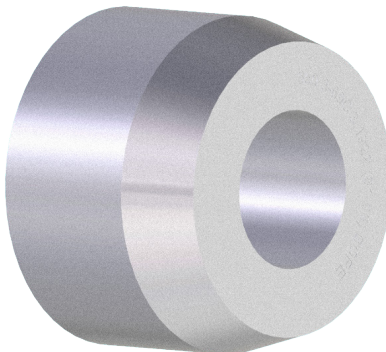


650-3-68C Locator assembly (Ford 460)

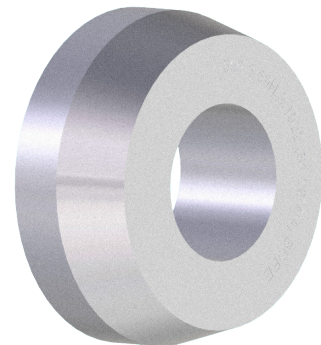
650-3-62X



650-3-69C



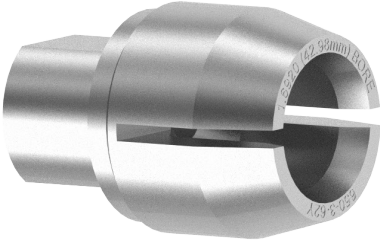
650-3-69H



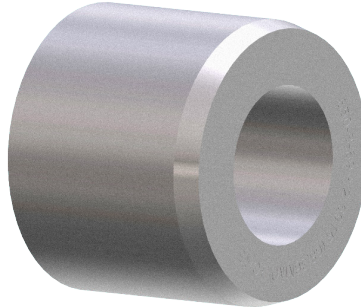
MOPAR SETS

650-3-68K Locator Assembly (Mopar 318)

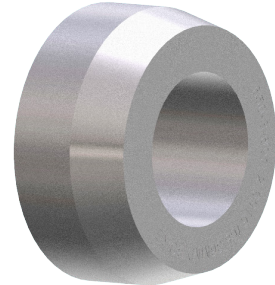
650-3-62Y



650-3-69P

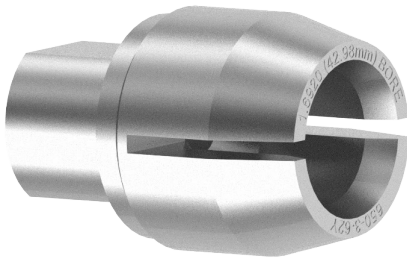


650-3-69Q

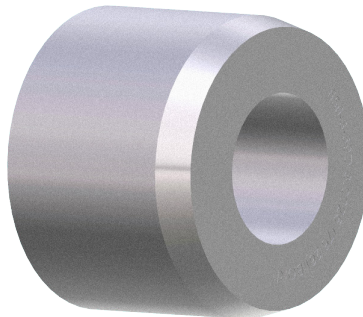


650-3-68D Locator Assembly (Mopar 360)

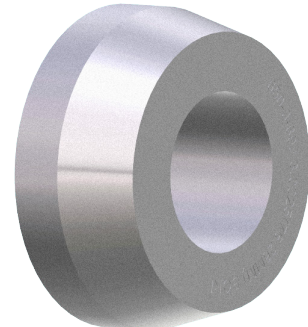
650-3-62Y



650-3-69D

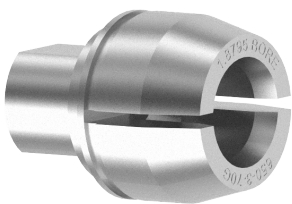


650-3-69J

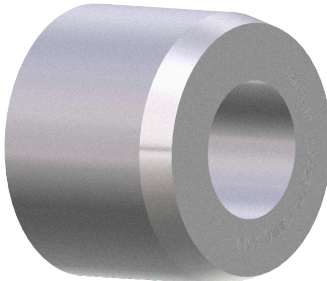


650-3-68Q Locator Assembly (Mopar 383,426,440)

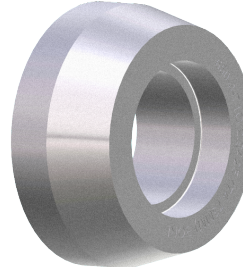
650-3-70G



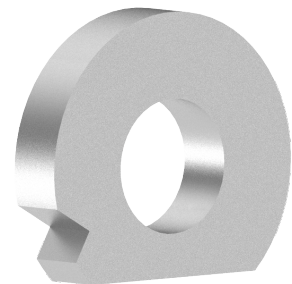
650-3-69Z



650-3-71G

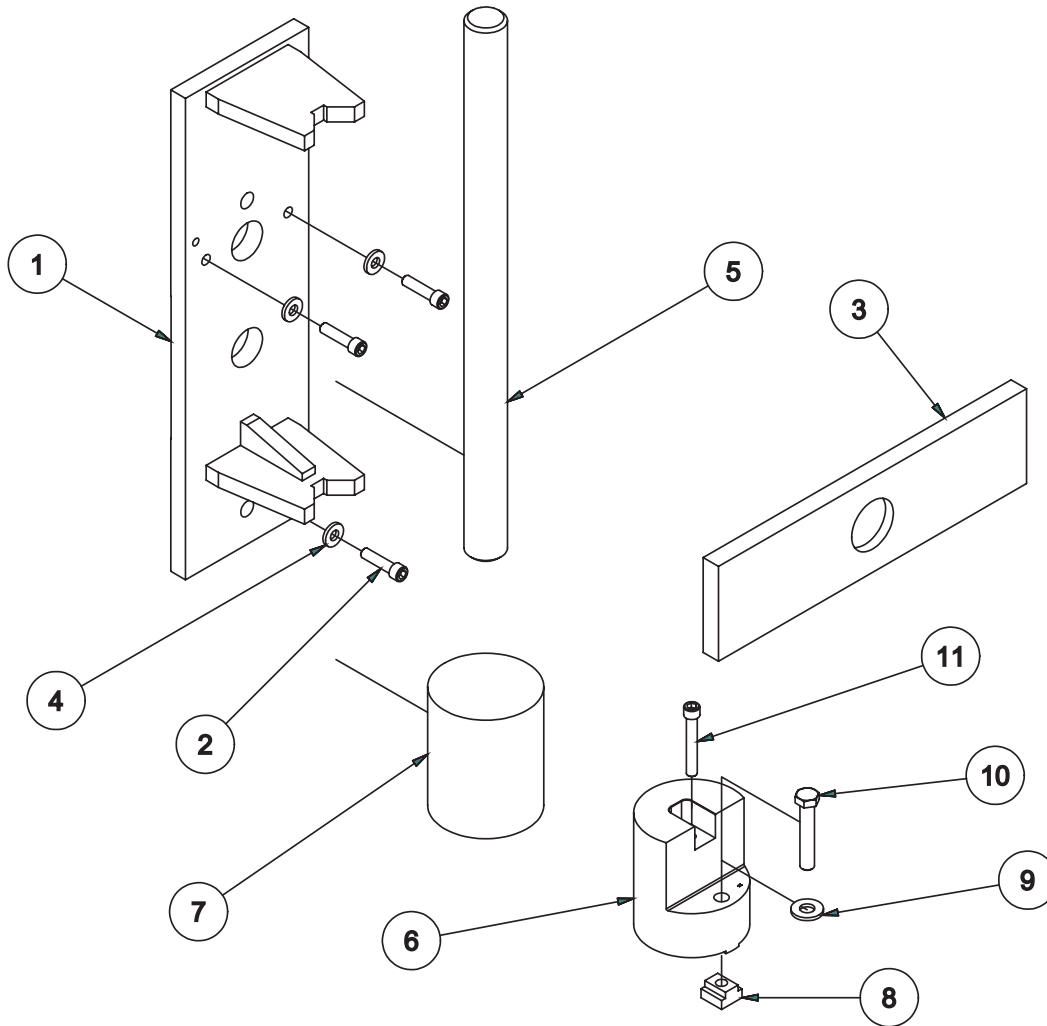


650-3-61V



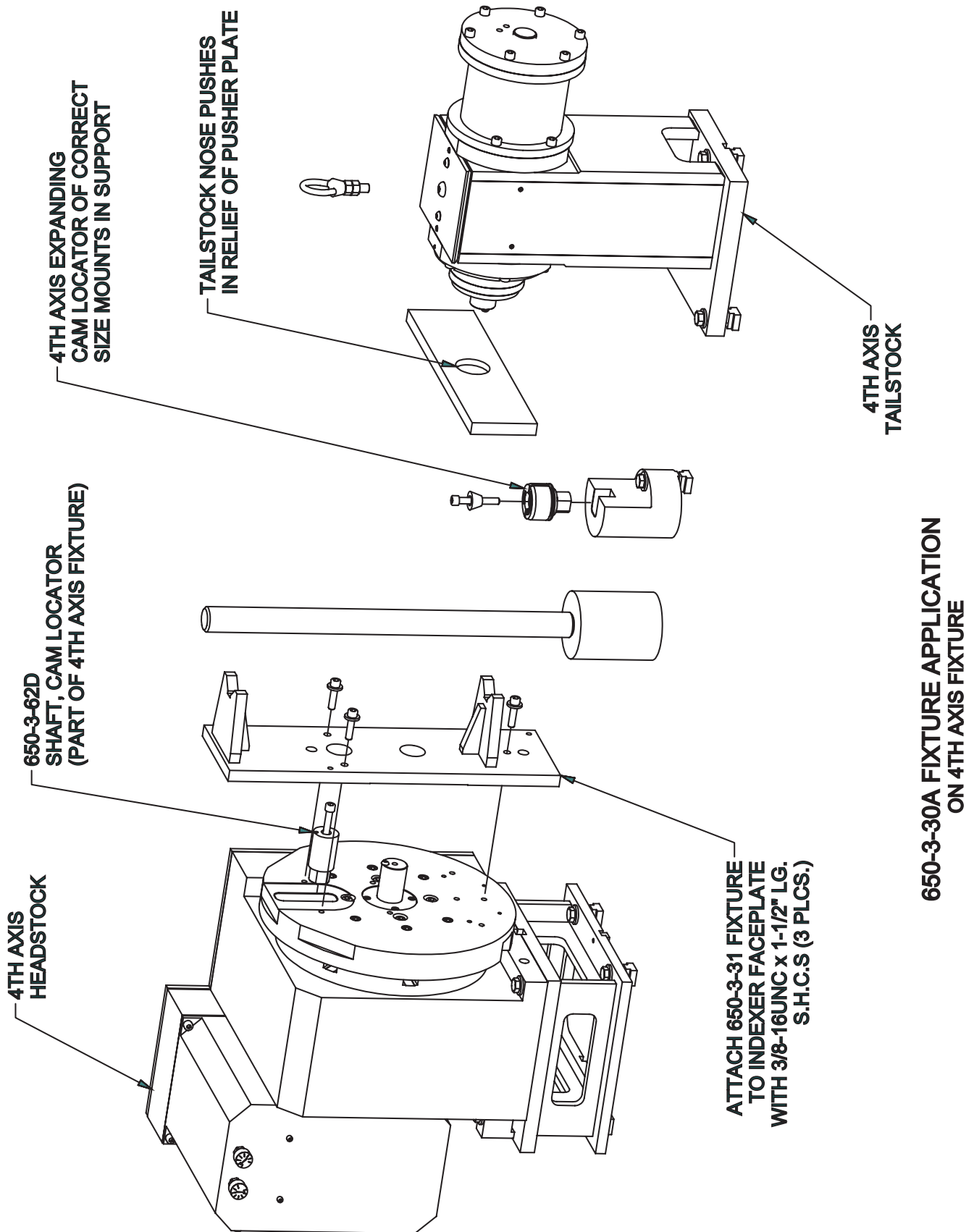
Block End Truing

650-3-30A Block End Truing Fixture Assembly Parts



650-3-30A BLOCK END TRUING FIXTURE ASSEMBLY, 4TH AXIS FIXTURE			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-3-31	BLOCK END TRUING FIXTURE (MACHINING) - F-65
2	3	MF-33	3/8-16UNC x 1-1/2" LG. S.H.C.S.
3	1	650-3-32	PUSHER PLATE F-65 BLOCK END TRUING FIXTURE
4	3	100-28-18	Washer
5	1	650-3-33A	BAR (1-1/2") VERTICAL BLOCK END TRUING FIXTURE F-68
6	1	650-3-43X	SUPPORT LOCATOR, CAM - (4.7" RISER) CAM LINE BORING FIXTURE - F79
7	1	650-3-43V	RISER, BLOCK END TRUING - F60
8	1	650-3-10	TN-5 T-Nut
9	1	100-19A	Hardened washer 17/32 I.D.
10	1	MF-150C	1/2-13UNC x 2-3/4" LG. HEX BOLT
11	1	Mf-36	3/8-16UNC x 2-1/2" LG. S.H.C.S.

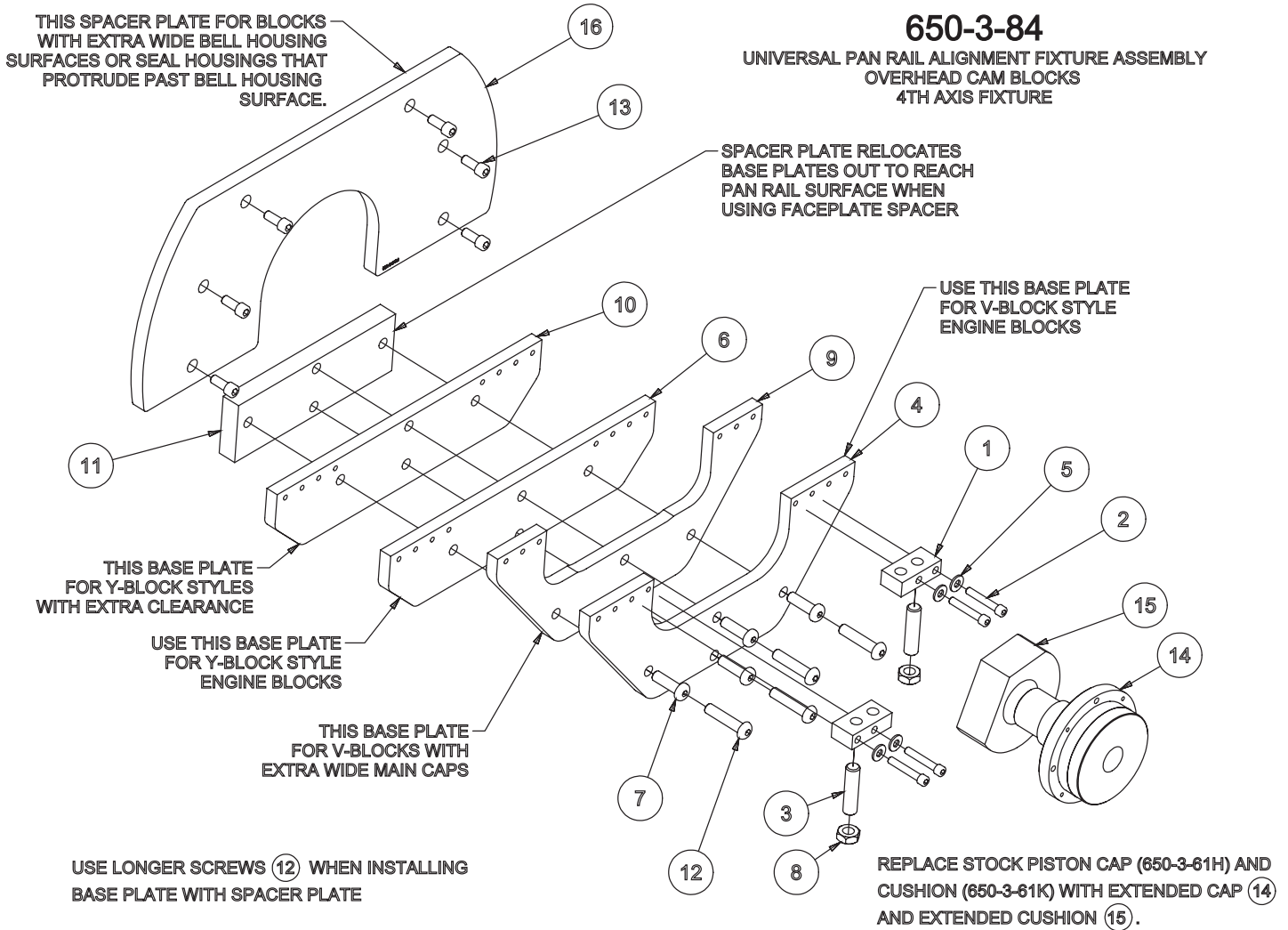
650-3-30A Block End Truing Fixture Setup



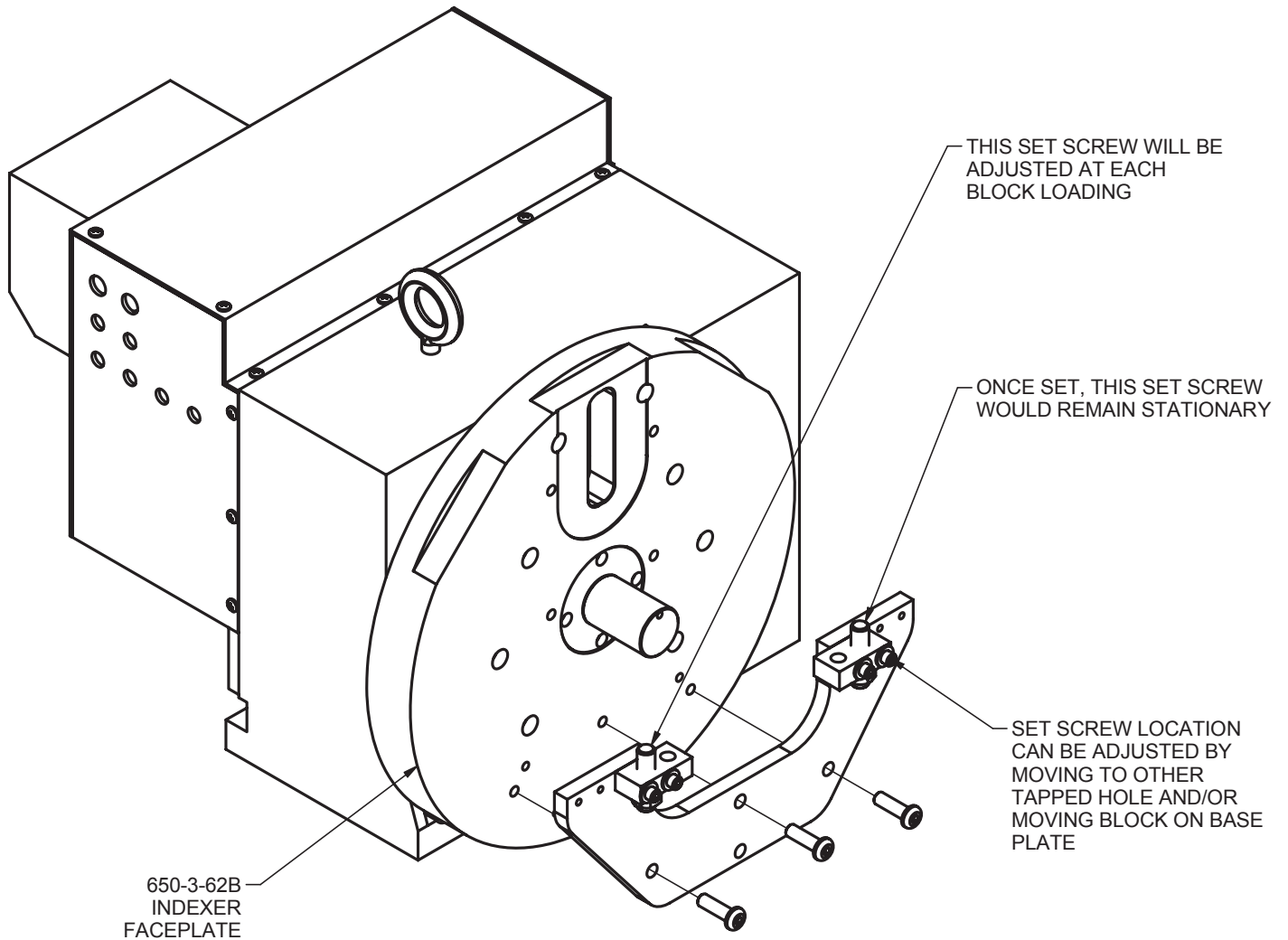
650-3-84 Overhead Cam Block Fixture Parts

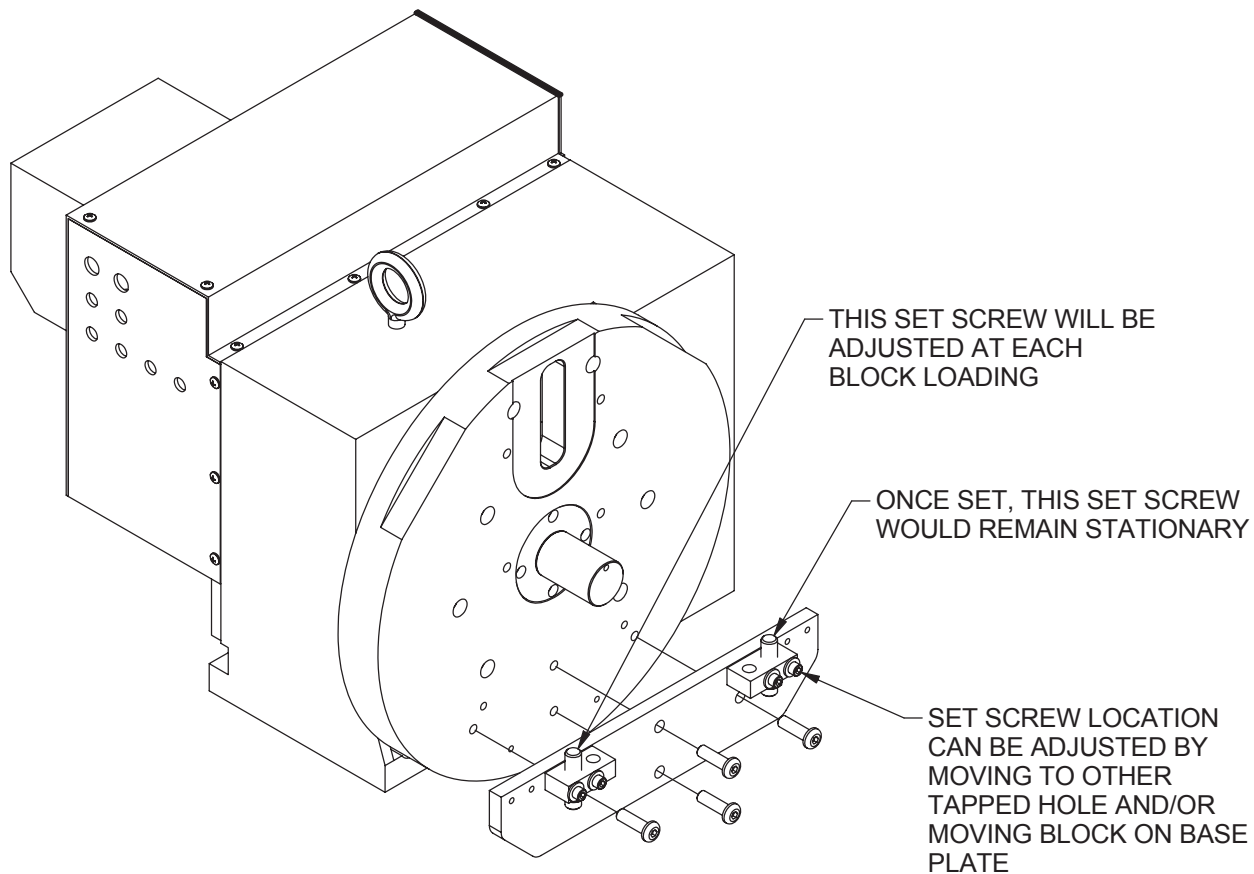
650-3-84

UNIVERSAL PAN RAIL ALIGNMENT FIXTURE ASSEMBLY OVERHEAD CAM BLOCKS 4TH AXIS FIXTURE



650-3-84 Overhead Cam Block Fixture Setup





650-3-84 OVERHEAD CAM BLOCK FIXTURE INSTALLATION AND OPERATING INSTRUCTIONS Y-BLOCK APPLICATIONS

INSTALLATION: LOCATE THE 650-3-84E BASE PLATE ONTO THE 650-3-62B INDEXER FACEPLATE USING (4) EXISTING 3/8-16UNC TAPPED HOLES IN FACEPLATE. FASTEN BASE PLATE USING (4) MF-97C SOCKET BUTTONHEAD SCREWS.

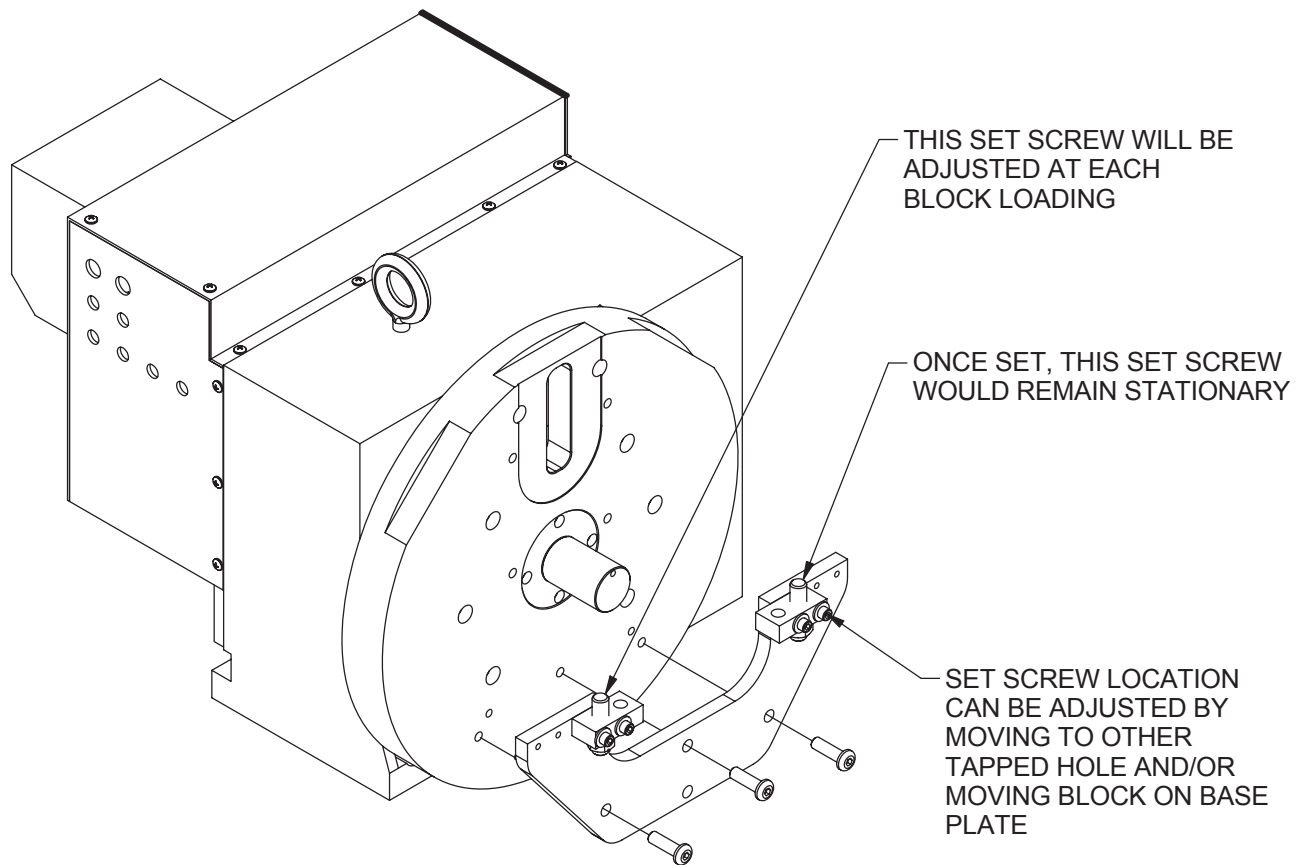
OPERATING: THIS FIXTURE LOCATES THE PAN RAILS OF OVERHEAD CAM BLOCKS USING (2) 650-3-84D FLAT POINT SET SCREWS TO LEVEL THE BLOCK.

INSTALL THE BLOCK USING THE APPROPRIATE MAIN LOCATORS WITH THE INDEXER SET AT 0 DEGREES.

WITH THE MF-171 HEX NUTS LOOSE, ADJUST THE 650-3-84D SET SCREWS TO CONTACT THE PAN RAIL OF THE BLOCK. MULTIPLE MOUNTING HOLES ARE PROVIDED TO ALTER THE LOCATION OF THE 650-3-84C PUSH BLOCKS AND THE SET SCREWS CAN BE MOVED TO EITHER HOLE TO FIT DIFFERENT BLOCKS.

ONCE THE BLOCK IS LEVEL AND THE SET SCREWS ARE BOTH CONTACTING THE PAN RAILS, TIGHTEN THE MF-171 HEX NUTS, CHECK THE BLOCK FOR LEVEL, AND MACHINE.

TO UNLOAD THIS BLOCK AND LOAD ANOTHER BLOCK OF THE SAME STYLE:
LOOSEN THE HEX NUT AND SET SCREW NEAREST TO THE OPERATOR. REMOVE THE BLOCK AND INSTALL THE NEXT BLOCK. ROTATE THIS BLOCK TO CONTACT THE SET SCREW TO THE REAR OF THE FACEPLATE (FURTHEST FROM THE OPERATOR). ADJUST FRONT SET SCREW TO CONTACT THE BLOCK AND TIGHTEN THE HEX NUT. IT IS ADVISABLE TO CHECK THE BLOCK FOR LEVEL DUE TO THE POSSIBILITY OF VARIATION BETWEEN BLOCKS.



650-3-84 OVERHEAD CAM BLOCK FIXTURE INSTALLATION AND OPERATING INSTRUCTIONS V-BLOCK APPLICATIONS

INSTALLATION: LOCATE THE 650-3-84A BASE PLATE ONTO THE 650-3-62B INDEXER FACEPLATE USING (4) EXISTING 3/8-16UNC TAPPED HOLES IN FACEPLATE. FASTEN BASE PLATE USING (4) MF-97C SOCKET BUTTONHEAD SCREWS.

OPERATING: THIS FIXTURE LOCATES THE PAN RAILS OF V-STYLE OVERHEAD CAM BLOCK USING (2) 650-3-84D FLAT POINT SET SCREWS TO LEVEL THE BLOCK.

INSTALL THE BLOCK USING THE APPROPRIATE MAIN LOCATORS WITH THE INDEXER SET AT 0 DEGREES.

WITH THE MF-171 HEX NUTS LOOSE, ADJUST THE 650-3-84D SET SCREWS TO CONTACT THE PAN RAIL OF THE BLOCK. MULTIPLE MOUNTING HOLES ARE PROVIDED TO ALTER THE LOCATION OF THE 650-3-84C PUSH BLOCKS AND THE SET SCREWS CAN BE MOVED TO EITHER HOLE TO FIT DIFFERENT BLOCKS.

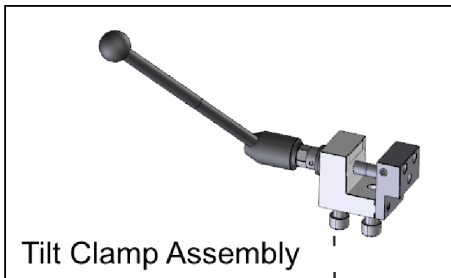
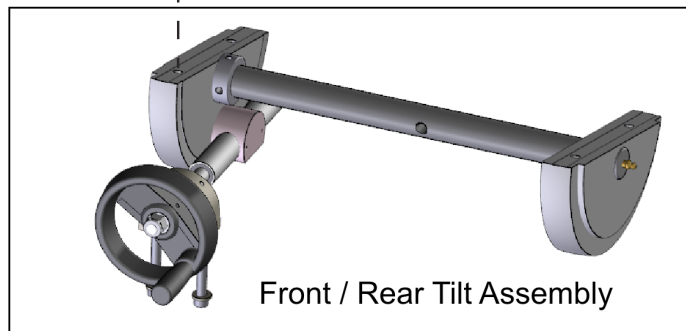
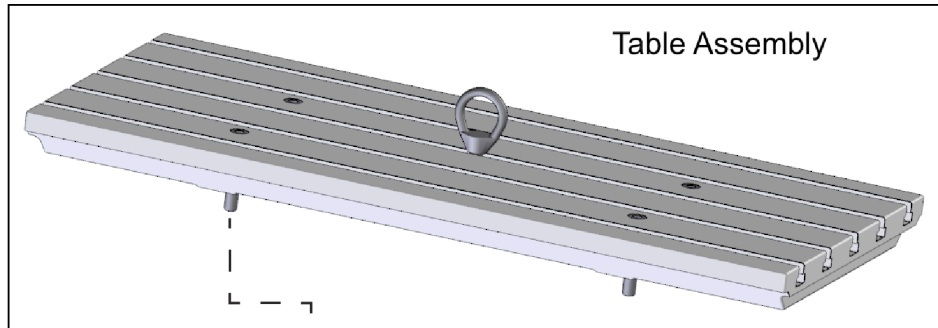
ONCE THE BLOCK IS LEVEL AND THE SET SCREWS ARE BOTH CONTACTING THE PAN RAILS, TIGHTEN THE MF-171 HEX NUTS, CHECK THE BLOCK FOR LEVEL, AND MACHINE.

TO UNLOAD THIS BLOCK AND LOAD ANOTHER BLOCK OF THE SAME STYLE:
LOOSEN THE HEX NUT AND SET SCREW NEAREST TO THE OPERATOR. REMOVE THE BLOCK AND INSTALL THE NEXT BLOCK. ROTATE THIS BLOCK TO CONTACT THE SET SCREW TO THE REAR OF THE FACEPLATE (FURTHEST FROM THE OPERATOR). ADJUST FRONT SET SCREW TO CONTACT THE BLOCK AND TIGHTEN THE HEX NUT. IT IS ADVISABLE TO CHECK THE BLOCK FOR LEVEL DUE TO THE POSSIBILITY OF VARIATION BETWEEN BLOCKS.

Cylinder Head Surfacing Fixture

7209M Leveling Table Sections

7209M Leveling Table Sections



Tensioner Assembly

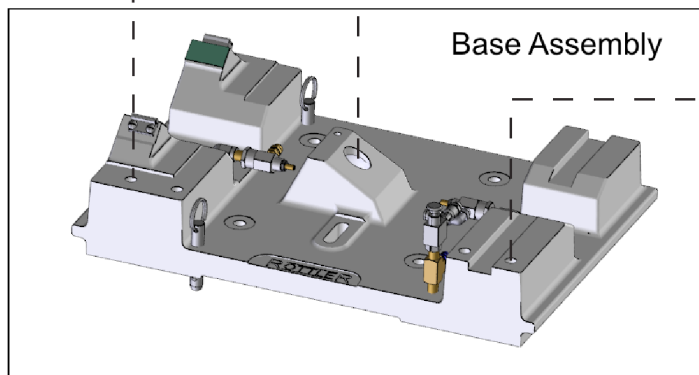
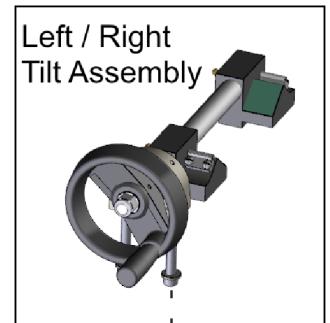
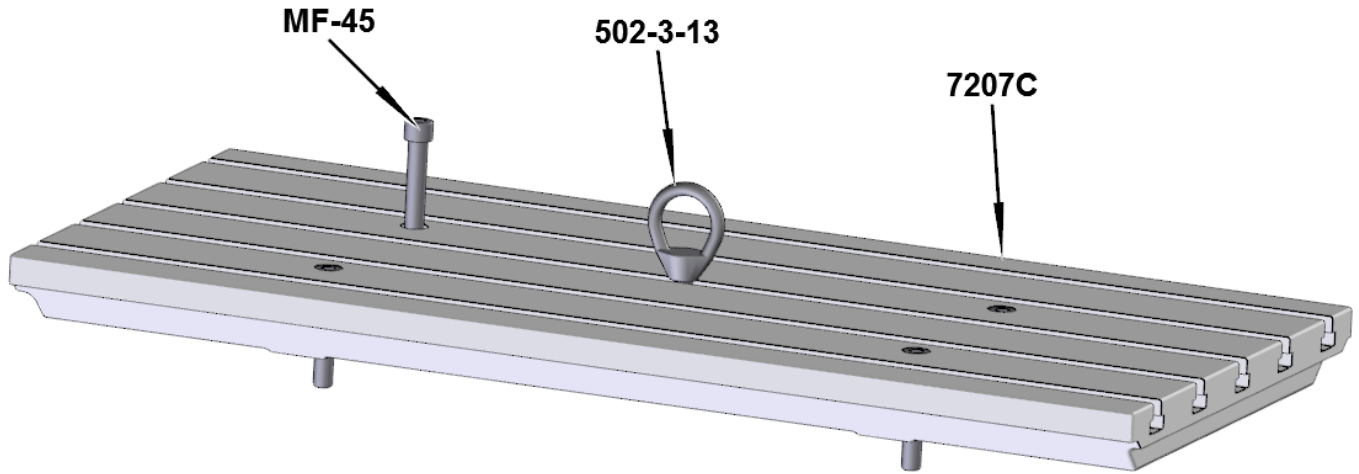
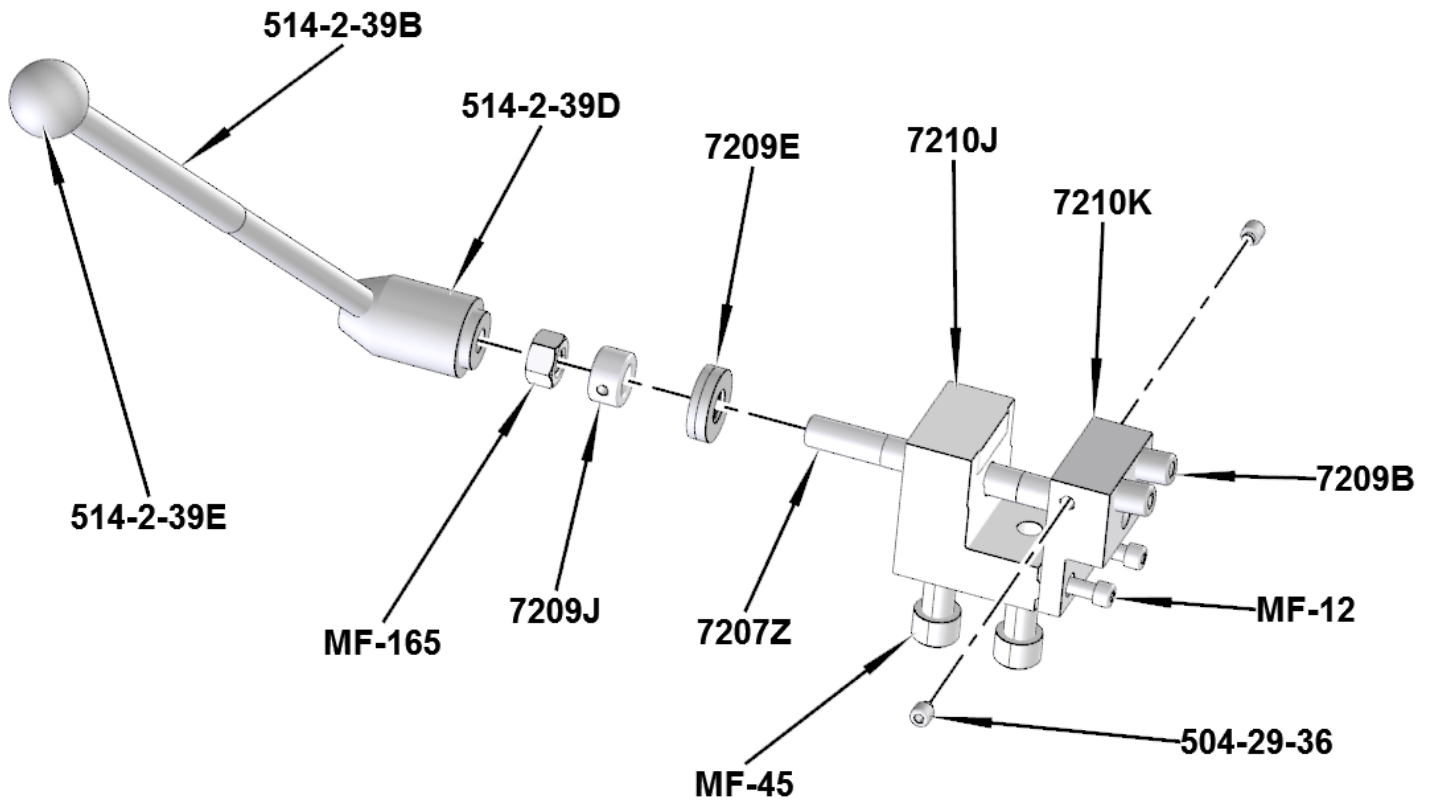


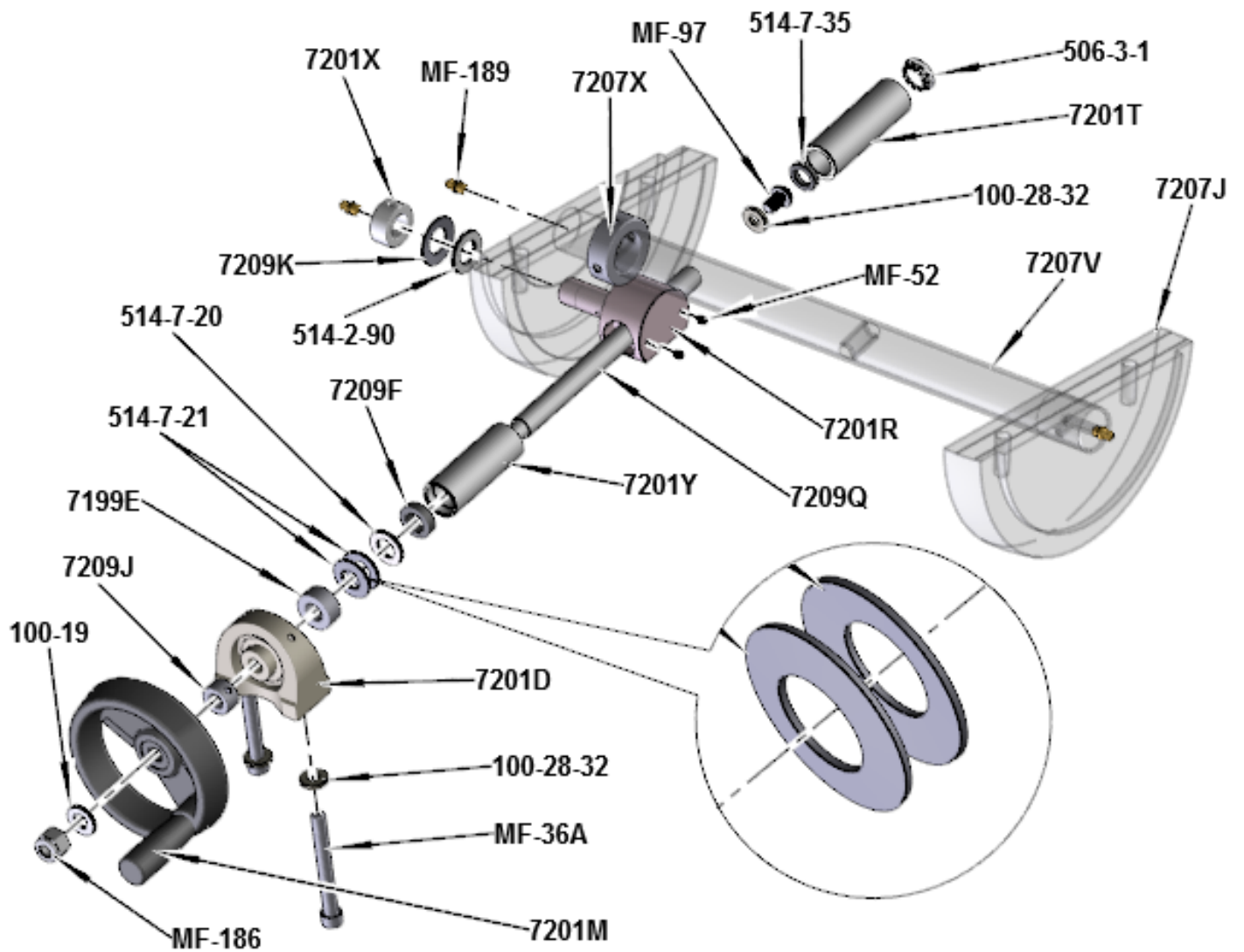
Table Section Parts



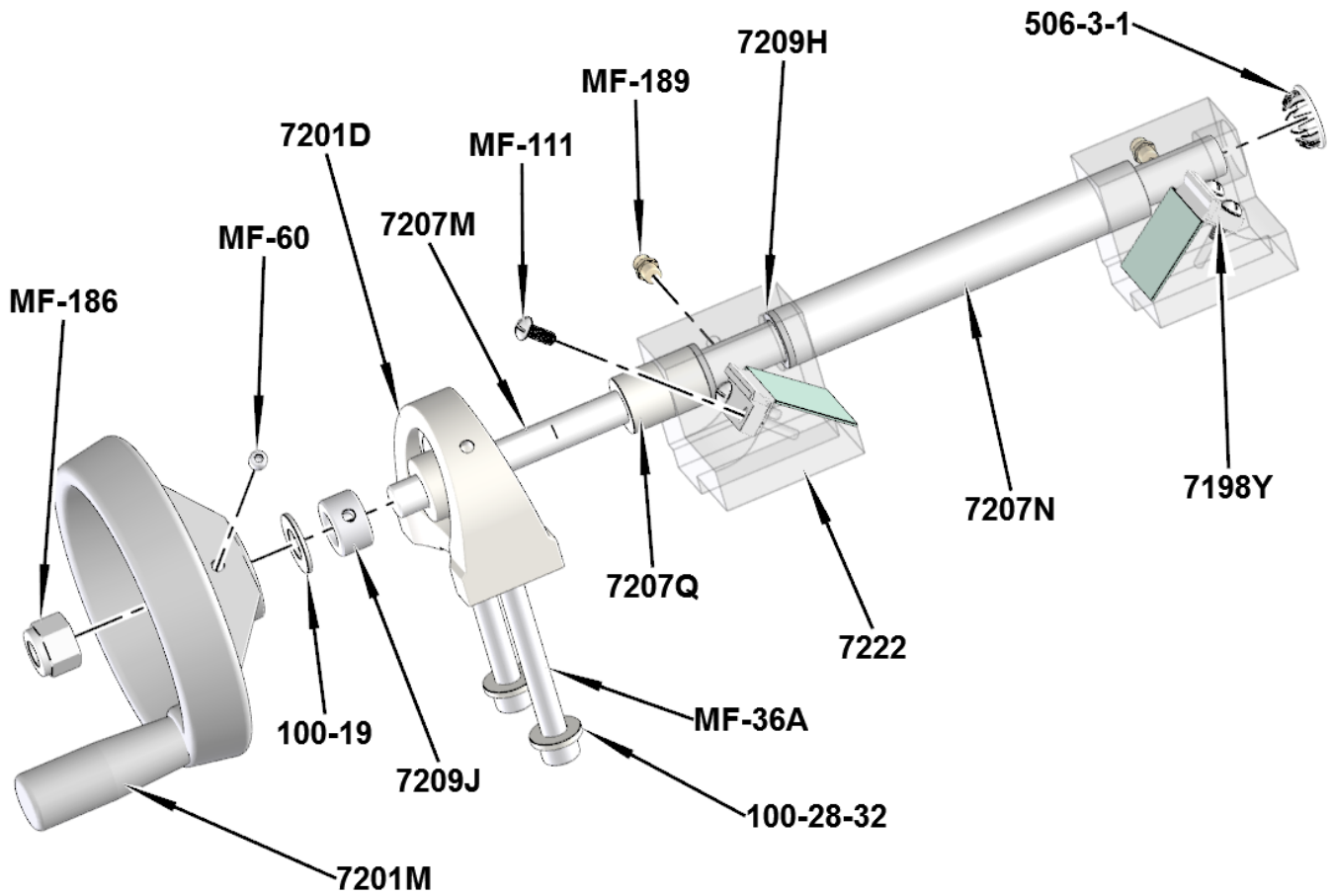
Tilt Clamp Section Parts



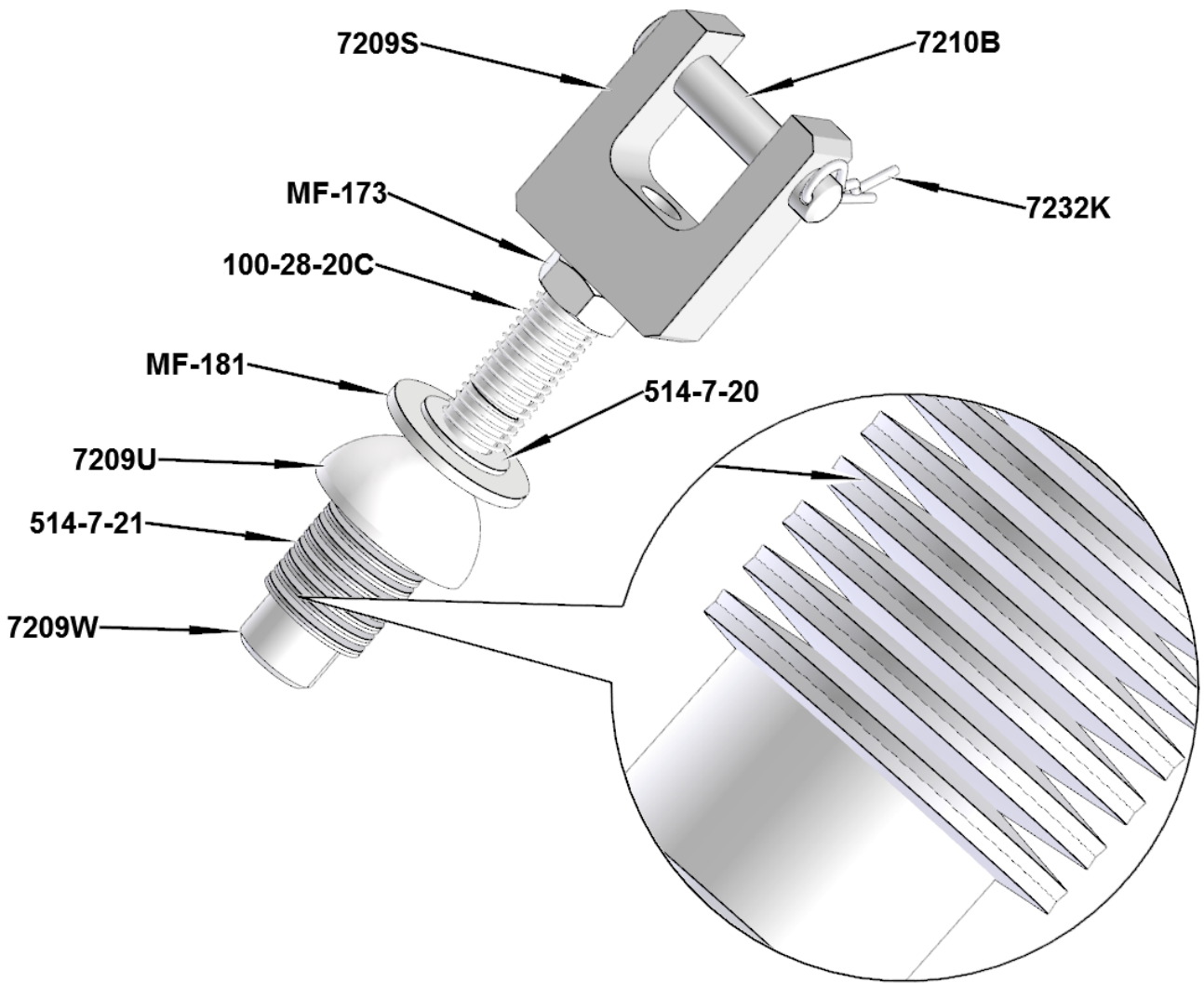
Front / Rear Tilt Section Parts



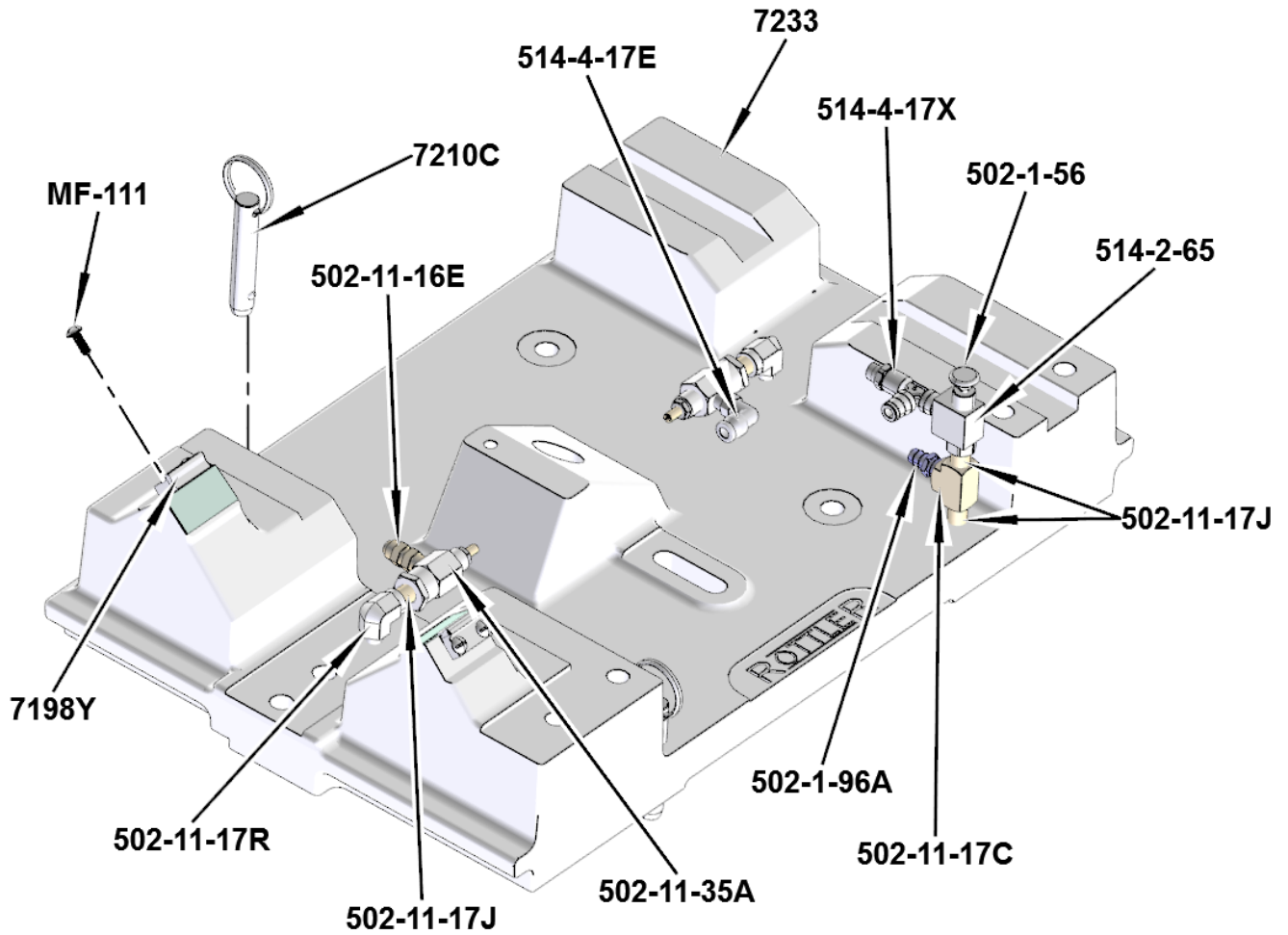
Left / Right Tilt Section Parts



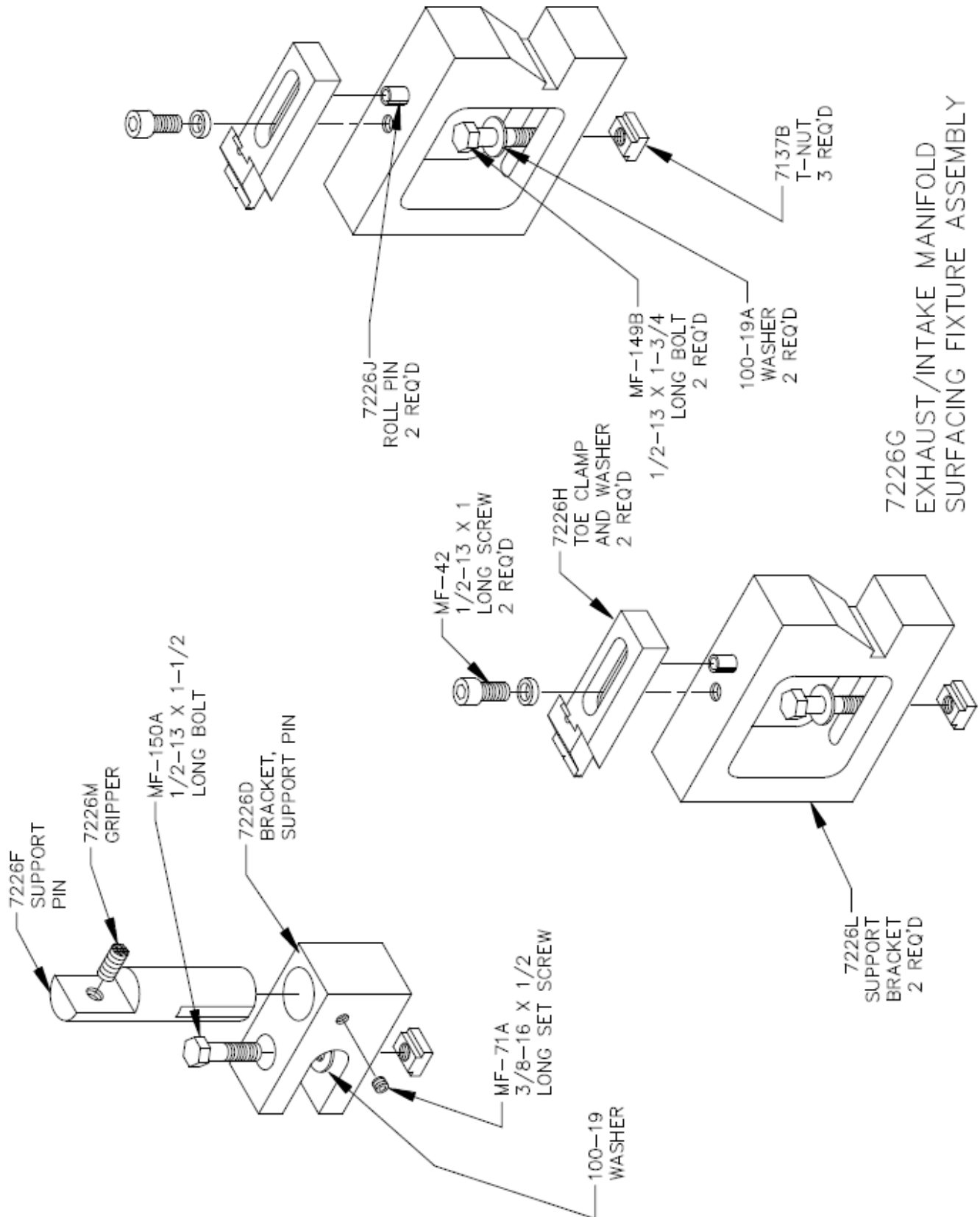
Tensioner Section Parts



Base Section Parts

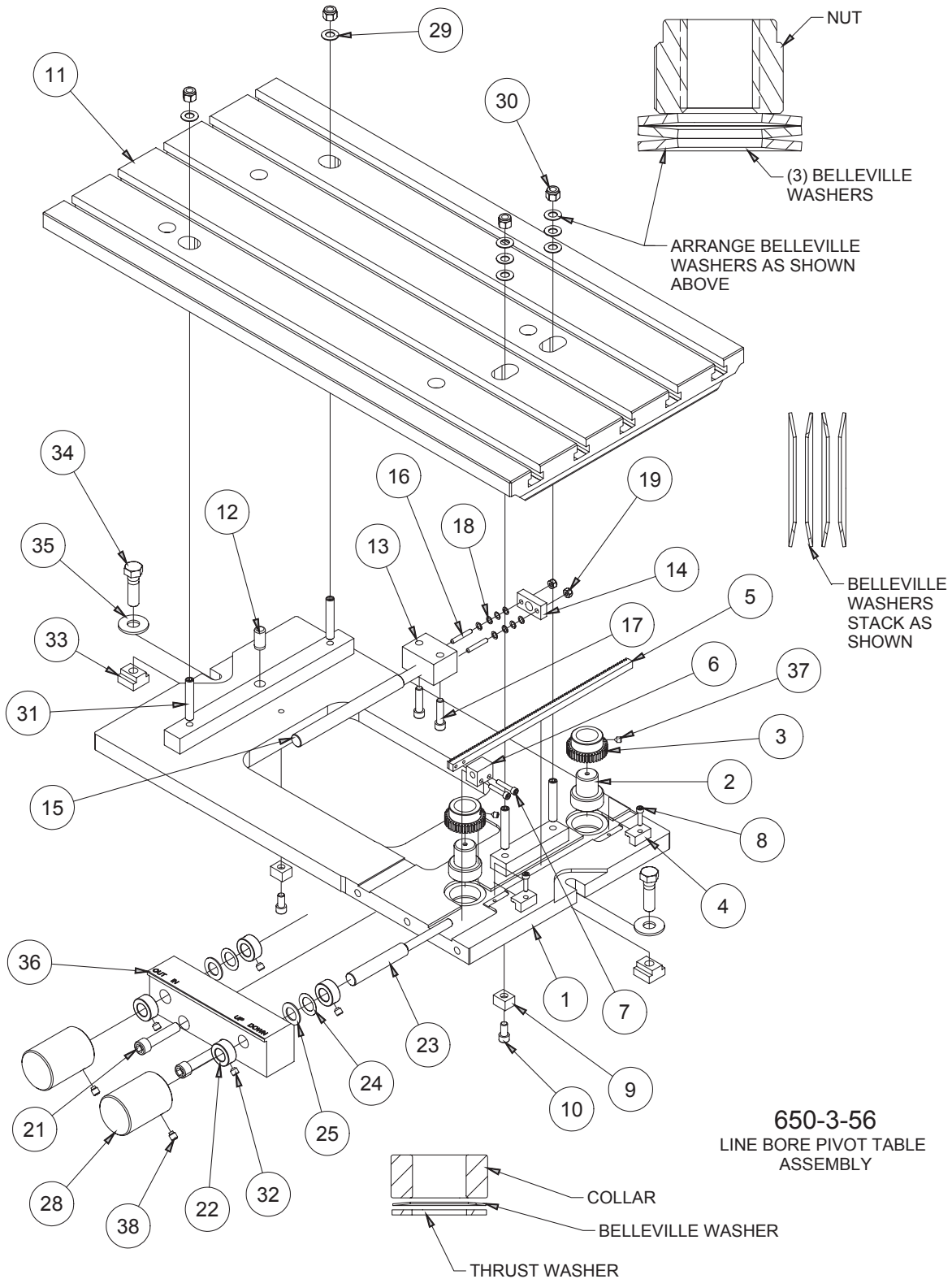


7226G Exhaust and Intake Manifold Surfacing Fixture Parts



Block Main Line Boring and Cam Boring Fixtures

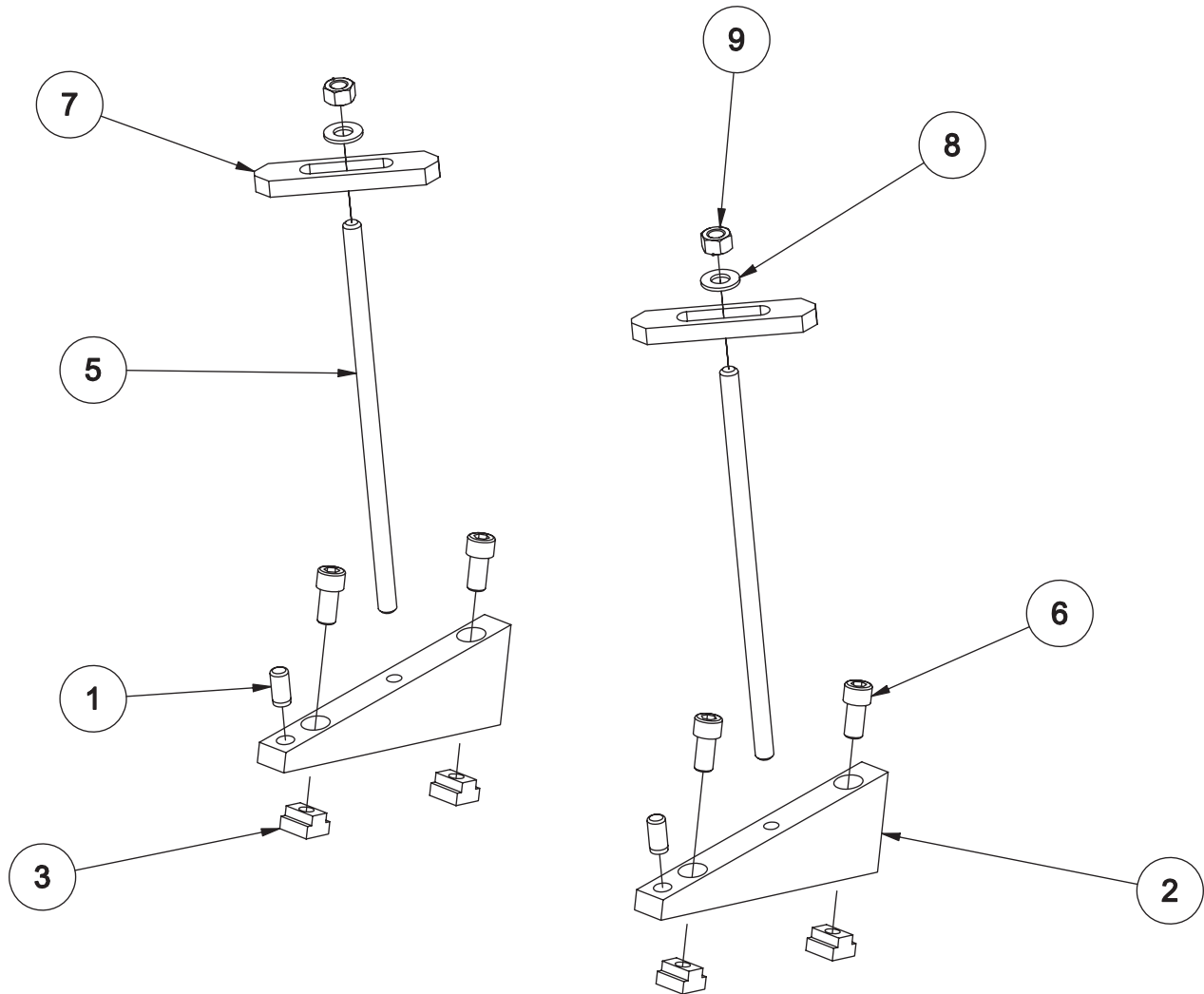
650-3-56 Line Bore Pivot Table Parts



650-3-56
LINE BORE PIVOT TABLE
ASSEMBLY

650-3-56 LINE BORE PIVOT TABLE ASSEMBLY			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-3-56C	LINE BORE PIVOT TABLE ASSEMBLY
2	2	650-3-56D	JACK SCREW - PIVOT TABLE
3	2	650-3-56F	GEAR, JACK SCREW - PIVOT TABLE
4	2	650-3-56K	RETAINER, RACK - PIVOT TABLE
5	1	650-3-56V	RACK - PIVOT TABLE
6	1	650-3-56W	THREADED BLOCK - PIVOT TABLE
7	2	MF-6A	10-24UNC x 1" LG. S.H.C.S.
8	2	MF-6	10-24UNC x 3/4" LG. S.H.C.S.
9	2	650-3-9	Key
10	2	MF-21	5/16-18UNC x 5/8" LG. S.H.C.S.
11	1	650-3-56A	TABLE TOP - PIVOT TABLE
12	1	MF-213B	1/2" x 1" LG. DOWEL PIN
13	1	650-3-56N	THREADED BLOCK, PIVOT - PIVOT TABLE
14	1	650-3-56R	LOCK PLATE - PIVOT TABLE
15	1	650-2-29D	SHAFT, ROTATE ADJUST - PIVOT TABLE
16	2	MF-57A	10-24UNC x 1-1/4" LG. SOCKET SET SCREW
17	2	MF-24	5/16-18UNC x 1-1/4" LG. S.H.C.S.
18	8	650-3-56Q	BELLEVILLE SPRING
19	2	MF-186B	10-24UNC HEX NYLOCK NUT
21	2	MF-40A	7/16-14UNC x 2" LG. S.H.C.S.
22	4	7199E	COLLAR 1/2"
23	1	650-3-56U	lift Adjust Shaft
24	2	650-3-56S	Belleville spring Reid BDB-65
25	2	514-7-20	THRUST WASHER
28	2	650-2-29E	HANDLE
29	8	650-2-28P	BELLEVILLE WASHER
30	4	MF-187B	3/8-16UNC NYLOCK NUT
31	4	MF-75B	3/8-16UNC x 2-1/4" LG. SOCKET SET SCREW
32	4	6863	5/16-18 x 5/16" LG. CONE POINT SET SCREW
33	2	650-3-10	TN-5 T-Nut
34	2	MF-137F	1/2-13UNC x 1-3/4" LG. HEX BOLT
35	2	MF-180	1/2" FLAT WASHER
36	1	650-3-56L	CONTROL BLOCK - PIVOT TABLE
37	2	MF-59B	1/4-20UNC x 5/16" CONE POINT SET SCREW
38	2	504-29-36	5/16-18UNC x 5/8" LG. SOCKET HALF DOG SET SCREW

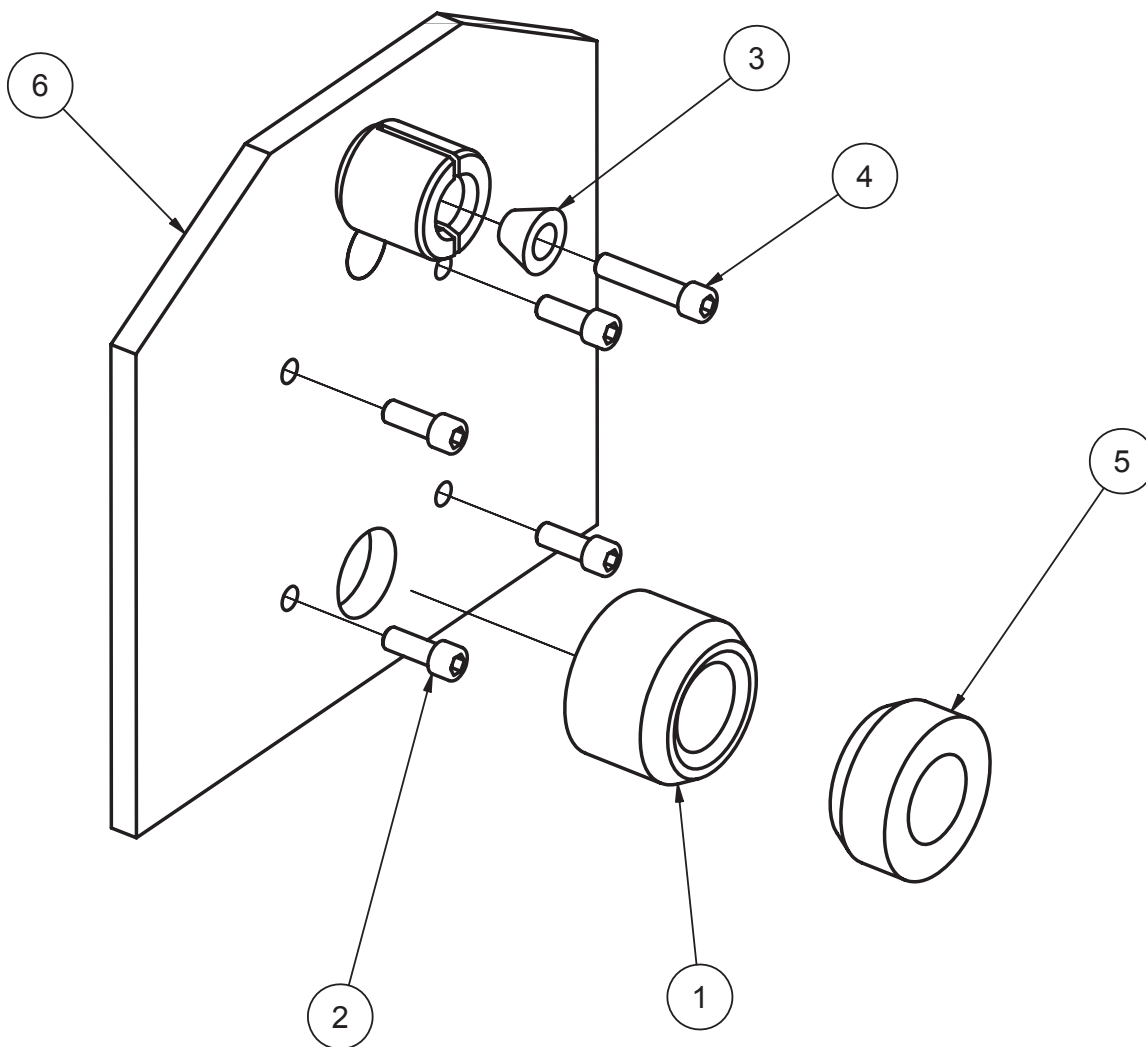
6866 Wedge for Cummins 5.9liter Camshaft Line Boring Parts



6866 15 DEG. WEDGE ASSEMBLY			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	MF-213B	1/2 x 1 Dowel Pin
2	2	6866A	15 DEGREE WEDGE CUMMINS DIESEL CAM BORING FIXTURE
3	4	7137B	T-Nut
5	2	6833B	CLAMP ROD 12"
6	4	MF-42	S.H.C.S. 1/2 - 13 UNC - 1
7	2	650-3-57B	CLAMP BAR
8	2	MF-180	1/2" FLAT WASHER
9	2	MF-165	1/2-13UNC HEX NUT

Special Application Fixture

650-3-82 Mopar 5.7L Hemi Fixture Assembly Parts

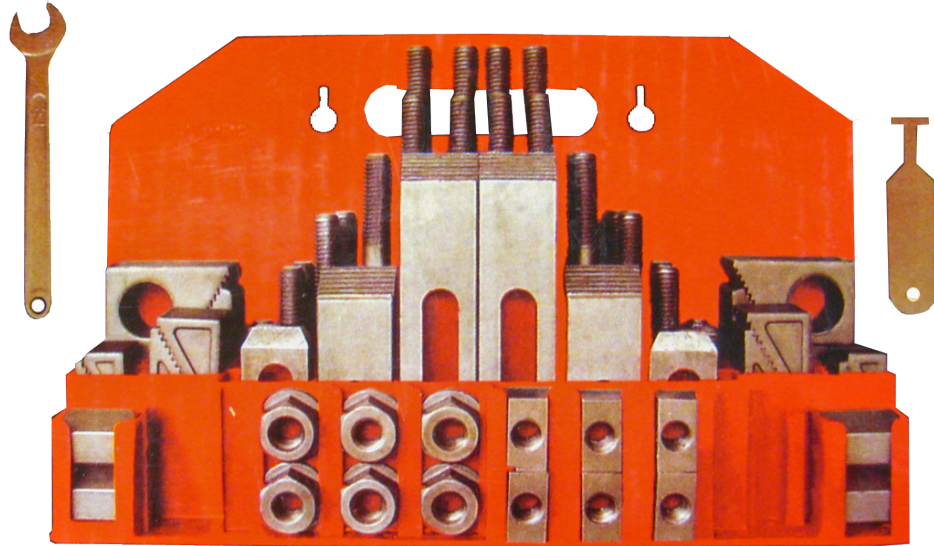


650-3-82 MOPAR 5.7L HEMI FIXTURE ASSEMBLY			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-3-82D	LOCATOR, #5 MAIN 1.7509 DIA. BORE, MOPAR 5.7L HEMI - 4TH AXIS FIXTURE
2	4	Mf-31	Socket Head Cap screw 3/8 - 16 UNC - 1
3	1	650-3-70D	CONE WASHER, EXPANDING CAM LOCATOR - AUTO PERFORMANCE FIXTURE
4	1	Mf-33A	Socket Head Cap screw 3/8 - 16 UNC - 1 3/4
5	1	650-3-82E	LOCATOR, #1 MAIN, 1.7509 DIA. BORE, MOPAR 5.7L HEMI - 4TH AXIS FIXTURE
6	1	650-3-82F	ADAPTER PLATE ASSEMBLY, MOPAR 5.7L HEMI - 4TH AXIS FIXTURE

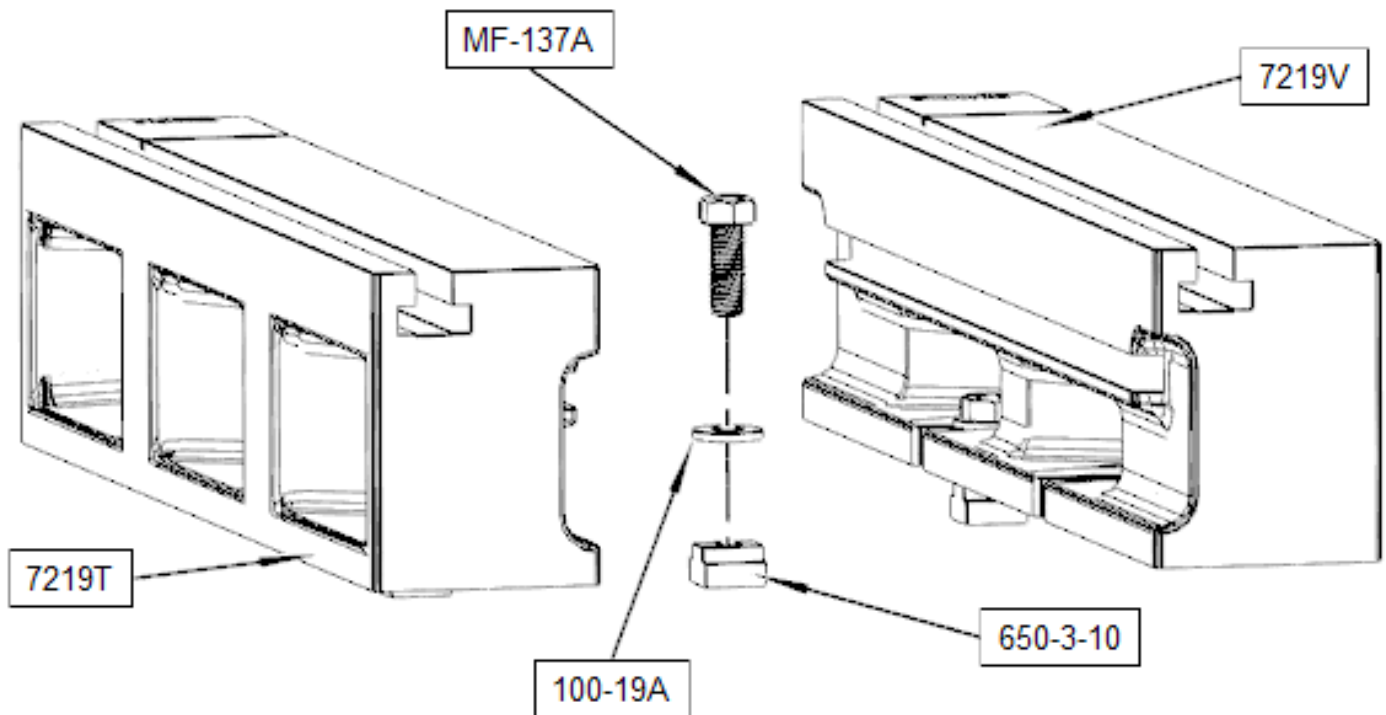
Miscellaneous Accessories

650-3-37 1/2" (12.7mm) Universal Clamping Kit

Sold only as complete kit.

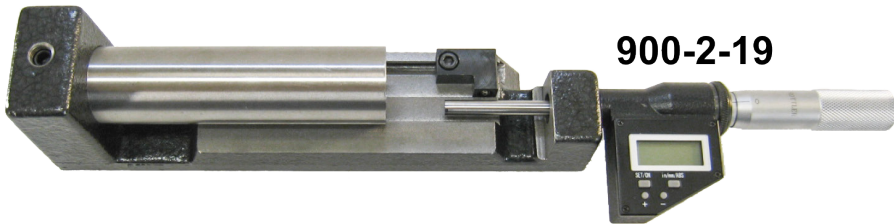
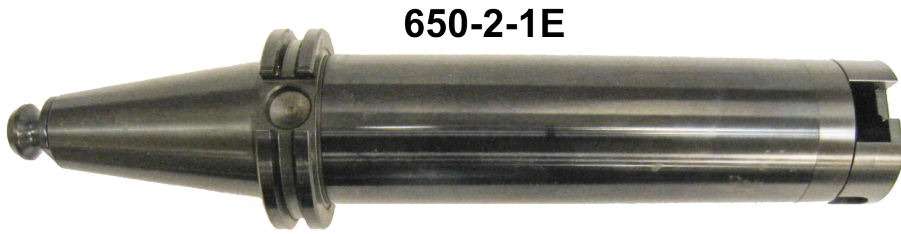


7219W 5.2" (138.08mm) Heavy Duty T-Slot Universal Parallel Parts

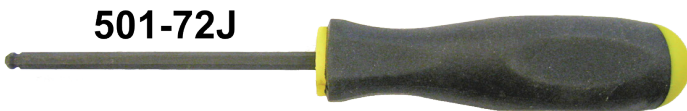
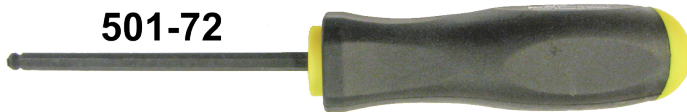
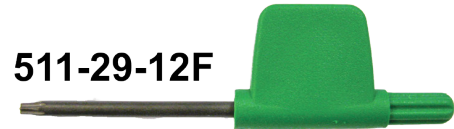
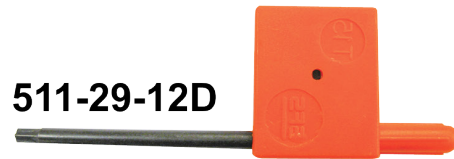
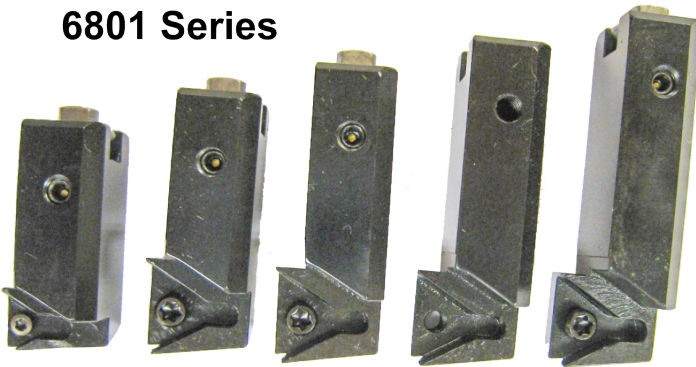


Tooling for Engine Block Boring and Resleeving

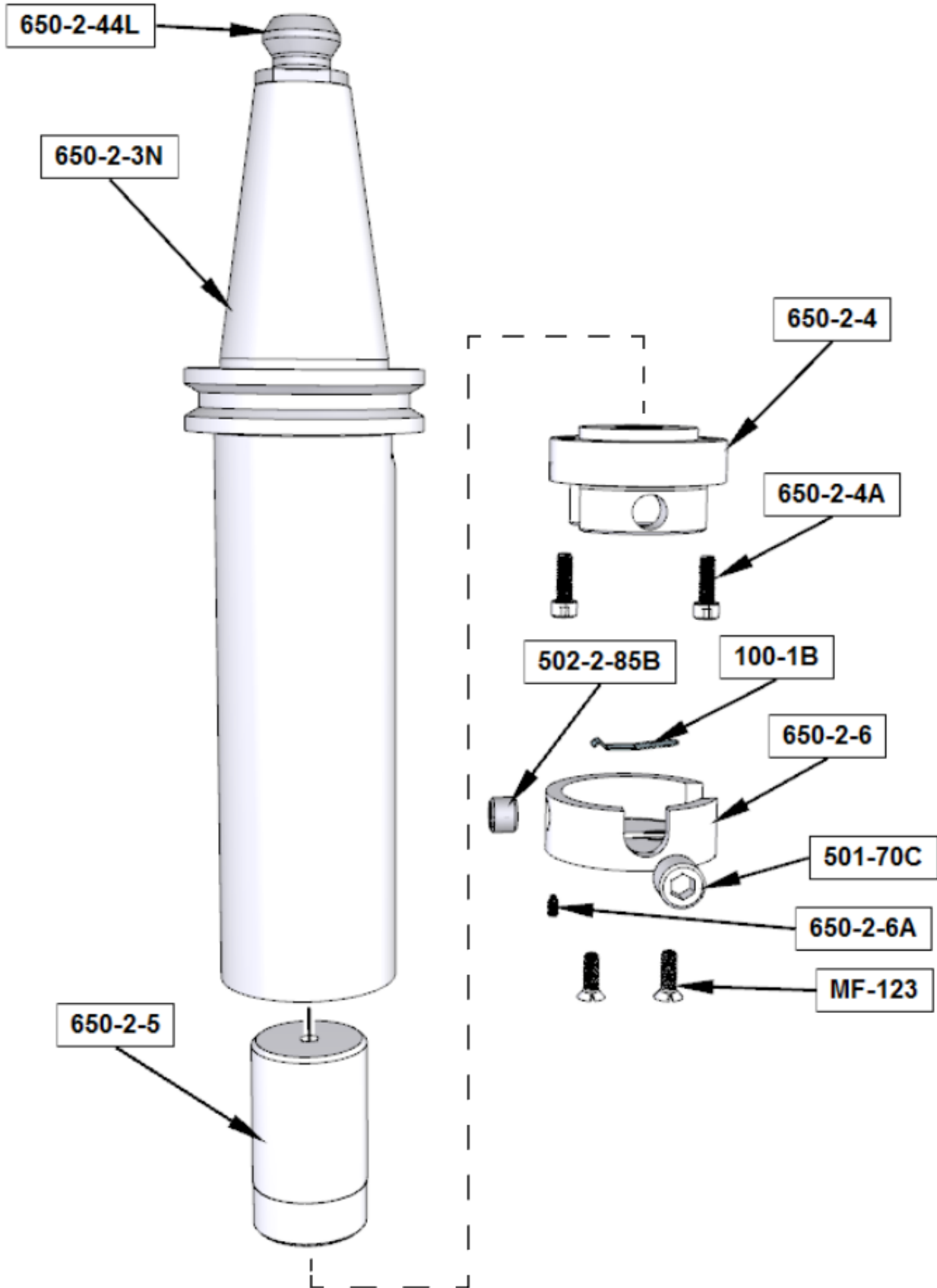
650-2-1D Cutterhead Package Components



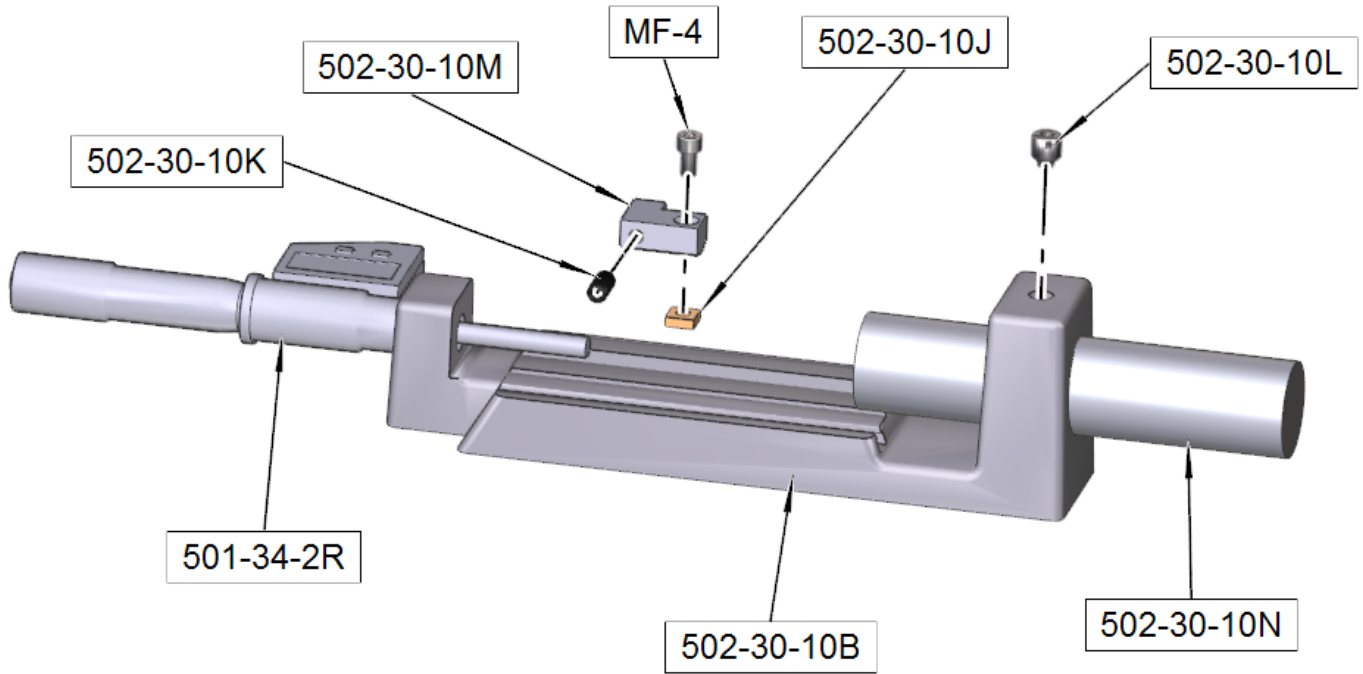
6801 Series



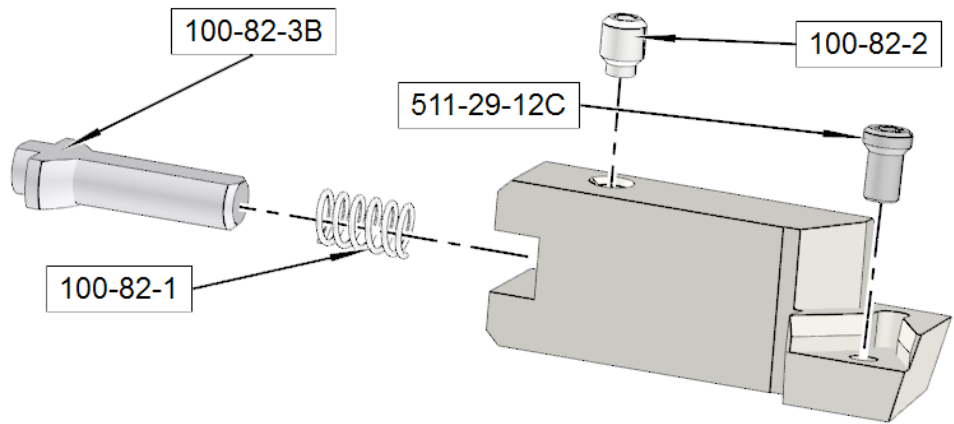
650-2-1E Cutterhead Assembly Parts



900-2-19 Micrometer Parts



6801 Series Insert Holder Parts

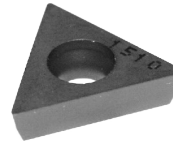


650-2-14B Cutterhead Package Components

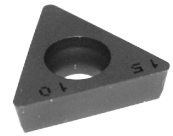
650-2-14C



RT321



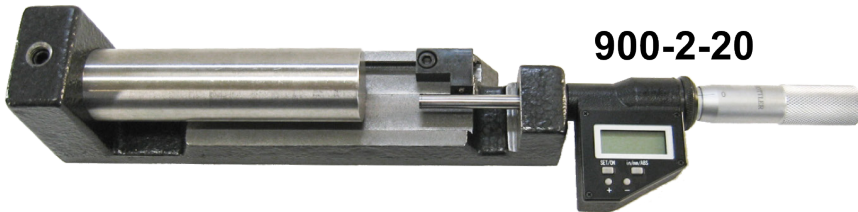
RT322



RS322



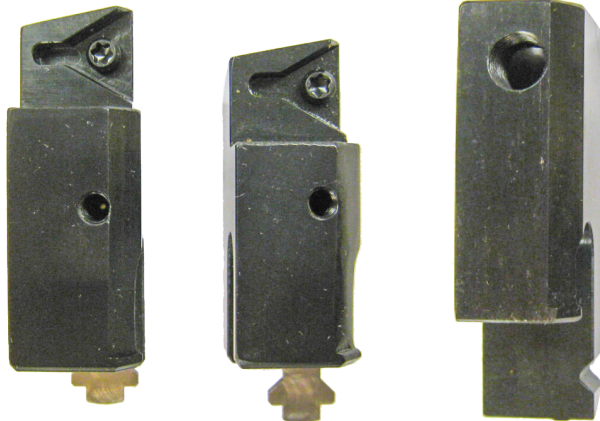
900-2-20



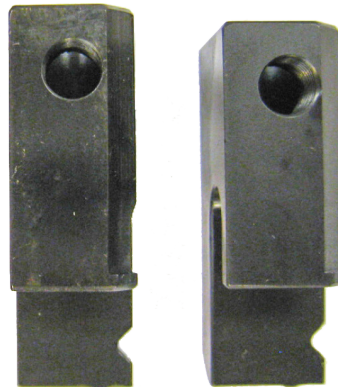
6260L



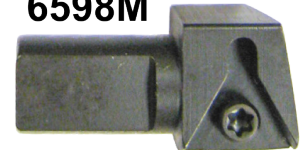
6593 Series



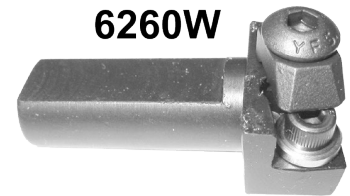
6520 Series



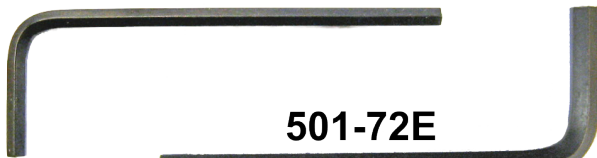
6598M



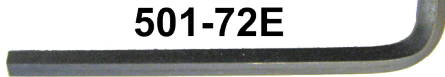
6260W



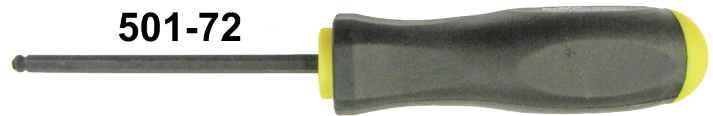
501-72B



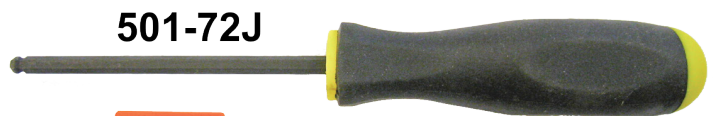
501-72E



501-72



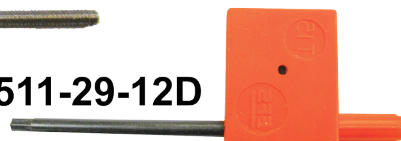
501-72J



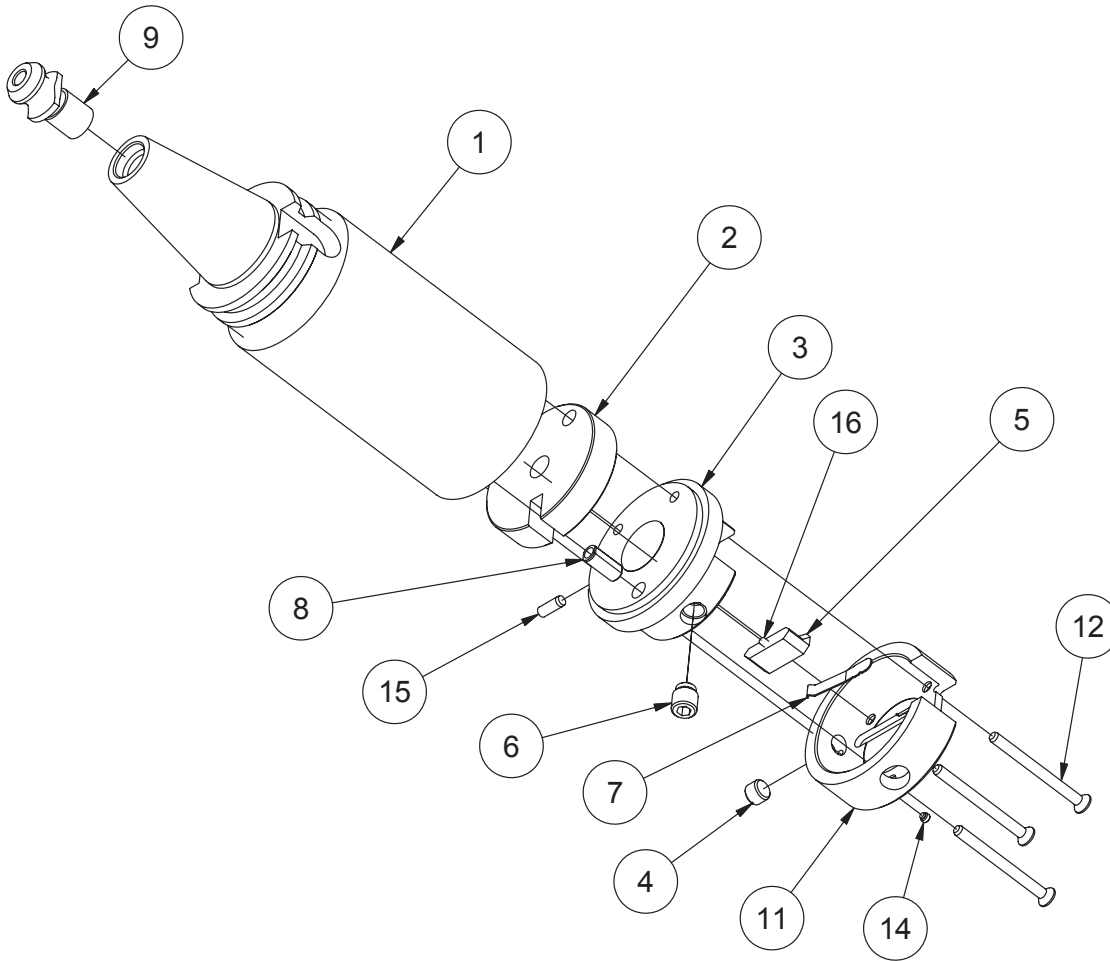
100-24



511-29-12D

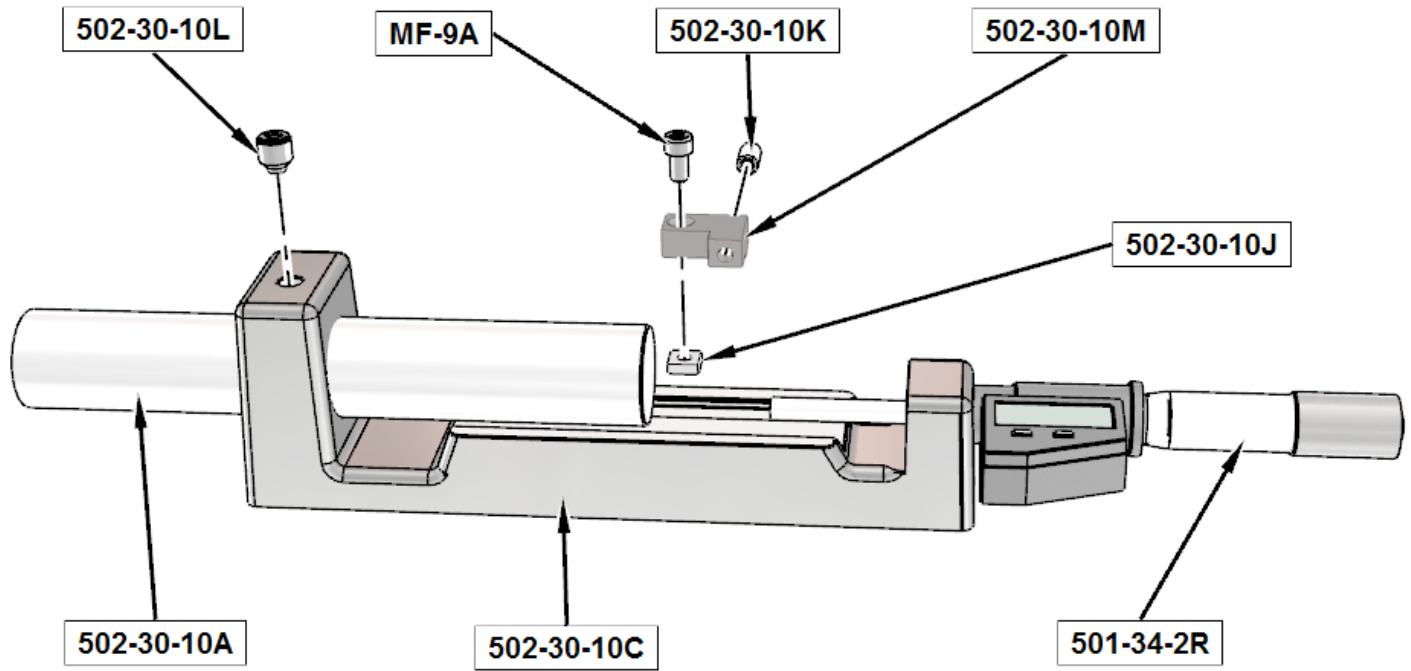


650-2-14C Cutterhead Parts

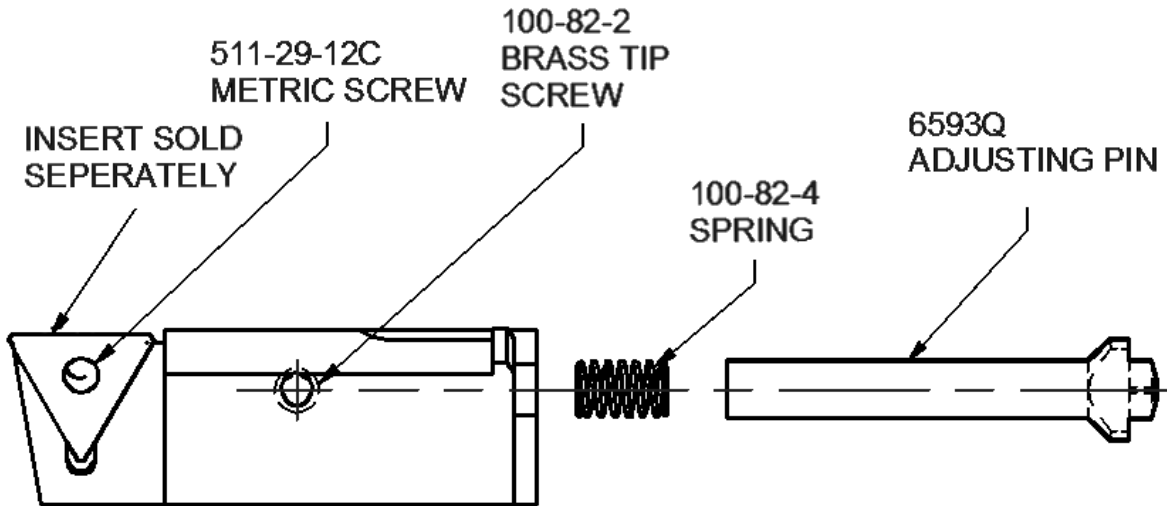


CUTTERHEAD ASSEMBLY W/O TOOLING 2.9"TO 5.0" x 7.0"			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-2-15E	ADAPTER, 2.9" STUB BAR CAT 40 TAPER (INCH) F68A
2	1	6521	Counter Weight
3	1	650-2-16	BODY, 2.9" STUB BAR F60
4	1	502-2-85B	Index Screw
5	1	6263A	Tool Holder Clamp Screw
6	1	501-70A	Tool Holder Lock Screw ass'y
7	1	100-1A	Tool Lock Spring
8	1	502-2-45B	Bushing - Counterweight
9	1	650-2-44L	CAT40 RETENTION KNOB
11	1	650-2-17	Cap, 2.9" Stub Bar
12	3	MF-81C	Socket Flat Head 10-24 UNC x 2.25
14	1	502-12-4D	SOCKET SET SCREW, BRASS TIPPED 8-32 X 1//8
15	1	MF-196	3/16 x 1/2 Dowel Pin
16	1	MF-193C	1/8 x 3/8 Dowel Pin

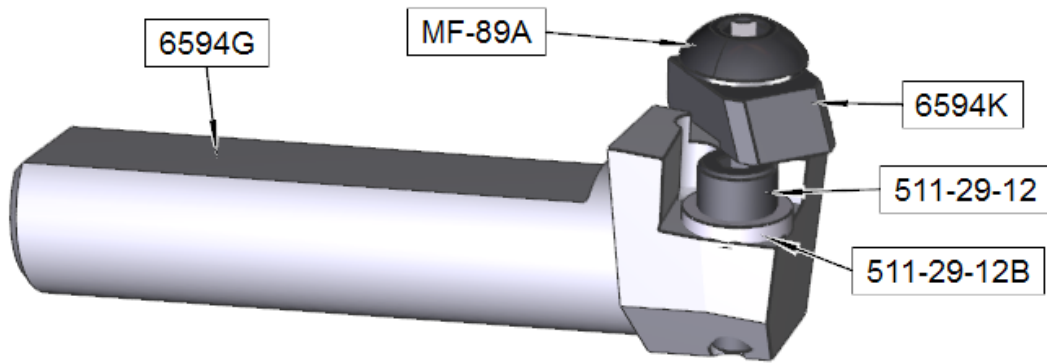
900-2-20 Micrometer Parts



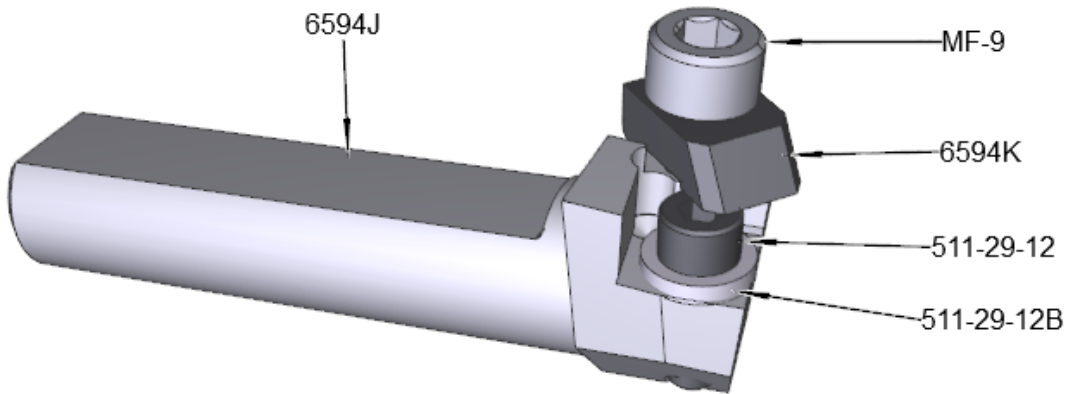
6593 Series Insert Holder Parts



6260L Insert Cartridge Parts

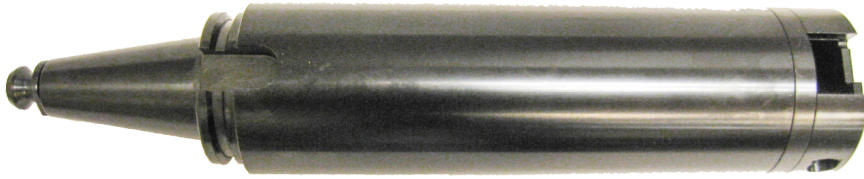


6260W Insert Cartridge Parts

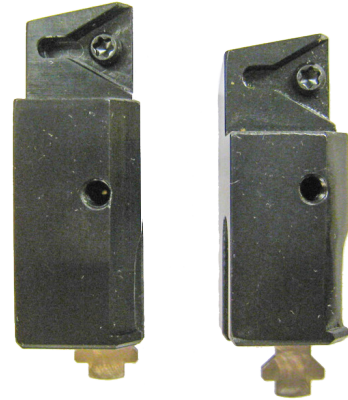


650-2-14F Cutterhead Package Components

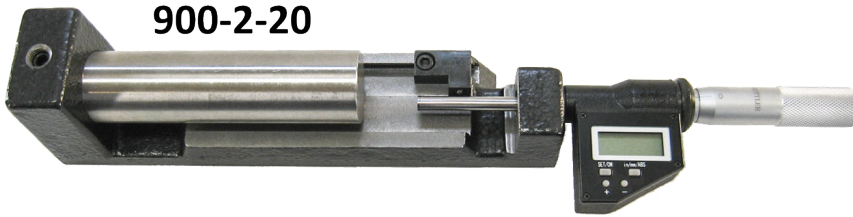
650-2-14G



6593 Series



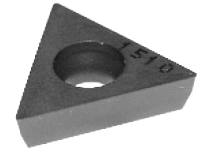
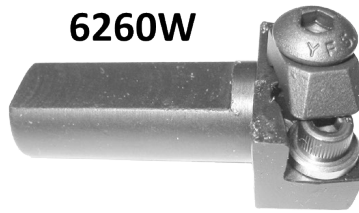
900-2-20



6520 Series

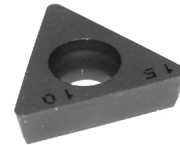
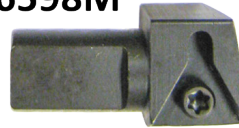


6260W



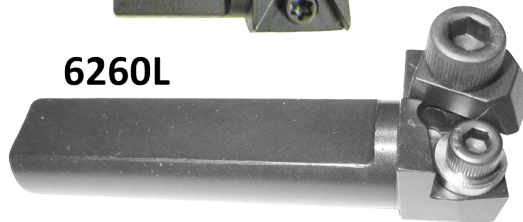
RT321

6598M

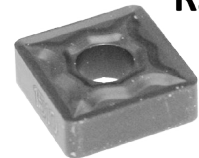


RT322

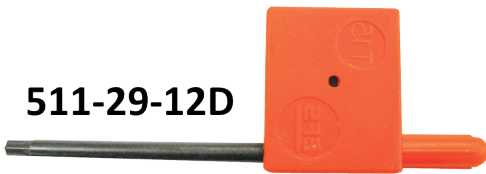
6260L



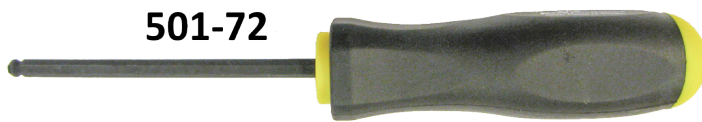
RS322



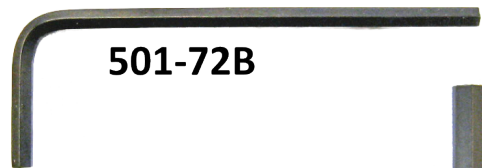
511-29-12D



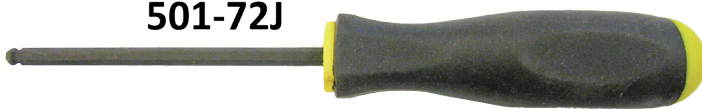
501-72



501-72B



501-72J



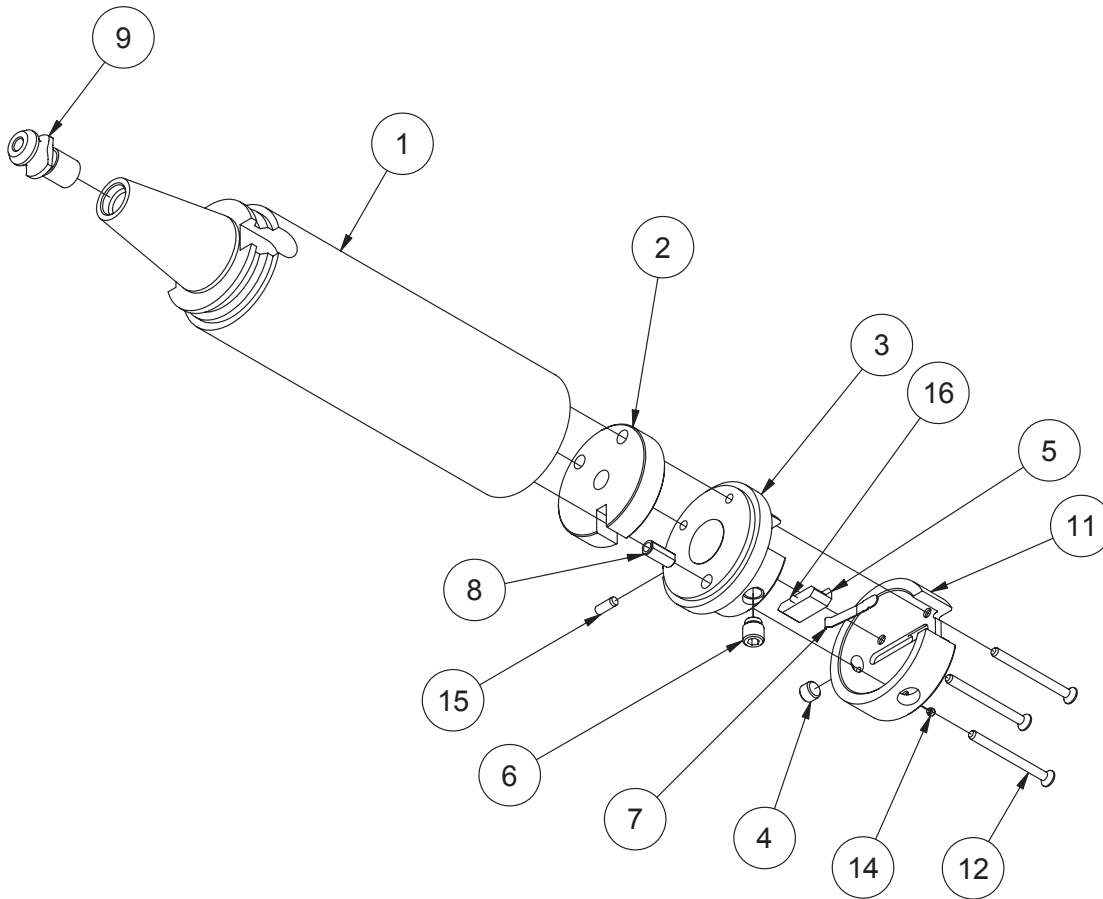
501-72E



100-24

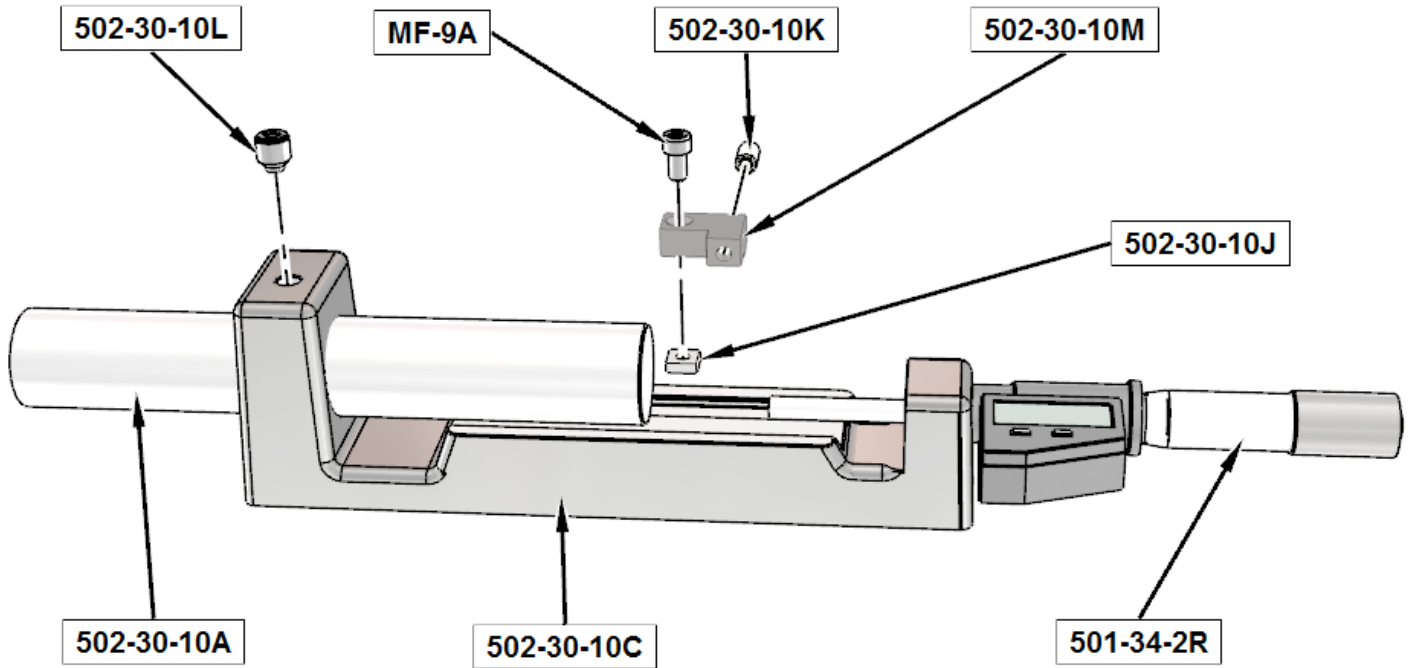


650-2-14G Cutterhead Assembly Parts

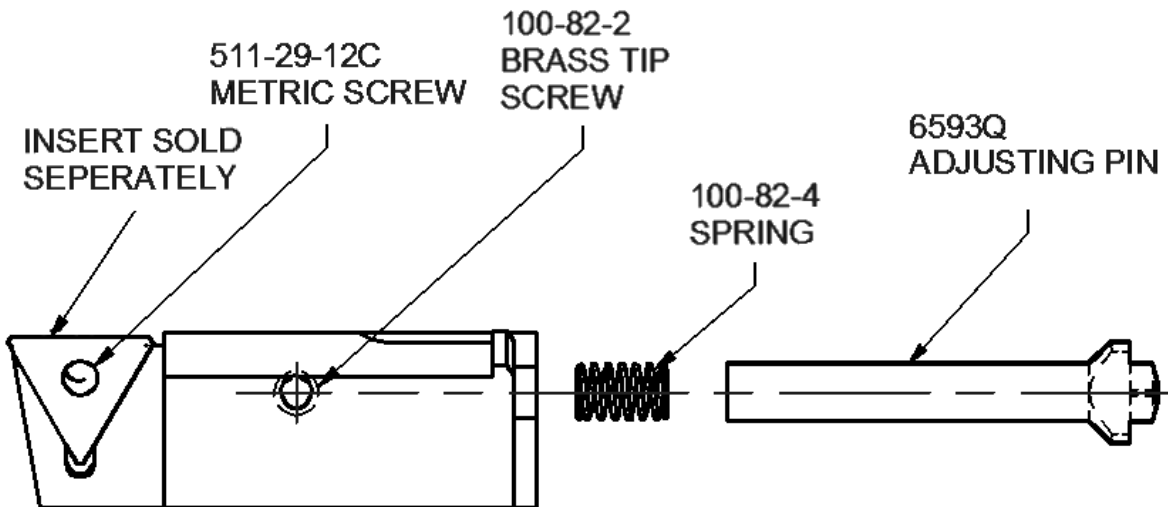


650-2-14G STUB BAR ASSEMBLY 2.9" TO 5.0" x 10" LG. CAT40(INCH) F68A			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-2-15K	ADAPTER, 2.9" STUB BAR x 10" LG. CAT 40 TAPER (INCH) F68A
2	1	6521	Counter Weight
3	1	650-2-16	BODY, 2.9" STUB BAR F60
4	1	502-2-85B	Index Screw
5	1	6263A	Tool Holder Clamp Screw
6	1	501-70A	Tool Holder Lock Screw ass'y
7	1	100-1A	Tool Lock Spring
8	1	502-2-45B	Bushing - Counterweight
9	1	650-2-44L	CAT40 RETENTION KNOB
11	1	650-2-17	Cap, 2.9" Stub Bar
12	3	MF-81C	Socket Flat Head 10-24 UNC x 2.25
14	1	502-12-4D	SOCKET SET SCREW, BRASS TIPPED 8-32 X 1/8
15	1	MF-196	3/16 x 1/2 Dowel Pin
16	1	MF-193C	1/8 x 3/8 Dowel Pin

900-2-20 Micrometer Parts

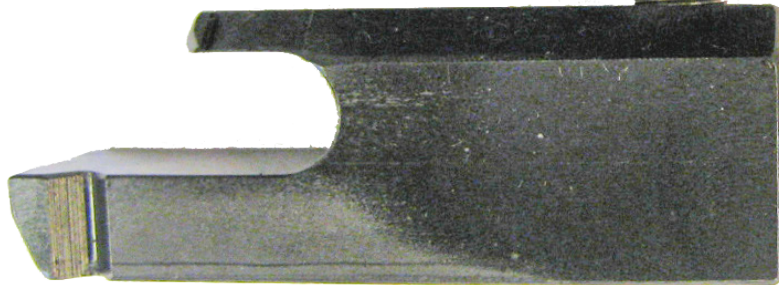
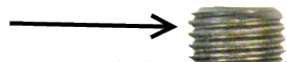


6593 Series Insert Holder Parts



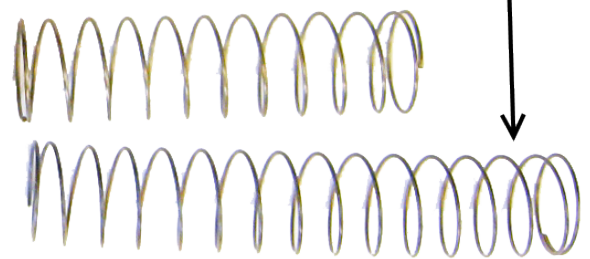
6520 Series Tool Holder Parts

502-2-85 Set Screw



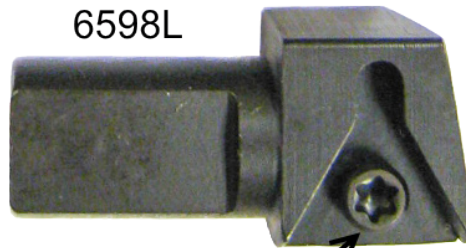
6300C Long Spring

6300B Short Spring



6598M Insert Cartridge Parts

6598L



511-29-12C



6260L Insert Cartridge Parts

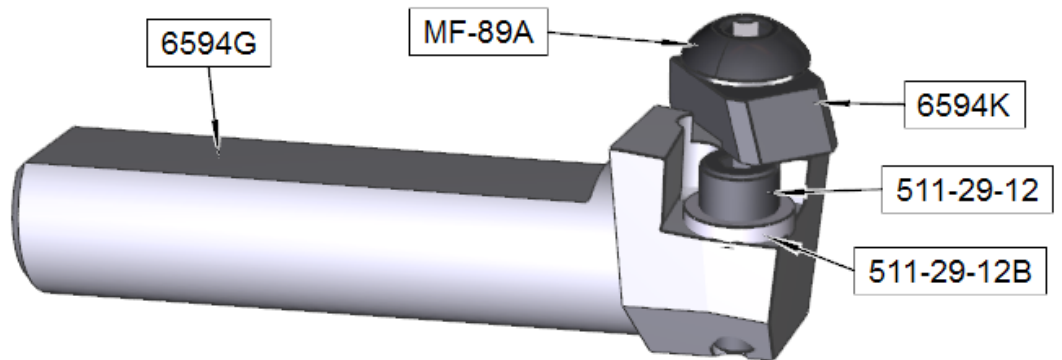
6594G

MF-89A

6594K

511-29-12

511-29-12B



6260W Insert Cartridge Parts

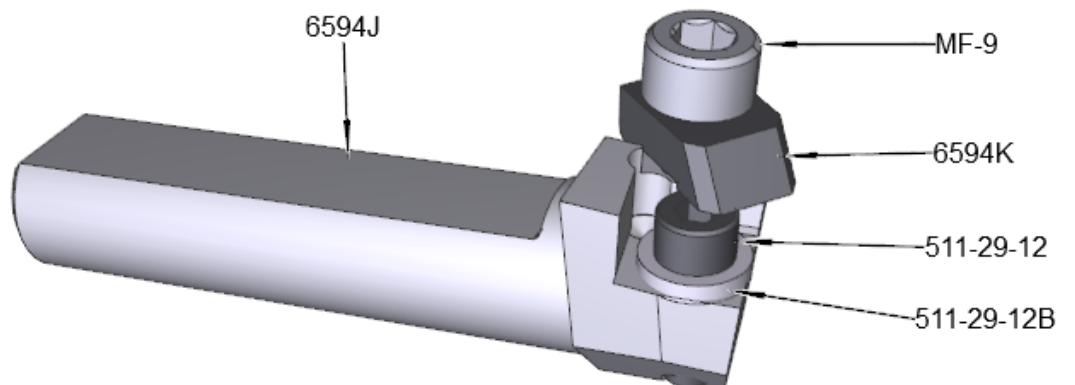
6594J

MF-9

6594K

511-29-12

511-29-12B



650-2-16D 1.400" (35.5mm) Spacer (Extension) for 650-2-14B&F Cutterheads

Sold only as complete assembly.

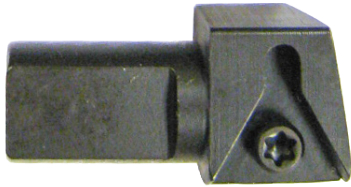


Miscellaneous Tooling for 650-2-14B&F Cutterheads

<p>501-29-6K PCD Tipped Triangular Insert For Boring/Counterboring Aluminum Only</p> 	<p>6513J Brazed Carbide Tool Bit .037" Wide O Ring Grooving</p> 	<p>6513L Brazed Carbide Tool Bit .039" Wide O Ring Grooving</p> 
<p>6513N Brazed Carbide Tool Bit .060" Wide O Ring Grooving</p> 	<p>6513P Brazed Carbide Tool Bit .085" Wide O Ring Grooving</p> 	<p>6513Q Brazed Carbide Tool Bit .120" Wide O Ring Grooving</p> 

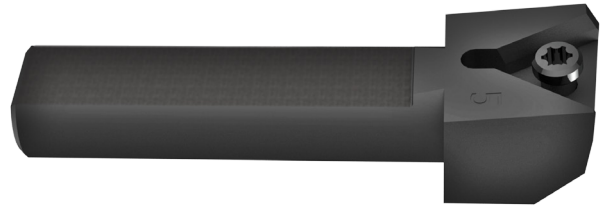
6598M Cartridge Assembly

Positive Rake, 13/16 Shank Length, for Counter Boring



6747K Cartridge Assembly

5 Degree Chamfer for Triangular Positive Rake Inserts



6747P Cartridge Assembly

10 Degree Chamfer for Triangular Positive Rake Inserts



6747G Cartridge Assembly

15 Degree Chamfer for Triangular Positive Rake Inserts



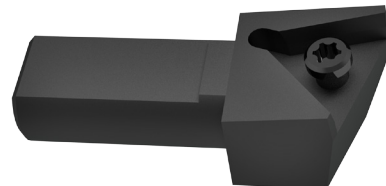
6747F Cartridge Assembly

20 Degree Chamfer for Triangular Positive Rake Inserts



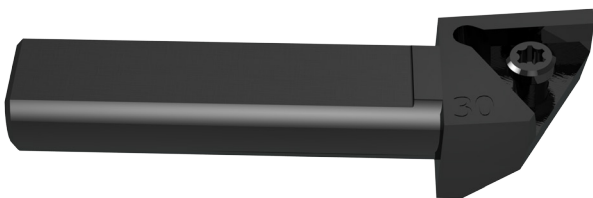
6747M Cartridge Assembly

20 Degree Chamfer for Triangular Positive Rake Inserts
(Special Application Only)



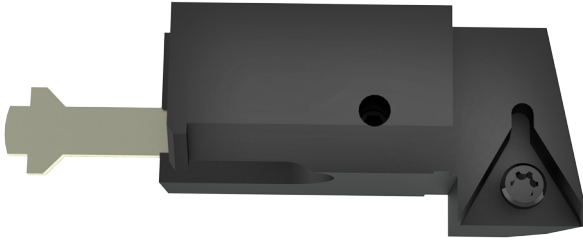
6747H Cartridge Assembly

30 Degree Chamfer for Triangular Positive Rake Inserts



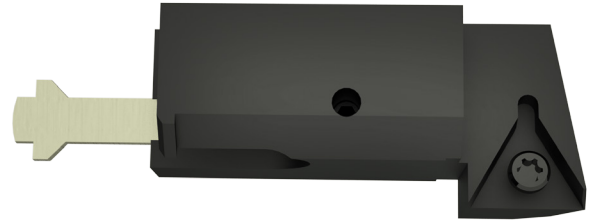
6593L Cartridge Assembly

Offset Indexable Insert, Triangular Positive Rake (3.14 - 3.40" Diameter)



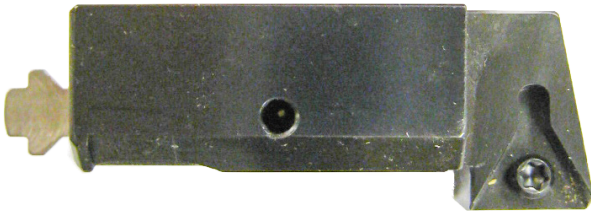
6593M Cartridge Assembly

Offset Indexable Insert, Triangular Positive Rake (3.40 - 3.90" Diameter)



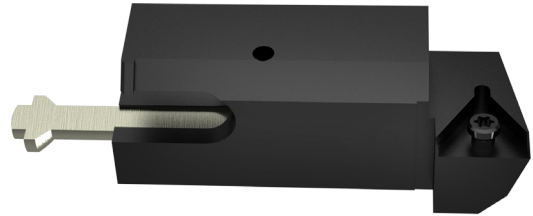
6593N Cartridge Assembly

Offset Indexable Insert, Triangular Positive Rake (3.90 - 4.40" Diameter)

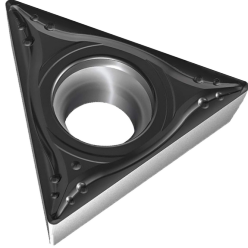

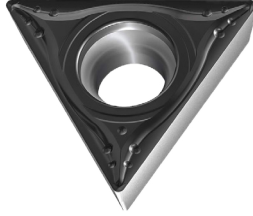
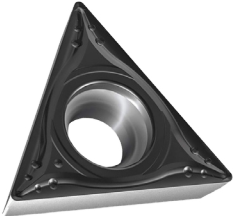
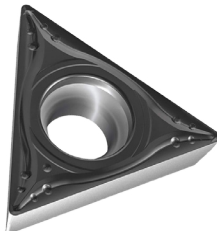
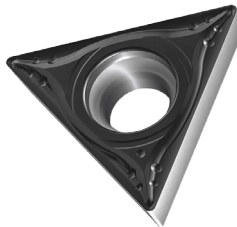
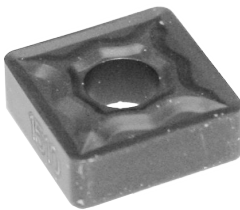


6593P Cartridge Assembly

Offset Indexable Insert, Triangular Positive Rake (4.40 - 4.90" Diameter)

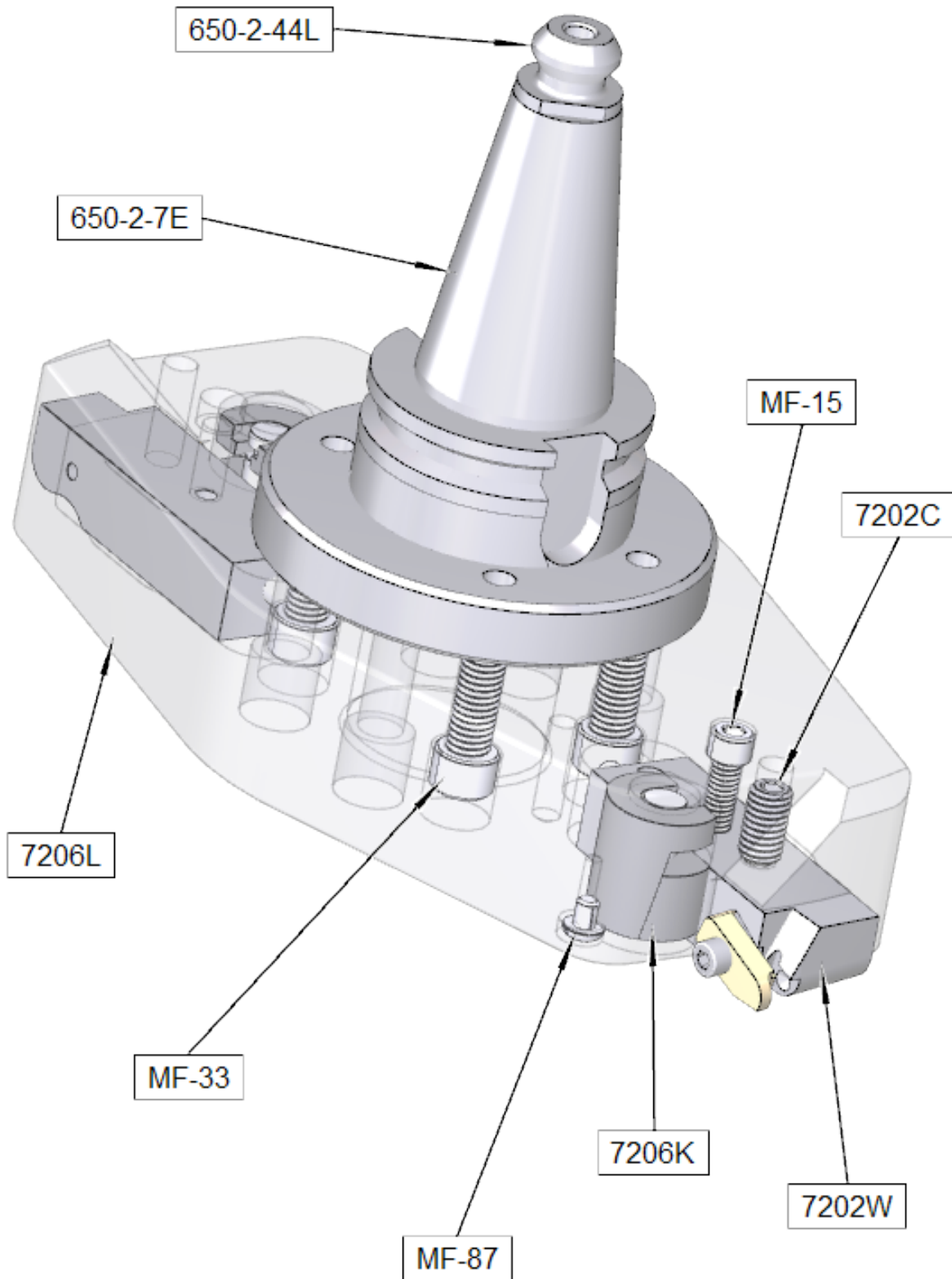


Inserts for Cutterhead Tooling






<p>RT211 Triangular Insert 1/4" (6.35mm) 1/64" (.397mm) radius, 1/4" triangular Insert holders only, general purpose and sleeving</p> 	<p>RT212 Triangular Insert 1/4" (6.35mm) 1/32" (.787mm) radius, 1/4" triangular Insert holders only, general purpose and sleeving</p> 	<p>RT321 Triangular Insert Positive rake, 3/8" (9.525mm) 1/64" (.397mm) radius, general purpose and sleeving</p> 
<p>RT322 Triangular Insert Positive rake, 3/8" (9.525mm) 1/32" (.787mm) radius, general purpose and sleeving</p> 	<p>RT321F Triangular Insert Positive rake, 3/8" 1/64" Radius, Precision Counterboring</p> 	<p>RT322F Triangular Insert Positive rake, 3/8" 1/32" Radius, Precision Counterboring</p> 
<p>RS322 Square Insert Negative rake, 1/32" (.787mm) radius, 3/8" (9.525mm) IC, black ceramic coated for high speed oversize thru boring</p> 		

Surfacing Tooling

650-2-8E Surfacing Cutterhead Parts



Inserts for Surfacing Cutterhead

<p>6303B CBN Insert, Round Double-Sided, 3/8" (9.525mm) IC, for Cutting Cast Iron</p> 	<p>6303M PCD Insert, Round 3/8" (9.525mm) IC, for Cutting Aluminum</p> 	<p>6303K Coated Carbide Insert, Round 3/8" (9.525mm) IC, for General Purpose Use</p> 
<p>6303S CBN Insert, Round 3/8" (9.525mm) IC, for Cutting Aluminum Blocks with Liners</p> 	<p>6303U CBN Round Insert Single Sided, 3/8" IC. For hard cast iron</p> 	

Tooling for Lifter Bore Machining

650-2-60B Lifter Bore Tooling Kit Components

650-2-60C



650-2-60D



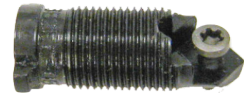
650-2-60K



650-2-60J



650-2-60E



650-2-60F



650-2-60H



650-2-60G



650-2-20C



650-2-20L



650-2-44L



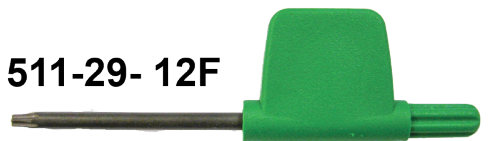
650-2-60L

650-2-44A



650-2-60M

511-29-12F

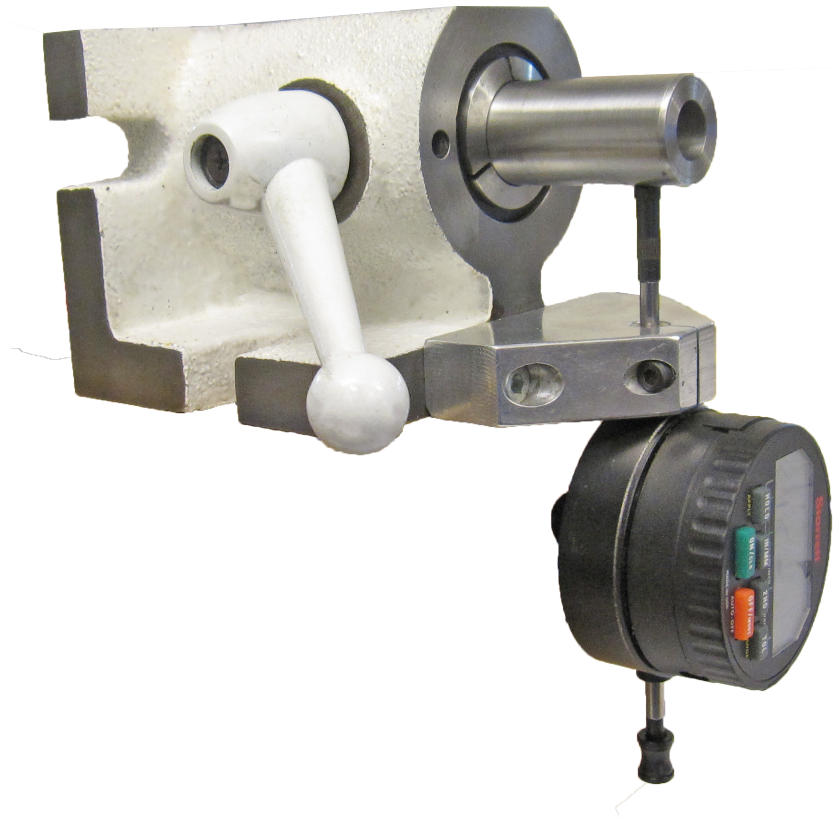


T8D



650-2-60N Setting Fixture

Sold only as complete assembly



650-2-60G Insert for 0.750 - 0.900 diameter cartridge

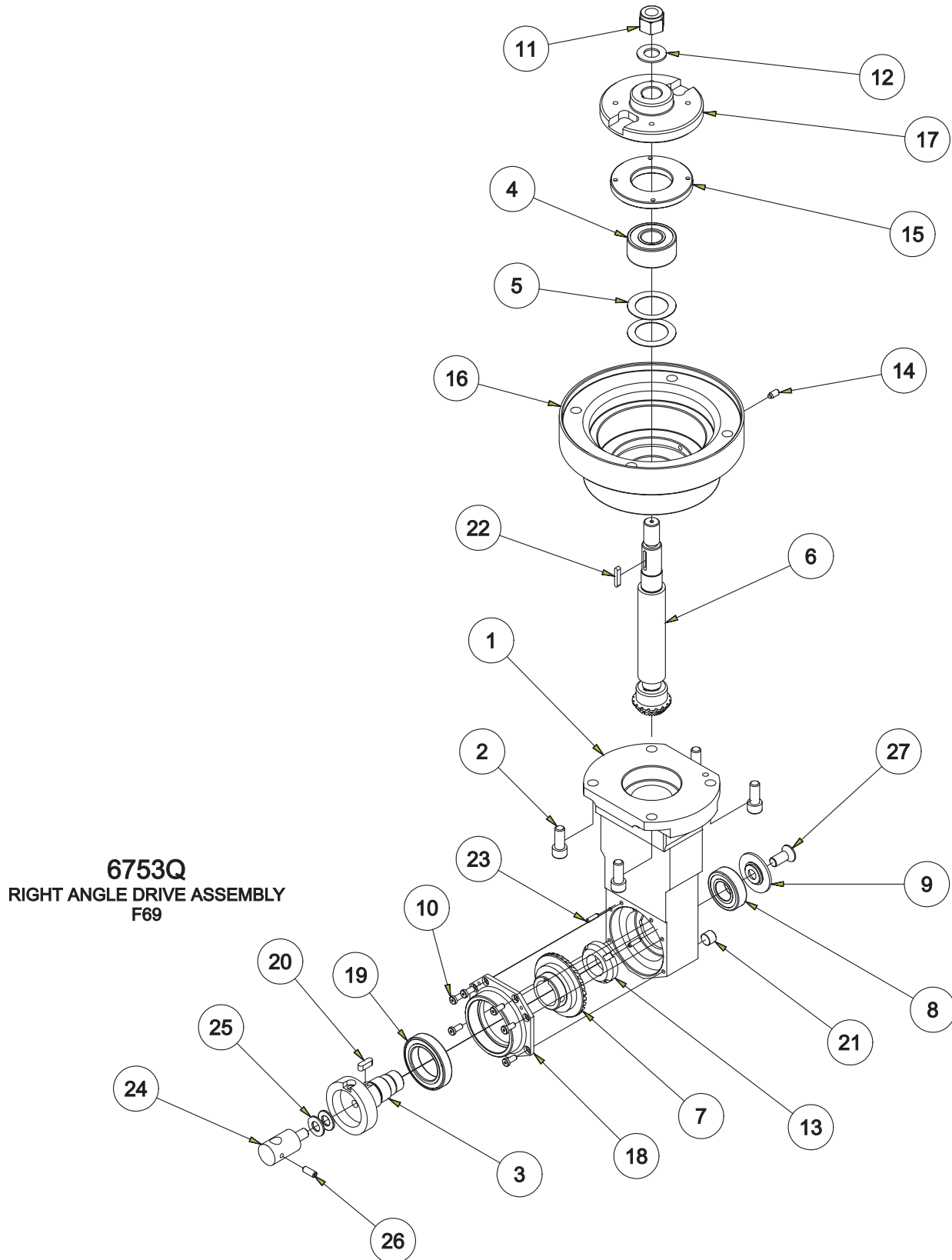


650-2-60H Insert for 0.920 - 1.180 diameter cartridge

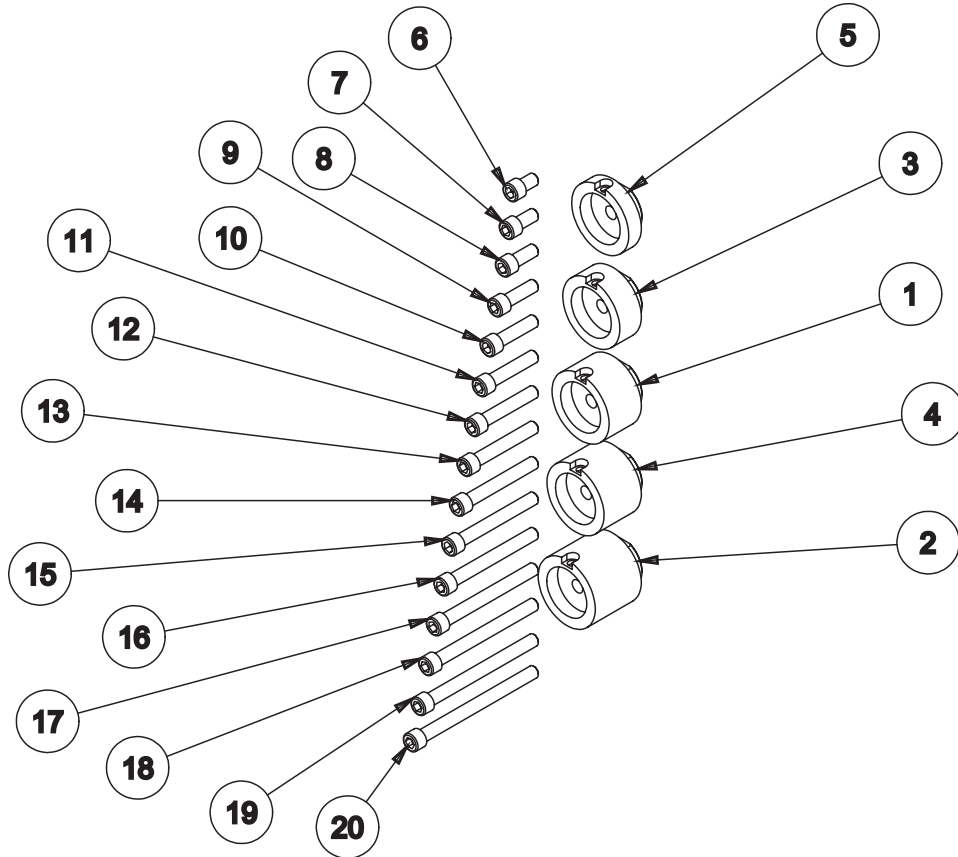


Main Line Bore Tooling

6753Q Main Line Bore 90 Degree Right Angle Drive Assembly Parts



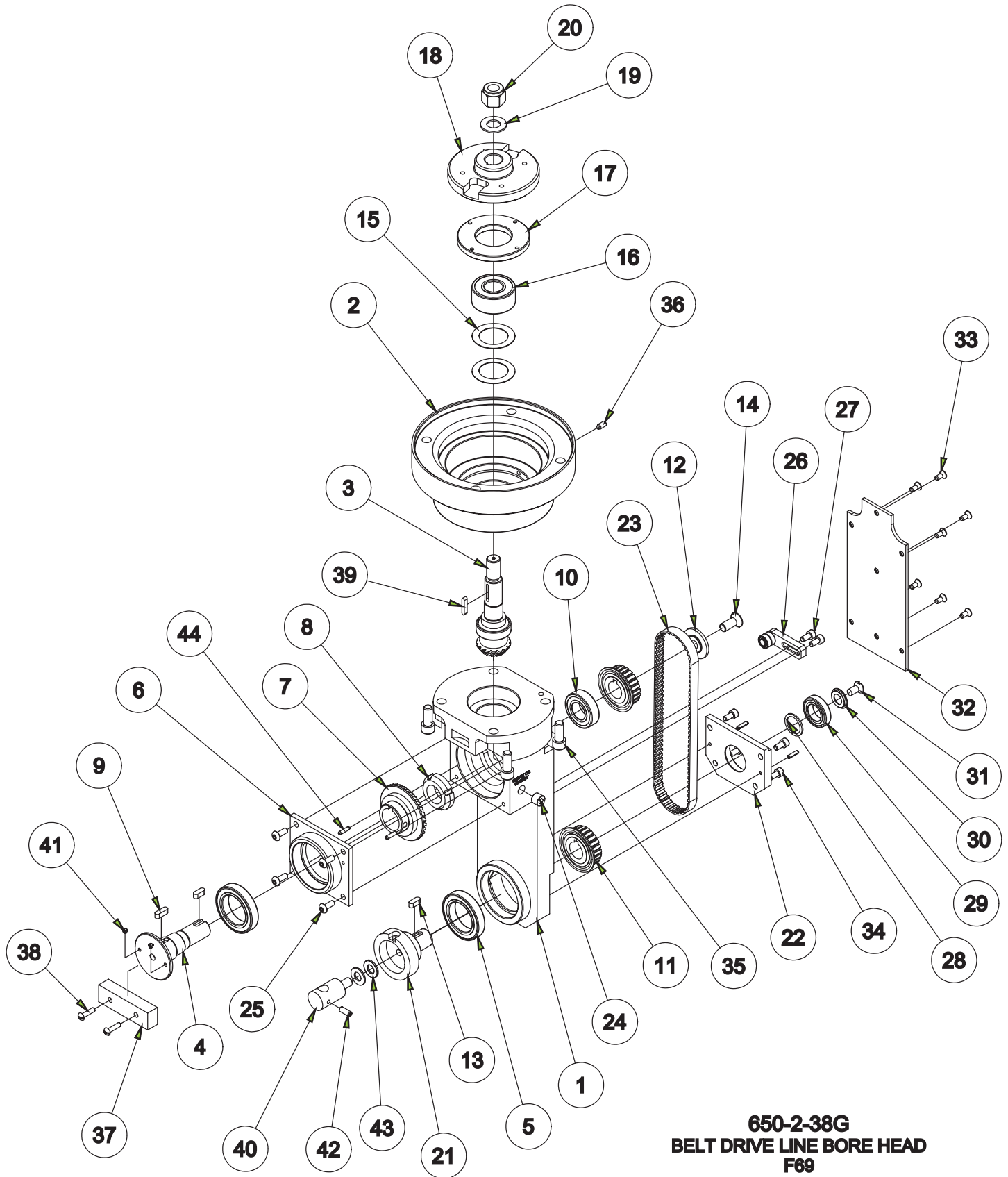
6753Q RIGHT ANGLE DRIVE ASSEMBLY F-69			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	6773C	HOUSING, GEAR LINE BORE HEAD F-65/F-80
2	4	MF-22	5/16-18UNC x 3/4" LG. S.H.C.S.
3	1	650-2-42	SHAFT, HORIZONTAL PRECISION R.A.D. F-65
4	1	502-9-32	Bearing, Ball MRC 5203SBKFF
5	2	6007A	Bellville Spring, BS203
6	1	6775A	PINION AND SHAFT ASSEMBLY - R.A.D. F-65
7	1	6766W	RING GEAR REWORK - F60 SMALL 90 DEG. R.A.D.
8	1	6753E	Bearing, NDH Z99L03
9	1	6766F	End Cap
10	6	6774E	Hexagon Socket Head Cap Screw
11	1	MF-186	1/2-13 Nylock Nut
12	1	100-19	Washer
13	1	6705B	BEARING LOCK NUT
14	1	100-82-2A	10-24UNC BRASS TIPPED SOCKET SET SCREW
15	1	6772A	Nut, Bearing Line Bore Head
16	1	6770G	HUB, MOUNTING - F69
17	1	6771B	DRIVER, F60 LINE BORE HEAD
18	1	6774D	COVER, BEARING RETAINER - R.A.D. F-65
19	1	502-9-72C	OUTER BALL BEARING, R.A.D. F-65
20	1	650-2-18M	KEY, HORIZONTAL SHAFT, R.A.D.
21	1	MF-233	Countersunk Hex-Head Plug 1/8
22	1	6753V	KEY (MICARTA), PINION - 90 DEGREE HEAD
23	2	MF-217	1/8 x 1/2 Roll Pin
24	1	502-9-9S	INDICATOR MOUNT, R.A.D.
25	2	MF-177	SAE FLAT WASHER 5/16"
26	1	MF-58A	10-24UNC x 1/2" LG. SOCKET FLAT POINT SET SCREW
27	1	6774K	5/16-24UNF x 3/4" LG. HEX SOCKET FLAT HEAD SCREW



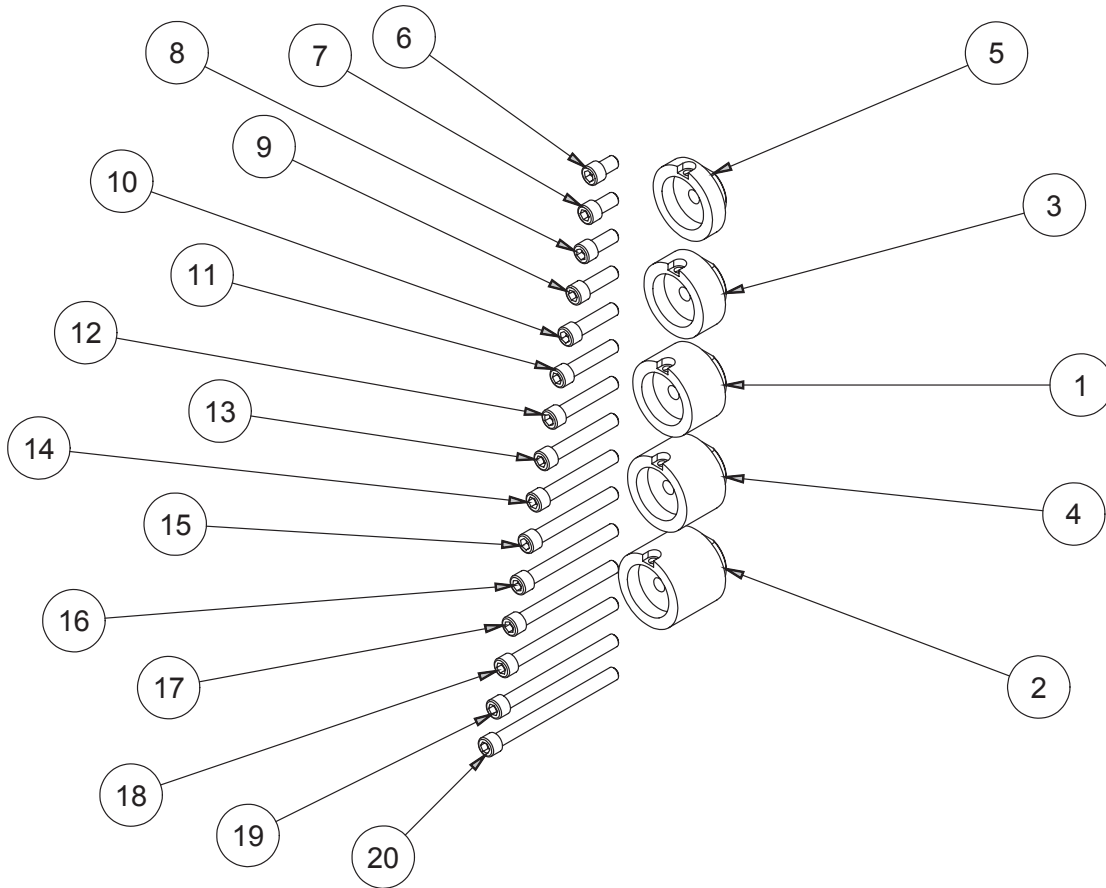
CUTTERHEAD SPACER SET - LINE BORE HEAD - F69

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-2-43	1.05 SPACER
2	1	650-2-43A	SPACER - 1.50" LONG
3	1	650-2-43B	SPACER - .70" LONG
4	1	650-2-43D	SPACER - 1.215" LONG
5	1	650-2-43E	SPACER - .41" LONG
6	1	MF21A	S.H.C.S. 5/16 - 18 UNC - 1/2
7	1	MF-21	S.H.C.S. 5/16 - 18 UNC - 5/8
8	1	MF-22	S.H.C.S. 5/16 - 18 UNC - 3/4
9	1	MF-23	S.H.C.S. 5/16 - 18 UNC - 1
10	1	MF-24	S.H.C.S. 5/16 - 18 UNC - 1-1/4
11	1	MF-25	S.H.C.S. 5/16 - 18 UNC - 1 1/2
12	1	Mf-26	S.H.C.S. 5/16 - 18 UNC - 1-3/4
13	1	MF-27	S.H.C.S. 5/16 - 18 UNC - 2
14	1	MF-27C	S.H.C.S. 5/16 - 18 UNC - 2-1/4
15	1	MF-27A	S.H.C.S. 5/16 - 18 UNC - 2 1/2
16	1	MF-28	S.H.C.S. 5/16 - 18 UNC - 2 3/4
17	1	MF-28E	S.H.C.S. 5/16 - 18 UNC - 3
18	1	MF-28F	S.H.C.S. 5/16 - 18 UNC - 3-1/4
19	1	MF-28A	S.H.C.S. 5/16 - 18 UNC - 3-1/2
20	1	MF-28G	S.H.C.S. 5/16 - 18 UNC - 3-3/4

650-2-38G Special Belt Drive 90 Degree Right Angle Drive Assembly Parts

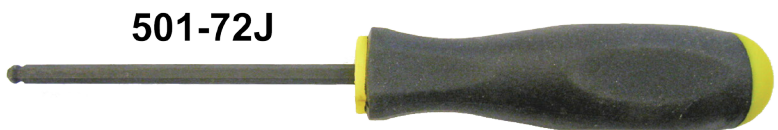
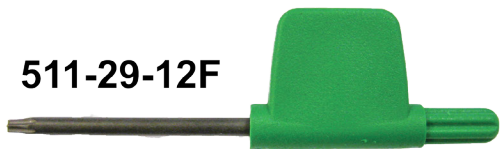
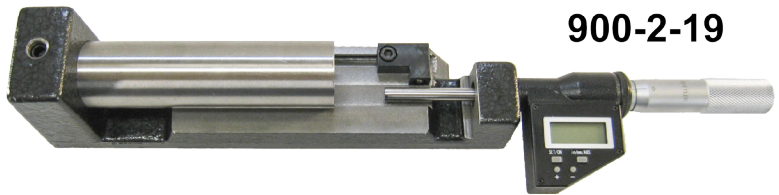
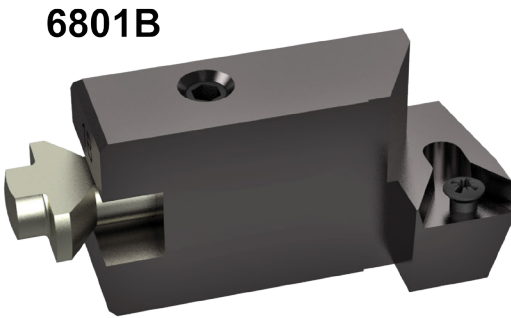


650-2-38G BELT DRIVE RIGHT ANGLE DRIVE - F69			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-2-38B	HOUSING, RIGHT ANGLE DRIVE BELT DRIVE - F65
2	1	6770G	HUB, MOUNTING - F69
3	1	650-2-37X	PINION & SHAFT ASSEMBLY BELT DRIVE LINE BORE HEAD
4	1	650-2-37D	SHAFT, HORIZONTAL UPPER - BELT DRIVE LINE BORE HEAD
5	2	502-9-72C	OUTER BALL BEARING, RIGHT ANGLE LINE BORING HEAD F-65
6	1	650-2-37C	BEARING COVER, BELT DRIVE RIGHT ANGLE DRIVE - F-65
7	1	6766W	RING GEAR REWORK - F60 SMALL 90 DEG. R.A.D.
8	1	6705B	BEARING LOCK NUT
9	1	650-2-18M	KEY, HORIZONTAL SHAFT, R.A.D.
10	1	6753E	Bearing, NDH Z99L03
11	2	650-2-37G	PULLEY (REWORK), BELT DRIVE R.A.D. - F60
12	1	650-2-37E	ENDCAP, UPPER PULLEY RETAINER - BELT DRIVE LINE BORE HEAD
13	2	650-2-37U	MICARTA KEY, BELT DRIVE LINE BORE HEAD
14	1	6774K	HEX SOCKET FLATHEAD SCREW 5/16-24UNF x 3/4"
15	2	6007A	Bellville Spring, BS203
16	1	502-9-32	Bearing, Ball MRC 5203SBKFF
17	1	6772A	Nut, Bearing Line Bore Head
18	1	6771B	DRIVER, F60 LINE BORE HEAD
19	1	100-19	Washer
20	1	MF-186	1/2-13 Nylock Nut
21	1	650-2-42B	Horizontal Shaft
22	1	650-2-37L	LOWER BEARING RETAINER - BELT DRIVE LINE BORE HEAD
23	1	650-2-38D	TIMING BELT, BELT DRIVE LINE BORE HEAD
24	1	MF-233	1/8-27NPT PIPE PLUG
25	4	Mf-88A	Socket Button Head Cap Screw 10 - 24 x 1/2
26	1	650-2-37P	BELT TENSIONER ASSY, BELT DRIVE LINE BORE HEAD
27	2	MF-4	10-24UNC x 3/8" LG. S.H.C.S.
28	1	650-2-37V	SPACER, LOWER PULLEY - BELT DRIVE LINE BORE HEAD
29	1	650-2-37J	BEARING, BELT DRIVE LINE BOER HEAD
30	1	650-2-37K	END CAP, LOWER - BELT DRIVE LINE BORE HEAD
31	1	650-2-37Z	1/4-28UNF x 1/2" SLOTTED FLATHEAD SCREW
32	1	650-2-38C	BELT COVER, BELT DRIVE LINE BORE HEAD
33	7	MF-76	Socket Flat Head 8-32 UNC x 0.375
34	4	MF-4	S.H.C.S. 10 - 24 UNC - 3/8
35	4	MF-22	S.H.C.S. 5/16 - 18 UNC - 3/4
36	1	100-82-2A	Brass tipped 10-24 Socket Set Screw
37	1	650-2-38a	RETAINING TOOL - BELT DRIVE R.A.D.
38	2	MF-105	ROUND HEAD MACHINE SCREW 8-32 x 5/8"
39	1	6753V	KEY (MICARTA), PINION - 90 DEGREE HEAD
40	1	502-9-9S	INDICATOR MOUNT, R.A.D.
41	2	MF-49	8-32UNC x 1/8" LONG SOCKET SET SCREW
42	1	MF-58A	10-24UNC x 1/2" LG. SOCKET FLAT POINT SET SCREW
43	2	MF-177	SAE FLAT WASHER 5/16"
44	4	MF-217	1/8 x 1/2 Roll Pin



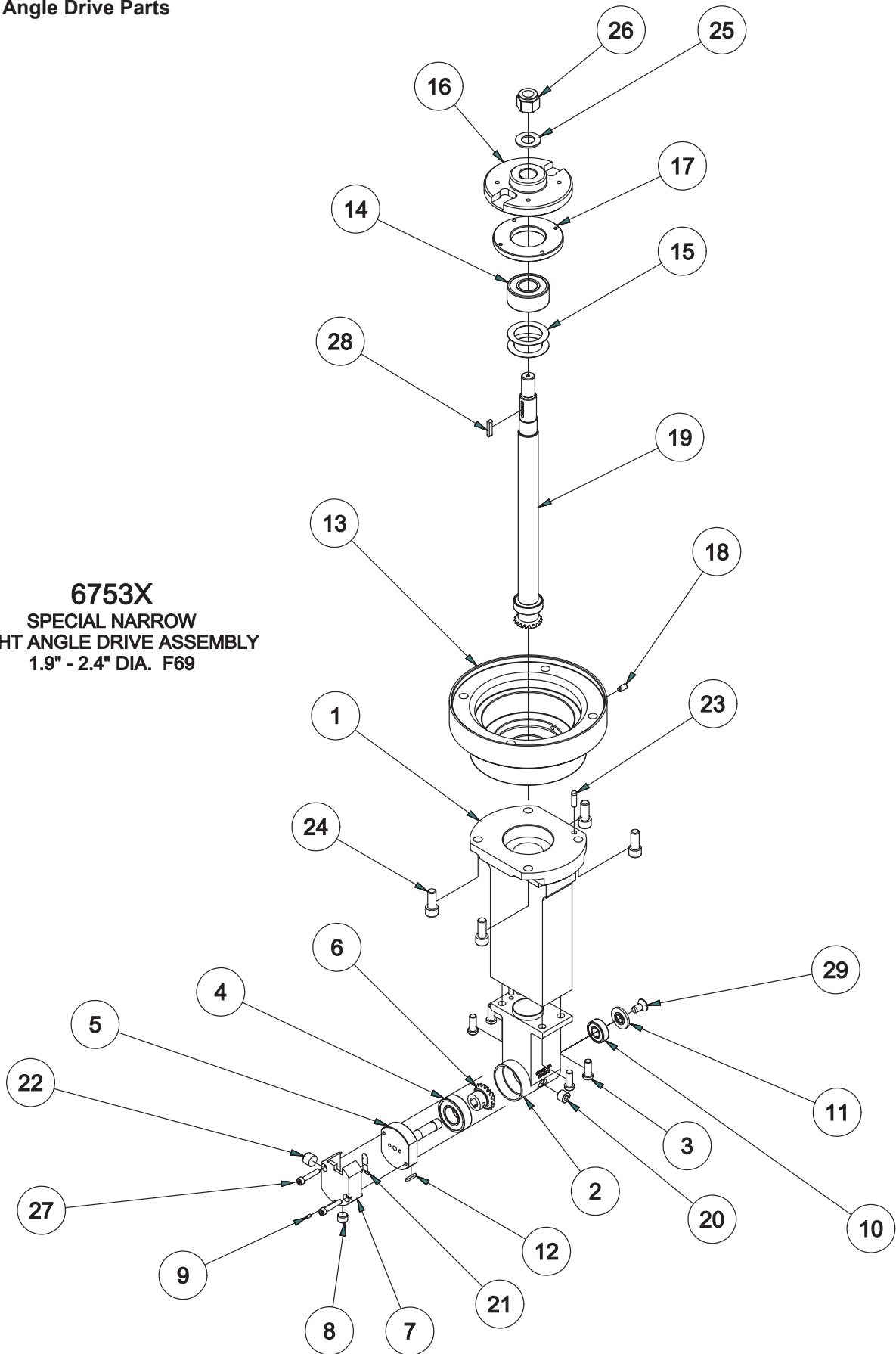
CUTTERHEAD SPACER SET - BELT DRIVE LINE BORE HEAD - F69			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-2-43	1.05 SPACER
2	1	650-2-43A	SPACER - 1.50" LONG
3	1	650-2-43B	SPACER - .70" LONG
4	1	650-2-43D	SPACER - 1.215" LONG
5	1	650-2-43E	SPACER - .41" LONG
6	1	MF21A	Hexagon Socket Head Cap Screw
7	1	MF-21	S.H.C.S. 5/16 - 18 UNC - 5/8
8	1	MF-22	S.H.C.S. 5/16 - 18 UNC - 3/4
9	1	MF-23	Hexagon Socket Head Cap Screw
10	1	MF-24	Hexagon Socket Head Cap Screw
11	1	MF-25	S.H.C.S. 5/16 - 18 UNC - 1 1/2
12	1	Mf-26	Hexagon Socket Head Cap Screw
13	1	MF-27	S.H.C.S. 5/16 - 18 UNC - 2
14	1	MF-27C	S.H.C.S. 5/16 - 18 UNC - 2-1/4
15	1	MF-27A	S.H.C.S. 5/16 - 18 UNC - 2 1/2
16	1	MF-28	S.H.C.S. 5/16 - 18 UNC - 2 3/4
17	1	MF-28E	S.H.C.S. 5/16 - 18 UNC - 3
18	1	MF-28F	S.H.C.S. 5/16 - 18 UNC - 3-1/4
19	1	MF-28A	S.H.C.S. 5/16 - 18 UNC - 3-1/2
20	1	MF-28G	S.H.C.S. 5/16 - 18 UNC - 3-3/4

6753Y Narrow Right Angle Drive Components



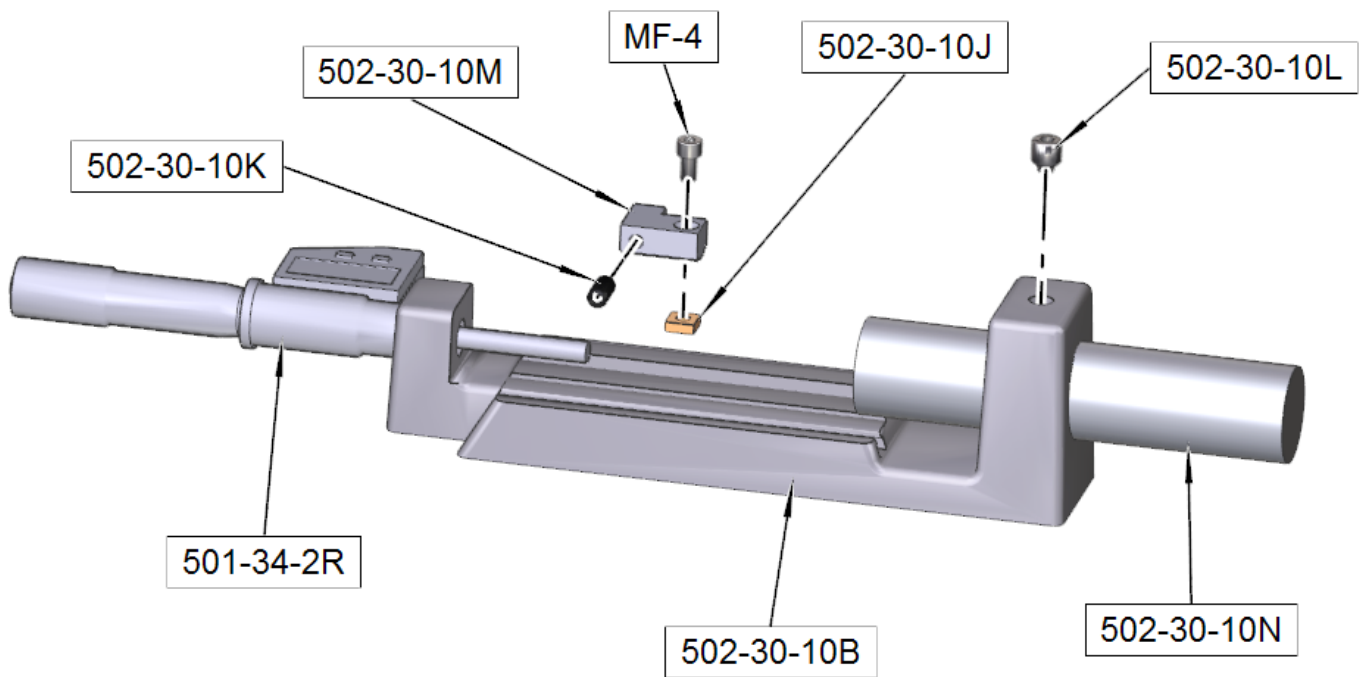
6753X Right Angle Drive Parts

6753X
SPECIAL NARROW
RIGHT ANGLE DRIVE ASSEMBLY
1.9" - 2.4" DIA. F69



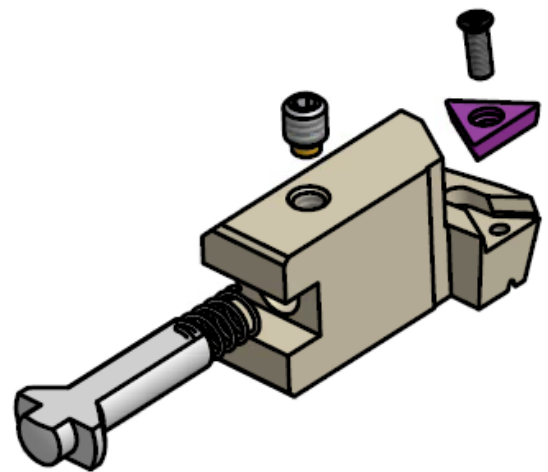
6753X SPECIAL RIGHT ANGLE DRIVE ASSEMBLY - F69			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-2-19X	Upper Housing, Right Angle Drive Narrow
2	1	650-2-19Y	LOWER HOUSING - F-65 LINE BORE (NARROW)
3	4	650-4-18	Low Head Cap Screw, 1/4-20 x 5/8
4	1	650-2-19J	Shaft, Horizontal
5	1	650-2-19R	RING GEAR (REWORK) F65 LINE BORE HEAD (NARROW)
6	1	650-2-19H	Cutter Head Cap
7	1	502-2-85B	Index Screw
8	1	650-2-6A	4-40 brass tipped set screw
9	1	650-2-19L	Bearing, MRC- R6-ZZ
10	1	650-2-19S	Cover Rear, End Cap
11	1	650-2-19W	Key
12	1	6770G	HUB, MOUNTING - F69
13	1	502-9-32	Bearing, Ball MRC 5203SBKFF
14	2	6007A	Bellville Spring, BS203
15	1	6771B	DRIVER, F60 LINE BORE HEAD
16	1	6772A	Nut, Bearing Line Bore Head
17	1	100-82-2A	Brass tipped 10-24 Socket Set Screw
18	1	650-2-19Z	Assembly, Vertical shaft
19	1	MF-233	Countersunk Hex-Head Plug 1/8-27 NPT
20	1	100-1B	Tool Lock Spring
21	1	501-70G	SCREW, TOOL HOLDER LOCK ASSEMBLY
22	2	MF-197	3/16-5/8" LG. DOWEL PIN
23	4	MF-22	S.H.C.S. 5/16 - 18 UNC - 3/4
24	1	100-19	Washer
25	1	MF-186	1/2-13 Nylock Nut
26	2	MF-3A	8-32UNC x 7/8" LG. S.H.C.S.
27	1	6753V	KEY (MICARTA), PINION - 90 DEGREE HEAD
28	1	MF-82	1/4-20UNC x 1/2" LG. SOCKET FLAT HEAD SCREW
29	1	6753E	BALL BEARING

900-2-19 Micrometer Parts



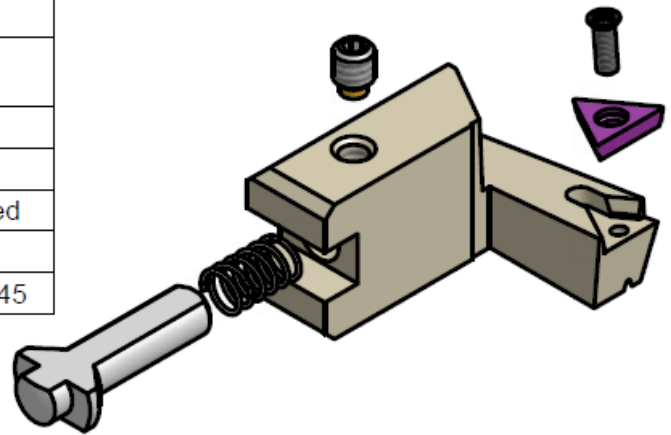
6801B Insert Holder Parts

6801B Tool Holder Assembly			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	6800B	Tool Cartridge
2	1	100-82-3B	Adjusting Pin
3	1	100-82-2	Set Screw, brass tipped
4	1	100-82-1	Spring
5	1	511-29-12E	Insert Screw, m2.5 x .45



6801N Insert Holder Parts

6801N Tool Holder Assembly, 1/4 IC triangle, Pos rake			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	6800N	Tool Cartridge offset
2	1	100-82-1	Spring
3	1	100-82-2	Set Screw, brass tipped
4	1	100-82-3B	Adjusting Pin
5	1	511-29-12E	Insert Screw, m2.5 x .45



650-2-39B Line Boring Cutterhead Package Components

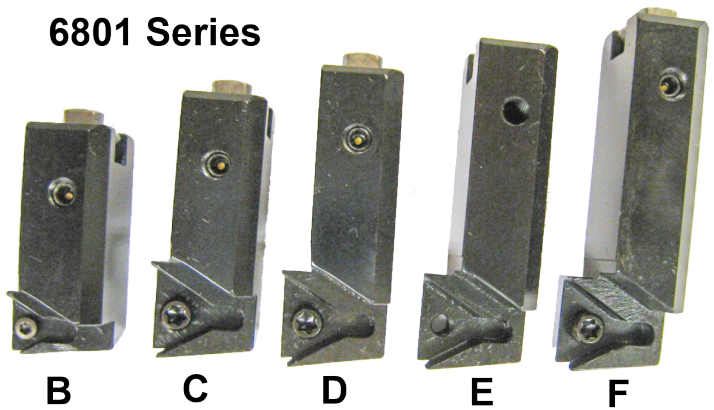


650-2-39F

RT321F



6801 Series



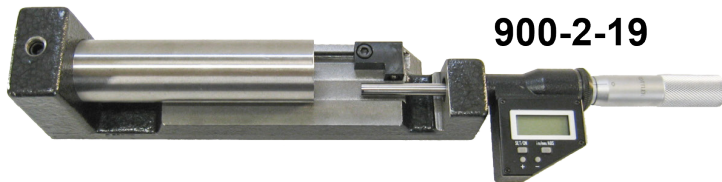
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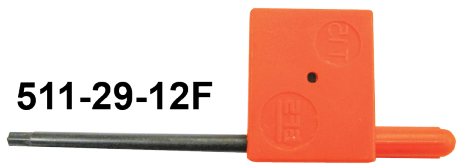
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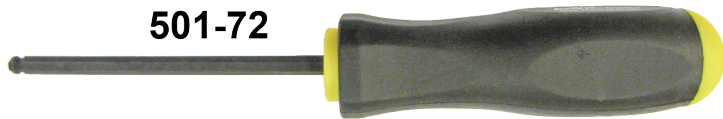
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900-2-19



511-29-12F



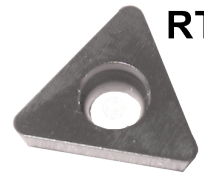
501-72



T8D



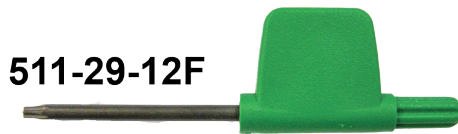
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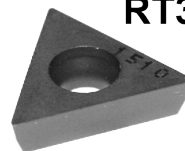
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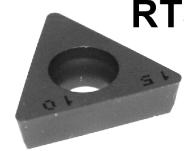
RT322F



511-29-12F

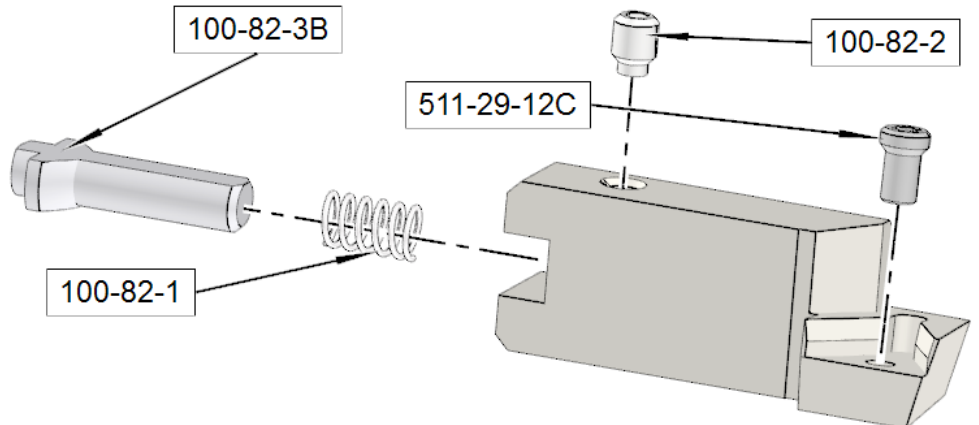


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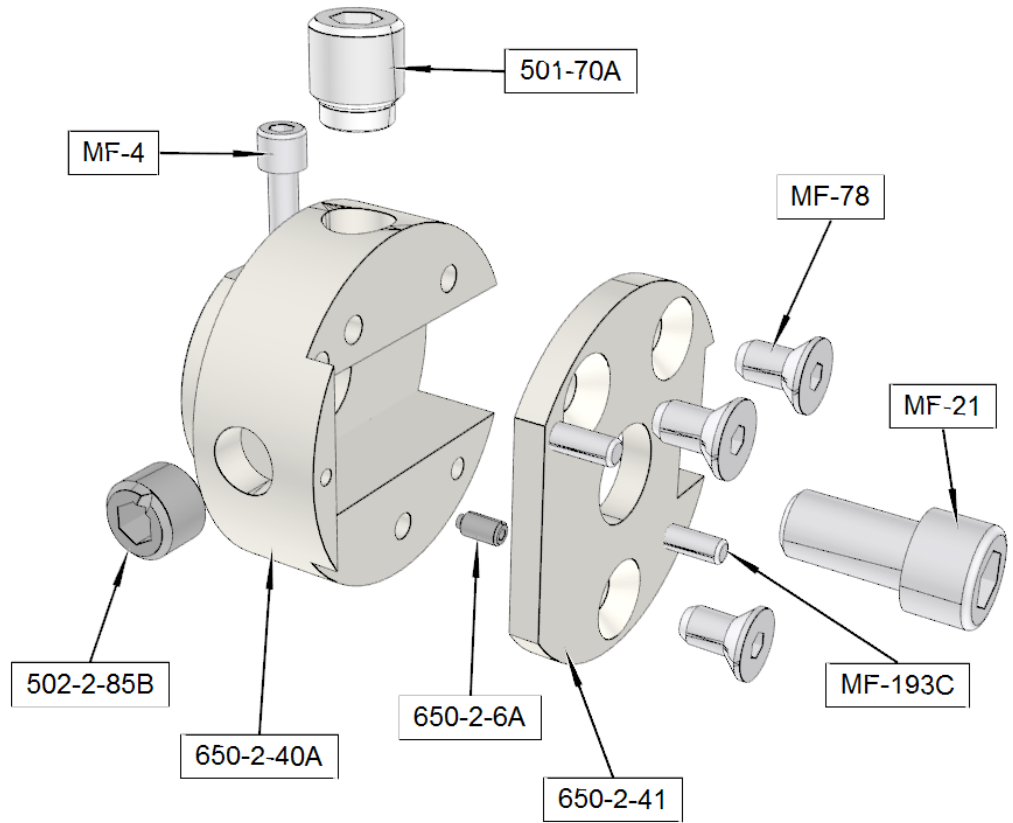


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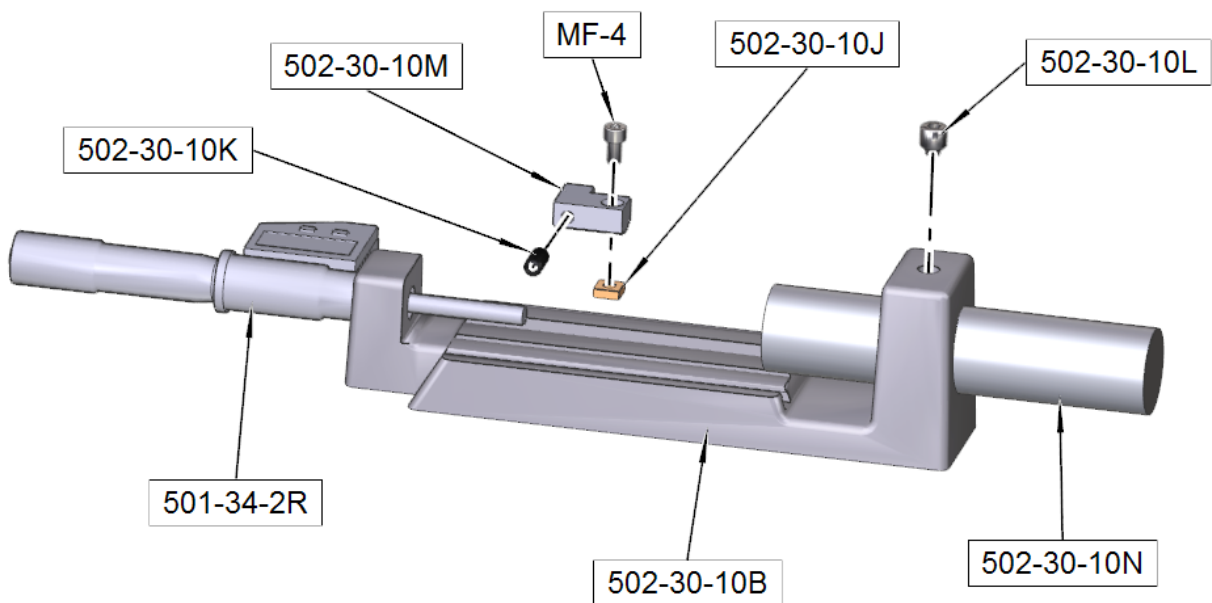
6801 Series Insert Holder Parts



650-2-39F Cutterhead Parts

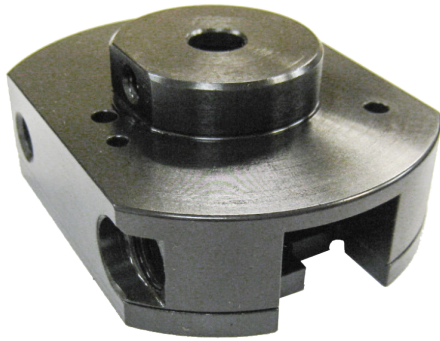


900-2-19 Micrometer Parts

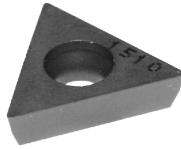


650-2-39C Cutterhead Package Components

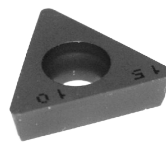
650-2-39G



RT321



RT322



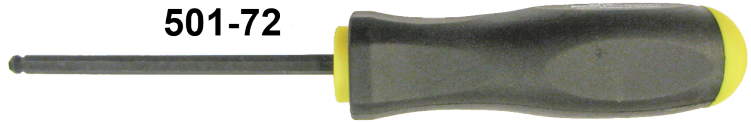
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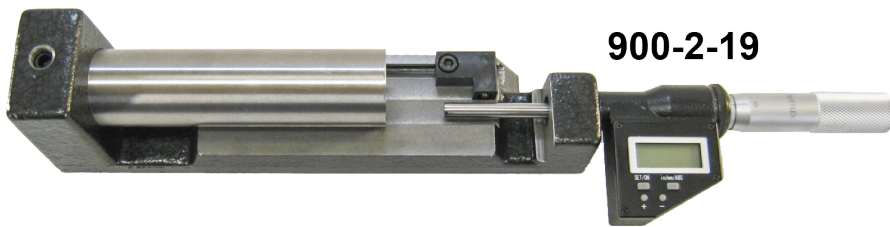
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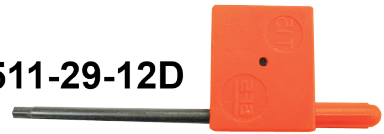
501-72



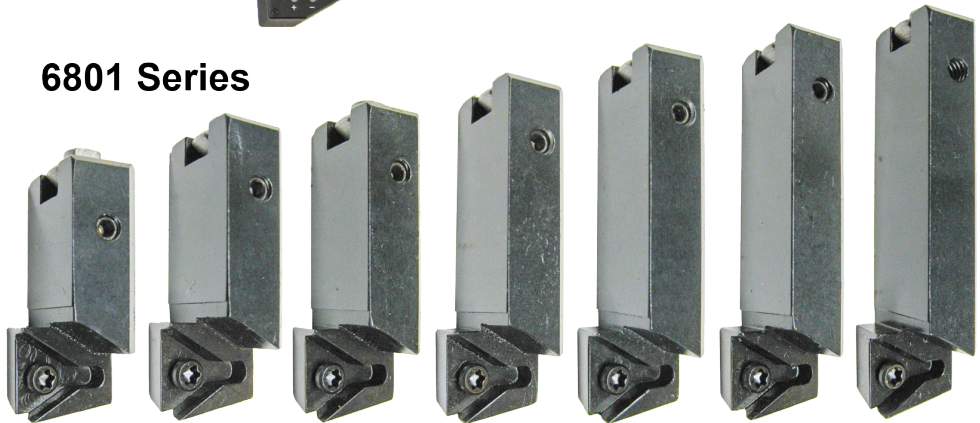
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511-29-12D



6801 Series



C

D

E

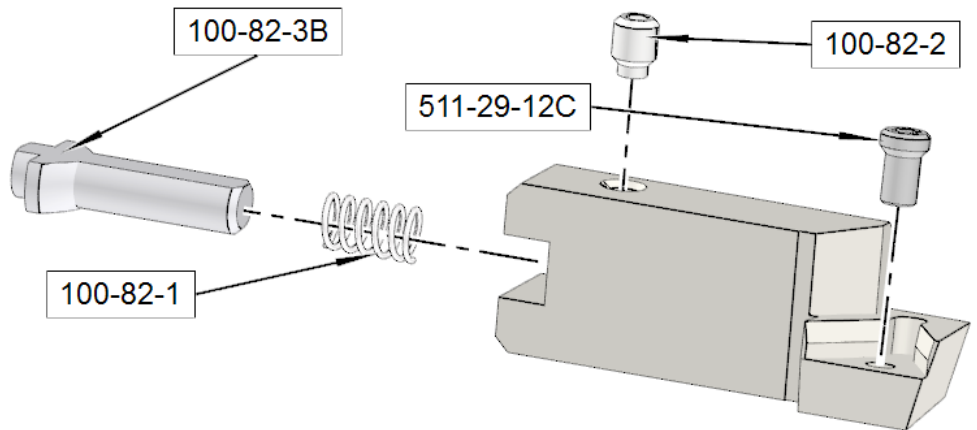
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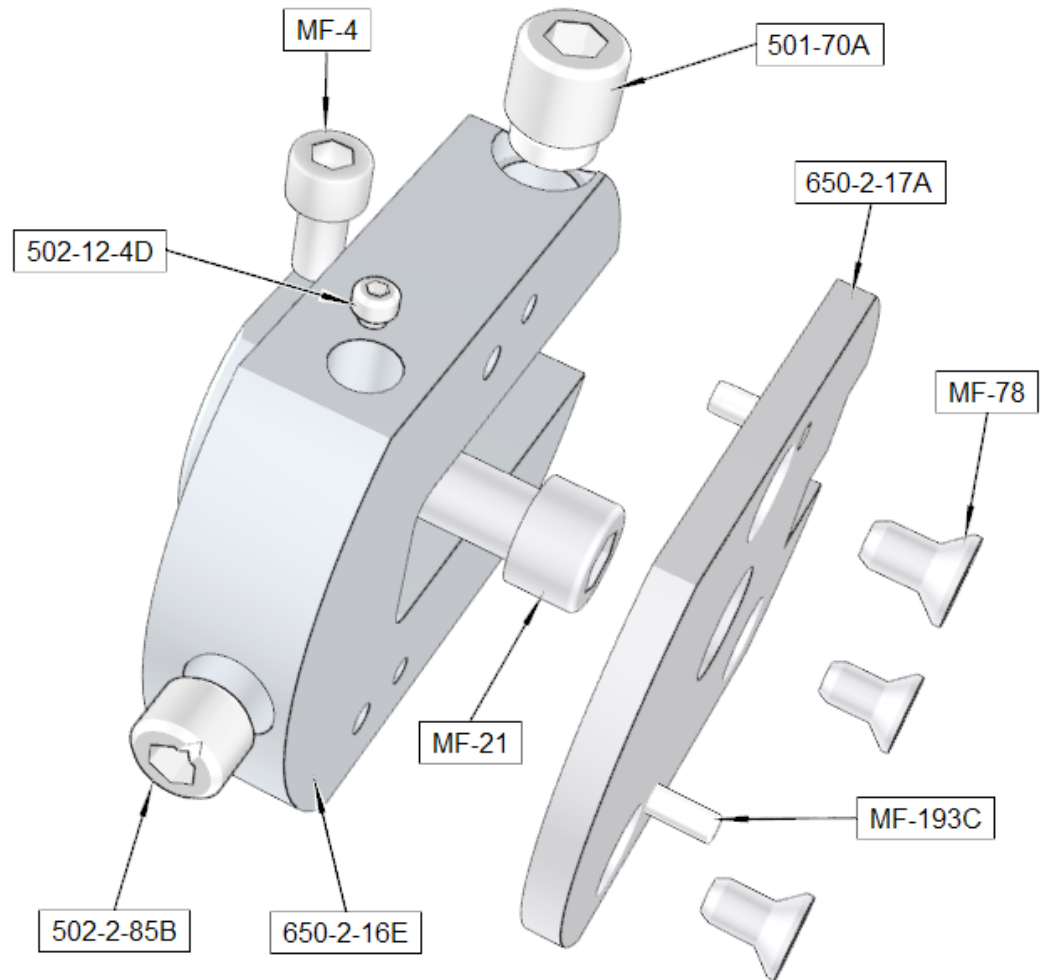
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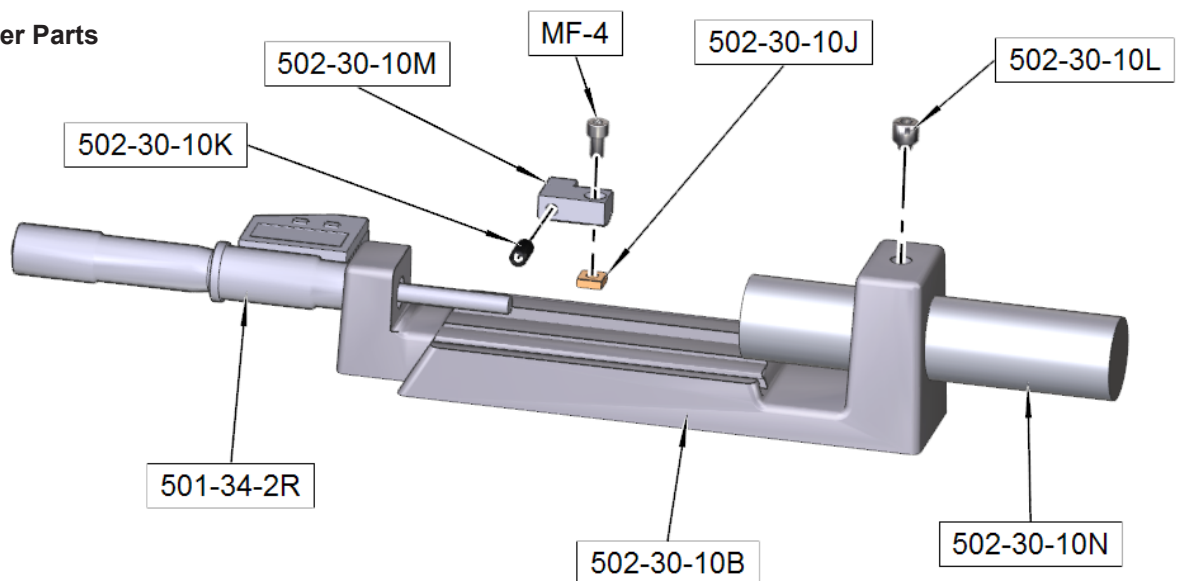
6801 Series Insert Holder Parts



650-2-39G Cutterhead Parts

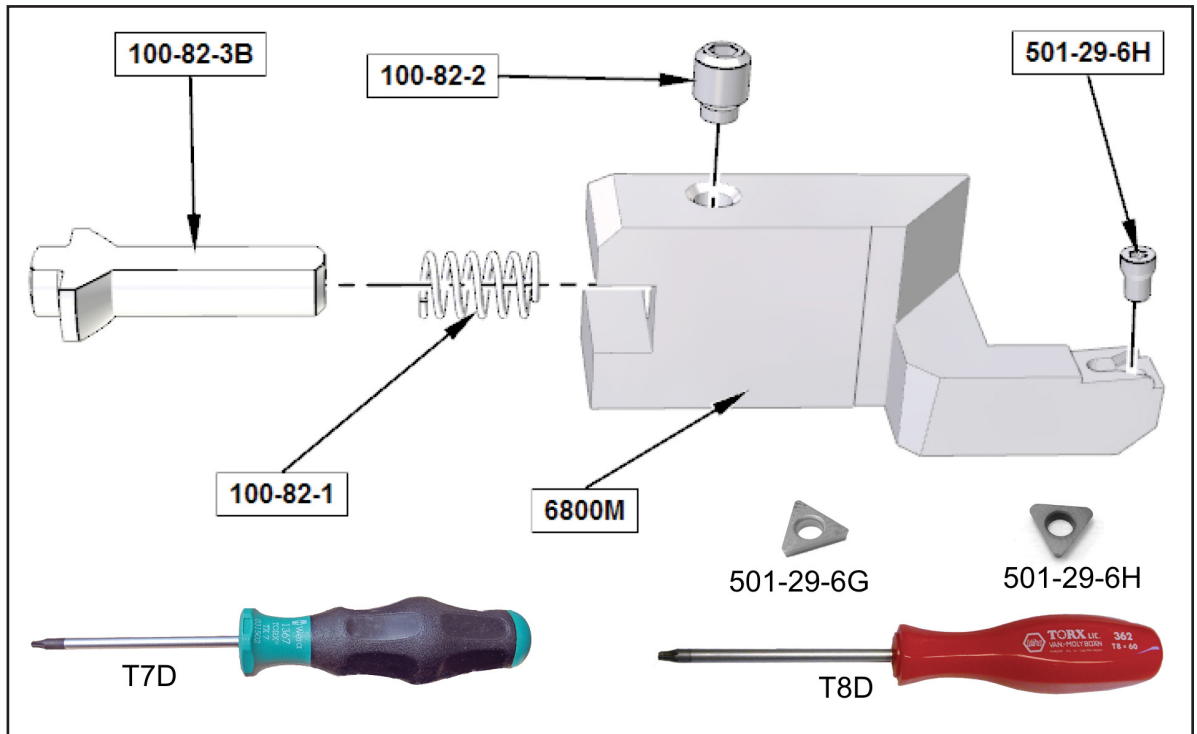


900-2-19 Micrometer Parts

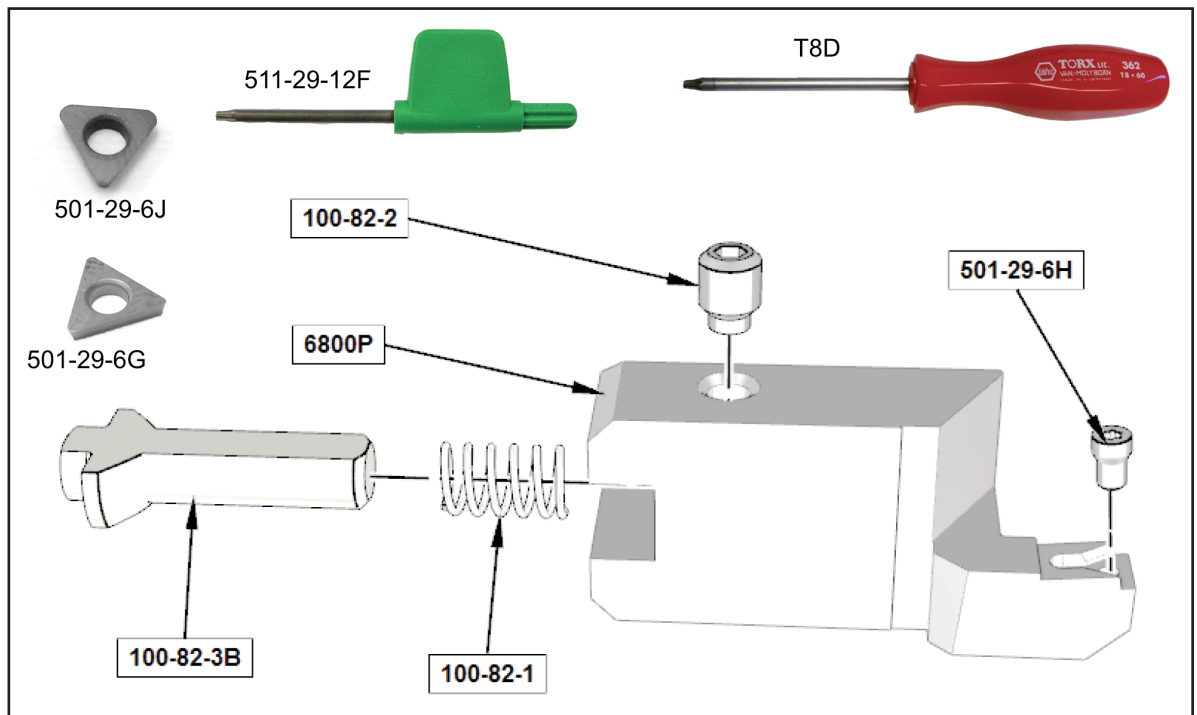


Special Main Line Boring Thrust Facing Tool

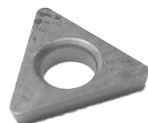
6801M Insert Holder Package Components



6801P Insert Holder Parts



501-29-6G Triangular Insert

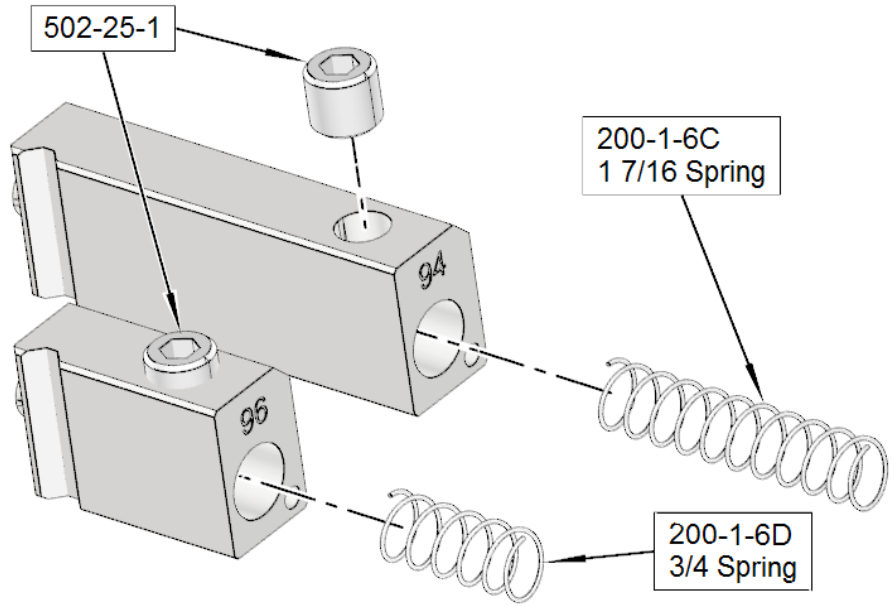


501-29-6H Insert Screw



Special Main Line Boring Chamfering Tool

199 Series Tool Holder Parts



501-33E Tool bit, 45-Degree Chamfer

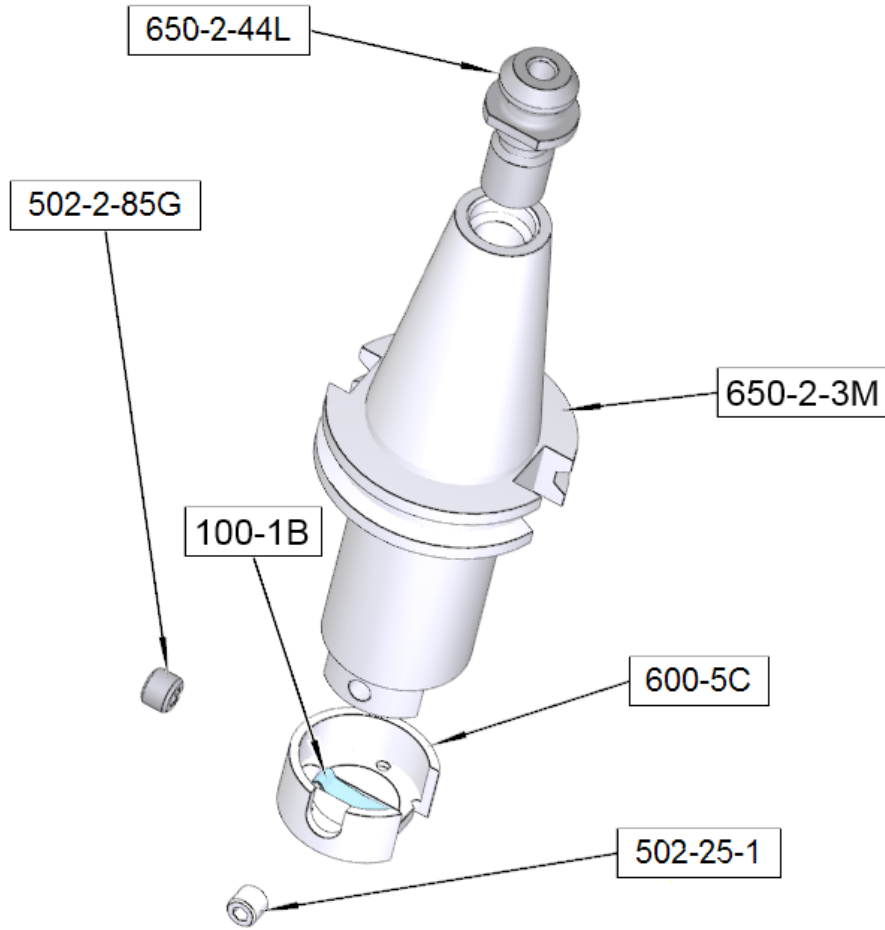


Cam Line Boring Tooling

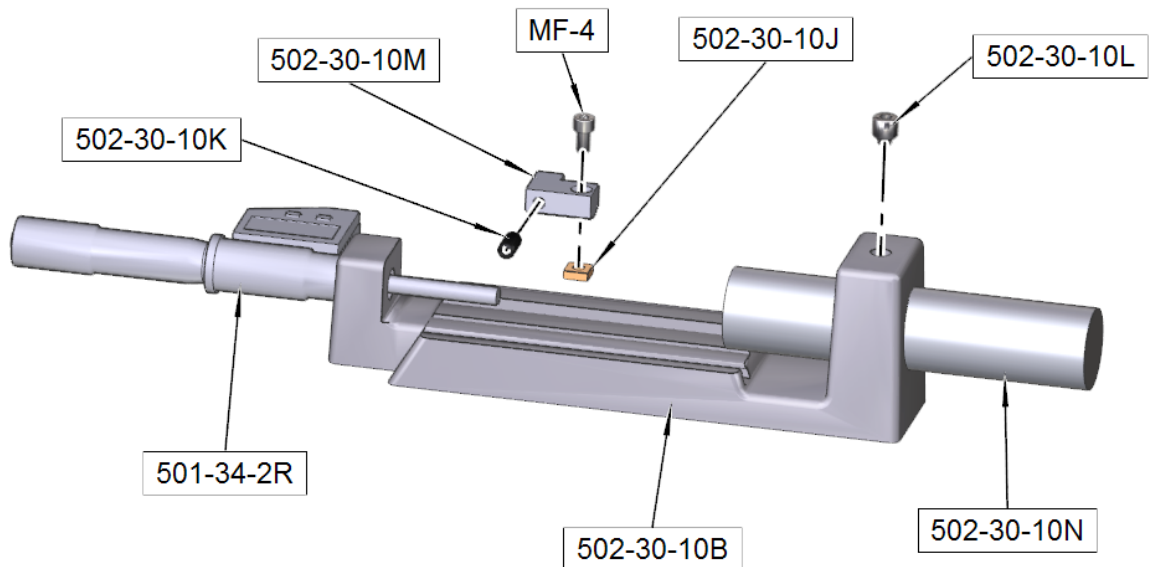
650-3-43T Cam Line Bore Tooling Package Parts



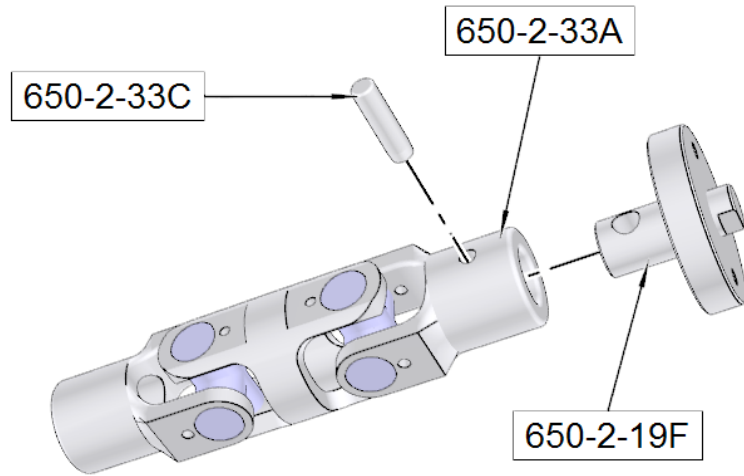
650-3-3R Cutter Head Assembly Parts



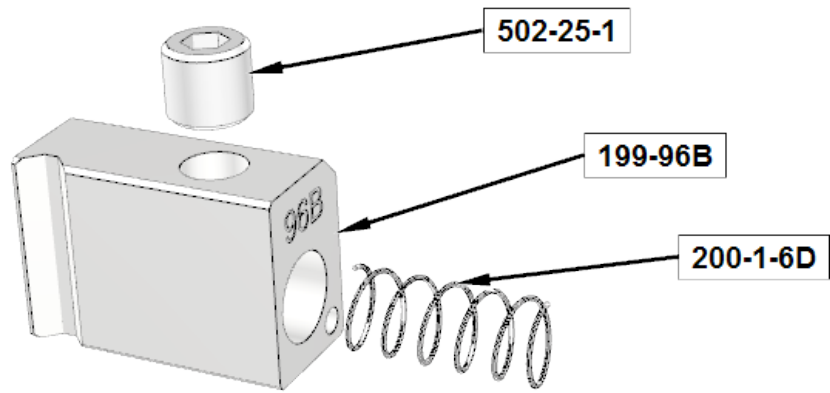
900-2-19 Micrometer Parts



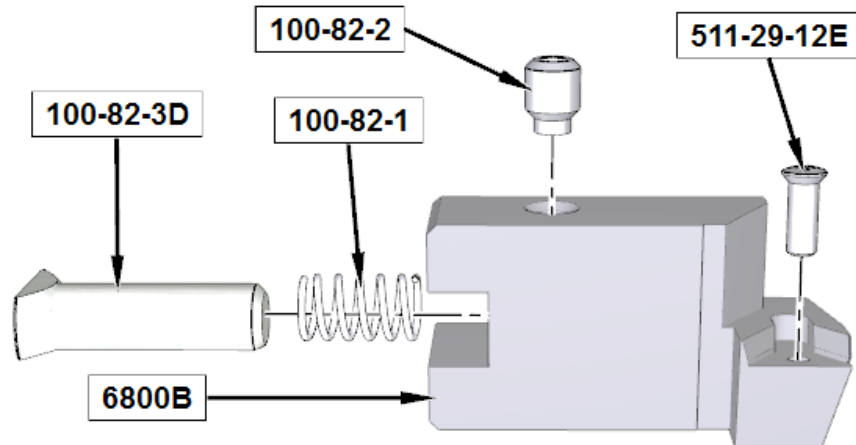
650-2-19G Universal Drive Parts



199-96B Tool Holder Parts



6802B Insert Holder Parts

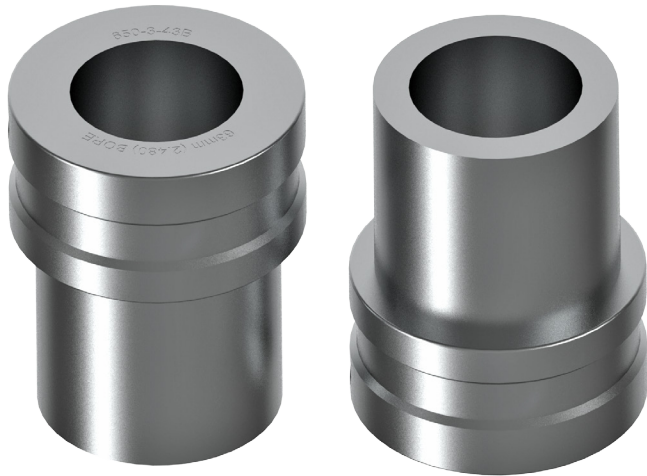


Cam Line Bar Bushings

- If customer requires sizes other than listed below, rottler will manufacture the required size.
- Customer must provide the size, including tolerance, of the housing bore/s the bushing will be used in.
- Rottler will use this information to design the actual bushing.
- Bushings are machined smaller than housing bore.
- Sold in pairs.

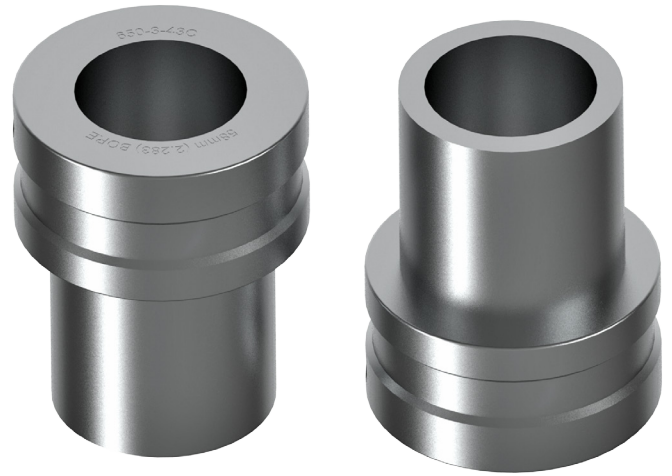
650-3-43B Bushing - 63mm (2.480" +/- .0007)

(Sold in pairs)



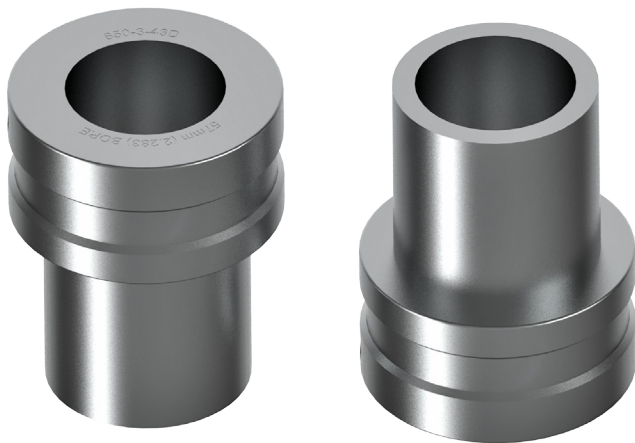
650-3-43C Bushing - 58mm (2.282" +/- .0007)

(Sold in pairs)



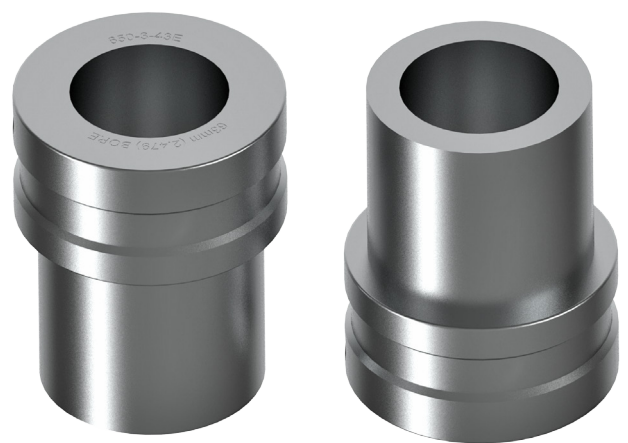
650-3-43D Bushing - (2.250" +/- .0007)

(Sold in pairs)



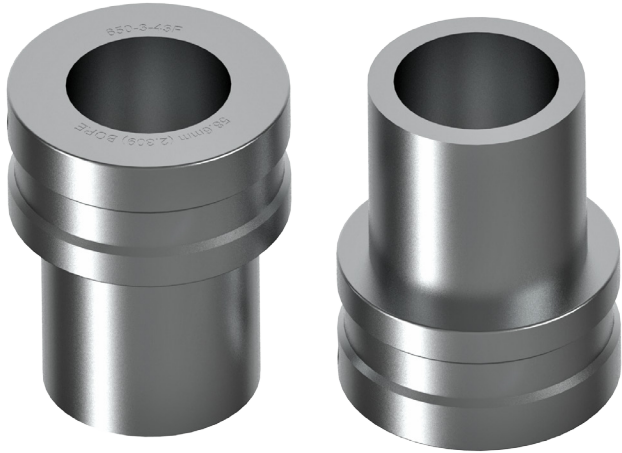
650-3-43E Bushing - (2.790" +/- .0007)

(Sold in pairs)



650-3-43F Bushing - (2.309" +/- .0007)

(Sold in pairs)



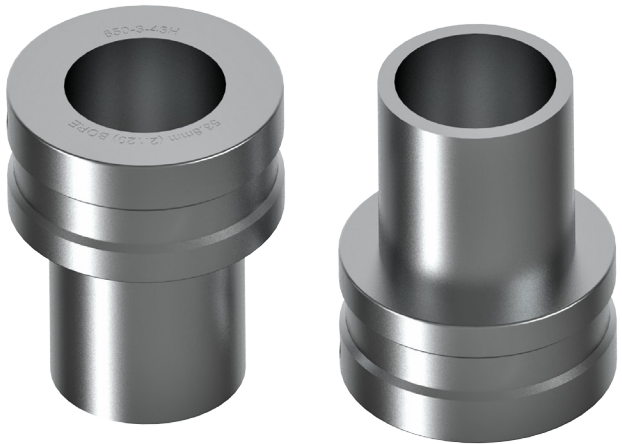
650-3-43G Bushing - (2.500" +/- .0007)

(Sold in pairs)



650-3-43H Bushing - (2.120" +/- .0007)

(Sold in pairs)



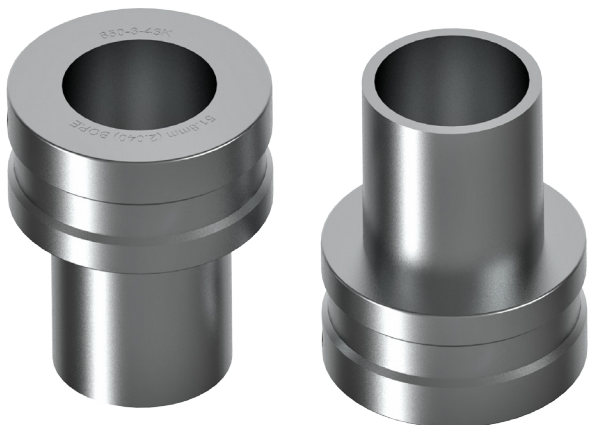
650-3-43J Bushing - (2.030" +/- .0007)

(Sold in pairs)



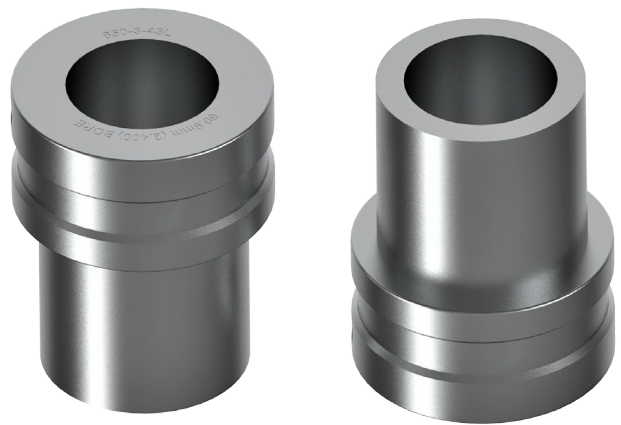
650-3-43K Bushing - (2.040" +/- .0015)

(Sold in pairs)



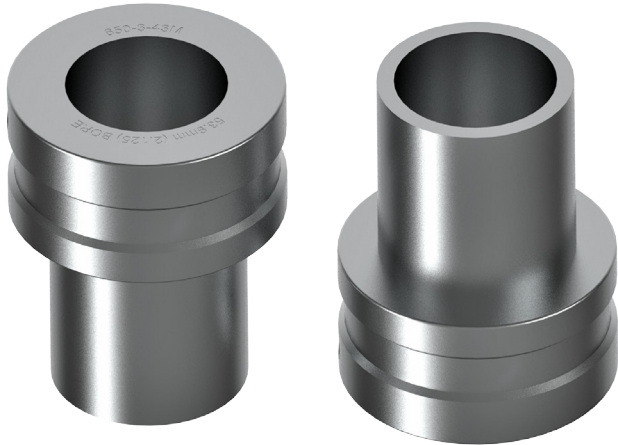
650-3-43L Bushing - (2.400" +/- .0007)

(Sold in pairs)



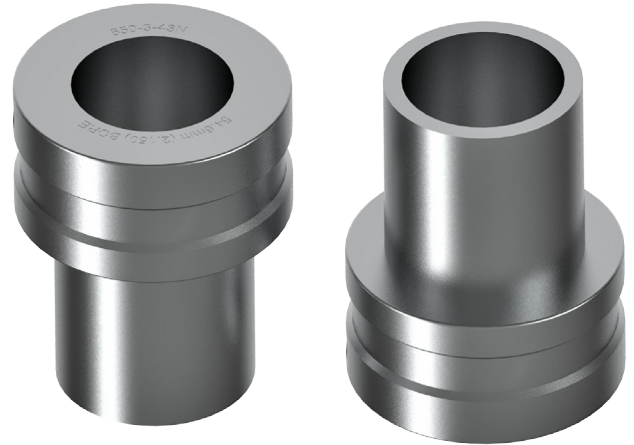
650-3-43M Bushing - (2.125" +/- .0007)

(Sold in pairs)



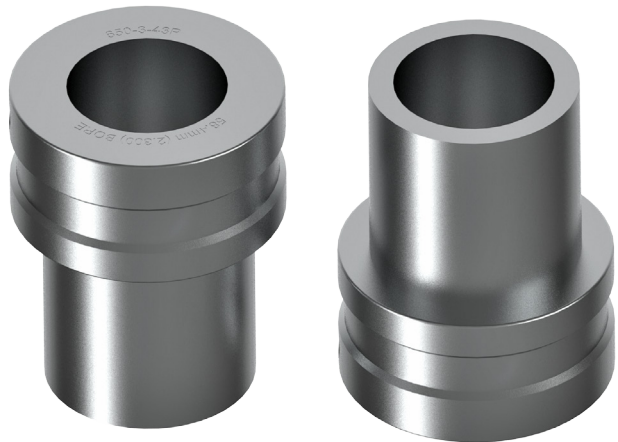
650-3-43N Bushing - (2.150" +/- .0007)

(Sold in pairs)



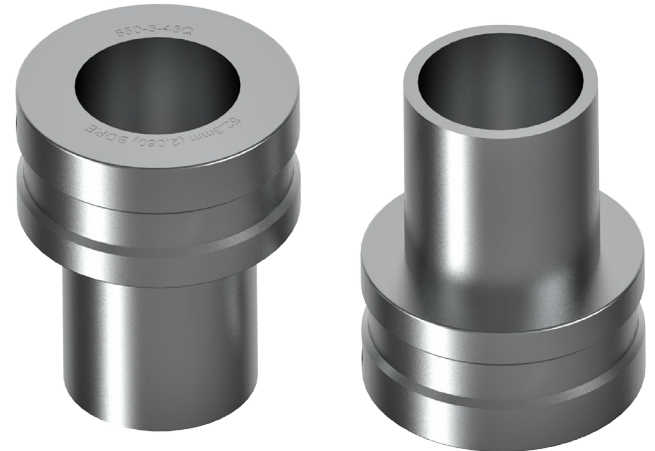
650-3-43P Bushing - (2.300" +/- .0007)

(Sold in pairs)



650-3-43Q Bushing - (2.060" +/- .0007)

(Sold in pairs)



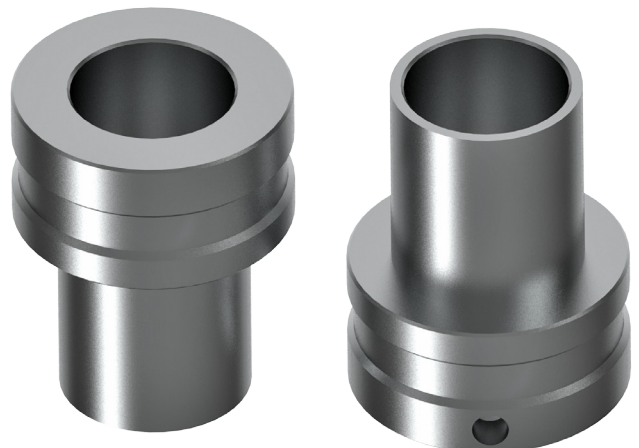
650-3-43R Bushing - (2.6733" +/- .0007)

(Sold in pairs)



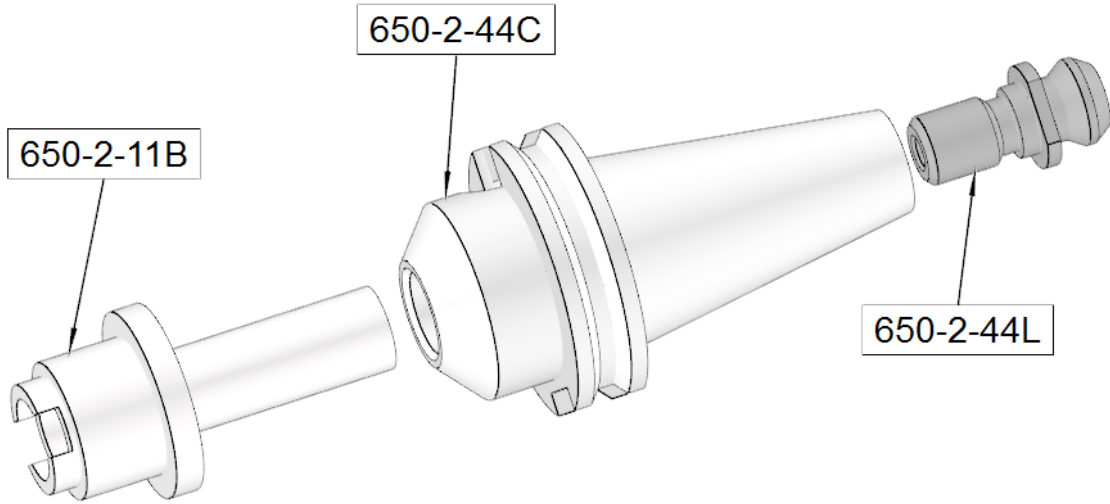
650-3-43S Bushing - (2.0450 +/- .0007)

(Sold in pairs)



Thread Tapping Tooling

650-2-11K Quick Change Tap Holder Cartridge Assembly Parts



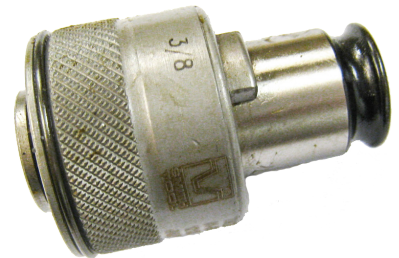
650-2-11C Torque Control Tap Holder for 1/4" (6.35mm) taps



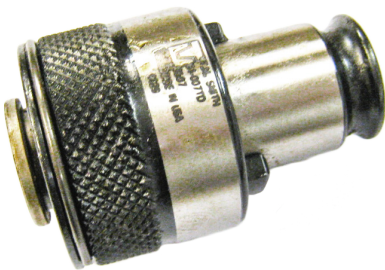
650-2-11D Torque Control Tap Holder for 5/16" (7.95mm) taps



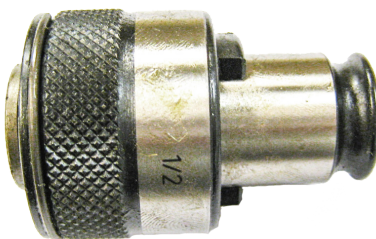
650-2-11E Torque Control Tap Holder for 3/8" (9.525mm) taps



650-2-11F Torque Control Tap Holder for 7/16" (11.13mm) taps

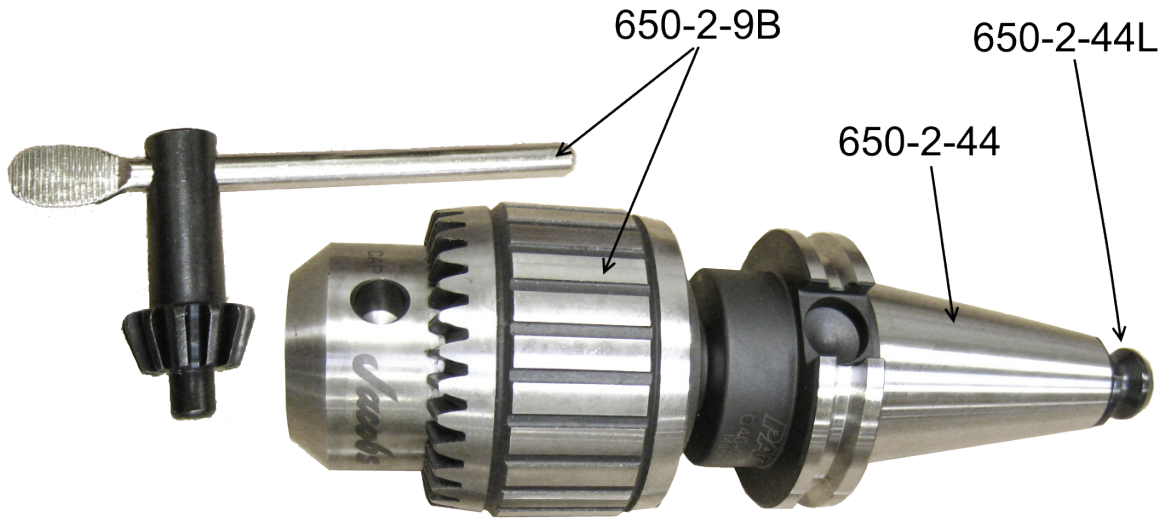


650-2-11G Torque Control Tap Holder for 1/2" (12.70mm) taps



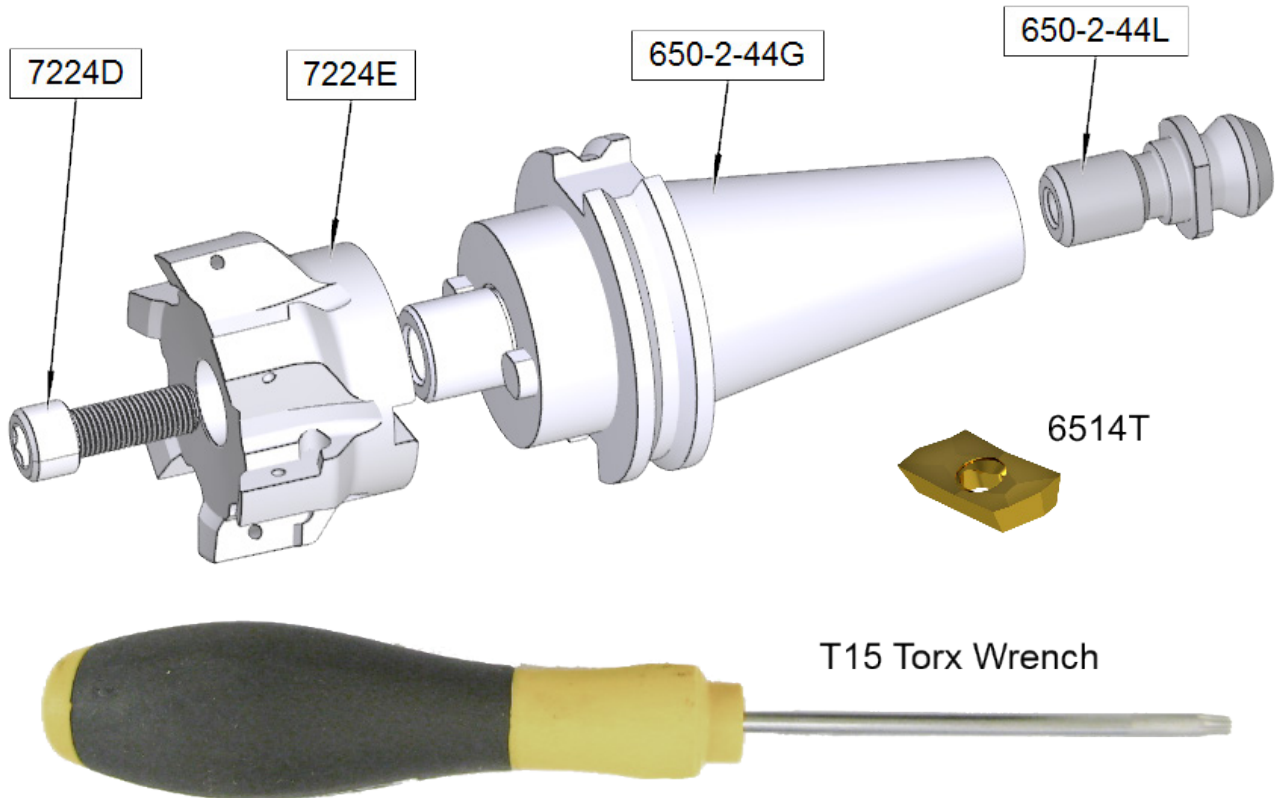
Drill Tooling

650-2-44M Precision Drill Chuck Parts

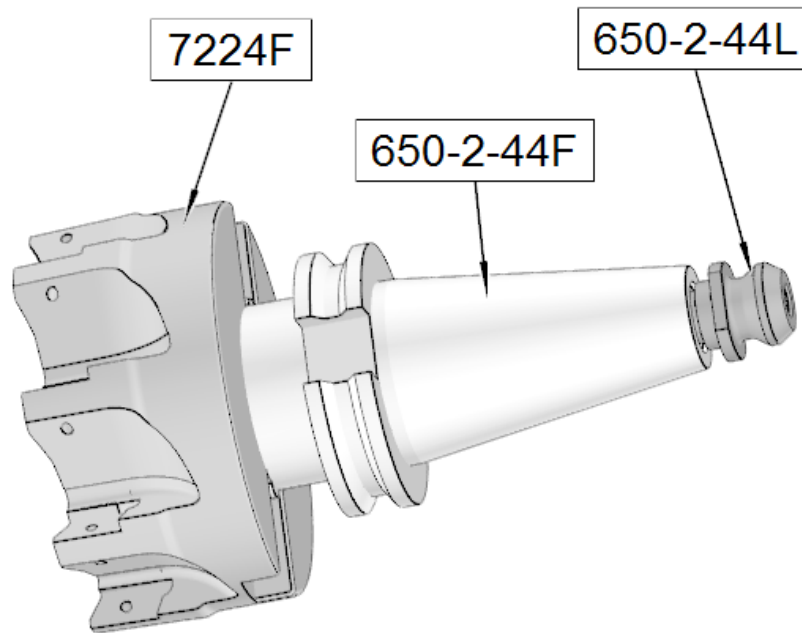


Shell Mill Assemblies

650-2-44N 2 1/2" (63.50mm) Shell Mill Parts



650-2-44P 4" (101.60mm) Shell Mill Parts



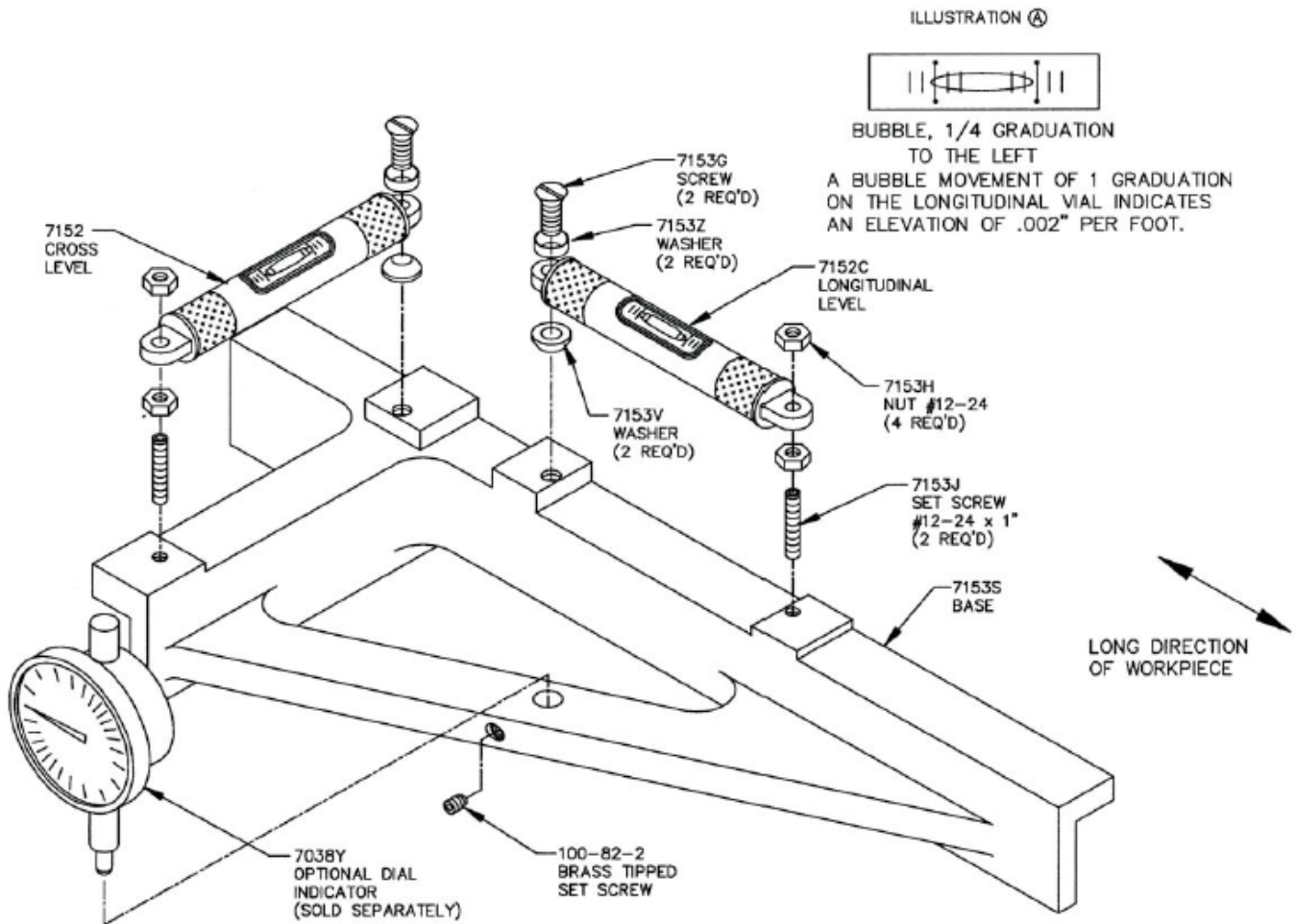
Gages and Indicators

650-3-38 Level-for Intake and Exhaust Manifolds

Sold only as complete assembly.



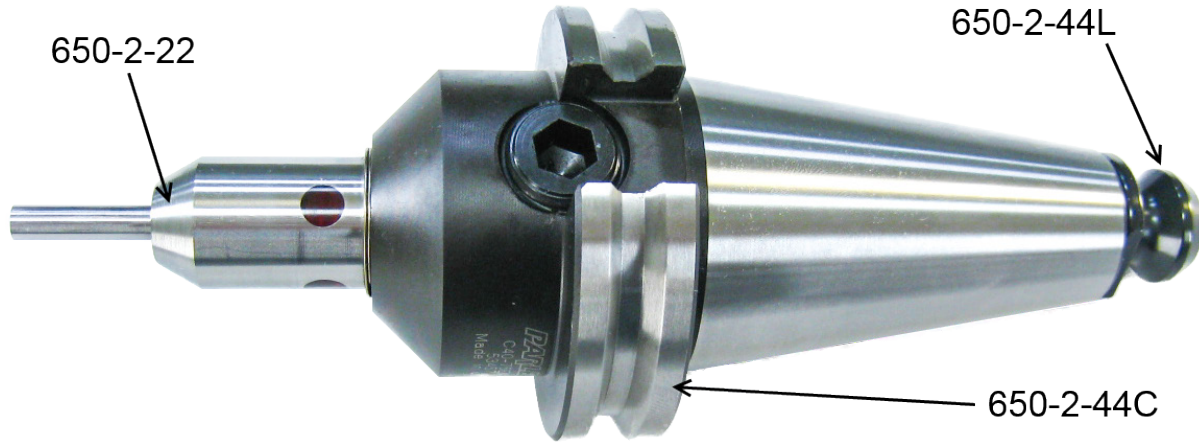
7152A Dual Axis Level Assembly Parts



7152A - OPTIONAL DUAL AXIS LEVEL ASSEMBLY

NOTE: 7152A ASSEMBLY DOES NOT INCLUDE 7038Y DIAL INDICATOR

650-2-44Q Three Dimensional Electronic Position Finder Parts



502-9-9S Indicator Mount

Angled for small diameter main line bores



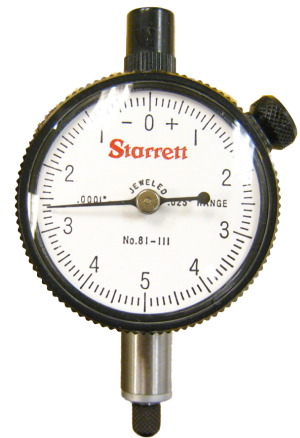
502-9-9A Mechanical Run Out Indicator

General Purpose (.001 Resolution)

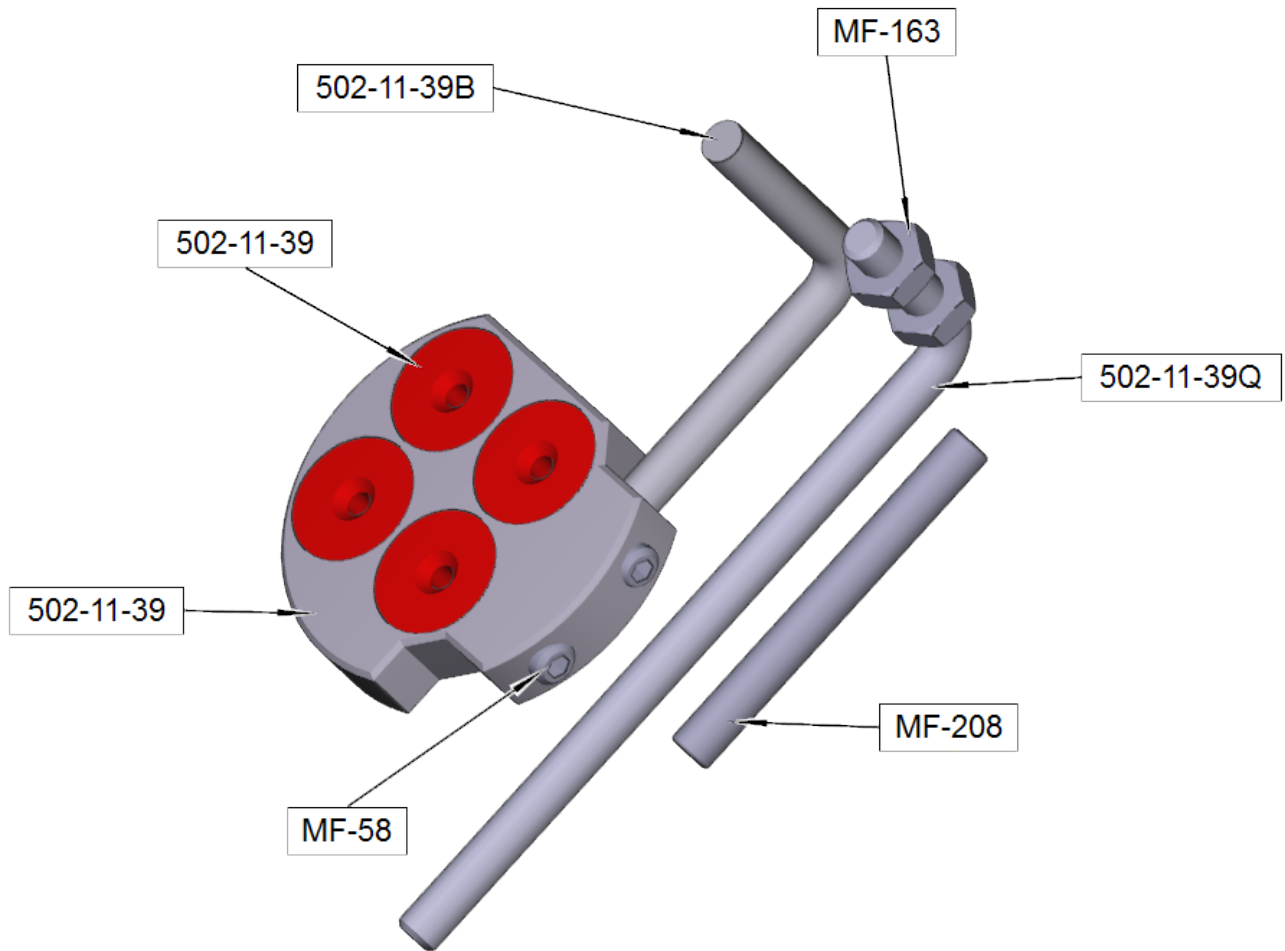


502-11-39D Mechanical Run Out Indicator

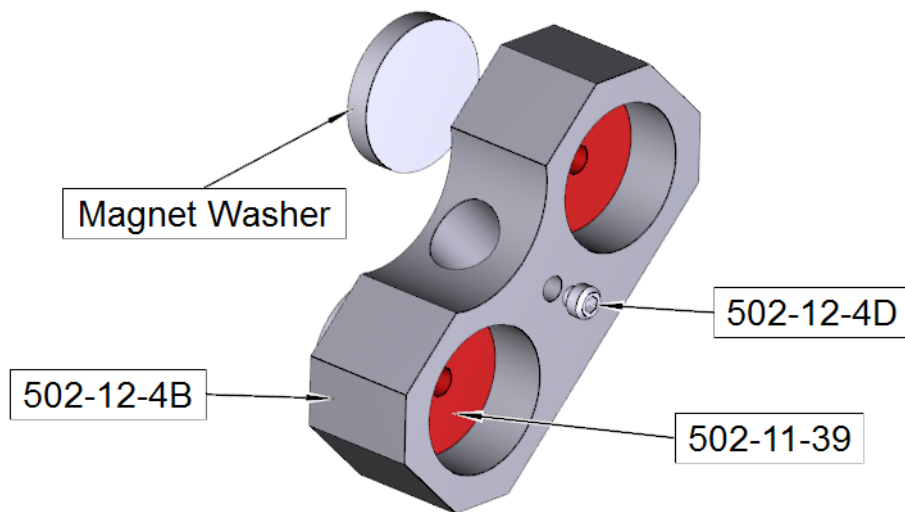
For Precision Bore Adjustment (.0001 Resolution)



502-12-4 Magnetic Base Parts



502-12-4A Magnetic Indicator Holder Assembly Parts



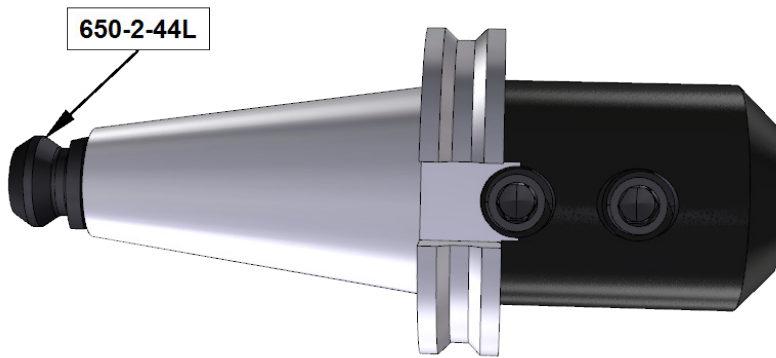
Tooling for Crankshaft Stroker Clearancing/Notching

650-2-45H Roughing End Mill

1" (25.4mm) diameter X 8 1/2" (216mm) long for block stroker clearance



650-2-44A End Mill AdapterParts



Tooling for Splayed 4 Bolt Main Cap Machining

650-2-53 Splayed 4 Bolt Main Cap Machining Tooling Package Components



650-2-44J



650-2-11F



650-2-53B



650-2-11K



650-2-44M



650-2-44N



650-2-53C



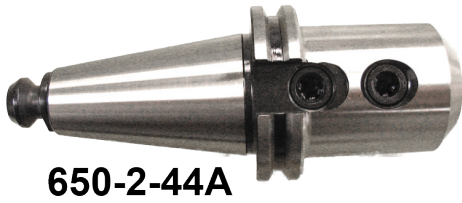
650-2-53A



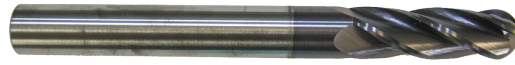
650-2-53D

Block Lightening Tooling Packages

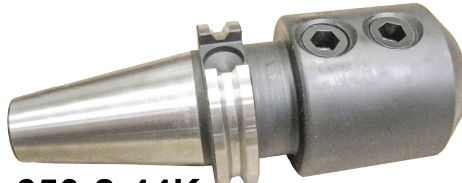
650-2-44W Block Lightening Tooling Package for Dart Small Block Chev Components



650-2-44A



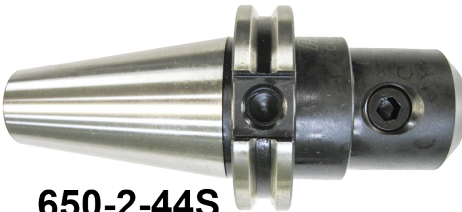
650-2-44T



650-2-44K



650-2-45A



650-2-44S



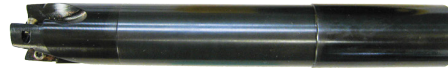
650-2-45C



650-2-44U



650-2-44V



650-2-45D



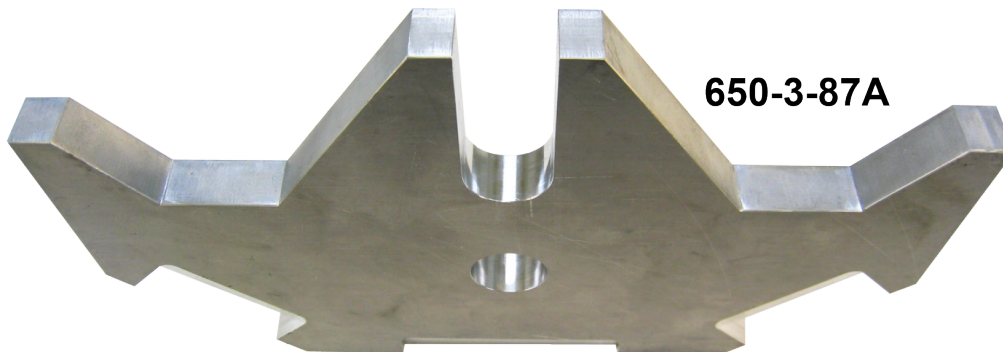
650-2-45B



650-3-14R

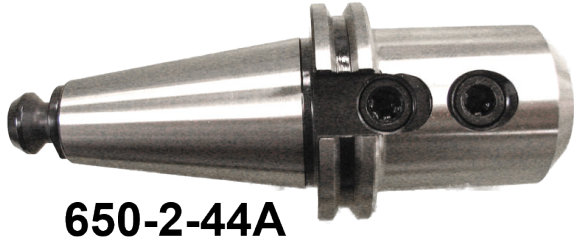


650-3-69



650-3-87A

650-2-44X Block Lightening Tooling Package for World Products Small Block Chev Components



650-2-44A



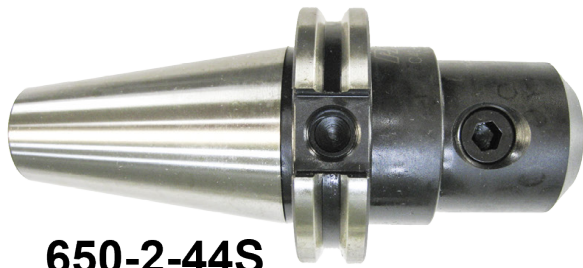
650-2-45C



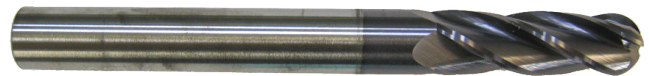
650-2-45A



650-2-44K



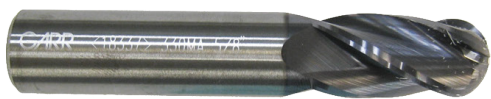
650-2-44S



650-2-44T



650-2-44V



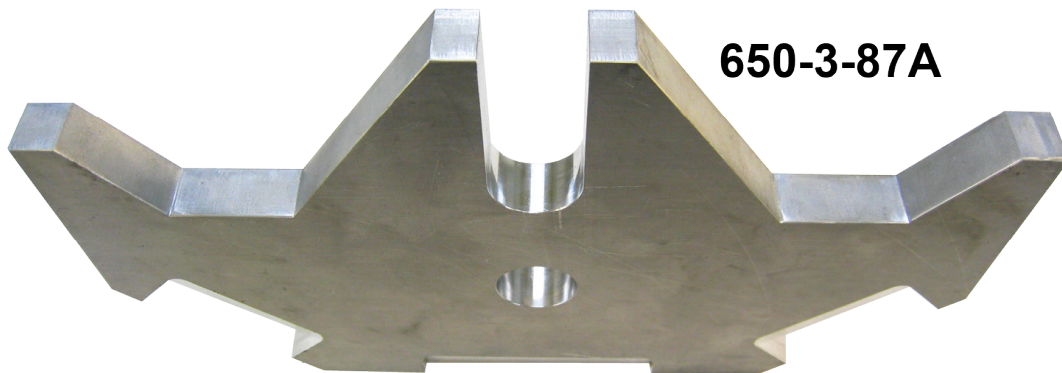
650-2-44U



650-3-14



650-3-39



650-3-87A

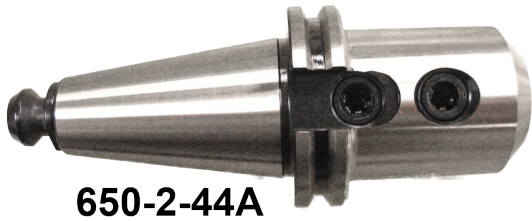


650-2-45D

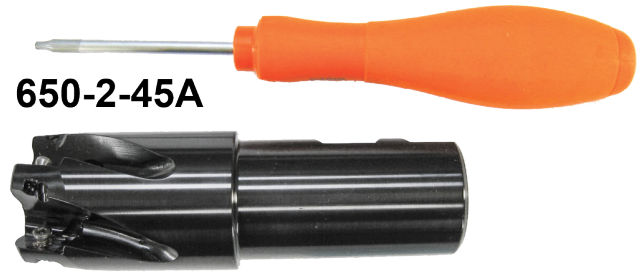


650-2-45B

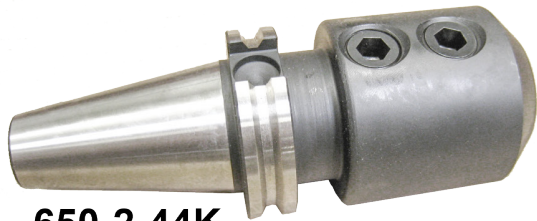
650-2-45J Block Lightning Tooling Package (CAT40 Taper) for Big Block Chevy Components



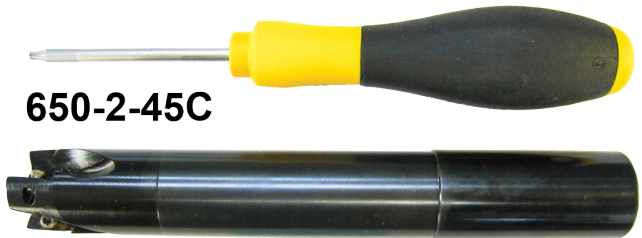
650-2-44A



650-2-45A



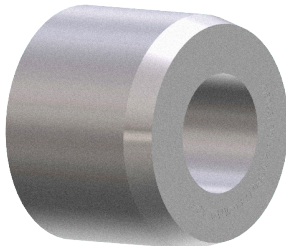
650-2-44K



650-2-45C



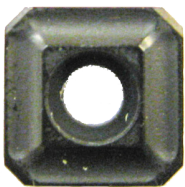
650-3-14P



650-3-69B



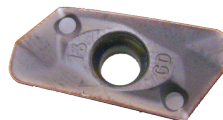
650-2-45L



650-2-45N



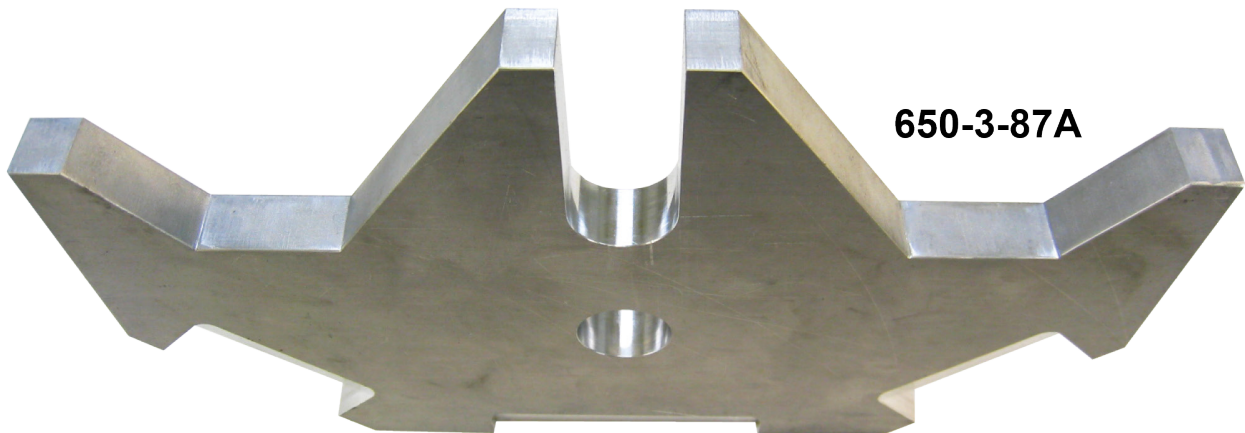
650-2-45M



650-2-45B

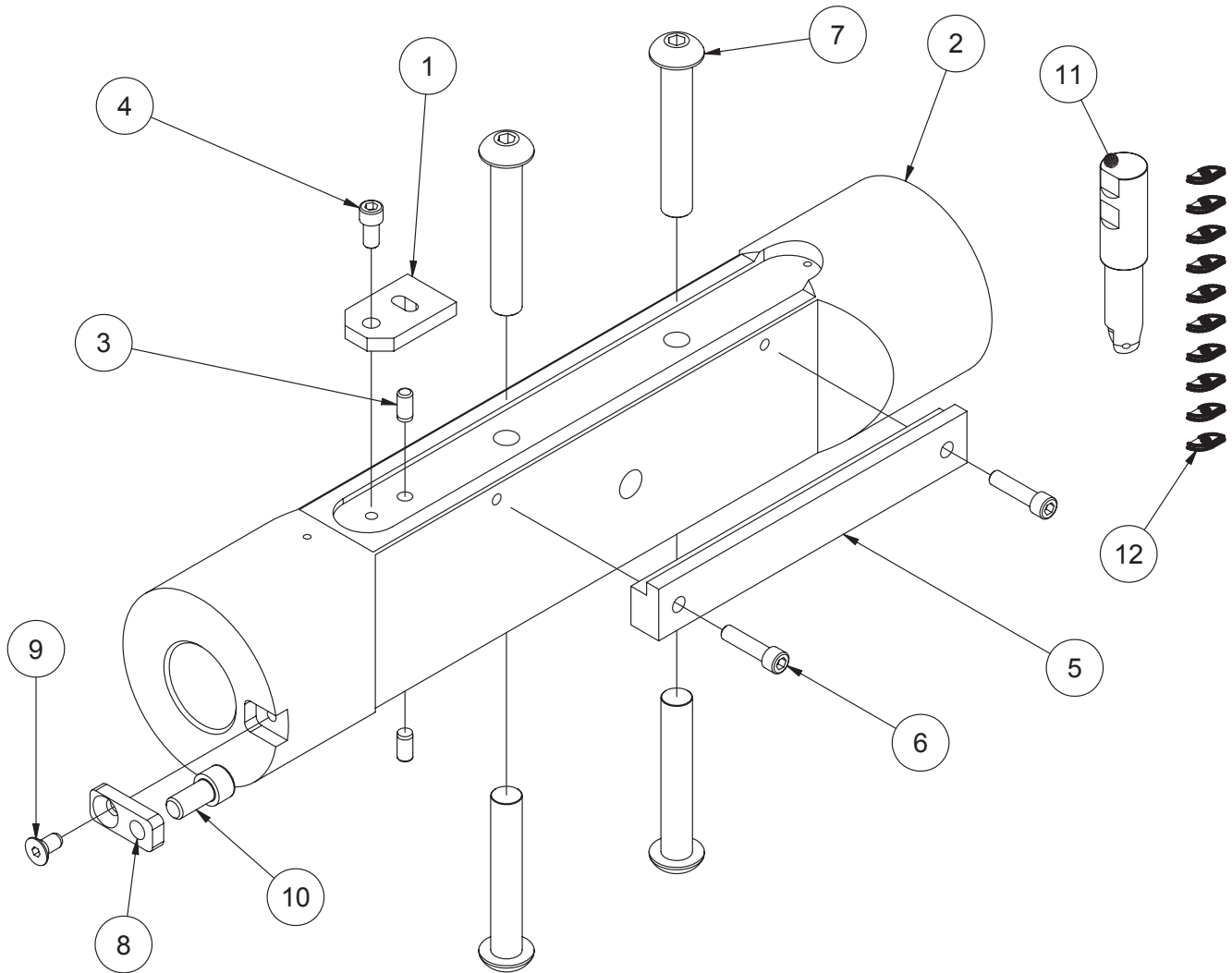


650-2-45D



650-3-87A

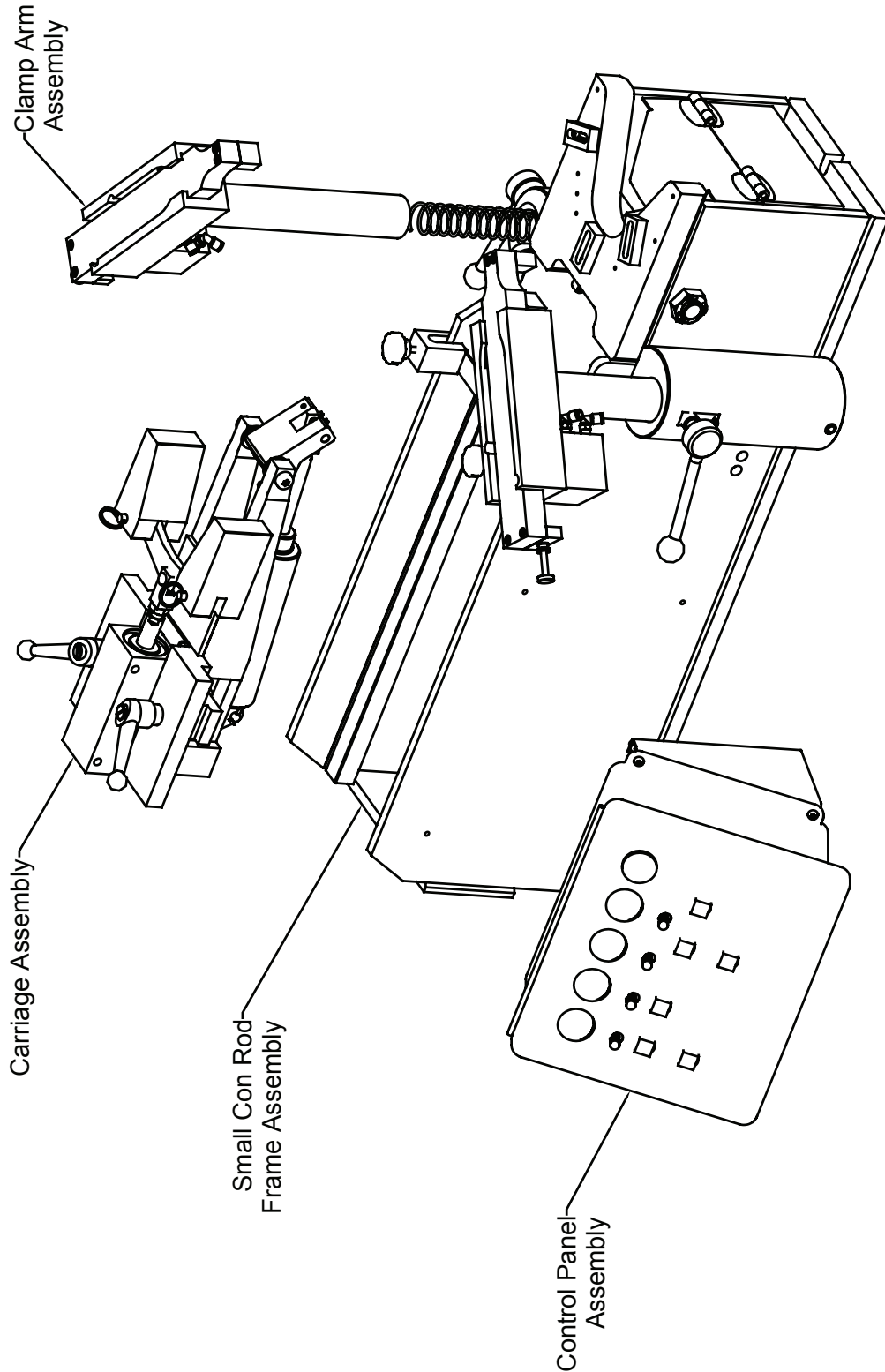
650-2-45Q Big Block Main Cap Lightening Fixture Assembly Parts



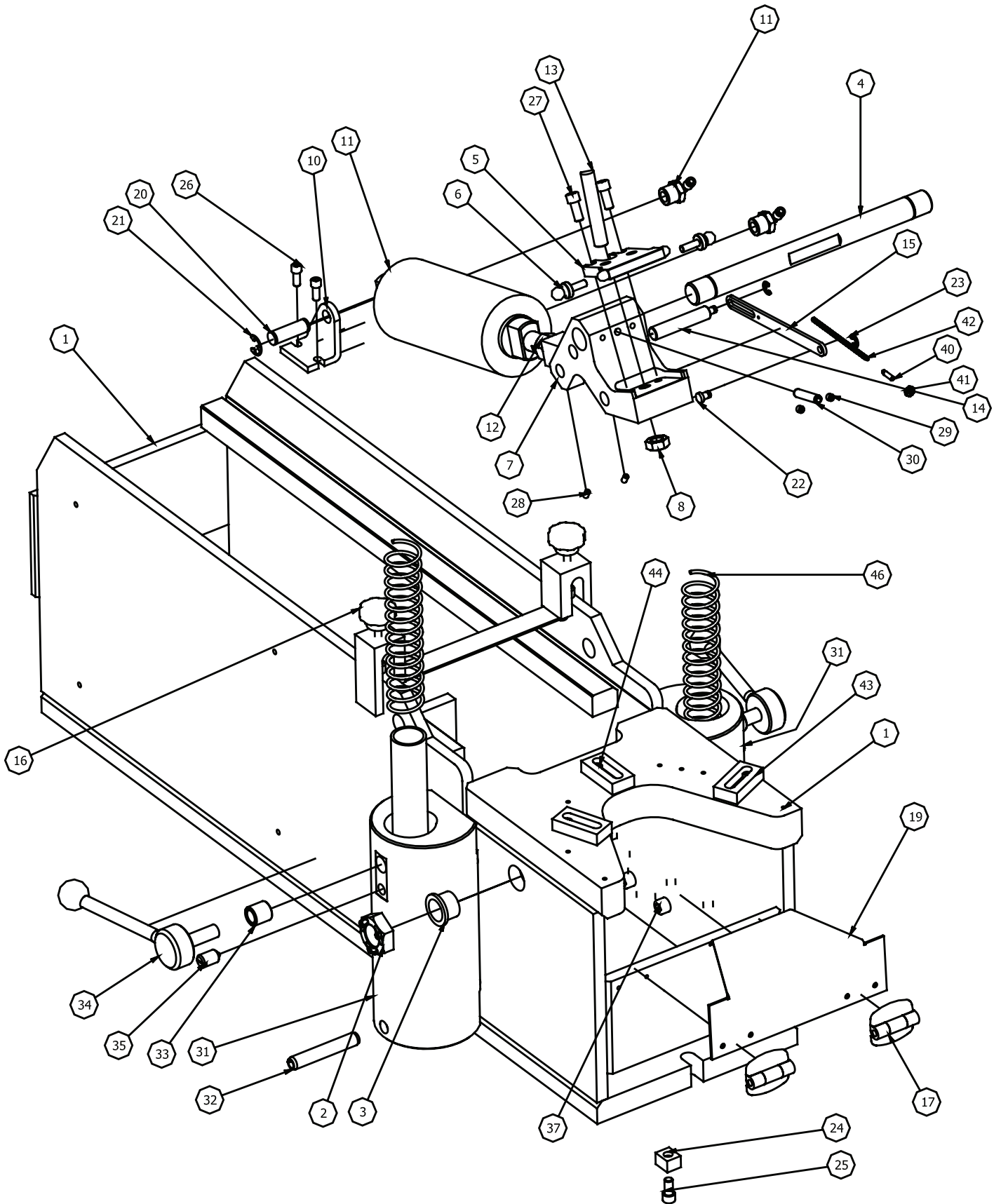
650-2-45Q MAIN BEARING CAP LIGHTENING FIXTURE ASSEMBLY			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-2-45S	SPACER PLATE, MAIN BEARING CAP LIGHTENING FIXTURE
2	1	650-2-45R	FIXTURE, MAIN BEARING CAP LIGHTENING
3	2	MF-202	1/4 x 1/2 Dowel Pin
4	1	MF-12	S.H.C.S. 1/4 - 20 UNC - 1/2
5	1	650-2-45T	LOCATOR, REAR MAIN BEARING CAP - MAIN BEARING CAP LIGHTENING FIXTURE
6	2	MF-15	S.H.C.S. 1/4 - 20 UNC - 1
7	4	650-2-45W	BUTTON HEAD SCREW 1/2-13UNC x 3" LG.
8	1	650-2-45X	DRIVER, MAIN BEARING CAP LIGHTENING FIXTURE
9	1	MF-82	Socket Flat Head 1/4-20 UNC x 0.5
10	1	Mf-30	S.H.C.S. 3/8 - 16 UNC - 3/4
11	1	650-2-45Y	SOFTWARE PACKAGE - MAIN BEARING CAP LIGHTENING
11	1	650-2-45U	INDEXABLE BALL NOSE ENDMILL
12	10	650-2-45V	CARBIDE INSERT - BALL NOSE ENDMILL

Connecting Rod Fixturing

650-3-44S Rottler Precision Connecting Rod Fixturing System Components

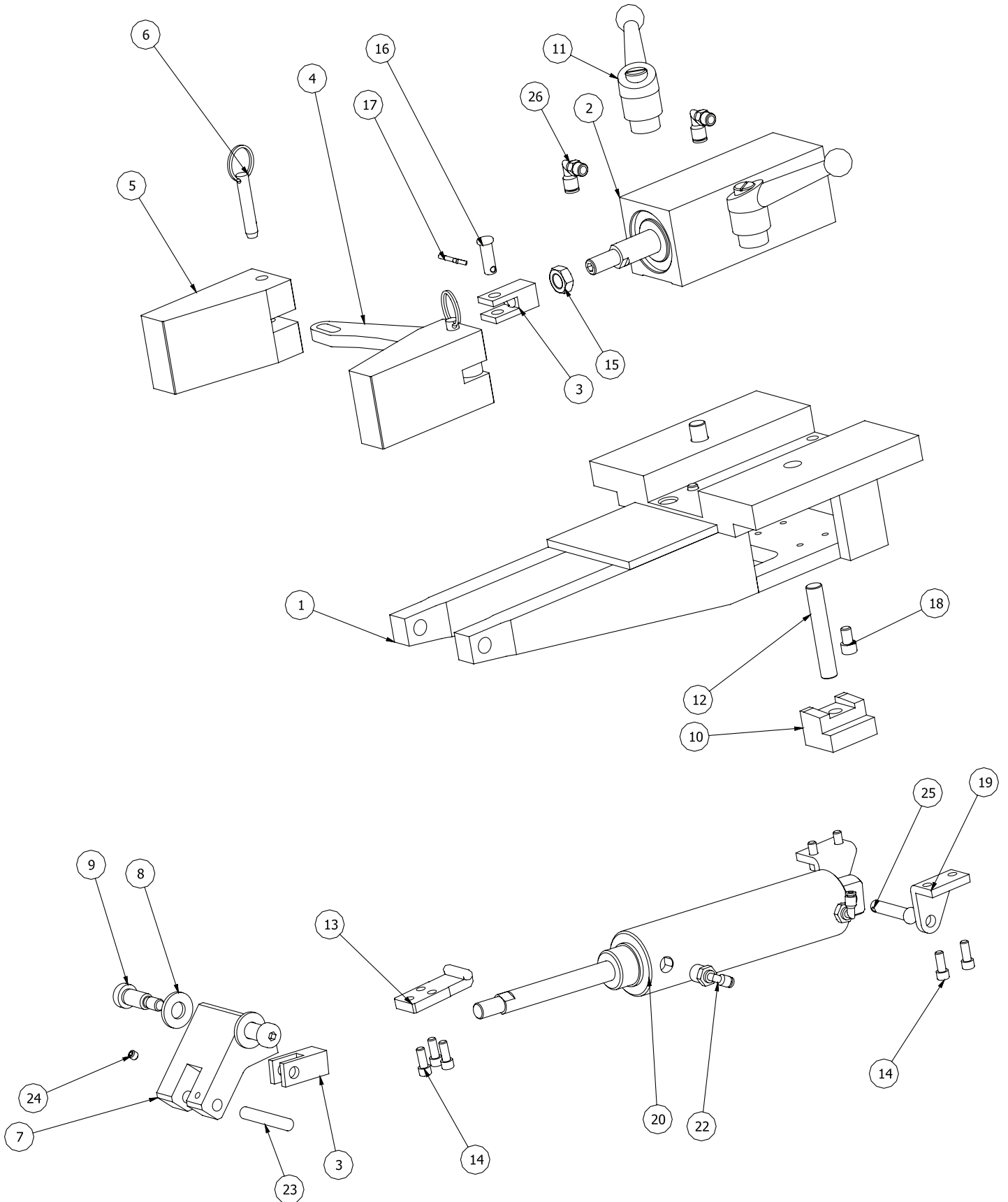


Frame Assembly Parts



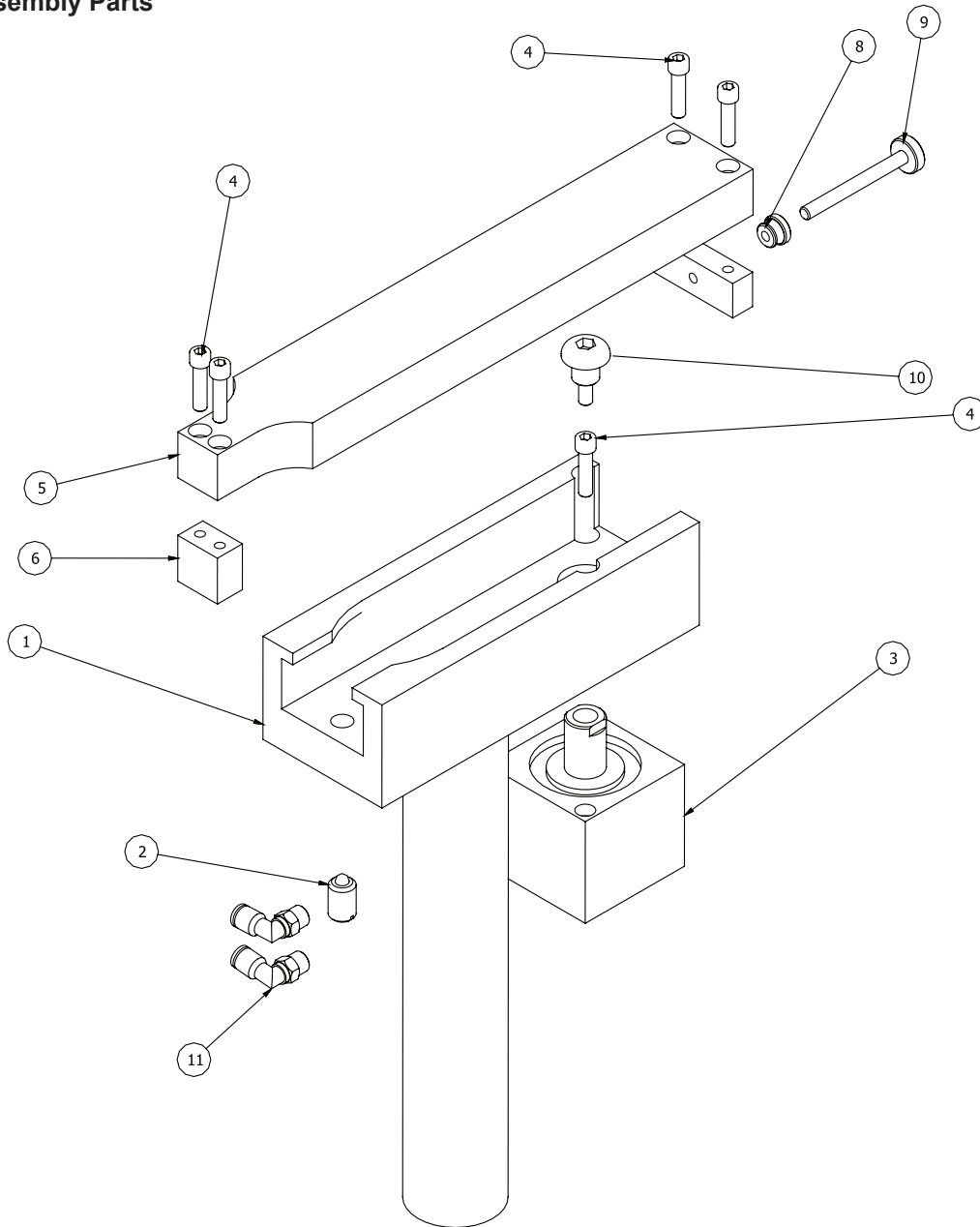
Small Precision Connecting Rod Fixture Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-3-67B	Small Frame
2	2	650-3-46T	Lock Nut REID BLN-105
3	2	650-3-46U	Flange Bearing Symmco SF-2832-12
4	1	650-3-46G	Pivot Shaft
5	1	650-3-46N	Locator 1.78
6	2	650-3-46C	Tooling Ball Reid #TCB-26820
7	1	650-3-46J	Locator Holder
8	1	ANSI B18.2.2 - 1/2 - 13	Hex Jam Nut
9	1	650-3-45H	Pivot Bracket Right
10	1	650-3-45K	Pivot Bracket Left
11	1	650-3-45G	Locating Cylinder
12	1	650-3-45J	Rod Clevis
13	1	650-3-47K	Stop Screw - Set 1/2-13 x 3
14	1	650-3-46K	Pivot Pin
15	1	650-3-46L	Linkage Arm
16	1	650-3-47B	Support Strap
17	2	650-3-46S	Hinge, Dust Cover
19	1	650-3-46Q	Locator Cover Con Rod Fixture
20	1	PIN1	Included in 650-3-47J
21	2	E_CLIP	Included in 650-3-47J
22	1	650-3-46H	Linkage Pin
23	2	650-3-46R	E-clip - Truearc E-Ring #RE-25ST
24	2	650-3-9	Key
25	2	MF-21 ANSI B18.3 - 5/16 - 18 - 5/8	Hexagon Socket Head Cap Screw
26	4	MF-13 ANSI B18.3 - 1/4 - 20 - 5/8	Hexagon Socket Head Cap Screw
27	2	MF-22 ANSI B18.3 - 5/16 - 18 - 3/4	Hexagon Socket Head Cap Screw
28	2	MF-53 ANSI B18.3 - 10-24 UNC - 0.375	Type B - Hexagon Socket Set Screw - Cup Point - UNC (Regular Thread - Inch)
29	2	MF-60 ANSI B18.3 - 1/4-20 UNC - 0.25	Type B - Hexagon Socket Set Screw - Cup Point - UNC (Regular Thread - Inch)
30	1	MF-210 ANSI B18.8.2 - 5/16 x 2.1/2	Pin - Slotted Spring
31	2	650-3-49Q	Clamp Base, ConRod Clamp arms
32	2	ANSI B18.8.2 - 1/2 x 3	Pin - Slotted Spring
33	2	6310R	Thread Insert
34	2	6310N	Handle
35	2	502-8-52C	Spring Plunger
37	8	ANSI B18.3 - 3/8 - 16 - 1	Hexagon Socket Head Cap Screw
40	1	650-3-48P	spring anchor Reid CSA-50
41	1	ANSI B18.6.3 - 8 - 32	Hex Machine Screw Nut UNC
42	1	514-7-83N	Extension Spring
43	3	650-3-48L	Support Parallel
44	3	ANSI B18.3 - No. 10 - 24 - 3/8	Hexagon Socket Head Cap Screw
45	2	650-3-49G	Support Tube
46	2	650-3-49M	Spring

Carriage Assembly Parts



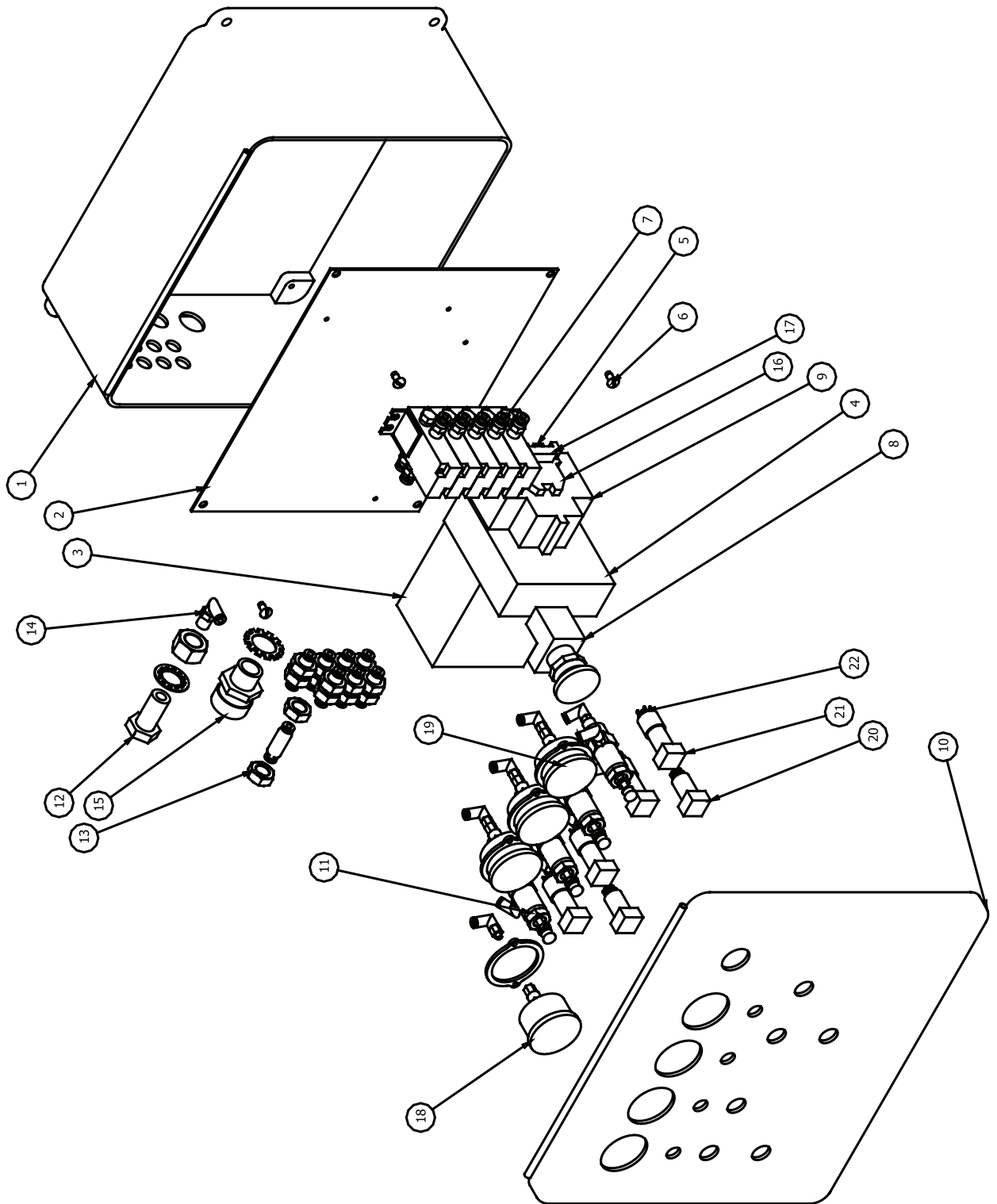
Small Precision Connecting Rod Fixture Carriage Assembly Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-3-67	Carriage, Machining
2	1	650-3-45D	Wedge Cylinder
3	2	650-3-45L	Clevis
4	1	650-3-48J	Linkage, Wedge
5	2	650-3-48G	Wedge Clamp - Medium Con-Rod Fixture ass'y
6	2	650-3-48K	Release Pin, Clamp Wedge
7	1	650-3-47D	Centering Lever
8	2	100-19A	Hardened washer 17/32 I.D.
9	2	650-4-45	Hexagon Socket Head Shoulder Screw 0.500 x 1
10	2	650-3-48	Clamp Shoe
11	2	514-2-39	Handle
12	2	514-4-5B	Stud
13	1	650-3-47S	Centering Block - Medium Long
14	7	MF-13 ANSI B18.3 - 1/4 - 20 - 5/8	Hexagon Socket Head Cap Screw
15	1	ANSI B18.2.2 - 1/2 - 20	Hex Jam Nut
16	1	Rod Clevis Pin RC-5	
17	2	ANSI B18.8.1 - 1/8 x 3/4 Extended Prong Square Cut Type	Pin - Cotter
18	4	ANSI B18.3 - 5/16 - 18 - 1/2	Hexagon Socket Head Cap Screw
19	2	650-3-45K	Pivot Bracket
20	1	650-3-45F	Norgren RLG04
22	2	legris angle 25x532	Legris Angle 25X532
23	1	MF-212A ANSI B18.8.2 - 3/8 x 2 1/4	Pin - Hardened Ground Production Dowel
24	1	MF-60 ANSI B18.3 - 1/4-20 UNC x 0.25	Hexagon Socket Set Screw - Cup Point
25	1	Pivot Pin Norgren cyl	
26	2		Legris Angle

Clamp Arm Assembly Parts



Small Precision Connecting Rod Fiture Clamp Arm Assembly Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	650-3-49H	Clamp Leg
2	1	502-8-52C	Spring Plunger
3	1	650-3-45E	Clamp Arm Cylinder
4	6	ANSI B18.3 - 1/4 - 20 UNC - 1	Hexagon Socket Head Cap Screw
5	1	650-3-49K	Clamp Arm
6	1	650-3-49L	Extension
7	1	650-3-49N	Stop Block
8	1	650-3-34J	Thumbknob Reid aj-721
9	1	650-3-34S	Clamp Screw
10	1	ANSI B18.3 - 1/2-20 - 5/8	Hexagon Socket Button Head Cap Screw
11	2	514-4-17Y	Legris Angle

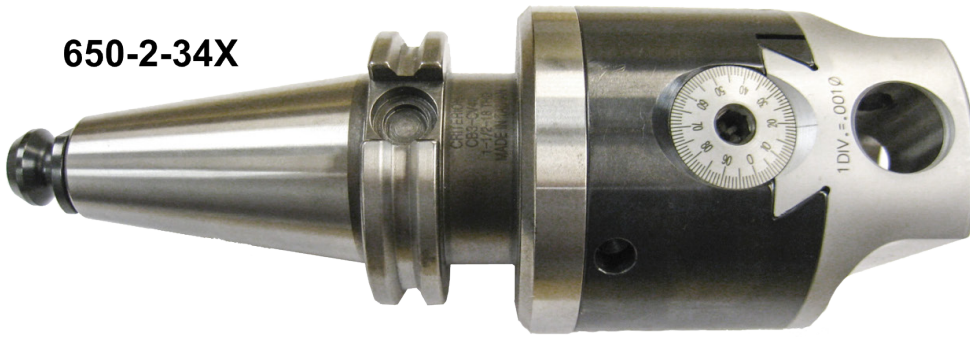
Control Panel Assembly Parts



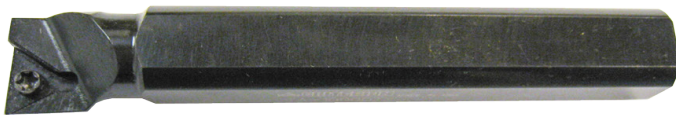
650-3-47T Parts List - Control Panel Complete w/ Air (Buchannan)			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	J1210HPL	Enclosure
2	1	BP1210AL	Enclosure Panel
3	1	PLC	Micro 3
4	1	650-3-47V	Power Supply
5	1	504-35-3F	Din Rail
6	4	ANSI B18.6.4 - 10-32 UNF - 0.375	Slotted Pan Head Tapping Screw - Type C
7	1	410-24vdc	Solenoid Assembly
8	1	6389	E-Stop Button
9	1	504-35-3	BREAKER, 2 AMP
10	1	Con Rod Lid1	
11	4	RSR	HUMPHREY, REGULATOR
12	1	PMF 532-N01U	NWH, BULKHEAD 1/4
13	8	C2029200	NORGREN, BULKHEAD 1/8
14	1	Air Fitting2	90 Degree
15	1	400-7-7	Strain Relief Assembly
16	1	514-7-74E	Ground Block
17	2	504-35-3M	End Cap
18	3	15.110.160PSI 1/8NPT 10/32PMC	NOSHOK,160 PSI GAUGE
19	1	15.110.60PSI 1/8NPT 10/31PMC	NOSHOK, 60 PSI GAUGE
20	2	6491U	PUSHBUTTON, WHITE
21	4	6491S	PUSHBUTTON, GREEN
22	4	502-37-59A	PUCHBUTTON, SOCKET

650-2-3S Cutterhead Package Components

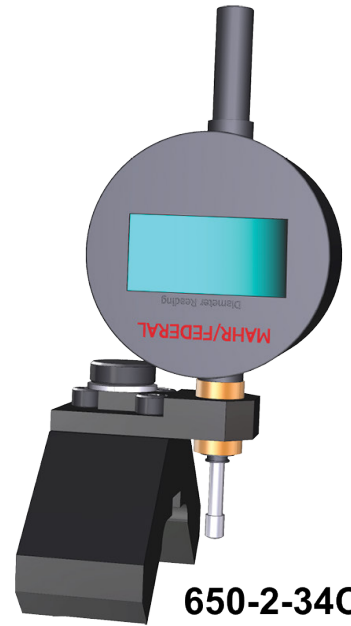
650-2-34X



650-2-34P



650-2-34R



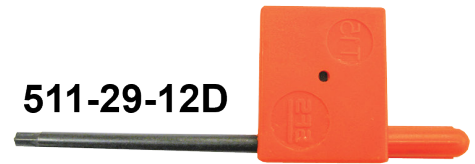
650-2-34C

650-2-3T Cutterhead Package Components

650-2-3U



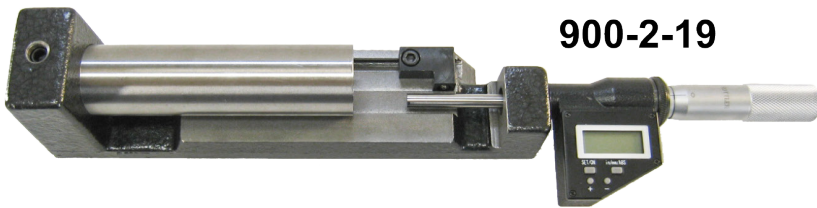
511-29-12D



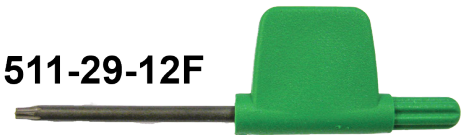
T8D



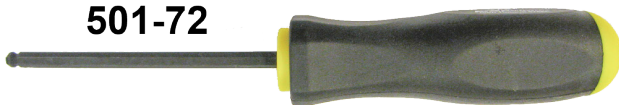
900-2-19



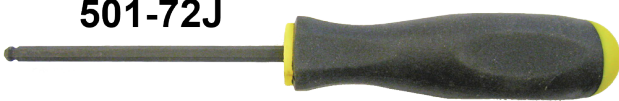
511-29-12F



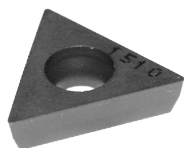
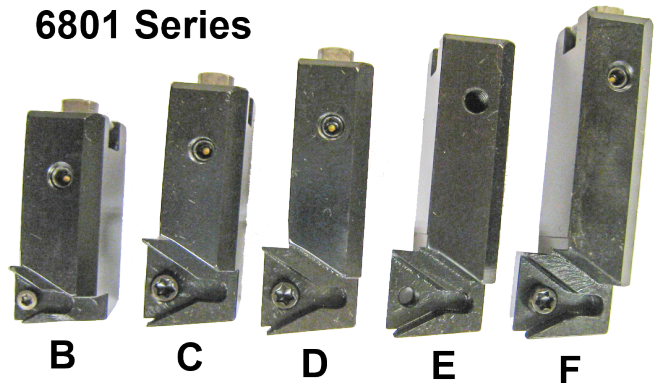
501-72



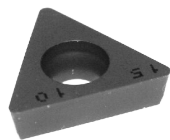
501-72J



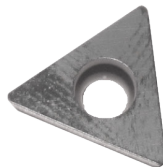
6801 Series



RT321



RT322



RT211

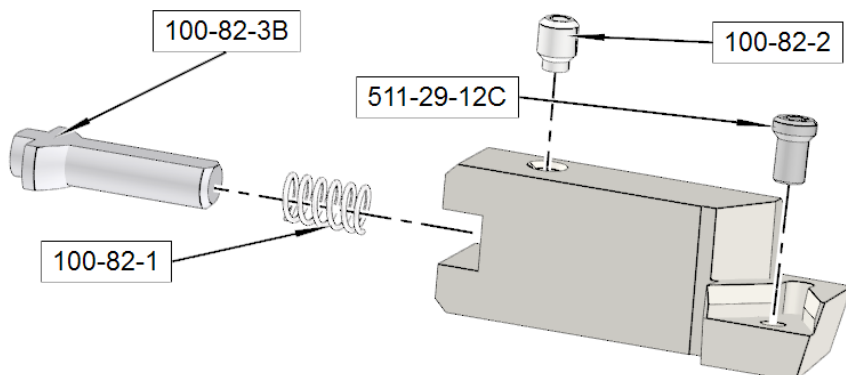


RT212

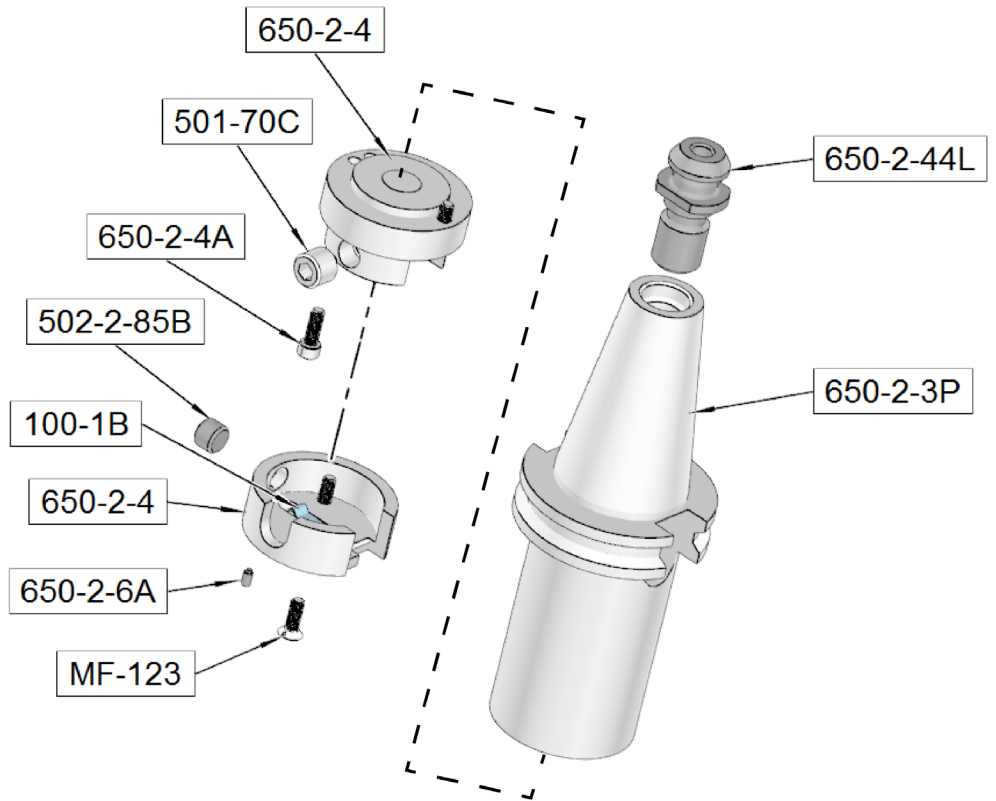


RTCR321

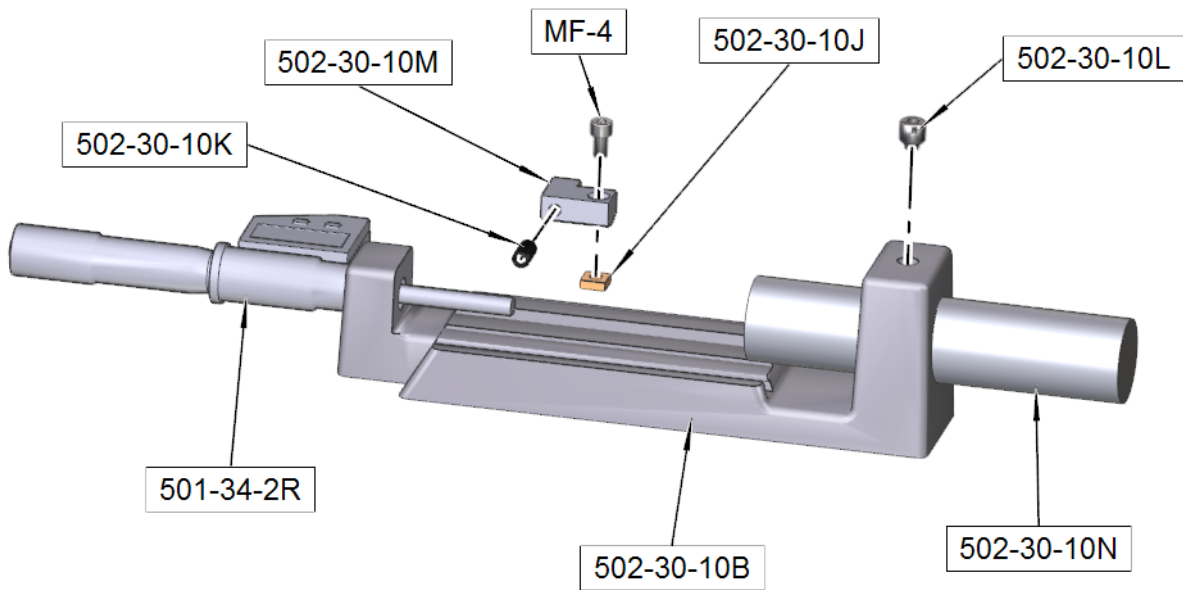
6801 Series Insert Holder Parts



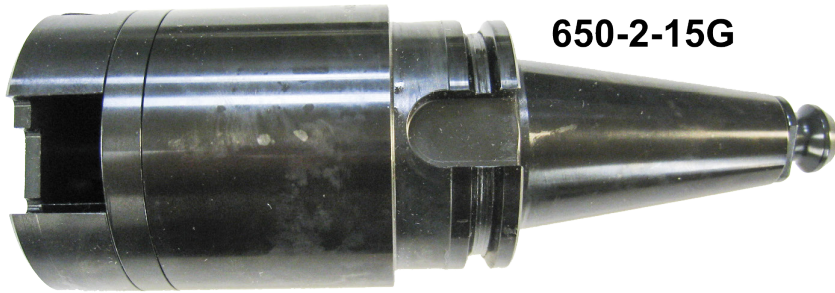
650-2-3U Cutterhead Parts



900-2-19 Micrometer Parts

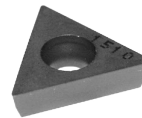


650-2-15F Cutterhead Package Components

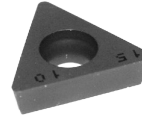


650-2-15G

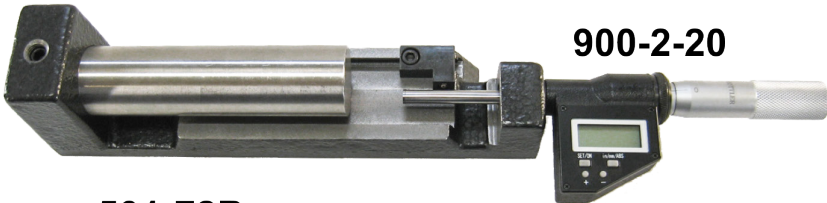
RT321



RT322



6593 Series



900-2-20

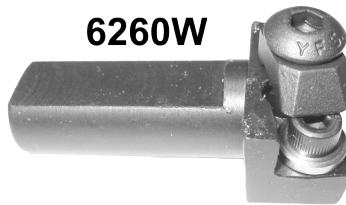
6598K



501-72B

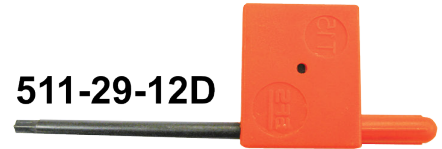


501-72E



6260W

511-29-12D



6260L



6598M



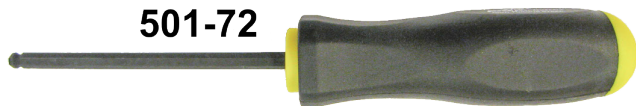
RS322



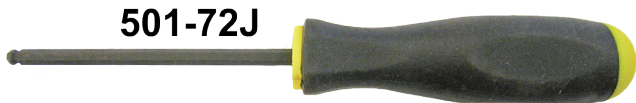
RTCR321



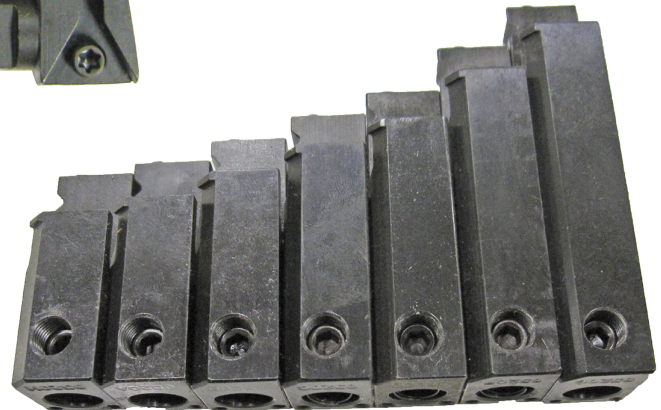
100-24



501-72

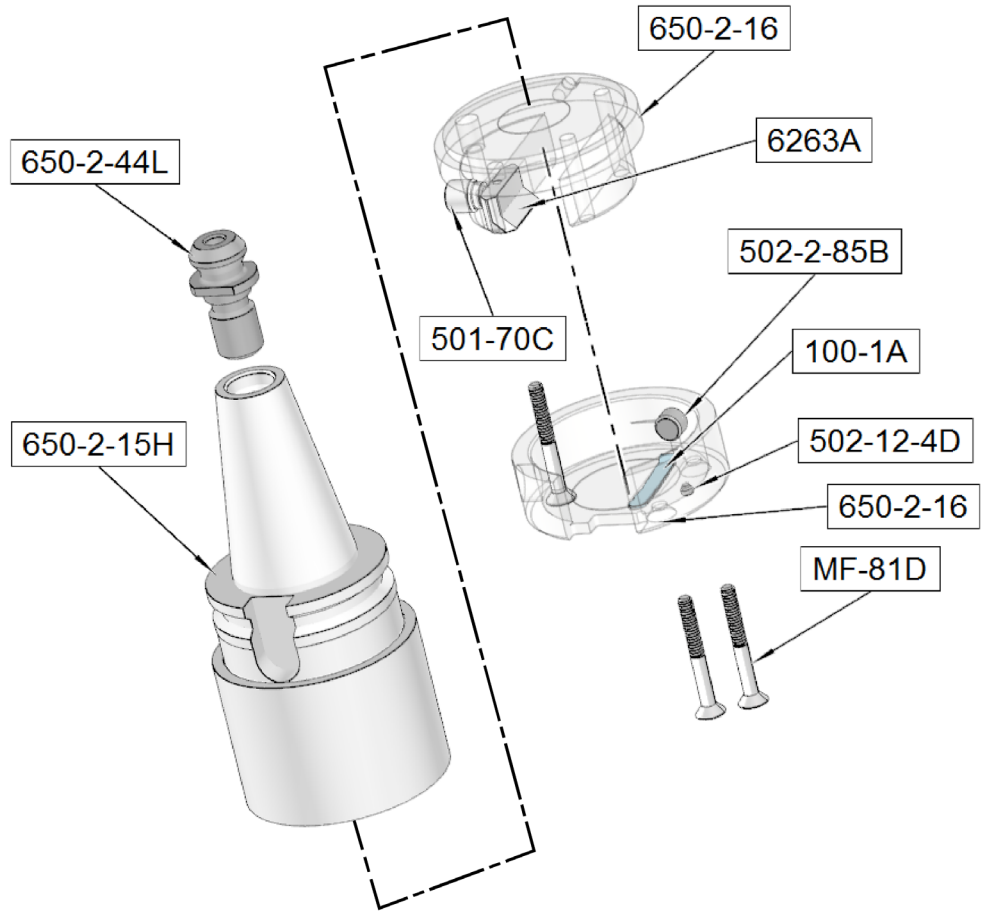


501-72J

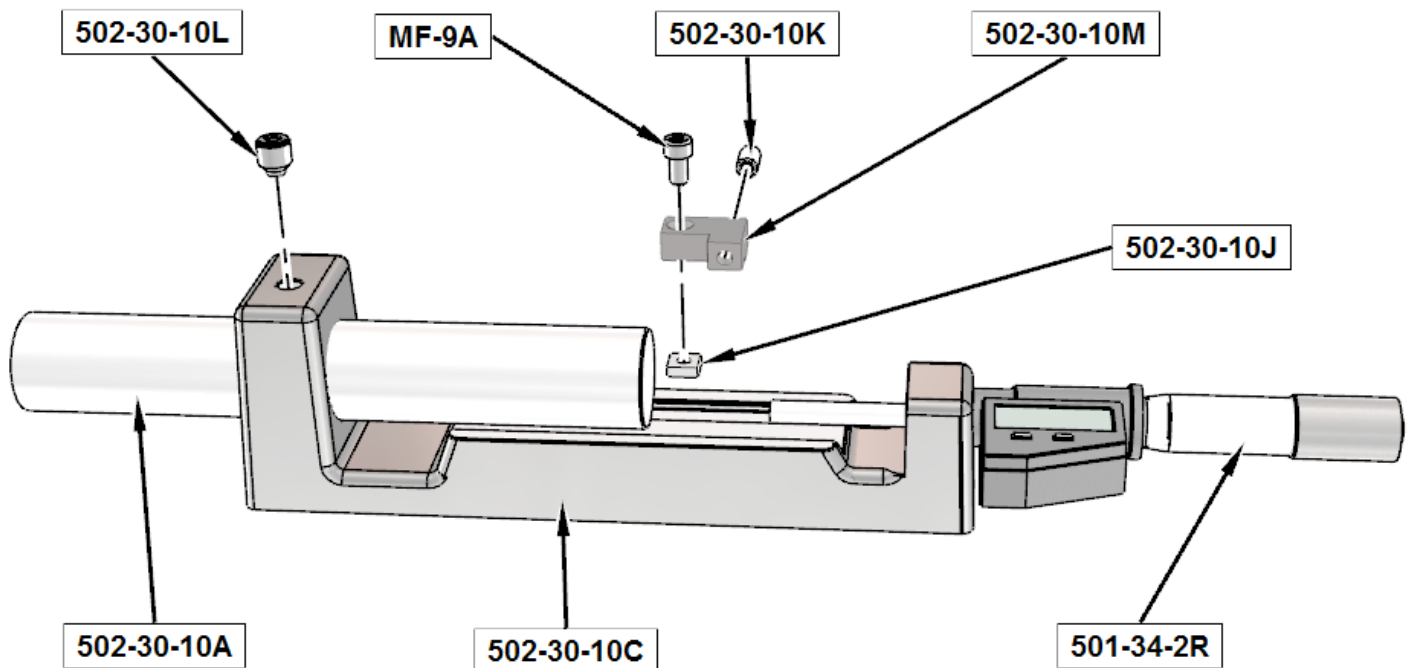


6520 Series

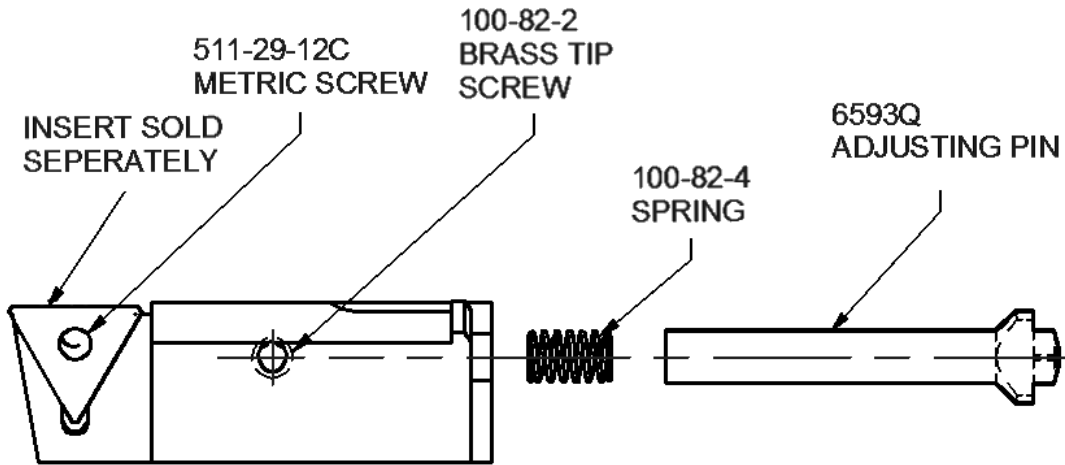
650-2-15G Cutterhead Parts



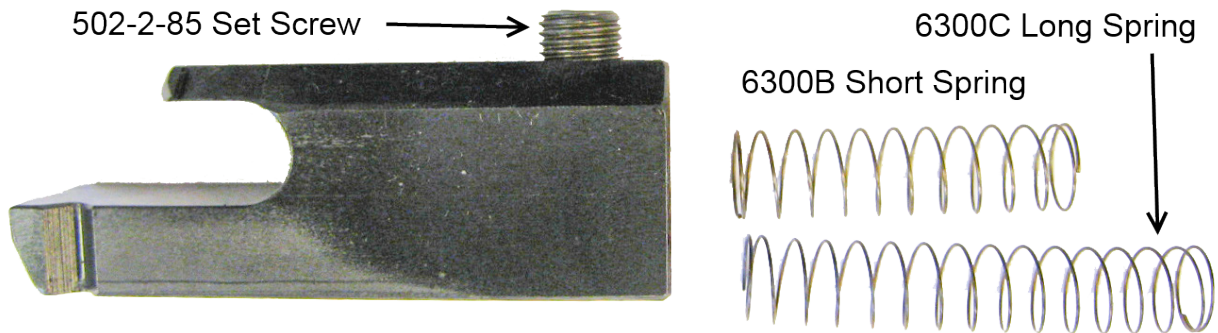
900-2-20 Micrometer Parts



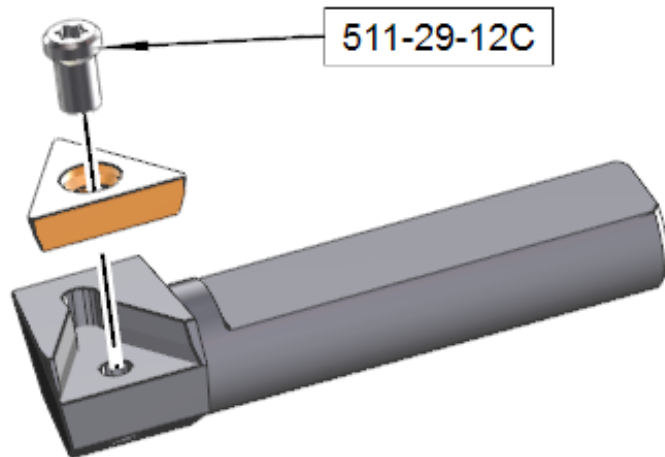
6593 Series Insert Holder Parts



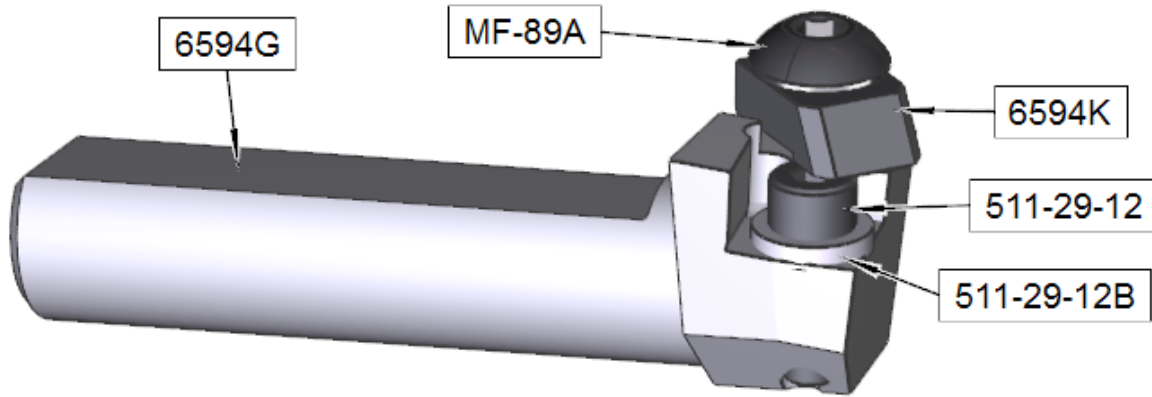
6520 Series Tool Holder Parts



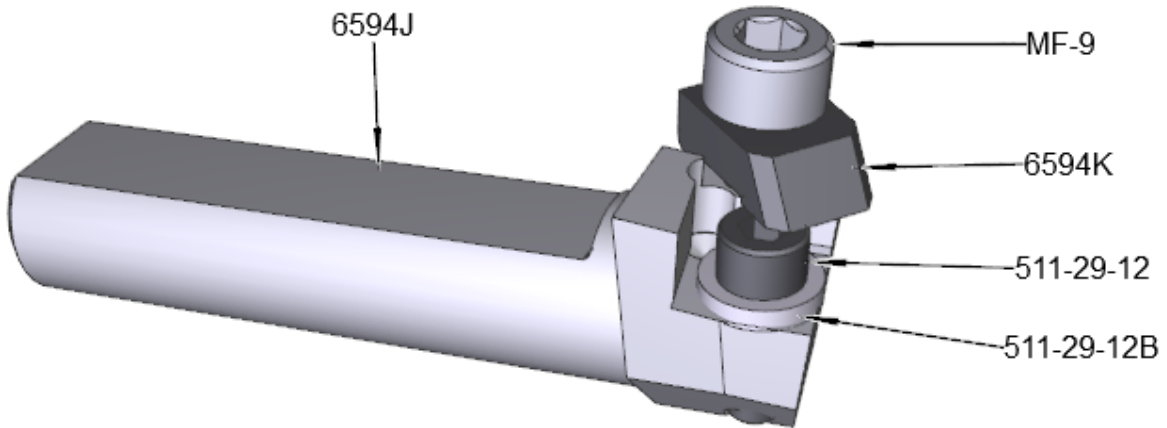
6598 Series Insert Cartridge Parts



6260L Insert Cartridge Parts

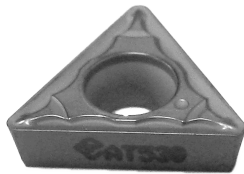


6260W Insert Cartridge Parts



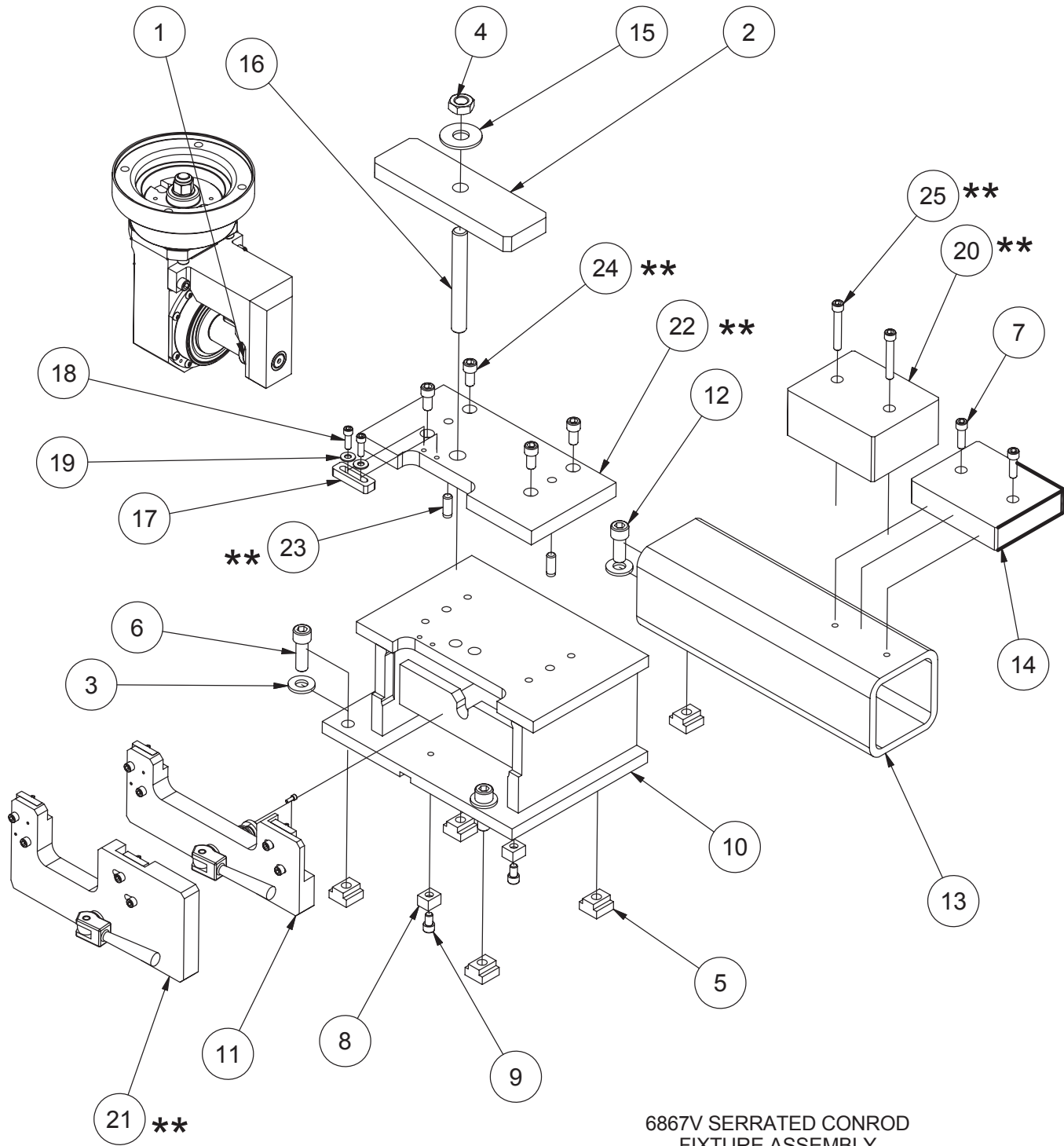
RTCR322 Insert

Triangular Positive Rake, 3/8
IC 1/64" 9.397mm) Radius, for
Connecting Rod Steel Cutting
Only



System for Cutting Serrated Connecting Rods

6867V Serrated Rod Cutting Package Components

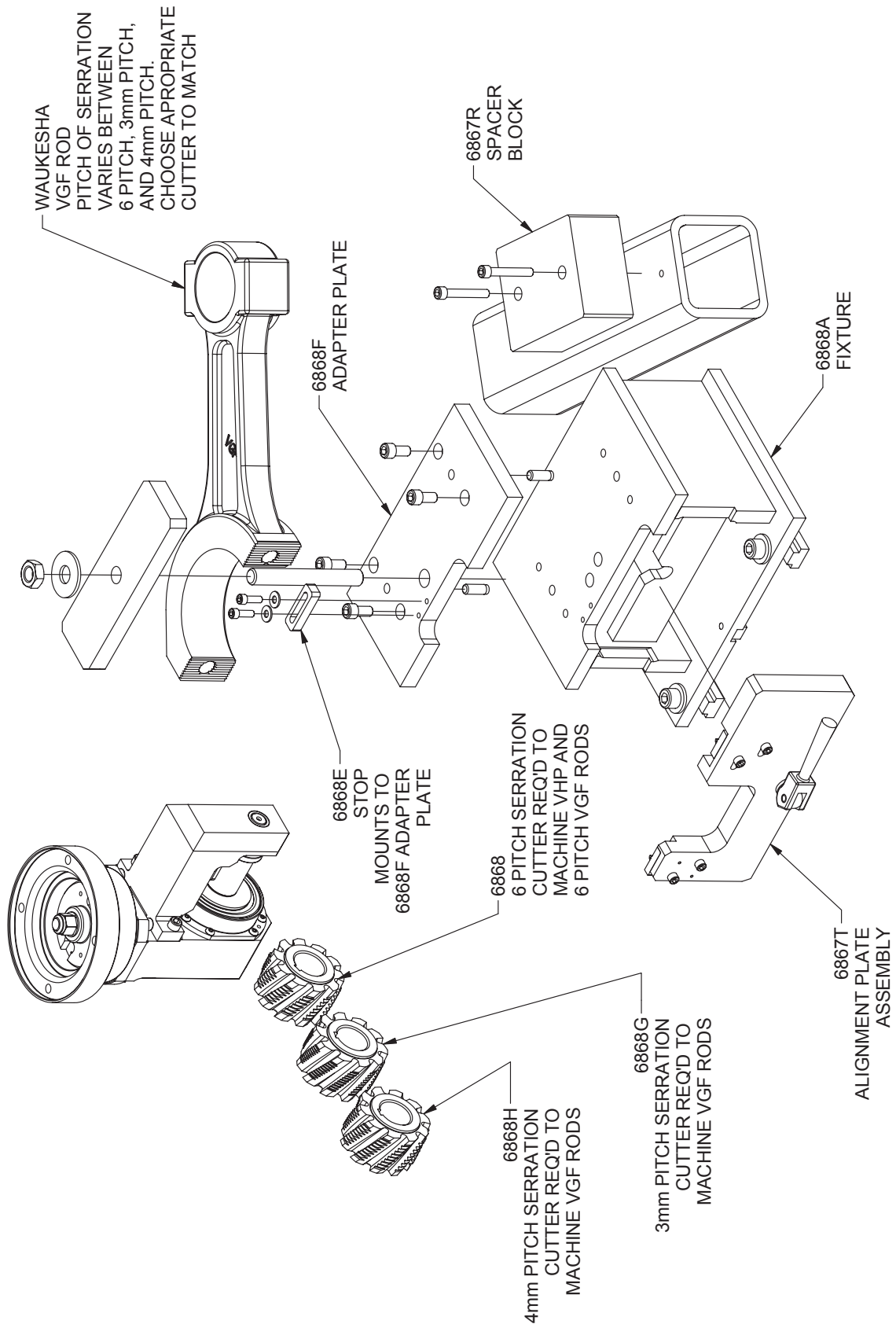


6867V SERRATED CONROD
FIXTURE ASSEMBLY
F69 APPLICATION

6867V SERRATED CONROD FIXTURE ASSEMBLY - F69			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	6856G	MID SIZE R.A.D. ASSEMBLY FOR SERRATION CUTTING FIXTURE F68
2	1	6867K	CLAMP BAR - SERRATED CONROD FIXTURE
3	5	100-19A	Hardened washer 17/32 I.D.
4	1	MF-166	5/8-11UNC HEX NUT
5	5	650-3-10	TN-5 T-Nut
6	4	MF-44	Hexagon Socket Head Cap Screw
7	2	MF-23	S.H.C.S. 5/16 - 18 UNC - 1
8	2	650-3-9	Key
9	2	MF21A	Hexagon Socket Head Cap Screw
10	1	6868A	FIXTURE (MACHINING) SERRATED CONROD FIXTURE
11	1	6867B	ALIGNMENT PLATE ASSY
12	1	MF-43	S.H.C.S. 1/2 - 13 UNC - 1 1/4
13	1	6867P	SMALL END SUPPORT - SERRATED CONROD FIXTURE
14	1	6867N	SPACER BLOCK, SMALL END SUPPORT, VHP ROD - SERRATED CONROD FIXTURE
15	1	MF-181	5/8" FLAT WASHER
16	1	6868D	CLAMP STUD - SERRATED CONROD FIXTURE
17	1	6868E	STOP, SERRATED CONROD FIXTURE
18	2	MF-14	Hexagon Socket Head Cap Screw
19	2	MF-176	SAE FLAT WASHER 1/4"
20	1	6867R **	SPACER BLOCK, SMALL END SUPPORT - SERRATED CONROD FIXTURE
21	1	6867S **	ALIGNMENT PLATE ASSY
22	1	6868F **	ADAPTER PLATE
23	2	MF-212 **	3/8" x 1" LG. DOWEL PIN
24	4	MF-30 **	3/8-16UNC x 3/4" LG. S.H.C.S.
25	2	MF-27 **	5/16-18UNC x 2" LG. S.H.C.S.

** THESE PARTS REQUIRED FOR MACHINING WAUKESHA VGF RODS AND CAPS ONLY.

6867V Serrated Rod Cutting Package Setup



6867V
SERRATED CONROD FIXTURE ASSEMBLY
CONFIGURED FOR MACHINING WAUKESHA VGF RODS
F69 APPLICATION

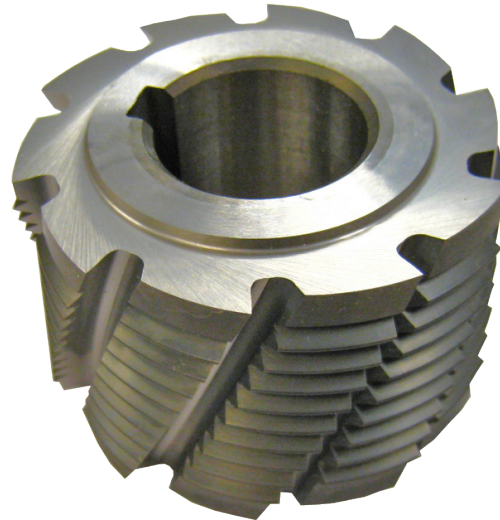
6868 Six Pitcher Cutter

Used on the VHP rod and some CGF rods



6868G 3mm Pitch Cutter

Used on VGF rods



6868H 4mm Pitch Cutter

Used on some VGF rods



Coolant for Aluminum Cutting

DYNA-KOOL

Synthetic coolant concentrate - 5 gal (20 liter) (mix with water 20:1)

