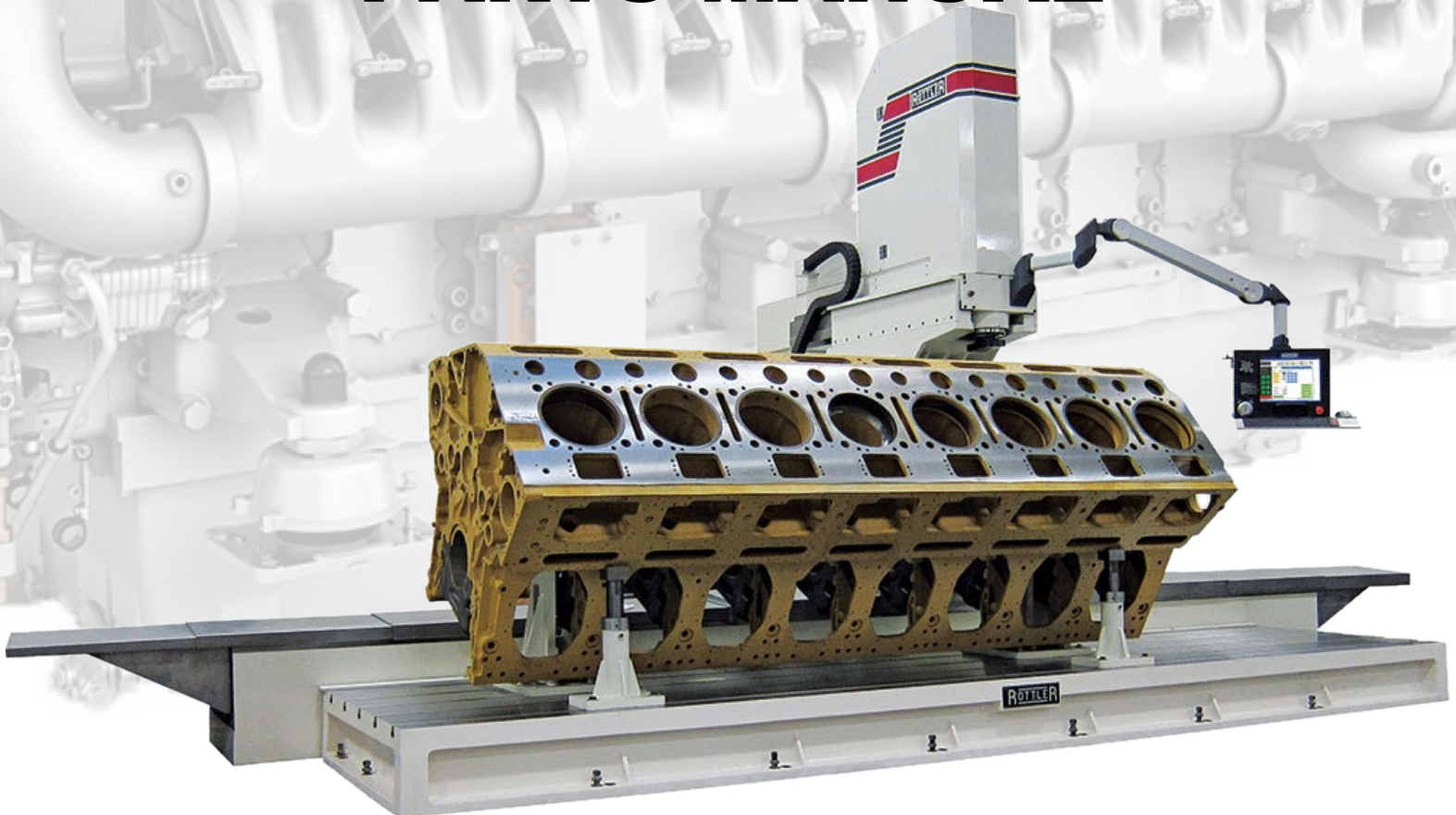


**ROTTLER**

**EM107/9H SERIES 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 do not 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. For customers within the U.S. send emails to [parts@rottlermfg.com](mailto:parts@rottlermfg.com), for customers outside of the U.S. use [intlparts@rottlermfg.com](mailto:intlparts@rottlermfg.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**

# EM107/9H H SERIES OPTIONAL EQUIPMENT PARTS MANUAL

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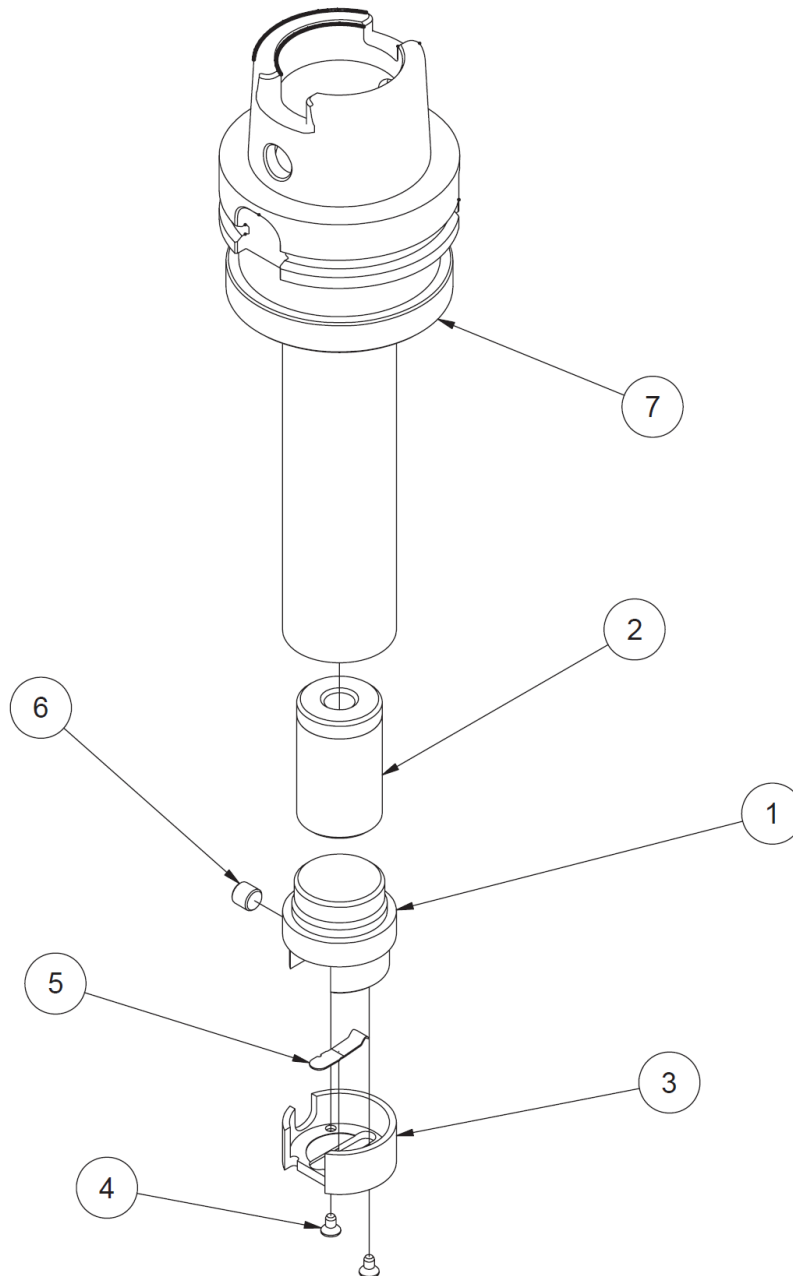
## Cutting Tools

### Boring Tools

#### 10118 Blind Hole Cutterhead Kit, 1 1/2"-4.1" (38-104mm) x 7" (176mm)



|                     |                   | Tool Diameter Range |       |       |       |       |       |       |
|---------------------|-------------------|---------------------|-------|-------|-------|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |                     | 6801A | 6801B | 6801C | 6801D | 6801E | 6801F |
| 1.5"                | -0.655"           | Min                 | 1.50" | 1.93" | 2.30" | 2.69" | 3.10" | 3.50" |
|                     |                   | Max                 | 2.02" | 2.53" | 2.90" | 3.29" | 3.70" | 4.10" |

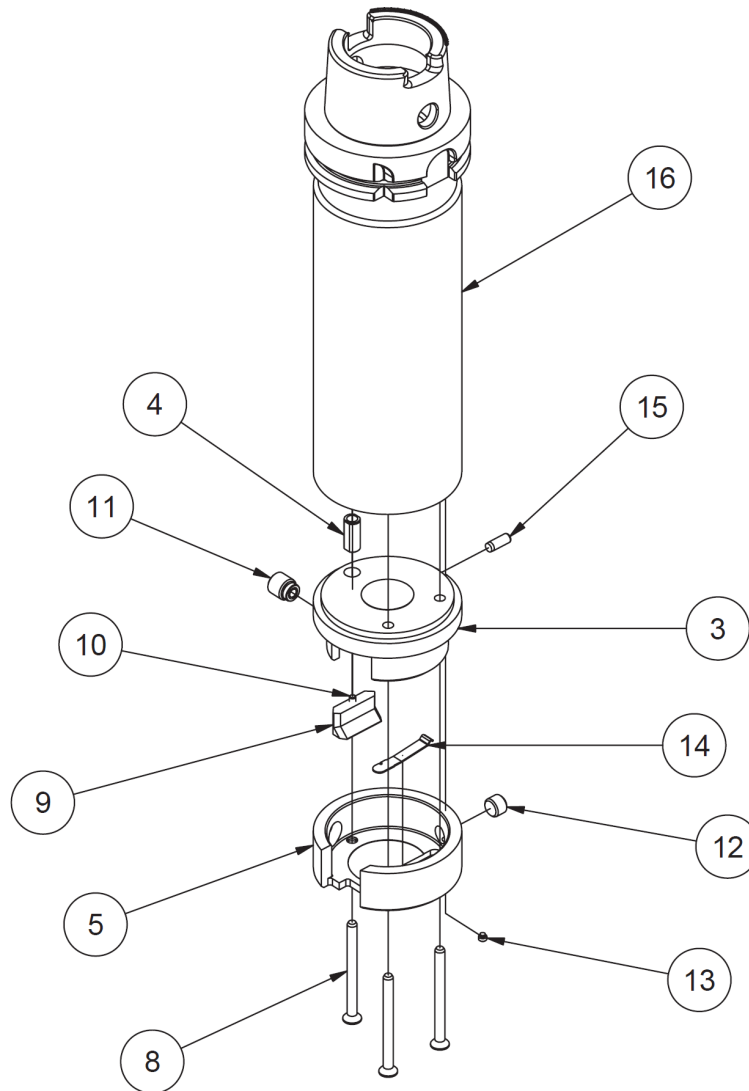


| 10118A CUTTERHEAD ASSEMBLY, 1 1/2"-4.1" (38-104mm) x 7" (176mm) |     |             |  |
|---|-----|-------------|--|
| ITEM  | QTY | PART NUMBER | DESCRIPTION                              |
| 1   | 1   | 600-7-2D    | Lower Body, 1 1/2" Stub Bar              |
| 2   | 1   | 600-8-2     | Counter Weight                           |
| 3   | 1   | 600-5       | Cutter Head Cap                          |
| 4   | 2   | MF-120A     | Socket Flat Head #6-32 UNC x 0.25"       |
| 5   | 1   | 100-1B      | Tool Lock Spring                         |
| 6   | 1   | 502-25-1    | Tool Holder Lock Screw                   |
| 7   | 1   | 10118B      | HSK ADAPTER 2.88 DIA STUB BAR CUTTERHEAD |

**10131 Blind Hole Cutterhead Kit, 2.92"-6.74" (74-171mm) Dia x 9 5/8" (245mm)**

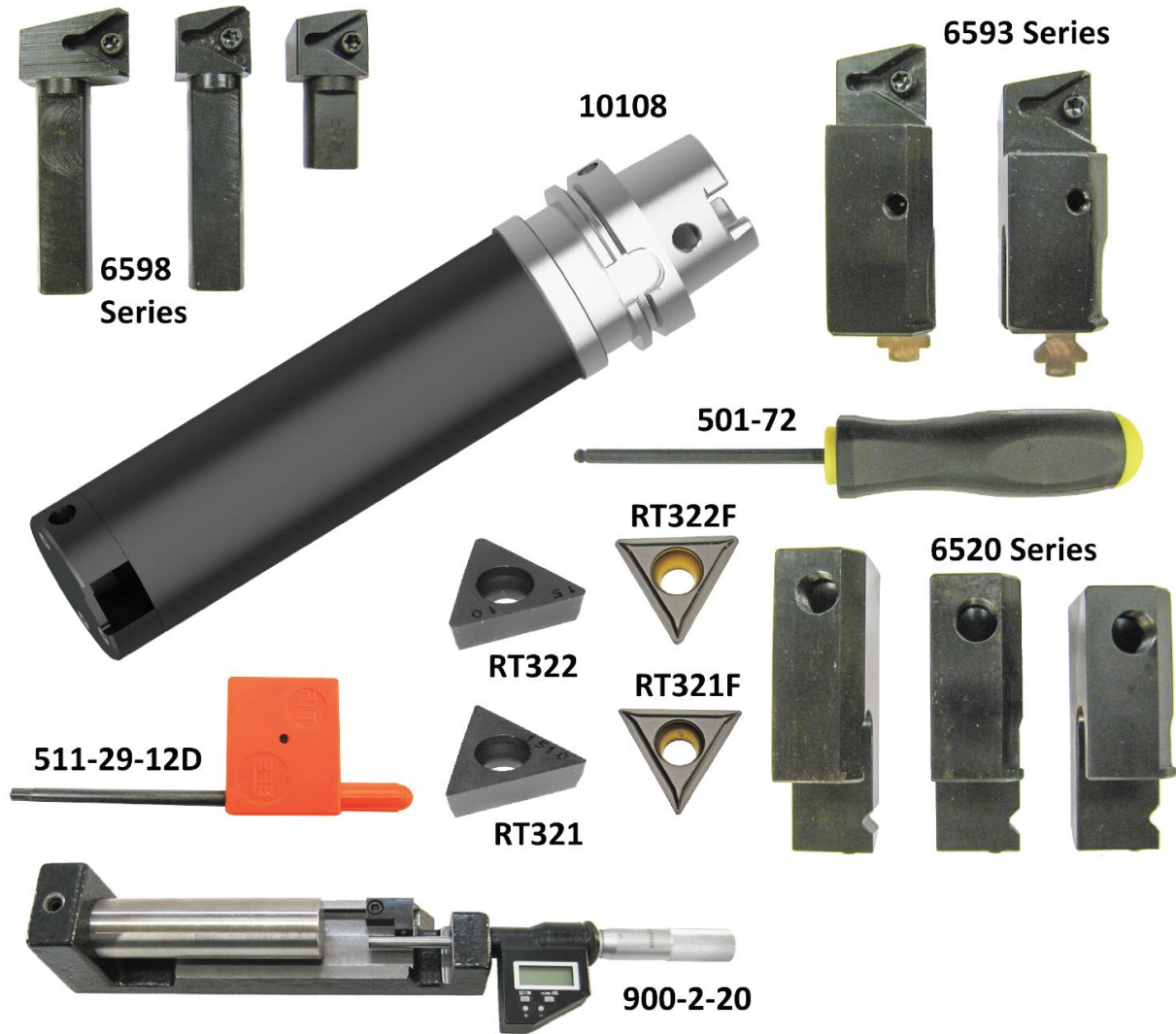


|                     |                   | Tool Diameter Range |       |       |               |               |               |  |
|---------------------|-------------------|---------------------|-------|-------|---------------|---------------|---------------|--|
| Cutterhead Diameter | Centerline Offset |                     | 6593C | 6593D | 6520H (6598M) | 6520A (6598M) | 6520B (6598K) |  |
| 2.88"               | -1.080"           | Min                 | 2.92" | 3.36" | 3.48"         | 3.74"         | 5.57"         |  |
|                     |                   | Max                 | 3.35" | 3.79" | 3.88"         | 4.24"         | 6.74"         |  |

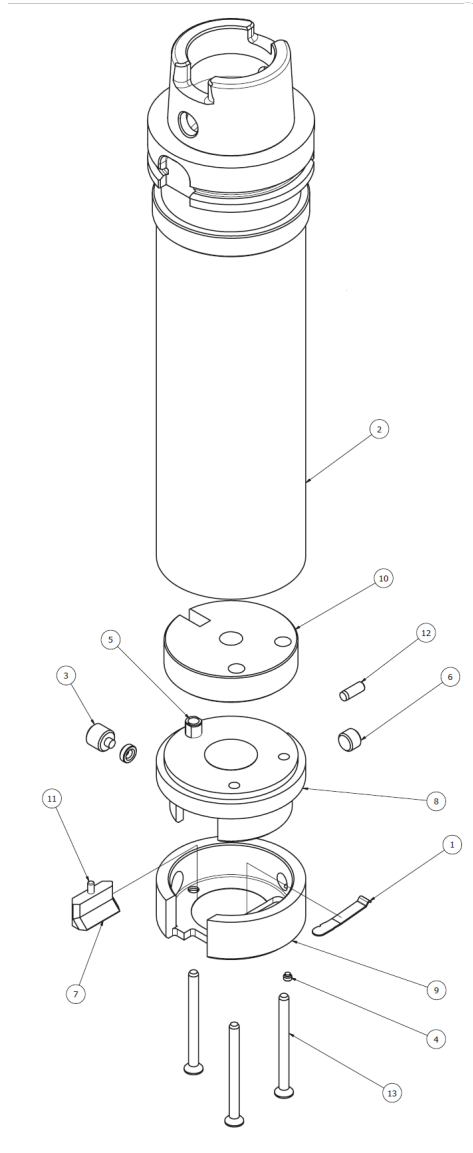


| <b>10131A 2 7/8" STUB BAR ASSEMBLY W/O TOOLING – F109HSK80A</b> |            |                    |  |
|---|------------|--------------------|--|
| <b>ITEM</b>   | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                               |
| 2   | 1          | 6521               | COUNTERWEIGHT – BLIND HOLE STUB BAR CUTTER HEADS |
| 3   | 1          | 650-2-16           | BODY, 2.9" STUB BAR F60                          |
| 4   | 1          | 502-2-45B          | BUSHING – UPPER CENTERING FINGER RETAINER        |
| 5   | 1          | 650-2-17           | Cap, 2.9" Stub Bar                               |
| 8   | 3          | MF-81C             | Socket Flat Head #10-24 UNC x 2.25               |
| 9   | 1          | 6263A              | Tool Holder Clamp Screw                          |
| 10  | 1          | MF-193             | 1/8 x 1/2 Dowel Pin                              |
| 11  | 1          | 501-70A            | Tool Holder Lock Screw ass'y                     |
| 12  | 1          | 502-2-85B          | Index Screw                                      |
| 13  | 1          | 502-12-4D          | SOCKET SET SCREW, BRASS TIPPED, #8-32 X 1/8      |
| 14  | 1          | 100-1A             | Tool Lock Spring                                 |
| 15  | 1          | MF-196             | 3/16 x 1/2 Dowel Pin                             |
| 16  | 1          | 10131B             | ADAPTER, 2 7/8" DIA STUB BAR – F109 HSK 80A      |

**10108B Blind Hole Cutterhead Kit, 2.92"-6.74" (74-171mm) Dia x 11 1/4" (286mm)**



|                     |                   | Tool Diameter Range |       |       |               |               |               |  |
|---------------------|-------------------|---------------------|-------|-------|---------------|---------------|---------------|--|
| Cutterhead Diameter | Centerline Offset |                     | 6593C | 6593D | 6520H (6598M) | 6520A (6598M) | 6520B (6598K) |  |
| 2.88"               | -1.080"           | Min                 | 2.92" | 3.36" | 3.48"         | 3.74"         | 5.57"         |  |
|                     |                   | Max                 | 3.35" | 3.79" | 3.88"         | 4.24"         | 6.74"         |  |

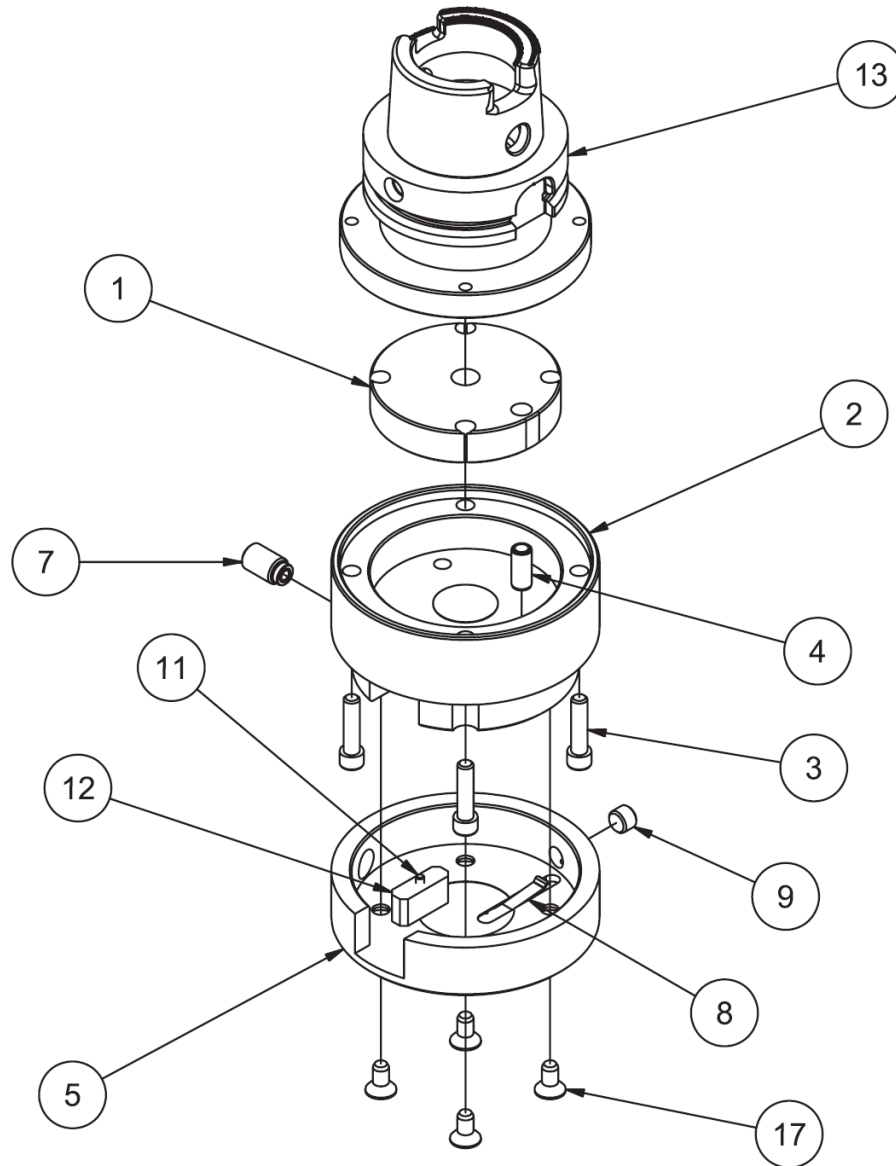


| <b>10108 2 7/8 Stub Bar (W/O Tooling) - HSK</b> |            |                    |  |
|---|------------|--------------------|--|
| <b>ITEM</b>                                     | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                         |
| 1   | 1          | 100-1A             | Tool Lock Spring                           |
| 2   | 1          | 10108A             | HSK ADAPTER 2.88 DIA STUB BAR CUTTERHEAD   |
| 3   | 1          | 501-70A            | Tool Holder Lock Screw ass'y               |
| 4   | 1          | 502-12-4D          | SOCKET SET SCREW, BRASS TIPPED #8-32 X 1/8 |
| 5   | 1          | 502-2-45B          | BUSHING – UPPER CENTERING FINGER RETAINER  |
| 6   | 1          | 502-2-85B          | Index Screw                                |
| 7   | 1          | 6263A              | Tool Holder Clamp Screw                    |
| 8   | 1          | 650-2-16           | BODY, 2.9" STUB BAR F60                    |
| 9   | 1          | 650-2-17           | Cap, 2.9" Stub Bar                         |
| 10  | 1          | 6521               | Counter Weight                             |
| 11  | 1          | MF-193             | 1/8 x 1/2 Dowel Pin                        |
| 12  | 1          | MF-196             | 3/16 x 1/2 Dowel Pin                       |
| 13  | 3          | MF-81C             | Socket Flat Head #10-24 UNC x 2.25         |

**10117 Blind Hole Cutterhead Kit, 5.63-9.34" (143-237mm) Dia**



|                     |                   | Tool Diameter Range |       |       |       |       |       |       |       |
|---------------------|-------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |                     | 6259P | 6259C | 6259D | 6259I | 6259E | 6259F | 6259G |
| 4.5"                | -1.762"           | Min                 | 5.63" | 5.73" | 5.63" | 5.63" | 6.04" | 7.04" | 8.04" |
|                     |                   | Max                 | 6.64" | 7.14" | 7.64" | 8.05" | 7.34" | 8.34" | 9.34" |



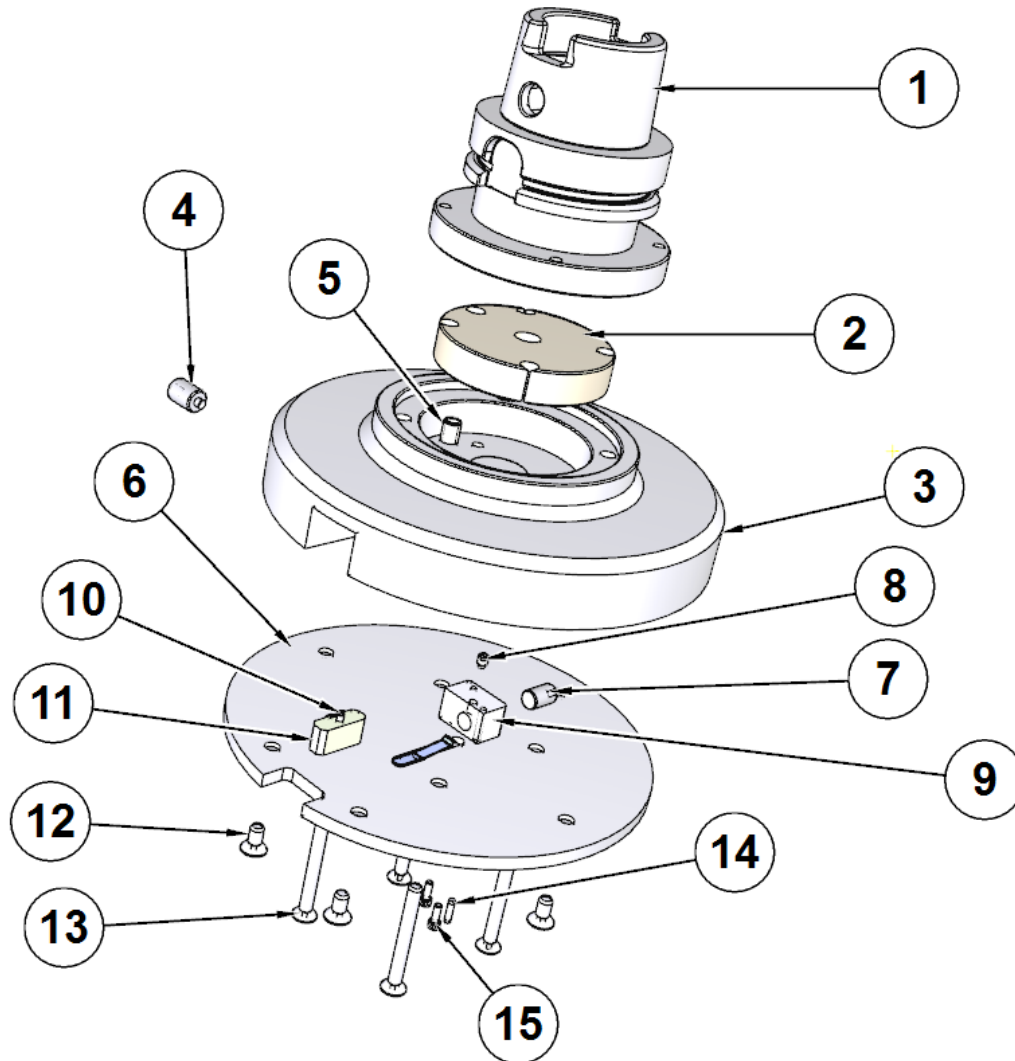
| 10117A 5.63-9.34" DIA PRODUCTION CUTTERHEAD ASSEMBLY, HSK80A, F100 |     |             |  |
|--|-----|-------------|--|
| ITEM   | QTY | PART NUMBER | DESCRIPTION                                  |
| 1  | 1   | 600-20-11   | COUNTERWEIGHT, CUTTERHEAD                    |
| 2  | 1   | 6256L       | BODY, CUTTERHEAD 4.50" (NO CENTERING)        |
| 3  | 4   | MF-15       | S.H.C.S 1/4-20 UNC X 1                       |
| 4  | 1   | 502-2-45B   | BUSHING – UPPER CENTERING FINGER RETAINER    |
| 5  | 1   | 6256N       | CAP, 4.50" DIA CUTTERHEAD (NO CENTERING)     |
| 7  | 1   | 501-70      | Tool Holder Lock Screw ass'y                 |
| 8  | 1   | 100-1E      | Tool Lock Spring                             |
| 9  | 1   | 502-2-85B   | Index Screw                                  |
| 10   | 1   | 502-12-4D   | SOCKET SET SCREW, BRASS TIPPED #8-32 X 1/8   |
| 11   | 1   | MF-193      | 1/8 x 1/2 Dowel Pin                          |
| 12   | 1   | 6263B       | Clamp Shoe (Tool Holder)                     |
| 13   | 1   | 10107A      | HSK ADAPTER 4.50 CUTTERHEAD                  |
| 17   | 4   | MF-82       | 1/4-20 UNC x .5" LONG SOCKET FLAT HEAD SCREW |



**10107B Blind Hole Cutterhead Kit, 7 3/4" (197mm) Dia**



|                     |                   | Tool Diameter Range |        |        |        |        |        |        |        |        |
|---------------------|-------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Cutterhead Diameter | Centerline Offset |                     | 6259C  | 6259D  | 6259I  | 6259E  | 6259F  | 6259G  | 6259H  | 6259J  |
| 7.75"               | -0.280"           | Min                 | 8.68"  | 8.58"  | 8.58"  | 8.99"  | 9.99"  | 10.99" | 11.99" | 12.99" |
|                     |                   | Max                 | 10.09" | 10.59" | 11.00" | 10.29" | 11.29" | 12.29" | 13.29" | 14.29" |

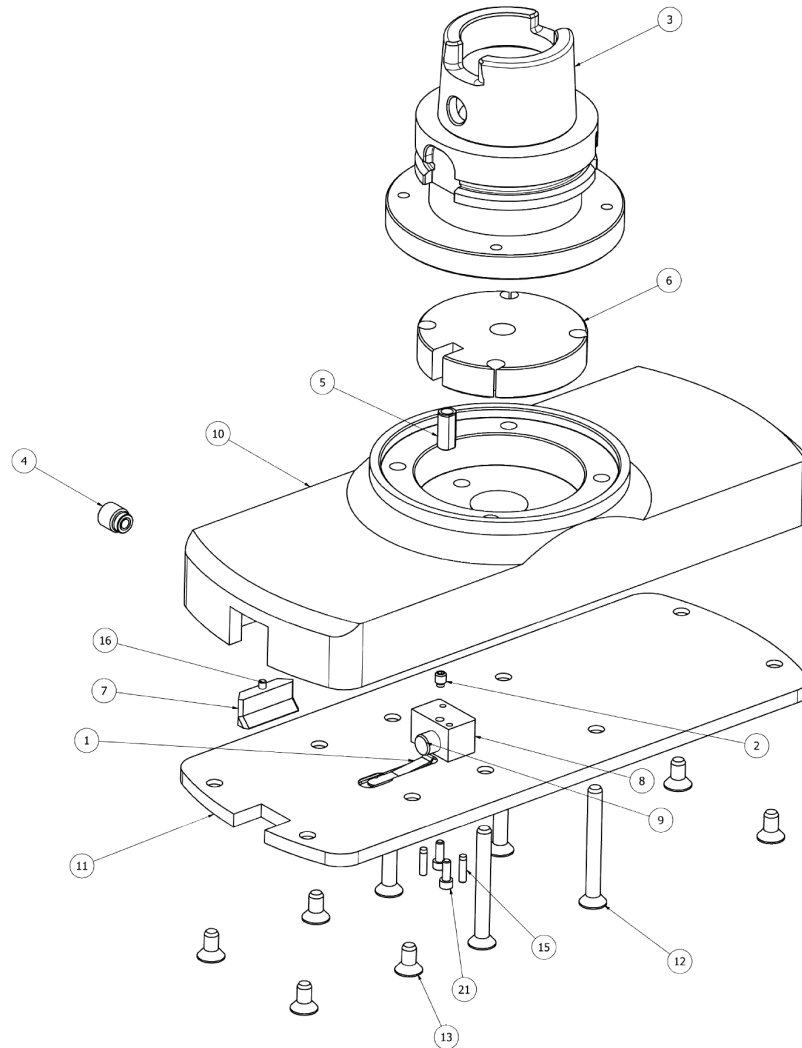


| 10107 CUTTERHEAD, 7 3/4" HSK W/O TOOLING (ASSEMBLY) – F100 |     |             |   |
|--|-----|-------------|---|
| ITEM   | QTY | PART NUMBER | DESCRIPTION                             |
| 1  | 1   | 10107A      | ADAPTER, 4.5" CUTTERHEAD W/HSK80A SHANK |
| 2  | 1   | 600-20-11   | COUNTERWEIGHT, CUTTERHEAD               |
| 3  | 1   | 6466A       | CUTTERHEAD, 7 3/4"                      |
| 4  | 1   | 501-70F     | SCREW, TOOL HOLDER LOCK                 |
| 5  | 1   | 502-2-45B   | BUSHING, UPPER RETAINER                 |
| 6  | 1   | 6469A       | CAP, 7 3/4" CUTTERHEAD                  |
| 7  | 1   | 6468A       | SCREW, ADJUSTING 3/8-24 X 5/8"          |
| 8  | 1   | 100-82-2    | SCREW, SET – BRASS GIB – 3/16"          |
| 9  | 1   | 6468        | PLUG                                    |
| 10   | 1   | MF-193      | DOWEL PIN 1/8 X 1/2"                    |
| 11   | 1   | 6263B       | SHOE, CLAMP TOOLHOLDER                  |
| 12   | 5   | MF-82       | SOCKET FLAT HEAD SCREW 1/4-20 X 1/2"    |
| 13   | 4   | MF-83A      | SOCKET FLAT HEAD SCREW 1/4-20 X 2 1/4"  |
| 14   | 2   | MF-193      | DOWEL PIN 1/8 X 1/2"                    |
| 15   | 1   | MF-1B       | SOCKET HEAD CAP SCREW #6-32 X 3/8"      |

**10104B Blind Hole Cutterhead Kit, 12" (305mm) Dia**



| Tool Diameter Range |                   |     |        |        |        |        |        |        |
|---------------------|-------------------|-----|--------|--------|--------|--------|--------|--------|
| Cutterhead Diameter | Centerline Offset |     | 6259C  | 6259D  | 6259I  | 6259E  | 6259F  | 6259G  |
| 12"                 | 1.570"            | Min | 12.10" | 12.10" | 12.10" | 12.51" | 13.51" | 14.51" |
|                     |                   | Max | 13.61" | 14.11" | 14.52" | 13.81" | 14.81" | 15.81" |

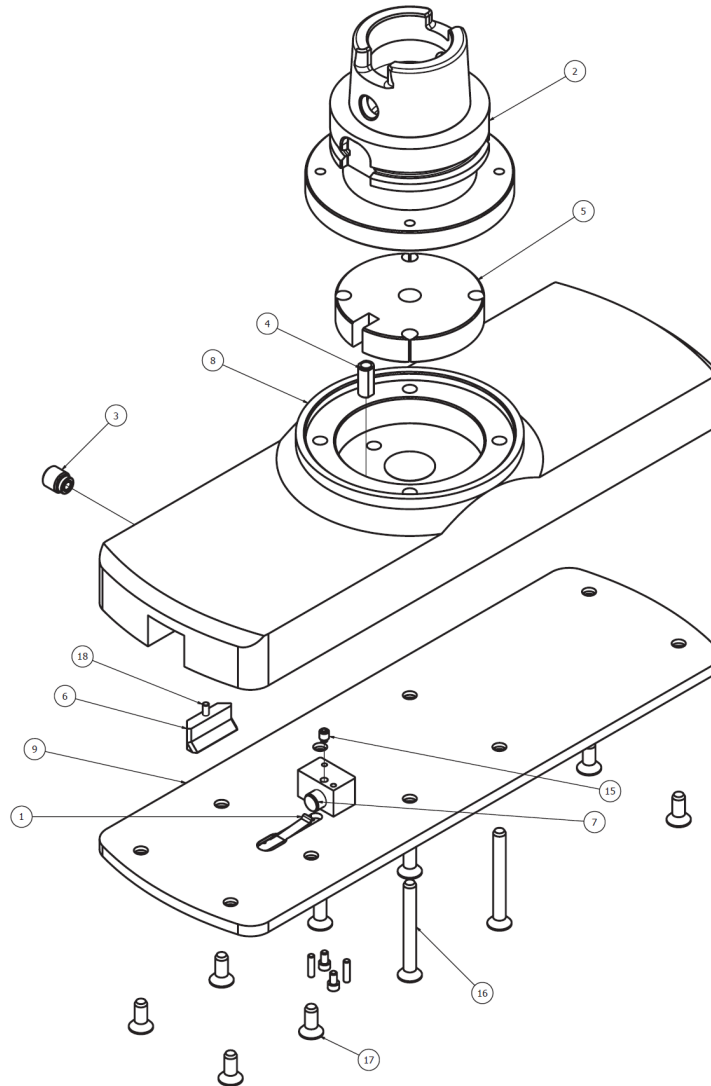


| 10104 12" CUTTERHEAD ASSEMBLY (W/O TOOLING) - HSK |     |             |   |
|---|-----|-------------|---|
| ITEM  | QTY | PART NUMBER | DESCRIPTION                               |
| 1   | 1   | 100-1E      | Tool Lock Spring                          |
| 2   | 1   | 100-82-2    | Set Screw, Brass Tipped                   |
| 3   | 1   | 10104A      | HSK ADAPTER 7 3/4" DIA CUTTERHEAD         |
| 4   | 1   | 501-70A     | Tool Holder Lock Screw ass'y              |
| 5   | 1   | 502-2-45B   | BUSHING – UPPER CENTERING FINGER RETAINER |
| 6   | 1   | 600-20-11   | Counter Weight                            |
| 7   | 1   | 6263        | Tool Holder Clamp Shoe                    |
| 8   | 1   | 6468        | PLUG, CUTTERHEAD 7 3/4" CUTTERHEAD        |
| 9   | 1   | 6468A       | Adjusting Screw                           |
| 10  | 1   | 6588B       | BODY, 12" CUTTERHEAD                      |
| 11  | 1   | 6588C       | CAP, 12" CUTTERHEAD                       |
| 12  | 4   | MF-83A      | Socket Flat Head Screw, 1/4-20 x 2 1/4"   |
| 13  | 6   | MF-82       | Socket Flat Head Screw, 1/4-20 x 1/2"     |
| 15  | 2   | MF-193      | DOWEL PIN 1/8 X 1/2"                      |
| 16  | 1   | MF-193C     | DOWEL PIN 1/8 X 3/8"                      |
| 21  | 2   | MF-1B       | S.H.C.S #6-32 UNC X 3/8"                  |

### 10105B Blind Hole Cutterhead Kit, 14" (356mm) Dia.



## 10105 Cutterhead Parts

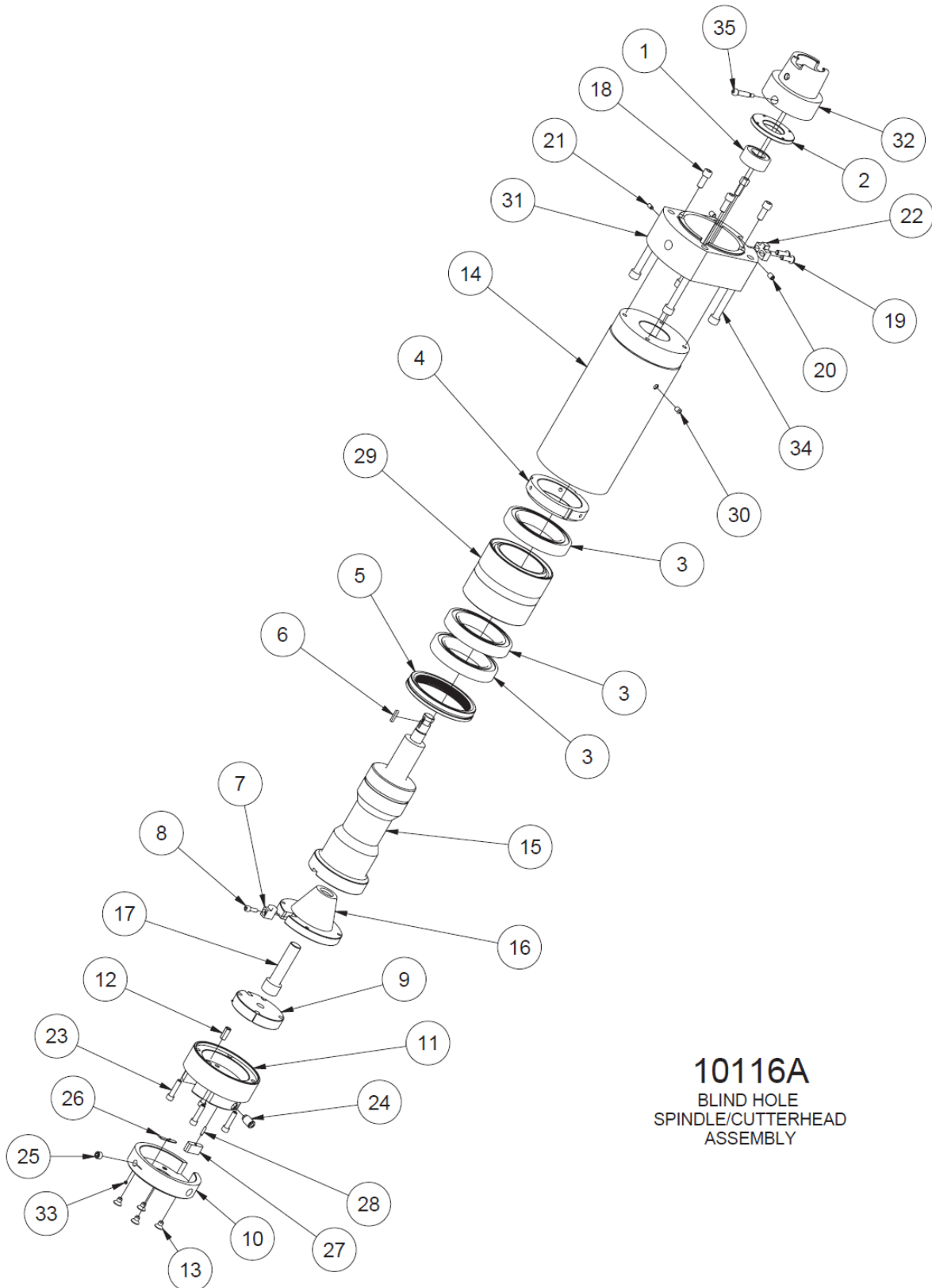


| 10105 14" CUTTERHEAD ASSEMBLY (W/O TOOLING) - HSK |     |             |   |
|---|-----|-------------|---|
| ITEM  | QTY | PART NUMBER | DESCRIPTION                               |
| 1   | 1   | 100-1E      | TOOL LOCK SPRING                          |
| 2   | 1   | 10104A      | HSK ADAPTER 7 3/4" DIA. CUTTERHEAD        |
| 3   | 1   | 501-70A     | TOOL HOLDER LOCK SCREW ASS'Y              |
| 4   | 1   | 502-2-45B   | BUSHING – UPPER CENTERING FINGER RETAINER |
| 5   | 1   | 600-20-11   | COUNTER WEIGHT                            |
| 6   | 1   | 6263        | TOOL HOOLDER CLAMP SHOE                   |
| 7   | 1   | 6468A       | ADJUSTING SCREW                           |
| 8   | 1   | 6587A       | BODY, 14" DIA. CUTTERHEAD                 |
| 9   | 1   | 6587E       | CAP ASS'Y – 14" DIA. CUTTERHEAD           |
| 15  | 1   | MF-57       | SOCKET SET SCREW, HALF DOG, #10-24 X 1/2" |
| 16  | 4   | MF-83A      | SOCKET FLAT HEAD SCREW, 1/4-20 X 2 1/4"   |
| 17  | 6   | MF-82A      | SOCKET FLAT HEAD SCREW, 1/4-20 X 5/8"     |
| 18  | 1   | MF-193      | DOWEL PIN, 1/8" X 1/2"                    |

## 10116 Extended Spindle Blind Hole Cutterhead Kit



### 10116A Cutterhead Parts



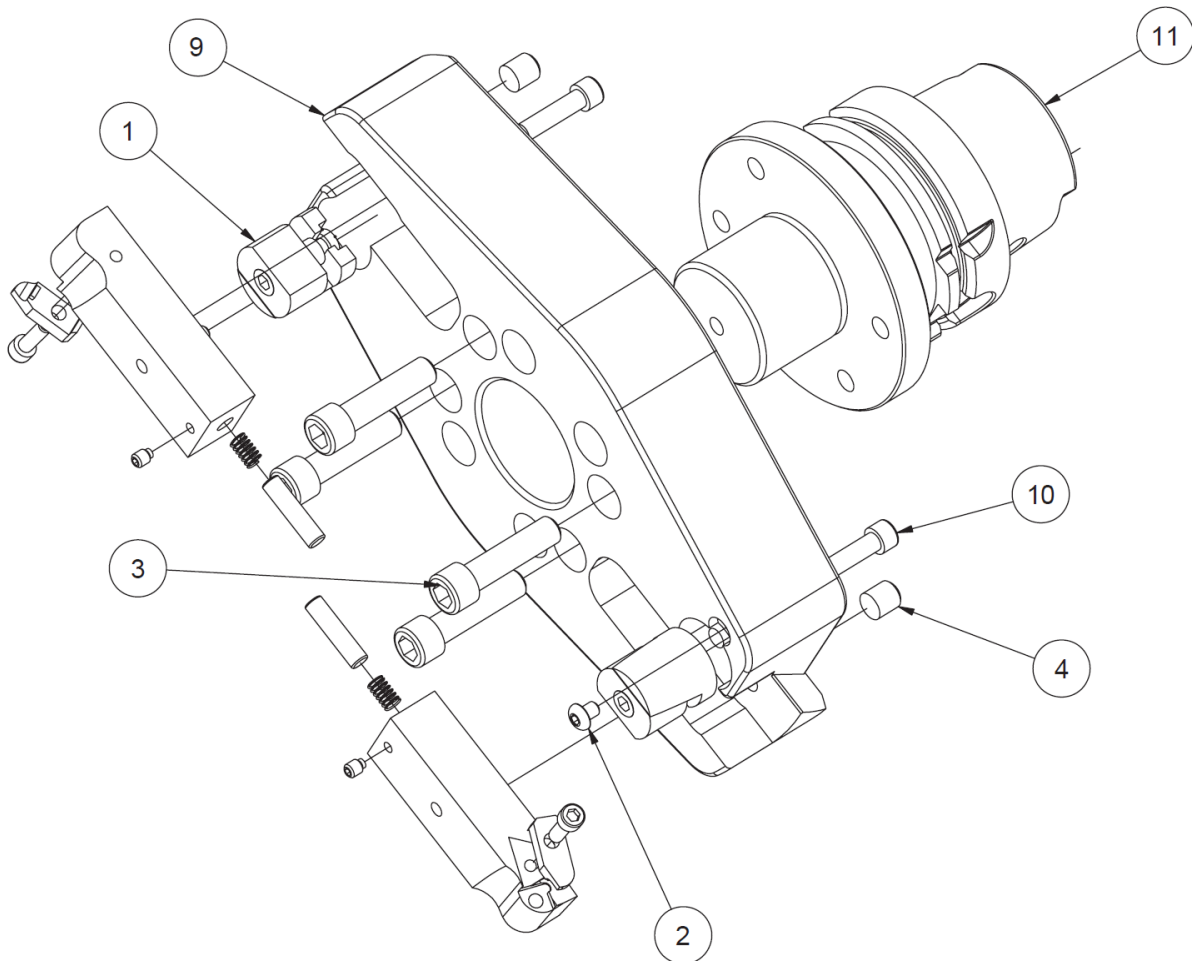
**10116A**  
BLIND HOLE  
SPINDLE/CUTTERHEAD  
ASSEMBLY



| 10116A BLIND HOLE SPINDLE/CUTTERHEAD ASSEMBLY - HSK |     |             |   |
|---|-----|-------------|---|
| ITEM  | QTY | PART NUMBER | DESCRIPTION   |
| 1   | 1   | 502-9-32    | BEARING, BALL   |
| 2   | 1   | 6772A       | NUT, BEARING, LINE BORE HEAD                                      |
| 3   | 3   | 6116E       | BEARING (SET OF 3)  |
| 4   | 1   | 6116F       | SHOELock NUT  |
| 5   | 1   | 6305D       | THROWBACK RING  |
| 6   | 1   | 6752Q       | KEY, PINION, 90 DEG HEAD  |
| 7   | 1   | 6181A       | KEY – MILLING CUTTERHEAD DRIVE                                    |
| 8   | 1   | MF-5        | SOCKET HEAD CAPSCREW #10-24 X 5/8"                                |
| 9   | 1   | 600-20-11   | COUNTER WEIGHT  |
| 10  | 1   | 6256N       | CAP, CUTTERHEAD 4.50" (NO CENTERING)                              |
| 11  | 1   | 6256L       | BODY, CUTTERHEAD 4.50" (NO CENTERING)                             |
| 12  | 1   | 502-2-45B   | BUSHING – UPPER CENTERING FINGER RETAINER                         |
| 13  | 4   | MF-82B      | SOCKET FLAT HEAD SCREW, 1/4-20 X 3/8"                             |
| 14  | 1   | 10103B      | BODY, BLIND HOLE SPINDLE/CUTTERHEAD ASS'Y                         |
| 15  | 1   | 10103G      | INNER SPINDLE, BLIND HOLE SPINDLE/CUTTERHEAD                      |
| 16  | 1   | 10103D      | ADAPTER, CUTTERHEAD, SPINDLE/CUTTERHEAD ASS'Y                     |
| 17  | 1   | 10103E      | MOUNTING BOLT, CUTTERHEAD ADAPTER – BLIND HOLE SPINDLE/CUTTERHEAD |
| 18  | 4   | MF-22       | SOCKET HEAD CAPSCREW 5/16-18 X 3/4"                               |
| 19  | 2   | MF-92       | SOCKET BUTTON HEAD SCREW 1/4-20 X 3/4"                            |
| 20  | 2   | MF-59       | SOCKET SET SCREW, FLAT POINT, 1/4-20 X 3/8"                       |
| 21  | 1   | 100-82-2A   | SOCKET SET SCREW, FLAT POINT, #10-24                              |
| 22  | 1   | 6750K       | KEY, LOCATION 90 DEG HEAD   |
| 23  | 4   | MF-15       | SOCKET HEAD CAPSCREW, 1/4-20 X 1"                                 |
| 24  | 1   | 501-70      | TOOL HOLDER LOCK SCREW ASS'Y                                      |
| 25  | 1   | 502-2-85B   | INDEX SCREW   |
| 26  | 1   | 100-1E      | TOOL LOCK SPRING  |
| 27  | 1   | 6263B       | CLAMP SHOE (TOOL HOLDER)  |
| 28  | 1   | MF-193      | DOWEL PIN, 1/8" X 1/2"  |
| 29  | 1   | 6172E       | SPACER (SET) – PRECISION BEARING SPINDLE                          |
| 30  | 1   | 502-9-68B   | FLUSH GREASE FITTING  |
| 31  | 1   | 6770K       | MOUNTING HUB, H.D. OFFSET R.A.D.                                  |
| 32  | 1   | 10114A      | ADAPTER, DRIVE, R.A.D.  |
| 33  | 1   | 502-12-4D   | SOCKET SET SCREW, BRASS TIPPED, #8-32 X 1/8"                      |
| 34  | 4   | MF-34       | SOCKET HEAD CAPSCREW, 3/8-16 X 2"                                 |
| 35  | 1   | 10114G      | SOCKET SHOULDER BOLT, 1/4" X 1"                                   |

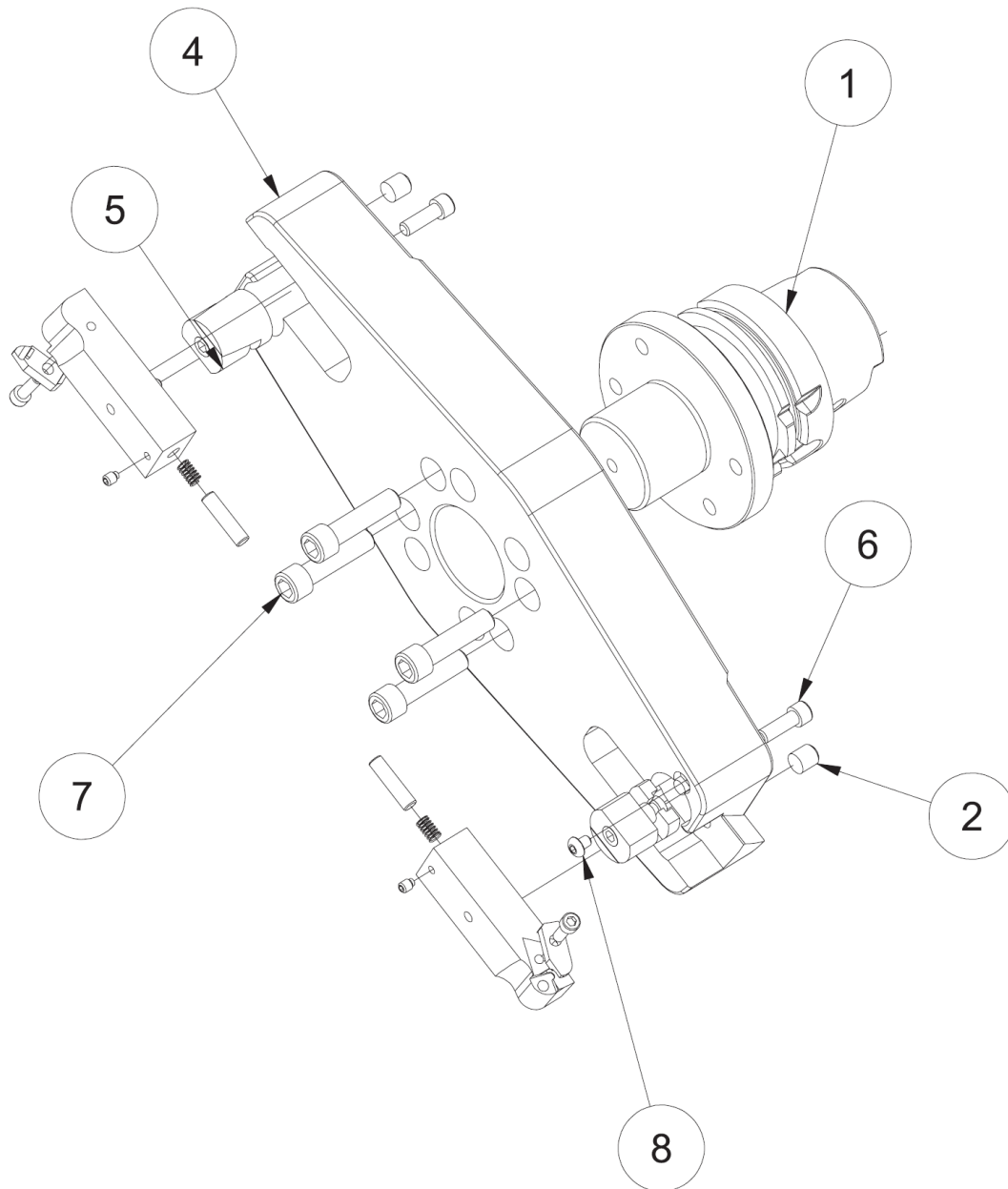
## Surfacing Tools

### 10119 Surfacing Flycutter Kit, 10" (254mm) Dia

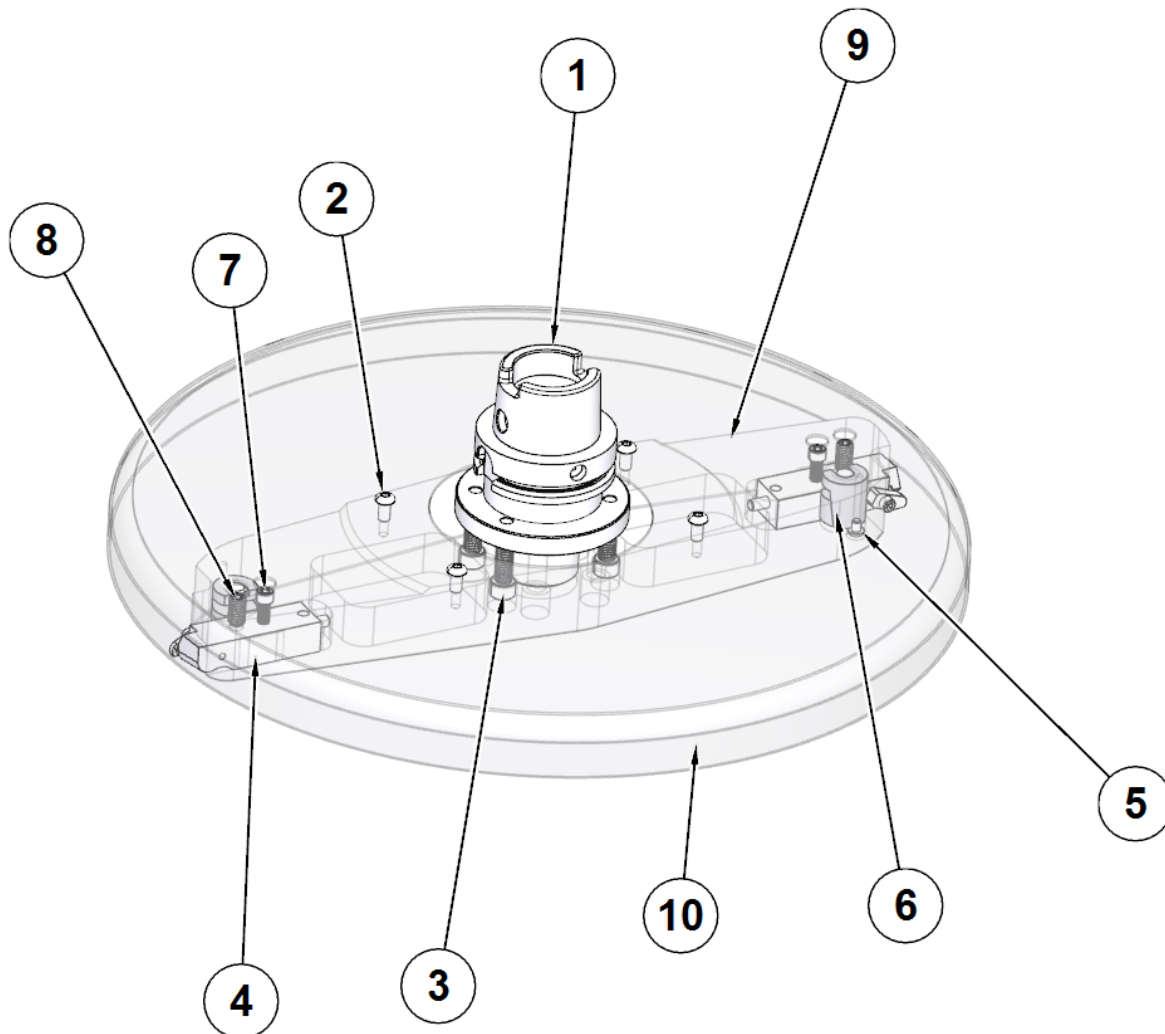


| 10119 10" FLYCUTTER ASSEMBLY |     |             |  |
|------------------------------|-----|-------------|--|
| ITEM                         | QTY | PART NUMBER | DESCRIPTION                                |
| 1                            | 2   | 7206K       | 'L' LOCK                                   |
| 2                            | 2   | MF-87       | SOCKET BUTTON SCREW #10-24 X 1/4"          |
| 3                            | 4   | MF-33       | SOCKET CAP SCREW 3/8-16 X 1 1/2"           |
| 4                            | 2   | 7202C       | SOCKET SET SCREW, OVAL POINT 3/8-16 X 3/8" |
| 6                            | 2   | 7202W       | TOOL HOLDER ASSEMBLY, FLY CUTTER           |
| 9                            | 1   | 7206L       | 10" CUTTERHEAD BODY – SURFACING            |
| 10                           | 2   | MF-15       | SOCKET CAP SCREW 1/4-20 X 1"               |
| 11                           | 1   | 10106A      | ADAPTER, MILLING CUTTERHEAD                |

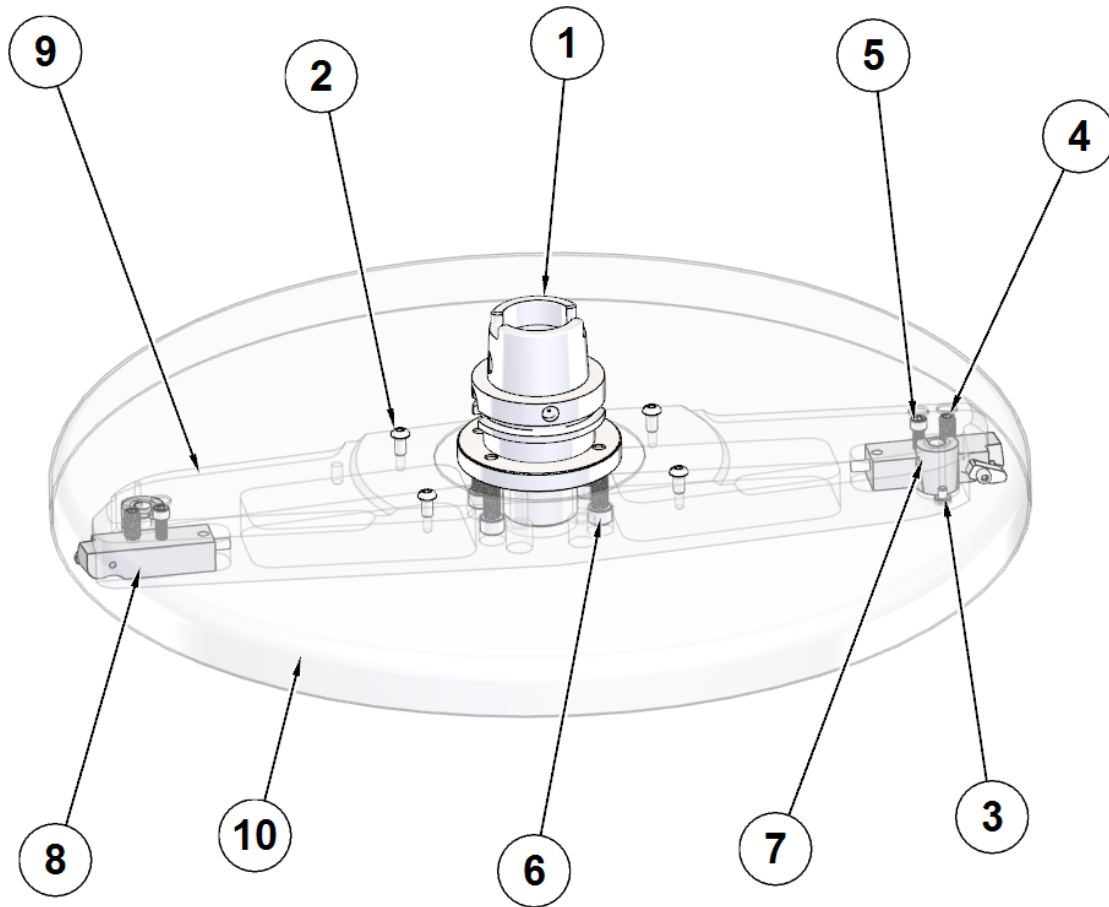
### 10106C Surfacing Flycutter Kit, 14" (356mm) Dia



| 10106C 14" FLYCUTTER ASSEMBLY - HSK |     |             |  |
|-------------------------------------|-----|-------------|--|
| ITEM                                | QTY | PART NUMBER | DESCRIPTION  |
| 1                                   | 1   | 10106A      | ADAPTER, MILLING CUTTERHEAD                                      |
| 2                                   | 2   | 7202C       | SOCKET SET SCREW, OVAL POINT $\frac{3}{8}$ -16 X $\frac{3}{8}$ " |
| 3                                   | 2   | 7202W       | TOOL HOLDER ASSEMBLY, FLY CUTTER                                 |
| 4                                   | 1   | 7206G       | MILLING CUTTERHEAD, 14" DIA W/ $\frac{3}{4}$ X 1" TOOLHOLDER     |
| 5                                   | 2   | 7206K       | 'L' LOCK   |
| 6                                   | 2   | MF-14       | SOCKET CAP SCREW $\frac{1}{4}$ -20 X $\frac{3}{4}$ "             |
| 7                                   | 4   | MF-33       | SOCKET CAP SCREW $\frac{3}{8}$ -16 X 1 $\frac{1}{2}$ "           |
| 8                                   | 2   | MF-87       | SOCKET BUTTON SCREW #10-24 X $\frac{1}{4}$ "                     |

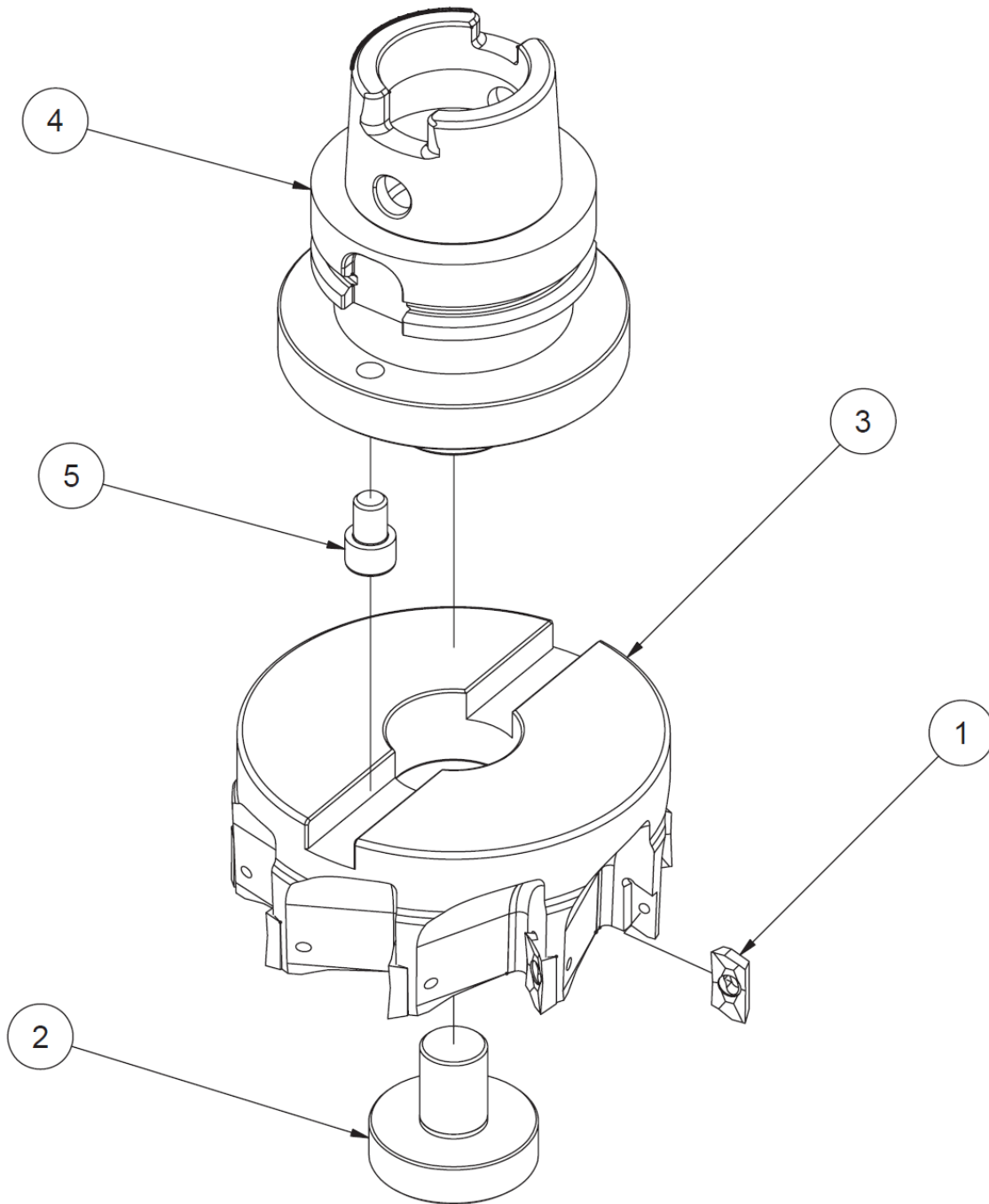
**10115 Surfacing Flycutter Kit, 18" (457mm) Dia**


| 10106C 14" FLYCUTTER ASSEMBLY - HSK |     |             |  |
|-------------------------------------|-----|-------------|--|
| ITEM                                | QTY | PART NUMBER | DESCRIPTION                                |
| 1                                   | 1   | 10106A      | ADAPTER, MILLING CUTTERHEAD                |
| 2                                   | 4   | MF-90       | SOCKET BUTTON HEAD SCREW 1/4-20 X 1/2"     |
| 3                                   | 4   | MF-33       | SOCKET HEAD CAP SCREW 3/8-16 X 1 1/2"      |
| 4                                   | 2   | 7202W       | TOOL HOLDER ASSEMBLY, FLY CUTTER           |
| 5                                   | 2   | MF-87       | SOCKET BUTTON HEAD SCREW #10-24 X 1/4"     |
| 6                                   | 2   | 7206K       | 'L' LOCK                                   |
| 7                                   | 2   | MF-15       | SOCKET HEAD CAP SCREW 1/4-20 X 1"          |
| 8                                   | 2   | 7202C       | SOCKET SET SCREW, OVAL POINT 3/8-16 X 3/8" |
| 9                                   | 1   | 6294S       | CUTTERHEAD BODY - SURFACING                |
| 10                                  | 1   | 650-2-8G    | SHROUD, 18" SURFACING CUTTERHEAD           |

**10106B Surfacing Flycutter Kit, 22" (559mm) Dia**

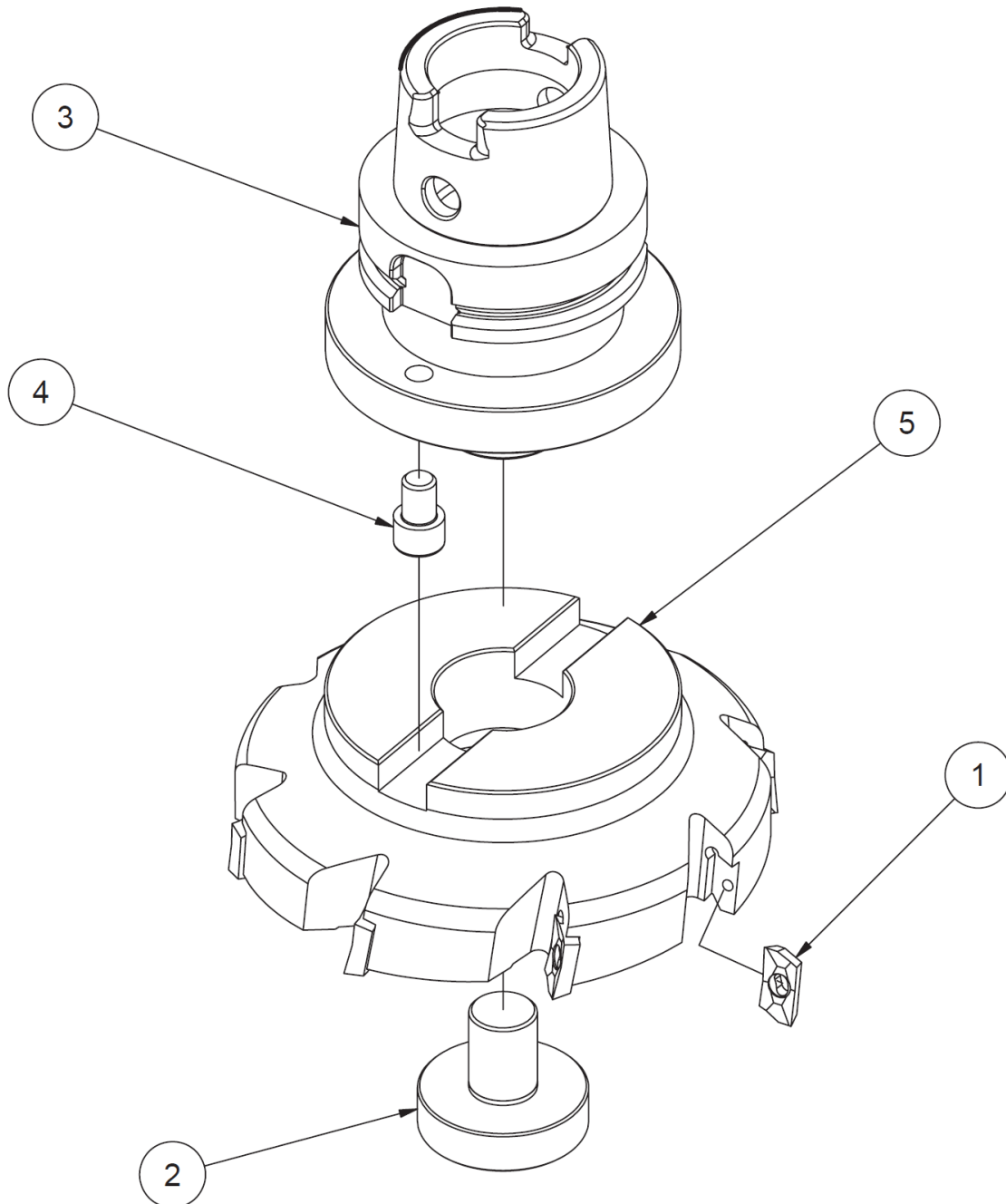
| 10106B 22" (559mm) FLYCUTTER ASSEMBLY - HSK |     |             |  |
|---|-----|-------------|--|
| ITEM  | QTY | PART NUMBER | DESCRIPTION                                |
| 1   | 1   | 10106A      | ADAPTER, MILLING CUTTERHEAD                |
| 2   | 4   | MF-90       | SOCKET BUTTON HEAD SCREW 1/4-20 X 1/2"     |
| 3   | 2   | MF-87       | SOCKET BUTTON HEAD SCREW #10-24 X 1/4"     |
| 4   | 2   | 7202C       | SOCKET SET SCREW, OVAL POINT 3/8-16 X 3/8" |
| 5   | 2   | 7202W       | TOOL HOLDER ASSEMBLY, FLY CUTTER           |
| 6   | 4   | MF-33       | SOCKET HEAD CAP SCREW 3/8-16 X 1 1/2"      |
| 7   | 2   | 7206K       | 'L' LOCK                                   |
| 8   | 2   | 7202P       | HOLDER, FLY CUTTER TOOL                    |
| 9   | 1   | 6294X       | CUTTERHEAD BODY - SURFACING                |
| 10  | 1   | 650-2-8H    | SHROUD, 22" SURFACING CUTTERHEAD           |

### 10129 Shell Mill Parts, 5" (127mm) Dia



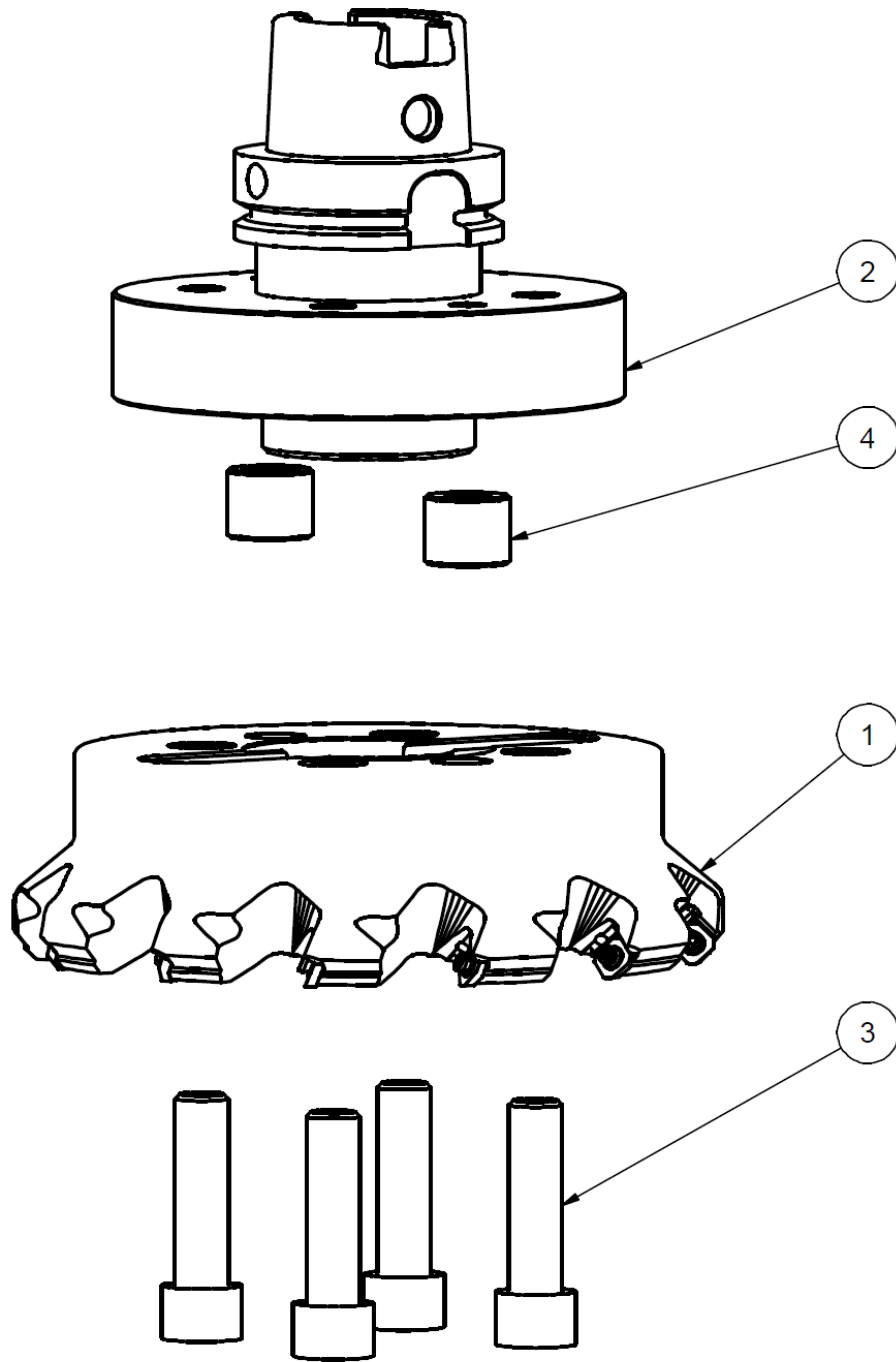
| 10129 5" SHELL MILL ASSEMBLY - HSK |     |             |   |
|------------------------------------|-----|-------------|---|
| ITEM                               | QTY | PART NUMBER | DESCRIPTION                                       |
| 1                                  | 9   | 6514T       | INSERT, SHELL MILL 18mm                           |
| 2                                  | 1   | 6514R SCREW | MOUNTING SCREW, 5" SHELL MILL                     |
| 3                                  | 1   | 6514S       | 5" SHELL MILL                                     |
| 4                                  | 1   | 10130A      | HSK ADAPTER, LARGE SHELL MILL                     |
| 5                                  | 1   | MF-29       | S.H.C.S. $\frac{3}{8}$ - 16 UNC X $\frac{1}{2}$ " |

### 10130 Shell Mill Parts, 6" (152mm) Dia



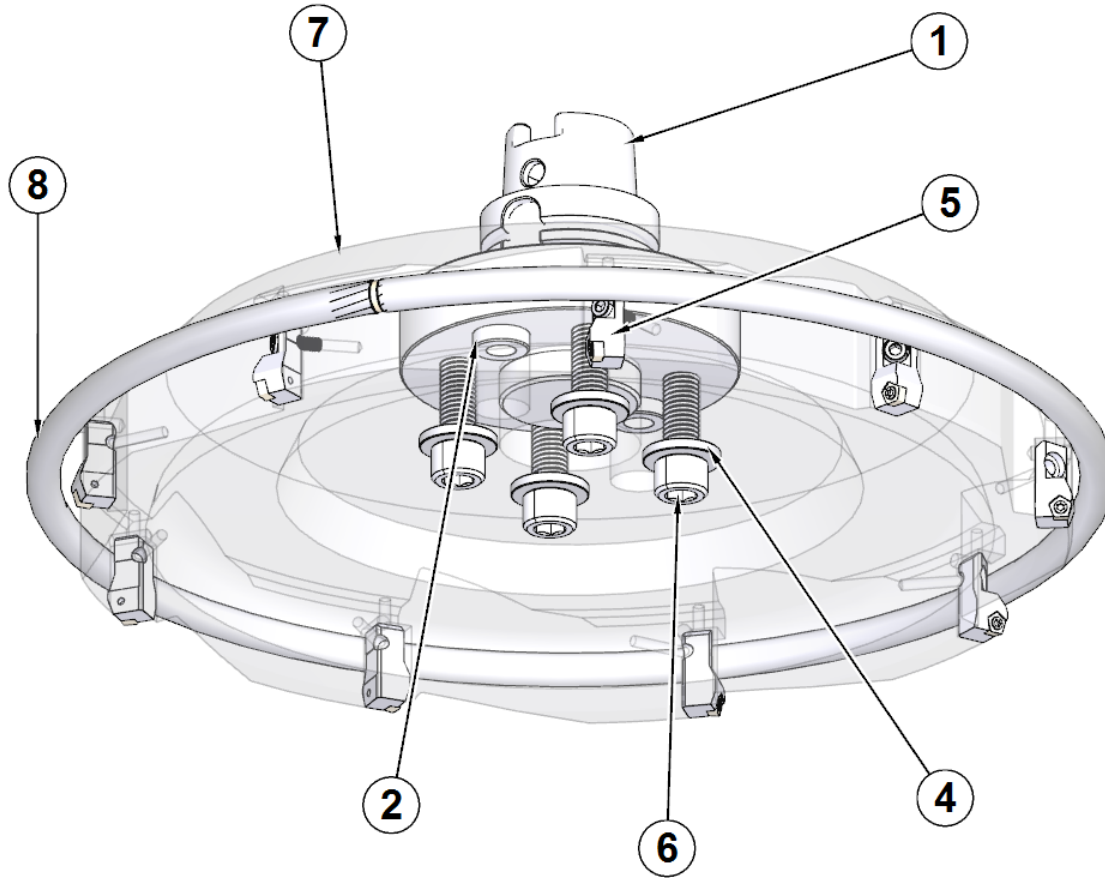
| 10130 6" SHELL MILL ASSEMBLY - HSK |     |             |   |
|------------------------------------|-----|-------------|---|
| ITEM                               | QTY | PART NUMBER | DESCRIPTION                                       |
| 1                                  | 8   | 6514T       | INSERT, SHELL MILL 18mm                           |
| 2                                  | 1   | 6514R SCREW | MOUNTING SCREW, 5" SHELL MILL                     |
| 3                                  | 1   | 10130A      | HSK ADAPTER, LARGE SHELL MILL                     |
| 4                                  | 1   | MF-29       | S.H.C.S. $\frac{3}{8}$ - 16 UNC X $\frac{1}{2}$ " |
| 5                                  | 1   | 7224H       | SHELL MILL, 6" DIA                                |

**10109D Shell Mill Kit, 8" (203mm) Dia**



| 10109D 8" SHELL MILL ASSEMBLY - HSK |     |             |   |
|-------------------------------------|-----|-------------|---|
| ITEM                                | QTY | PART NUMBER | DESCRIPTION   |
| 1                                   | 1   | 6515B       | SHELL MILL, 8" DIA, MITSUBISHI                      |
| 2                                   | 1   | 10109A      | HSK ADAPTER LARGE SHELL MILL                        |
| 3                                   | 4   | MF-46E      | S.H.C.S. $\frac{5}{8}$ - 11 UNC X 2 $\frac{1}{4}$ " |
| 4                                   | 2   | 6514U       | DRIVE KEY - LARGE SHELL MILL ADAPTER                |

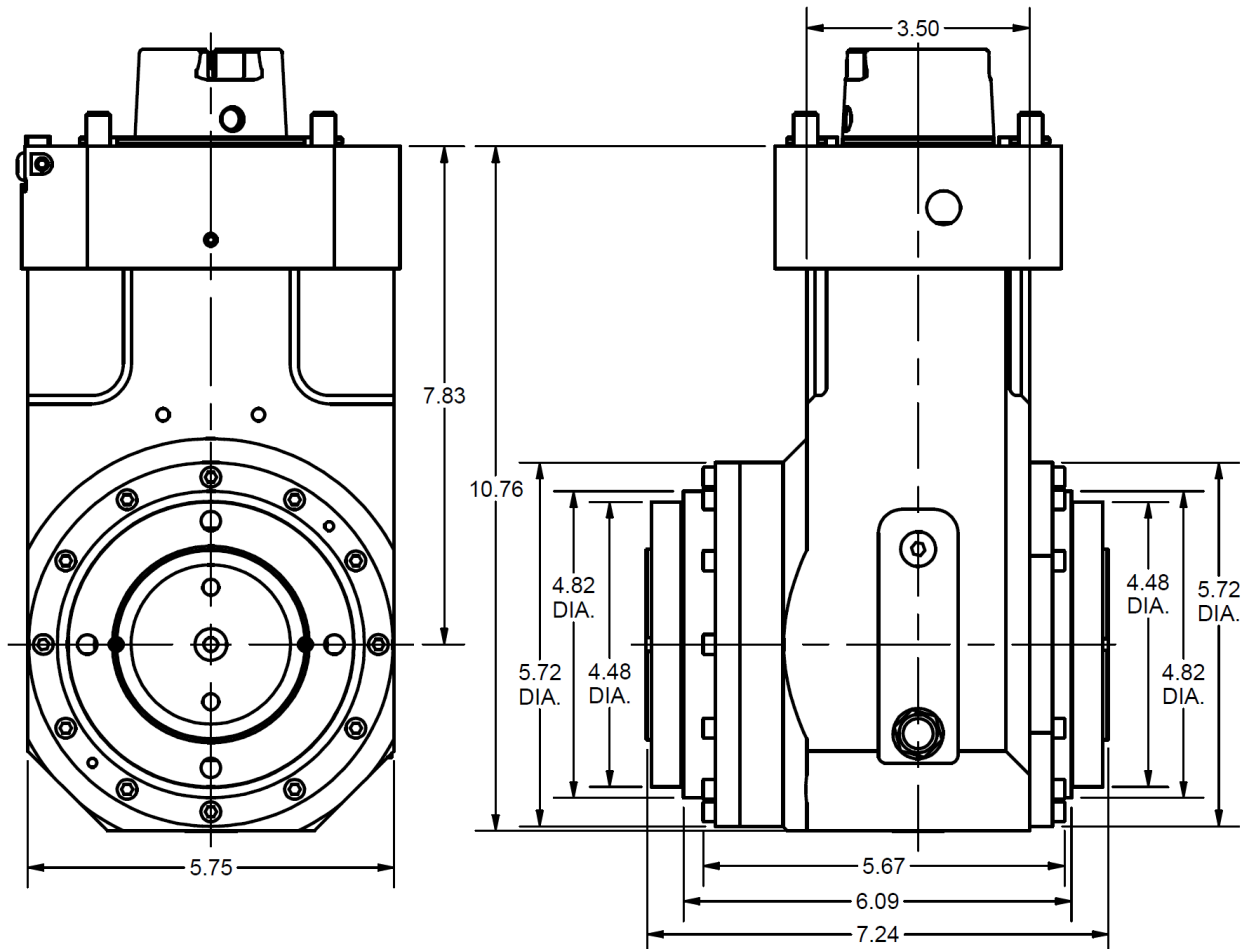
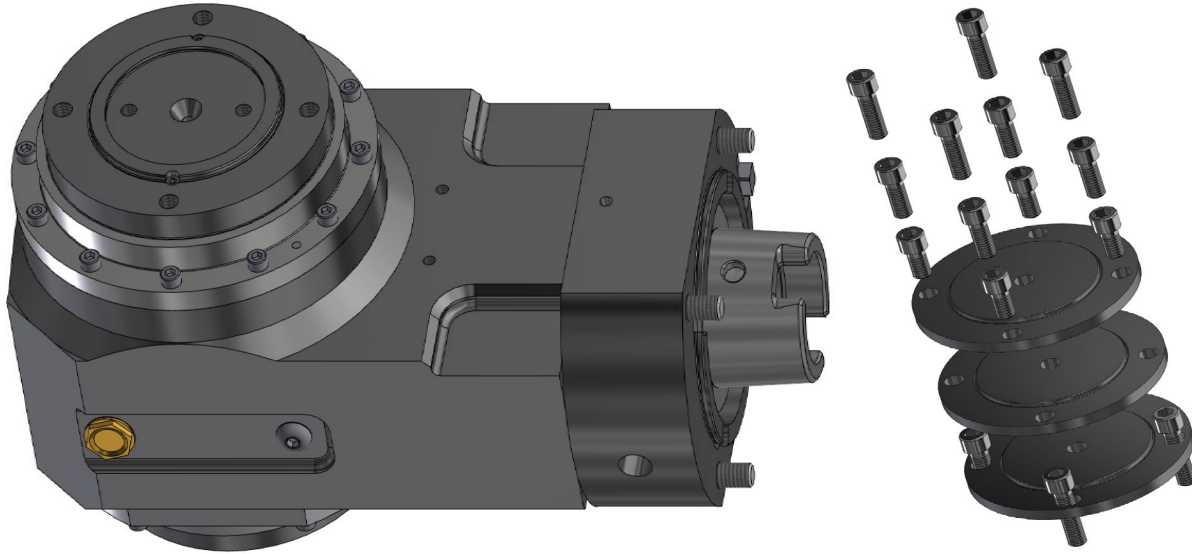


**10109B Shell Mill Kit, 18" (457mm) Dia**

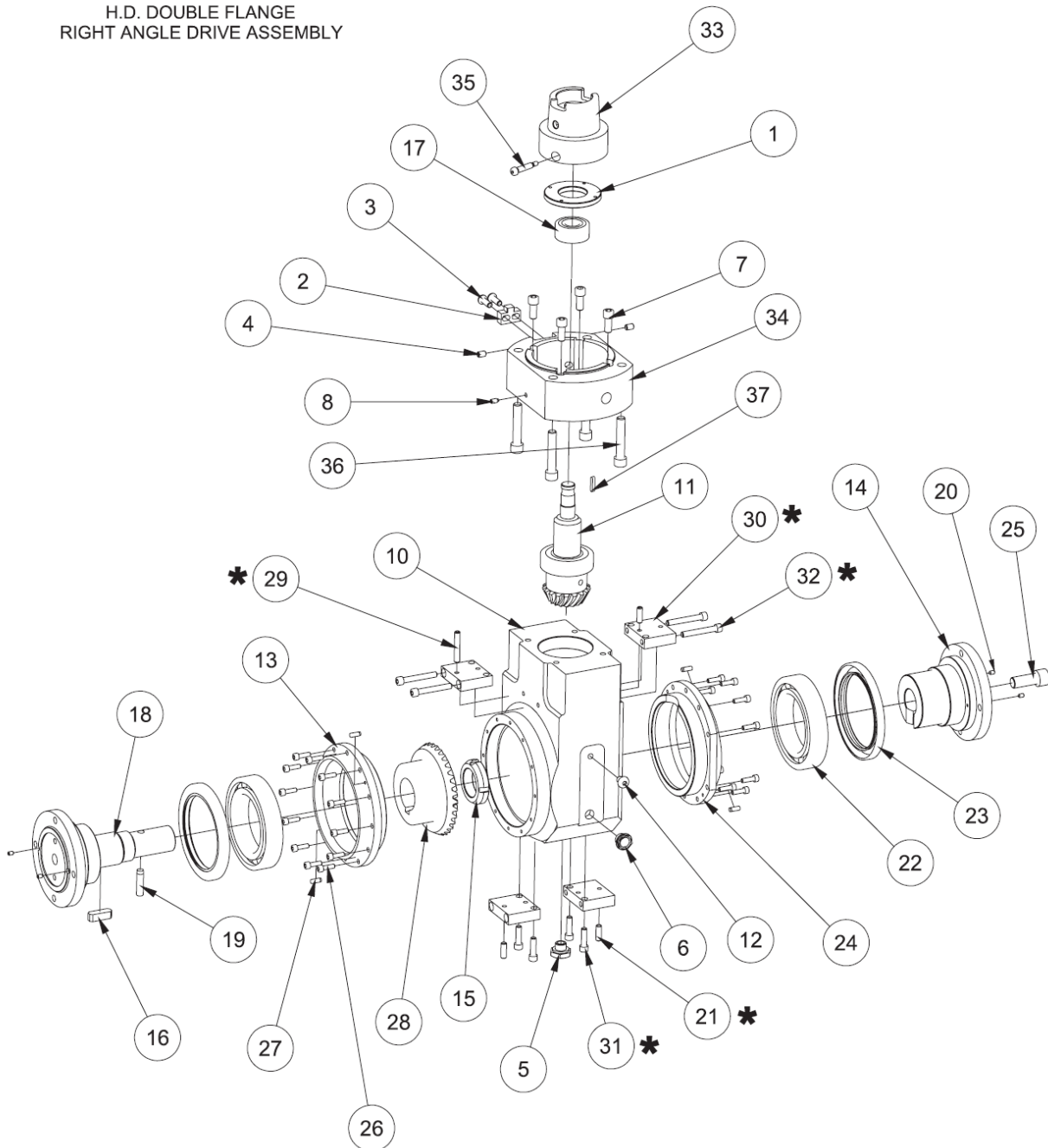
| 10109B 18" SHELL MILL ASSEMBLY - HSK |     |             |   |
|--------------------------------------|-----|-------------|---|
| ITEM                                 | QTY | PART NUMBER | DESCRIPTION                                 |
| 1                                    | 1   | 10109A      | ADAPTER, LARGE SHELL MILL – HSK80A          |
| 2                                    | 2   | 6514U       | DRIVE PIN – 18" MILLING HEAD                |
| 4                                    | 4   | 502-1-16    | WASHER, HARDENED                            |
| 5                                    | 9   | 6864D       | CARTRIDGE, COMPLETE WITH 6864F INSERT SCREW |
| 6                                    | 4   | MF-46E      | SOCKET HEAD CAP SCREW 5/8-11 X 2 1/4"       |
| 7                                    | 1   | 6864A       | SPECIAL 18" MULTI-TOOTH MILLING HEAD        |
| 8                                    | 1   | 6864H       | DAMPENER ASSEMBLY                           |

## Right Angle Drives

### 6898 Extra Heavy Duty Right Angle Drive



6898  
H.D. DOUBLE FLANGE  
RIGHT ANGLE DRIVE ASSEMBLY

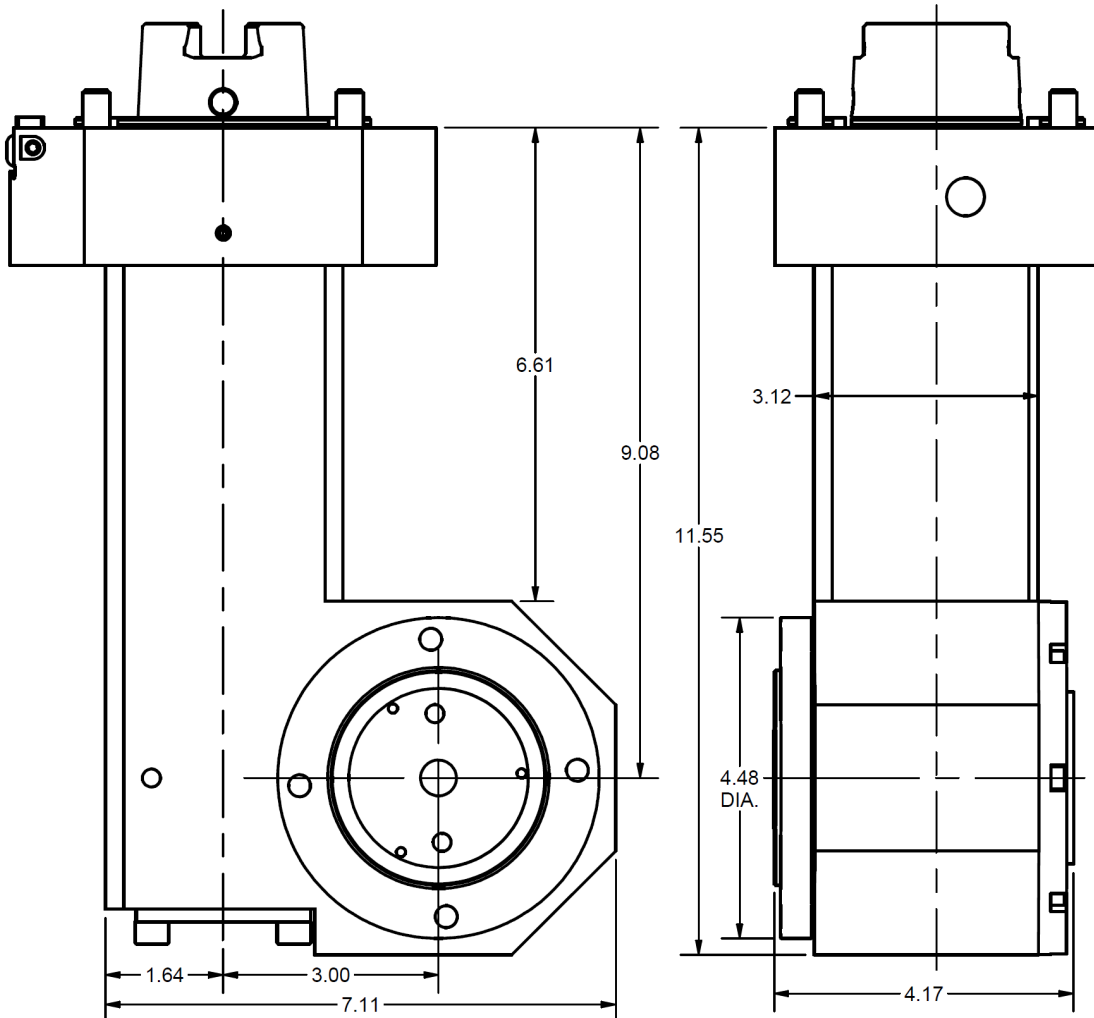
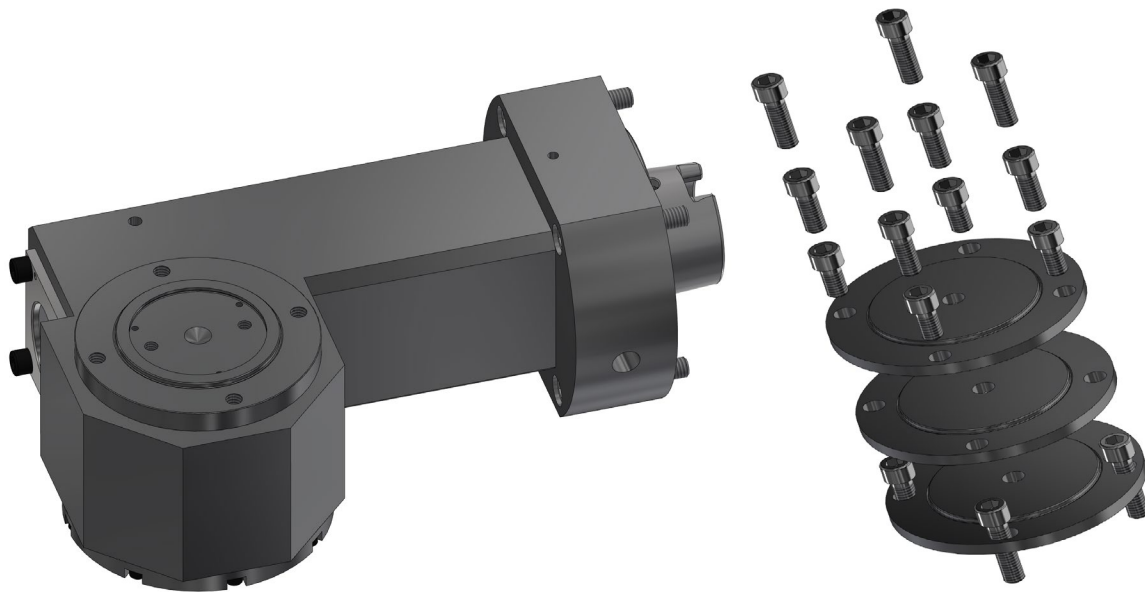


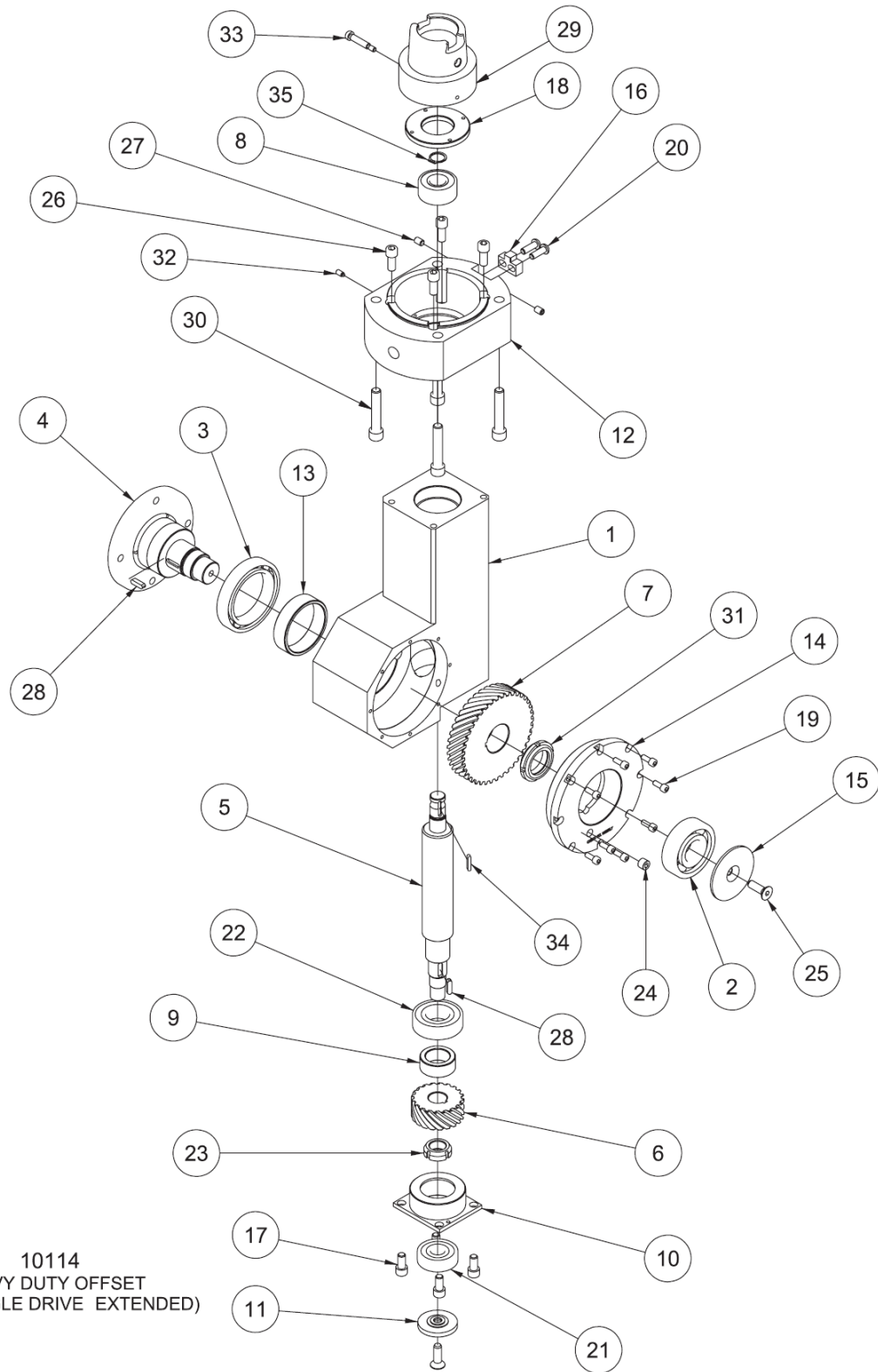
\* THESE PARTS ARE USED FOR DRIVE SET UP ONLY  
AND MUST BE REMOVED BEFORE USE.



| 6898 H.D. DOUBLE FLANGE R.A.D. ASSEMBLY |     |             |  |
|---|-----|-------------|--|
| ITEM                                    | QTY | PART NUMBER | DESCRIPTION  |
| 1                                       | 1   | 6772A       | NUT, BEARING LINE BORE HEAD                            |
| 2                                       | 1   | 6750K       | KEY, LOCATION 90 DEGREE HEAD                           |
| 3                                       | 2   | MF-92       | SOCKET BUTTON HEAD SCREW, 1/4-20 X 3/4"                |
| 4                                       | 2   | MF-59       | SOCKET SET SCREW, FLAT POINT, 1/4-20 X 3/8"            |
| 5                                       | 1   | 6888J       | MAGNETIC DRAIN PLUG ASSEMBLY, R.A.D.                   |
| 6                                       | 1   | 6888M       | OIL LEVEL SIGHT GLASS                                  |
| 7                                       | 4   | MF-22       | SOCKET HEAD CAPSCREW 5/16-18 X 3/4                     |
| 8                                       | 1   | 100-82-2A   | SOCKET SET SCREW, BRASS TIPPED, #10-24                 |
| 10                                      | 1   | 6897A       | HOUSING (DOUBLE FLANGE), H.D. R.A.D.                   |
| 11                                      | 1   | 6890S       | VERTICAL SHAFT ASSEMBLY, H.D. DOUBLE FLANGE R.A.D.     |
| 12                                      | 1   | MF-93B      | SOCKET BUTTON HEAD SCREW, 5/16-18 X 3/8"               |
| 13                                      | 1   | 6897C       | FRONT BEARING CARRIER, HORIZONTAL SHAFT, H.D. R.A.D.   |
| 14                                      | 1   | 6897F       | SHAFT, REAR HORIZONTAL, H.D. DOUBLE FLANGE R.A.D.      |
| 15                                      | 1   | 6890L       | LOCK NUT, HORIZONTAL SHAFT, H.D. R.A.D.                |
| 16                                      | 1   | 6890N       | DRIVE KEY, HORIZONTAL SHAFT, H.D. R.A.D.               |
| 17                                      | 1   | 502-9-32    | BALL BEARING   |
| 18                                      | 1   | 6897B       | FRONT SHAFT, HORIZONTAL, H.D. DOUBLE FLANGE R.A.D.     |
| 19                                      | 1   | 6896E       | DOWEL PIN, 5/16 X 1 1/4"                               |
| 20                                      | 4   | MF-50       | SOCKET SET SCREW, CUP POINT, #8-32 X 1/4"              |
| 21                                      | 3   | MF-64A      | SOCKET SET SCREW, FLAT POINT, 1/4-20 X 3/4"            |
| 22                                      | 2   | 6897D       | ANGULAR CONTACT BEARING                                |
| 23                                      | 2   | 6897E       | OIL SEAL   |
| 24                                      | 1   | 6897G       | REAR BEARING CARRIER, HORIZONTAL SHAFT, H.D. R.A.D.    |
| 25                                      | 1   | 6897J       | SOCKET HEAD CAPSCREW 1/2-20 X 1 1/4"                   |
| 26                                      | 22  | MF-5        | SOCKET HEAD CAPSCREW #10-24 X 5/8"                     |
| 27                                      | 4   | MF-196      | PIN – HARDENED GROUND DOWEL                            |
| 28                                      | 1   | 6890J       | SPIRAL BEVEL GEAR, HORIZONTAL SHAFT – MID SIZED R.A.D. |
| 29                                      | 1   | MF-66       | SOCKET SET SCREW, FLAT POINT, 1/4-20 X 1 1/2"          |
| 30                                      | 4   | 6897H       | FINE ADJUSTING BLOCK – H.D. R.A.D. F109                |
| 31                                      | 4   | MF-15A      | SOCKET HEAD CAPSCREW, 1/4-20 X 7/8"                    |
| 32                                      | 4   | MF-18       | SOCKET HEAD CAPSCREW, 1/4-20 X 1 3/4"                  |
| 33                                      | 1   | 10114A      | ADAPTER, DRIVE, R.A.D.                                 |
| 34                                      | 1   | 6770R       | MOUNTING HUB, H.D. DOUBLE FLANGE R.A.D.                |
| 35                                      | 1   | 10114G      | SOCKET SHOULDER SCREW, 1/4" X 1"                       |
| 36                                      | 4   | MF-34       | SOCKET HEAD CAPSCREW 3/8-16 X 2"                       |
| 37                                      | 1   | 6752Q       | KEY, PINION, 90 DEG. HEAD                              |

### 10114 Heavy Duty Offset Right Angle Drive

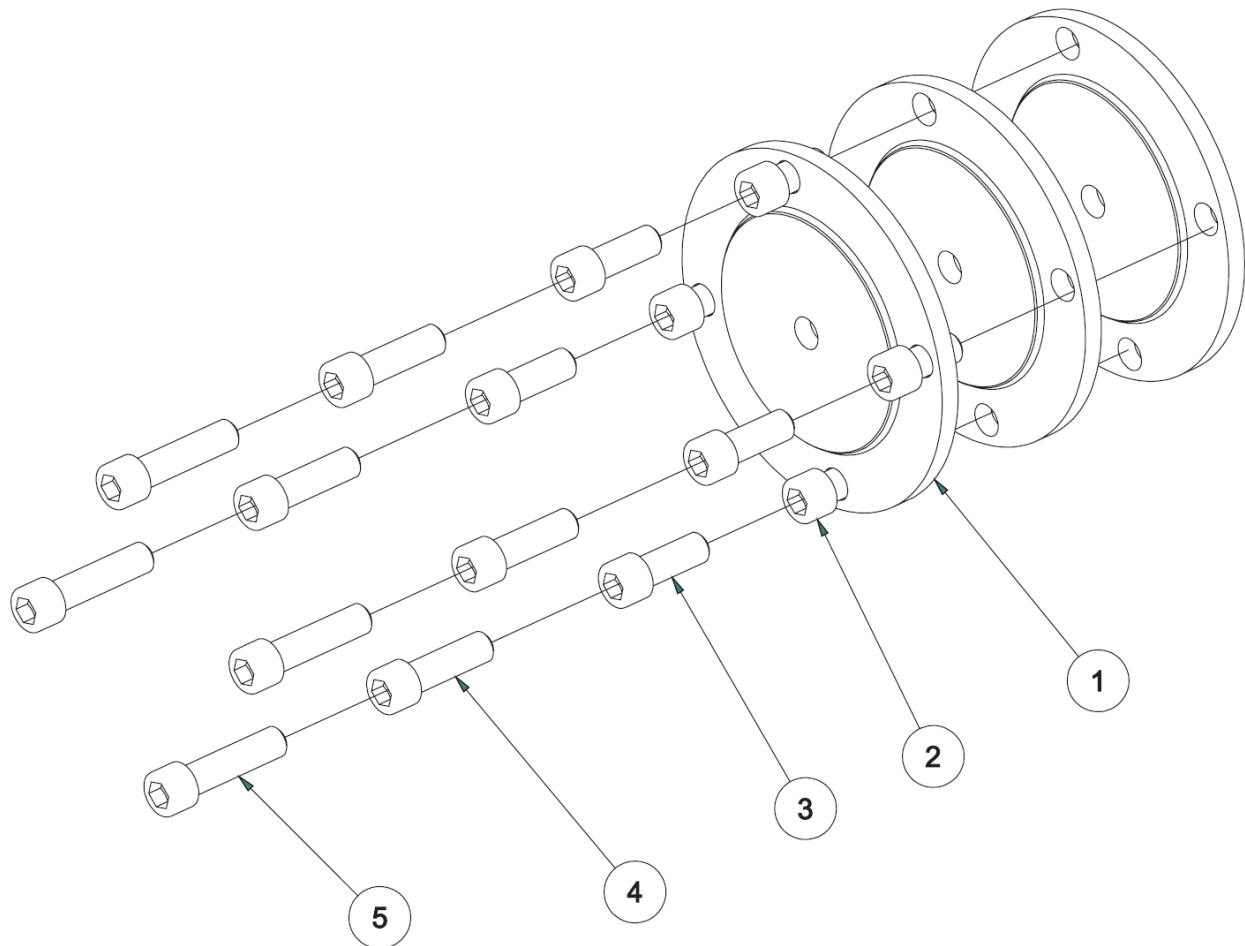




10114  
HEAVY DUTY OFFSET  
RIGHT ANGLE DRIVE (EXTENDED)



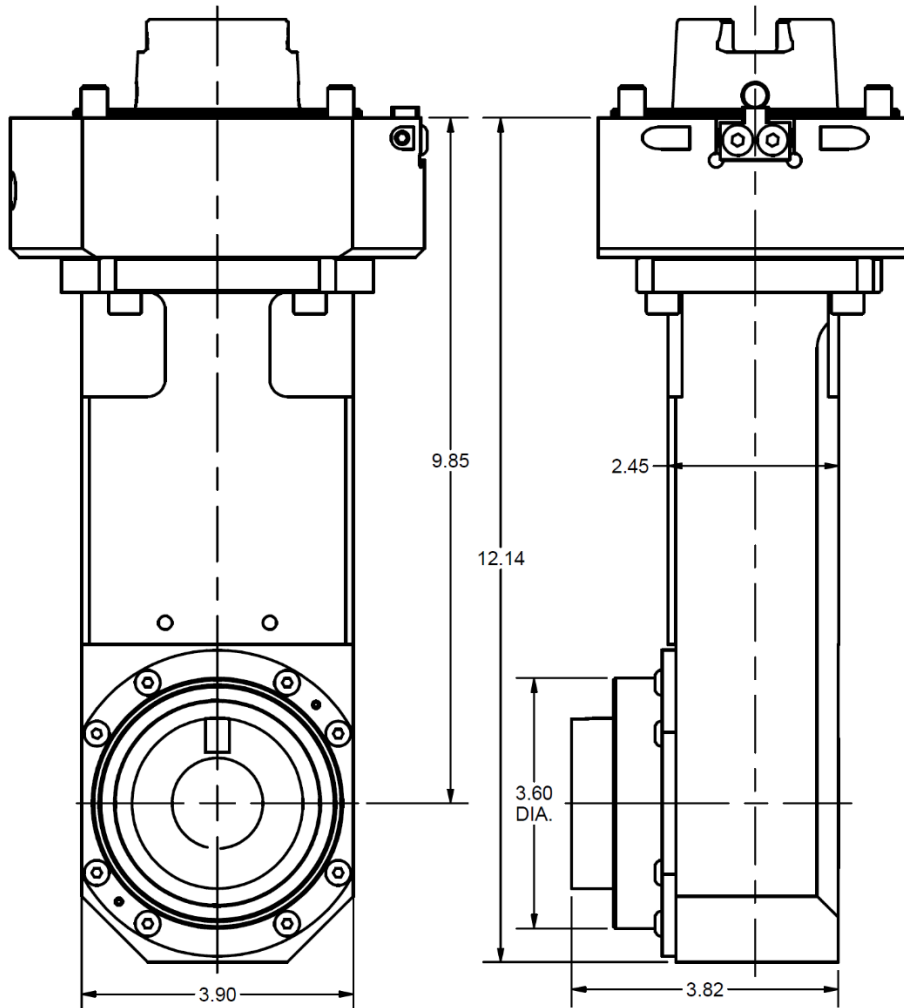
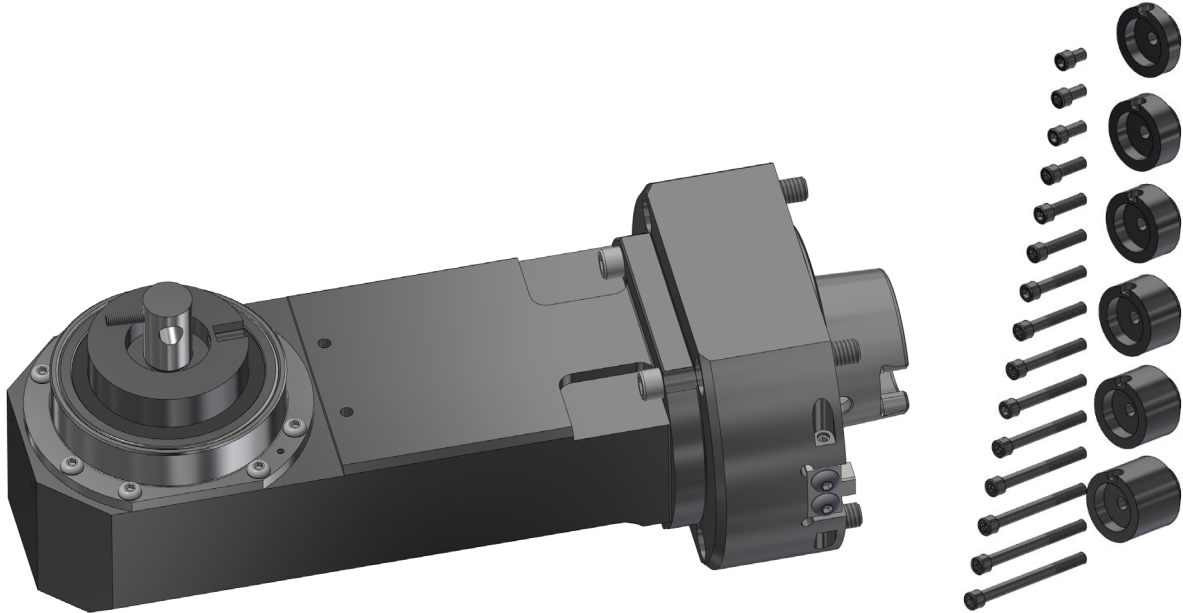
| 10114 H.D. OFFSET R.A.D. ASSEMBLY |     |             |   |
|-----------------------------------|-----|-------------|---|
| ITEM                              | QTY | PART NUMBER | DESCRIPTION   |
| 1                                 | 1   | 6774L       | HOUSING, GEAR, HEAVY DUTY LINE BORE HEAD                |
| 2                                 | 1   | 6778F       | DEEP GROOVE BALL BEARING                                |
| 3                                 | 1   | 6778E       | DEEP GROOVE BALL BEARING                                |
| 4                                 | 1   | 6766X       | HORIZONTAL SHAFT H.D. LINE BORE HEAD                    |
| 5                                 | 1   | 6777E       | SHAFT, VERTICAL HEAVY DUTY LINE BORE HEAD<br>(EXTENDED) |
| 6                                 | 1   | 6778        | DRIVE GEAR, HEAVY DUTY LINE BORE HEAD                   |
| 7                                 | 1   | 6778B       | DRIVE GEAR, HEAVY DUTY LINE BORE HEAD                   |
| 8                                 | 1   | 502-9-32    | BEARING, BALL   |
| 9                                 | 1   | 6775F       | SPACER, BEARING VERTICAL                                |
| 10                                | 1   | 6774F       | BEARING RETAINER, VERTICAL H.D. LINE BORE HEAD          |
| 11                                | 1   | 6777A       | CAP, END VERTICAL SHAFT                                 |
| 12                                | 1   | 6770K       | MOUNTING HUB, H.D. OFFSET R.A.D.                        |
| 13                                | 1   | 6775D       | SPACER, BEARING, HORIZONTAL                             |
| 14                                | 1   | 6774G       | BEARING RETAINER – HORIZONTAL H.D. LINE BORE<br>HEAD    |
| 15                                | 1   | 6775E       | CAP, END HORIZONTAL SHAFT                               |
| 16                                | 1   | 6750K       | KEY, LOCATION 90 DEGREE HEAD                            |
| 17                                | 4   | MF-21       | SOCKET HEAD CAPSCREW 5/16-18 X 5/8"                     |
| 18                                | 1   | 6772A       | NUT, BEARING, LINE BORE HEAD                            |
| 19                                | 8   | MF-5A       | SOCKET HEAD CAPSCREW #10-24 X 1/2"                      |
| 20                                | 2   | MF-92       | SOCKET BUTTON HEAD SCREW                                |
| 21                                | 1   | 6778C       | BEARING   |
| 22                                | 1   | 6778D       | BEARING   |
| 23                                | 1   | 6777C       | LOCK NUT  |
| 24                                | 1   | MF-223      | HEX-HEAD PLUG, 1/8 NPT                                  |
| 25                                | 2   | MF-77B      | SOCKET FLAT HEAD SCREW, 5/16-18 X 1"                    |
| 26                                | 4   | MF-22       | SOCKET HEAD CAPSCREW, 5/16-18 X 3/4"                    |
| 27                                | 2   | MF-59       | SOCKET SET SCREW, FLAT POINT, 1/4-20 X 3/8"             |
| 28                                | 2   | 7088A       | KEY, PULLEY SF-1  |
| 29                                | 1   | 10114A      | ADAPTER, DRIVE, R.A.D.                                  |
| 30                                | 4   | MF-34       | SOCKET HEAD CAPSCREW 3/8-16 X 2"                        |
| 31                                | 1   | 6777B       | LOCKNUT, BH-06  |
| 32                                | 1   | 100-82-2A   | SOCKET SET SCREW, BRASS TIPPED, #10-24                  |
| 33                                | 1   | 10114G      | SOCKET SHOULDER SCREW 1/4" X 1"                         |
| 34                                | 1   | 6753V       | KEY (MICARTA), PINON – 90 DEGREE HEAD                   |
| 35                                | 1   | 502-9-32A   | EXTERNAL RETAINING RING                                 |



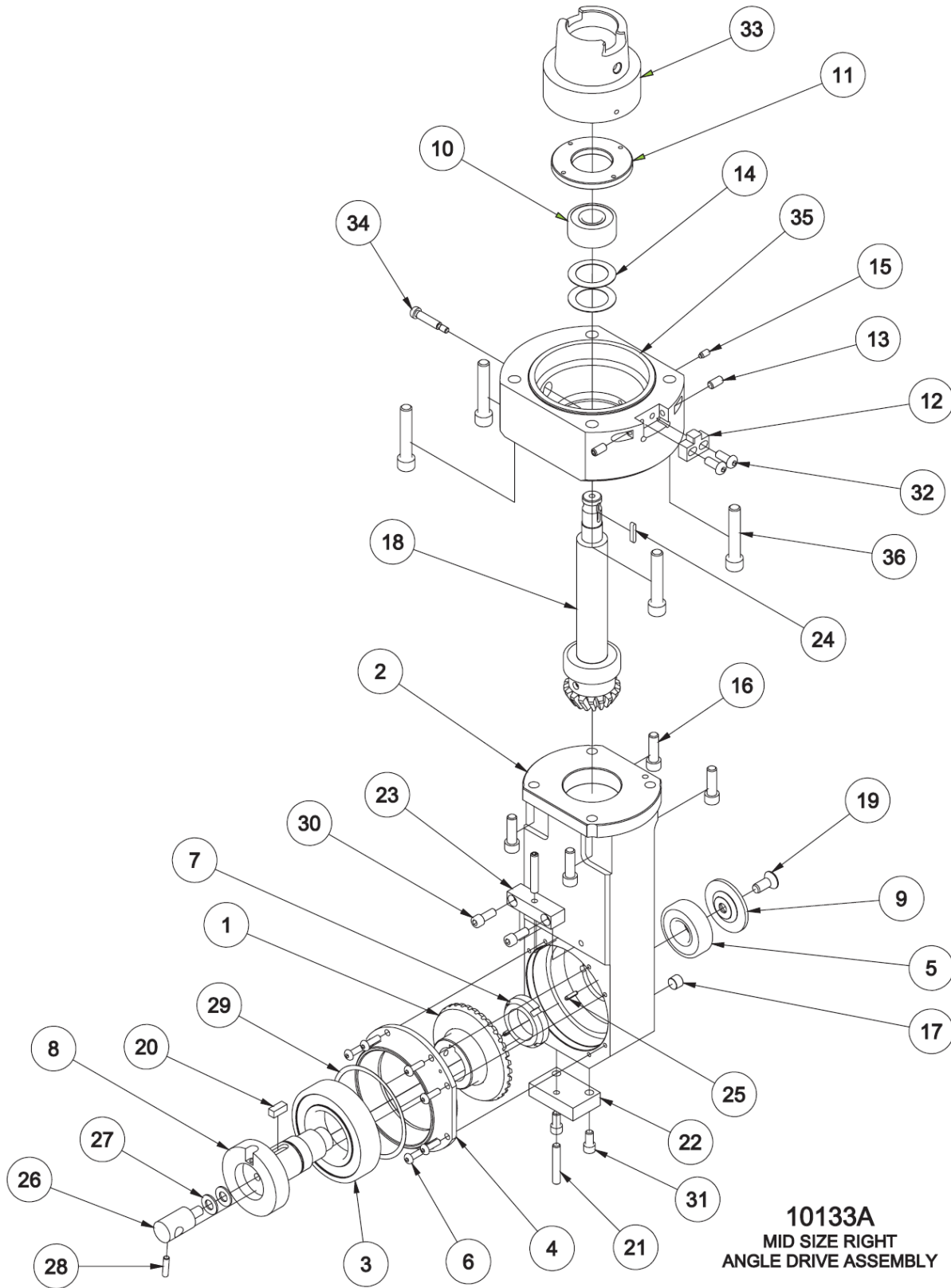
| H.D. R.A.D. CUTTERHEAD SPACERS AND SCREWS |     |             |  |
|---|-----|-------------|--|
| ITEM                                      | QTY | PART NUMBER | DESCRIPTION                            |
| 1   | 3   | 6519W       | 1/4" SPACER, HEAVY DUTY LINE BORE HEAD |
| 2   | 4   | MF-30       | SOCKET HEAD CAPSCREW, 3/8-16 X 3/4"    |
| 3   | 4   | MF-31       | SOCKET HEAD CAPSCREW, 3/8-16 X 1"      |
| 4   | 4   | MF-32       | SOCKET HEAD CAPSCREW, 3/8-16 X 1 1/4"  |
| 5   | 4   | MF-33       | SOCKET HEAD CAPSCREW, 3/8-16 X 1 1/2"  |



### 13002 Mid-Size Right Angle Drive



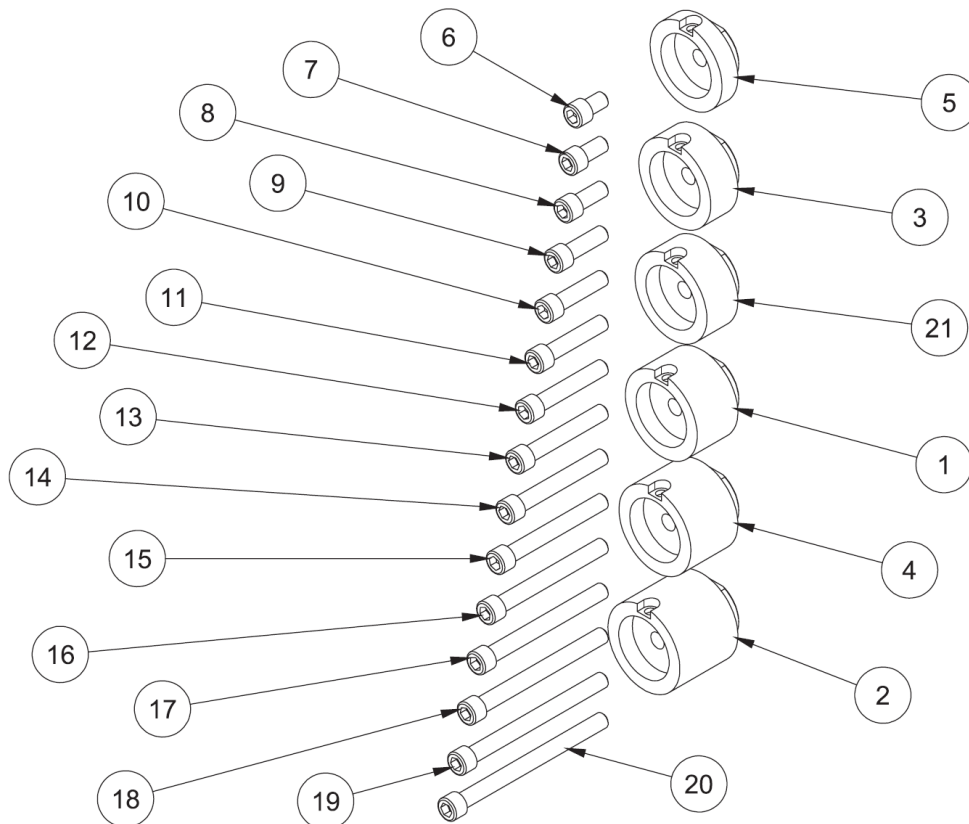
## 10133A Straight Right Angle Drive Parts



**10133A**  
MID SIZE RIGHT  
ANGLE DRIVE ASSEMBLY

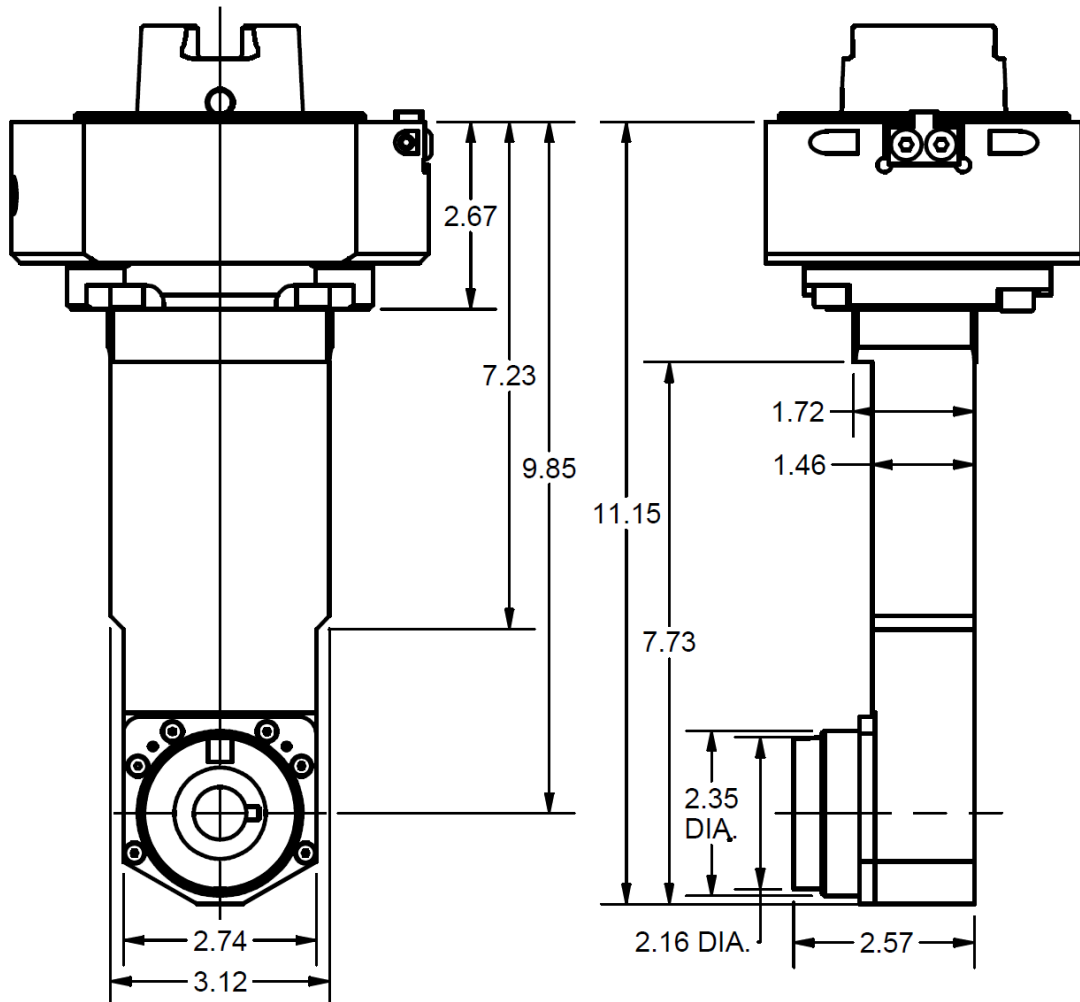
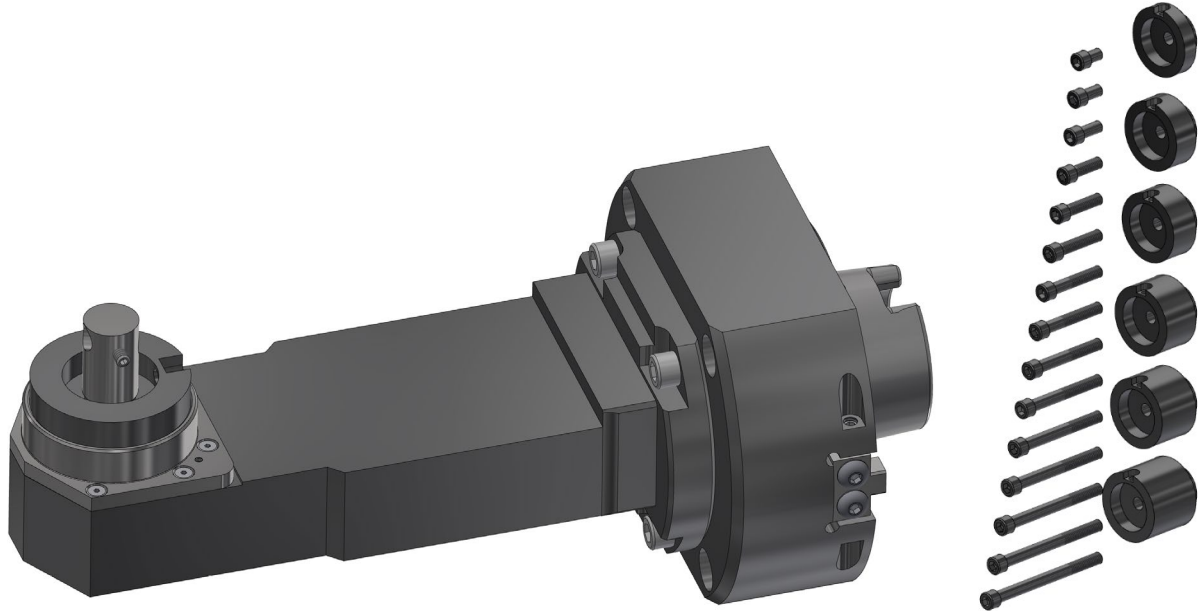


| 10133A MID-SIZE RIGHT ANGLE DRIVE ASSEMBLY |     |             |   |
|--|-----|-------------|---|
| ITEM                                       | QTY | PART NUMBER | DESCRIPTION   |
| 1  | 1   | 6859        | REWORK 6859A SPIRAL BEVEL GEAR                            |
| 2  | 1   | 6857        | HOUSING, MID-SIZE RIGHT ANGLE DRIVE                       |
| 3  | 1   | 650-1-21A   | BEARING, MID-SIZE R.A.D.                                  |
| 4  | 1   | 6821        | COVER, BEARING RETAINER – MID-SIZE RIGHT ANGLE DRIVE      |
| 5  | 1   | 502-35-14   | BEARING   |
| 6  | 8   | MF-89       | SOCKET BUTTON HEAD SCREW, #10-24 X 5/8"                   |
| 7  | 1   | 6048        | BEARING NUT   |
| 8  | 1   | 6860        | HORIZONTAL SHAFT – MID-SIZE RIGHT ANGLE DRIVE             |
| 9  | 1   | 6862        | ENG CAP, BEARING RETAINER – MID-SIZE RIGHT ANGLE DRIVE    |
| 10   | 1   | 502-9-32    | BEARING, BALL   |
| 11   | 1   | 6772A       | NUT, BEARING LINE BORE HEAD                               |
| 12   | 1   | 6750K       | KEY, LOCATION 90 DEGREE HEAD                              |
| 13   | 2   | 100-82-2A   | SOCKET SET SCREW, BRASS TIPPED, #10-24                    |
| 14   | 2   | 6007A       | BELLVILLE SPRING  |
| 15   | 1   | 100-82-2A   | SOCKET SET SCREW, BRASS TIPPED, #10-24                    |
| 16   | 4   | MF-23       | SOCKET HEAD CAPSCREW 5/16-18 X 1"                         |
| 17   | 1   | MF-233      | PIPE PLUG, 1/8"NPT  |
| 18   | 1   | 6858F       | PINON SHAFT ASSEMBLY – MID-SIZE RIGHT ANGLE DRIVE         |
| 19   | 1   | 6774K       | SOCKET FLAT HEAD SCREW 5/16-24 X 3/4"                     |
| 20   | 1   | 7191K       | KEY, HORIZONTAL SHAFT, MID-SIZE R.A.D.                    |
| 21   | 2   | MF-66       | SOCKET SET SCREW, 1/4-20 X 1 1/2"                         |
| 22   | 1   | 6857F       | FINE ADJUSTING BLOCK, LOWER – MID-SIZE R.A.D.             |
| 23   | 1   | 6857E       | FINE ADJUSTING BLOCK, UPPER – MID-SIZE R.A.D.             |
| 24   | 1   | 6753V       | KEY (MICARTA), PINON – 90 DEGREE HEAD                     |
| 25   | 2   | MF-217      | PIN – SLOTTED SPRING                                      |
| 26   | 1   | 502-9-9S    | INDICATOR MOUNT, R.A.D.                                   |
| 27   | 2   | MF-177      | SAE FLAT WASHER, 5/16"                                    |
| 28   | 1   | MF-58       | SOCKET HEAD CAPSCREW #10-24 X 1/2"                        |
| 29   | 1   | 6861A       | SHIM, BEARING SPACER – HORIZONTAL SHAFT – MID-SIZE R.A.D. |
| 30   | 2   | MF-13       | SOCKET HEAD CAPSCREW 1/4-20 X 5/8"                        |
| 31   | 2   | MF-12       | SOCKET HEAD CAPSCREW 1/4-20 X 1/2"                        |
| 32   | 2   | MF-91       | SOCKET BUTON HEAD SCREW 1/4-20 X 5/8"                     |
| 33   | 1   | 10114A      | ADAPTER, DRIVE R.A.D.                                     |
| 34   | 1   | 10114G      | SOCKET SHOULDER SCREW 1/4" X 1"                           |
| 35   | 1   | 6770S       | MOUNTING HUB, MID-SIZE RAD ASSEMBLY                       |
| 36   | 4   | MF-34       | SOCKET HEAD CAPSCREW 3/8-16 X 2"                          |

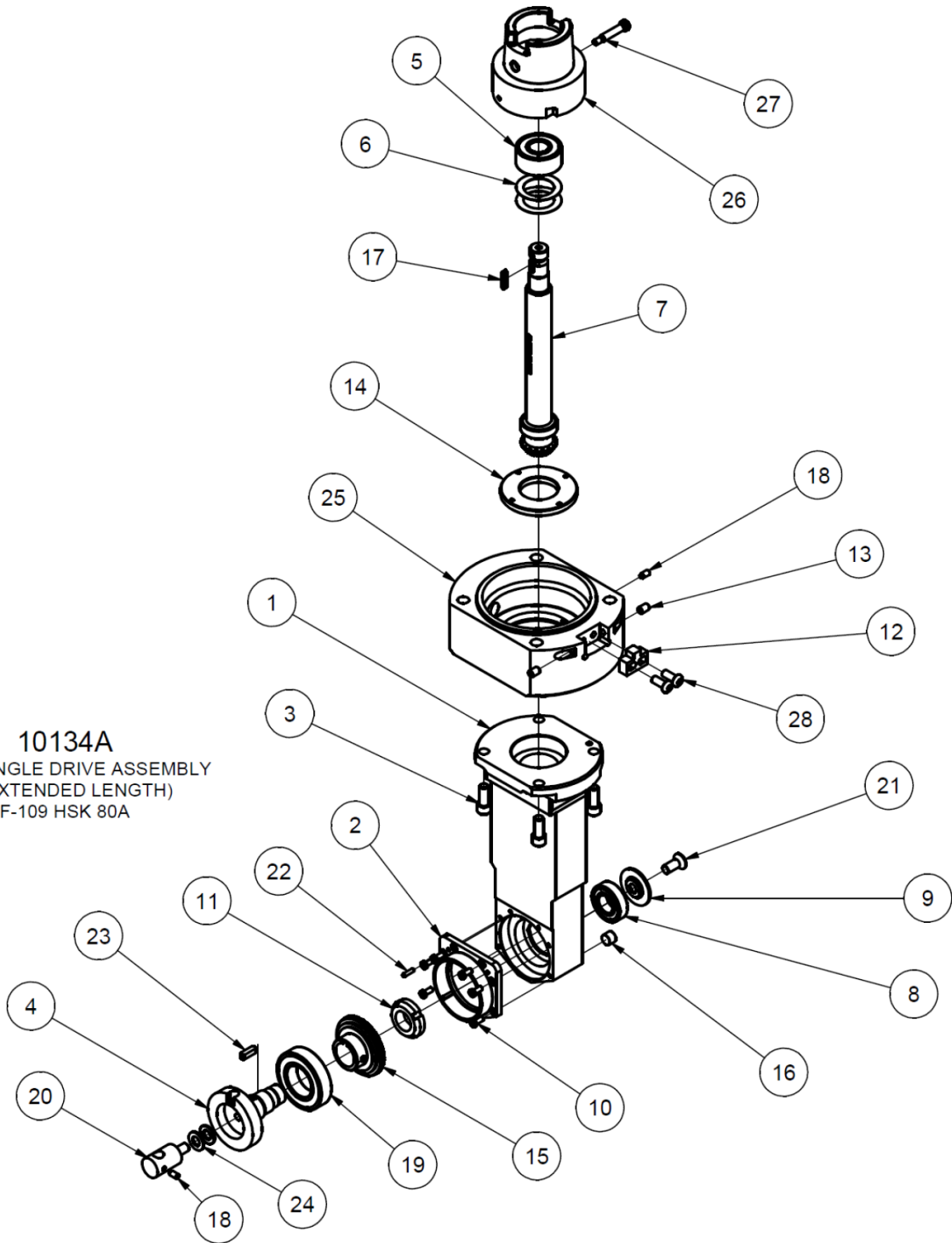


| <b>SPACER SET – R.A.D. ASSEMBLY, EM105H</b> |            |                    |   |
|---|------------|--------------------|---|
| <b>ITEM</b>                                 | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                          |
| 1   | 1          | 650-2-43           | SPACER (1.05" LG) PRECISION LINE BORE HEAD  |
| 2   | 1          | 650-2-43A          | SPACER (1.50" LG) PRECISION LINE BORE HEAD  |
| 3   | 1          | 650-2-43B          | SPACER (.70" LG) PRECISION LINE BORE HEAD   |
| 4   | 1          | 650-2-43D          | SPACER (1.215" LG) PRECISION LINE BORE HEAD |
| 5   | 1          | 650-2-43E          | SPACER (.41" LG) PRECISION LINE BORE HEAD   |
| 6   | 1          | MF-21A             | S.H.C.S 5/16-18 UNC X 1/2                   |
| 7   | 1          | MF-21              | S.H.C.S 5/16-18 UNC X 5/8                   |
| 8   | 1          | MF-22              | S.H.C.S 5/16-18 UNC X 3/4                   |
| 9   | 1          | MF-23              | S.H.C.S 5/16-18 UNC X 1                     |
| 10  | 1          | MF-24              | S.H.C.S 5/16-18 UNC X 1 1/4                 |
| 11  | 1          | MF-25              | S.H.C.S 5/16-18 UNC X 1 1/2                 |
| 12  | 1          | MF-26              | S.H.C.S 5/16-18 UNC X 1 3/4                 |
| 13  | 1          | MF-27              | S.H.C.S 5/16-18 UNC X 2                     |
| 14  | 1          | MF-27C             | S.H.C.S 5/16-18 UNC X 2 1/4                 |
| 15  | 1          | MF-27A             | S.H.C.S 5/16-18 UNC X 2 1/2                 |
| 16  | 1          | MF-28              | S.H.C.S 5/16-18 UNC X 2 3/4                 |
| 17  | 1          | MF-28E             | S.H.C.S 5/16-18 UNC X 3                     |
| 18  | 1          | MF-28F             | S.H.C.S 5/16-18 UNC X 3 1/4                 |
| 19  | 1          | MF-28A             | S.H.C.S 5/16-18 UNC X 3 1/2                 |
| 20  | 1          | MF-28G             | S.H.C.S 5/16-18 UNC X 3 3/4                 |
| 21  | 1          | 650-2-43G          | SPACER (.80" LG) PRECISION LINE BORE HEAD   |

## 10134A Right Angle Drive, 2" Extended

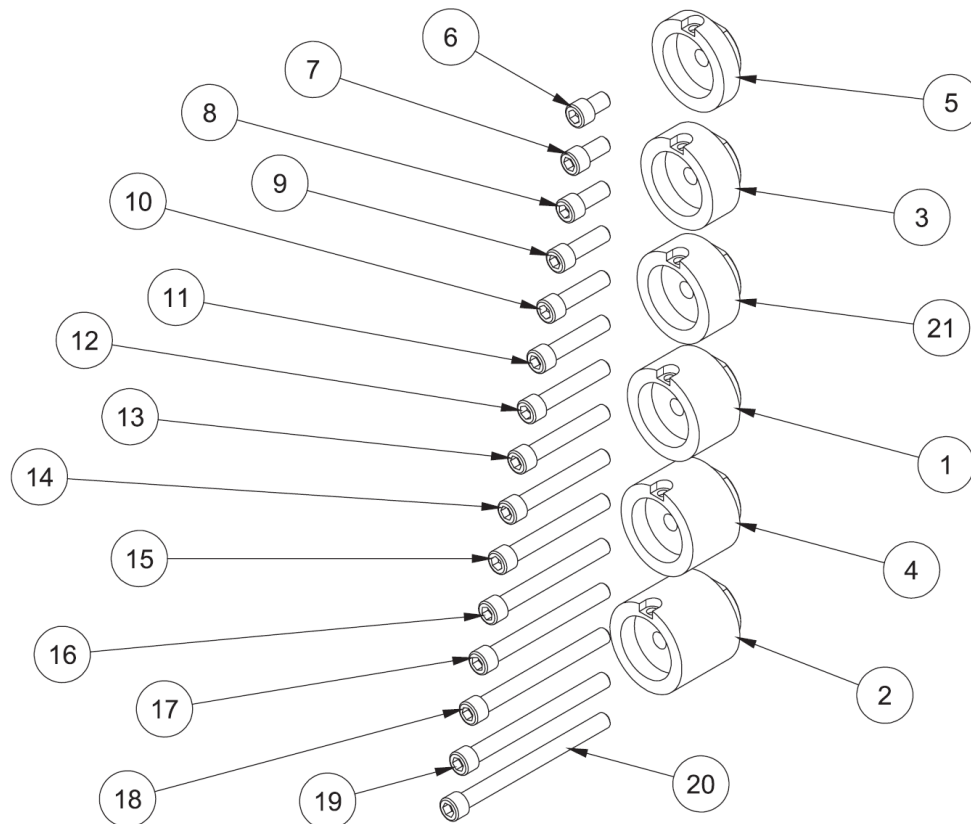


**10134A**  
RIGHT ANGLE DRIVE ASSEMBLY  
(2" EXTENDED LENGTH)  
F-109 HSK 80A





| <b>10134A RIGHT ANGLE DRIVE ASSEMBLY (2" EXTENDED) EM109 HSK80A</b> |            |                    |   |
|---|------------|--------------------|---|
| <b>ITEM</b>   | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>  |
| 1   | 1          | 6773D              | HOUSING, GEAR – RIGHT ANGLE DRIVE (EXTENDED)                    |
| 2   | 1          | 6774               | COVER, BEARING RETAINER   |
| 3   | 4          | MF-22              | SOCKET HEAD CAPSCREW 5/16-18 X 3/4"                             |
| 4   | 1          | 650-2-42A          | SHAFT, HORIZONTAL – INTERMEDIATE PRECISION LINE BORE HEAD       |
| 5   | 1          | 502-9-32           | BEARING, BALL MRC 5203SBKFF                                     |
| 6   | 2          | 6007A              | BELLVILLE SPRING, BS203   |
| 7   | 1          | 6775K              | PINION AND SHAFT ASSEMBLY (2" EXTENDED) R.A.D. – EM109 (HSK80A) |
| 8   | 1          | 6753E              | BEARING, NDH Z99L03   |
| 9   | 1          | 6766F              | END CAP   |
| 10  | 6          | 6774E              | SOCKET HEAD CAPSCREW  |
| 11  | 1          | 6705B              | BEARING LOCK NUT  |
| 12  | 1          | 6750K              | KEY, LOCATION 90 DEGREE HEAD                                    |
| 13  | 2          | MF-59              | SOCKET SET SCREW, FLAT POINT, 1/4-20 X 3/8"                     |
| 14  | 1          | 6772A              | NUT, BEARING LINE BORE HEAD                                     |
| 15  | 1          | 6766H              | RING GEAR REWORK – SMALL 90 DEG R.A.D.                          |
| 16  | 1          | MF-233             | HEX HEAD PLUG, 1/8"NPT  |
| 17  | 1          | 6753V              | KEY (MICARTA), PINION – 90 DEGREE HEAD                          |
| 18  | 2          | 100-82-2A          | SOCKET SET SCREW, BRASS TIP, 3/8" LG.                           |
| 19  | 1          | 502-9-72B          | BALL BEARING  |
| 20  | 1          | 502-9-9S           | INDICATOR MOUNT, R.A.D.   |
| 21  | 1          | 6774K              | SOCKET FLAT HEAD SCREW, 5/16-24 X 3/4"                          |
| 22  | 2          | MF-217             | PIN – SLOTTED SPRING  |
| 23  | 1          | 7088A              | KEY, PULLEY SF-1  |
| 24  | 2          | MF-177             | SAE FLAT WASHER 5/16"   |
| 25  | 1          | 6770S              | MOUNTING HUB, MID-SIZE RAD ASSEMBLY, EM109 HSK80A               |
| 26  | 1          | 10114A             | ADAPTER, DRIVE, R.A.D. – EM109 HSK80A                           |
| 27  | 1          | 10114G             | SOCKET SHOULDER SCREW, 1/4" X 1"                                |
| 28  | 2          | MF-91              | SOCKET BUTTON HEAD SCREW, 1/4-20 X 5/8"                         |

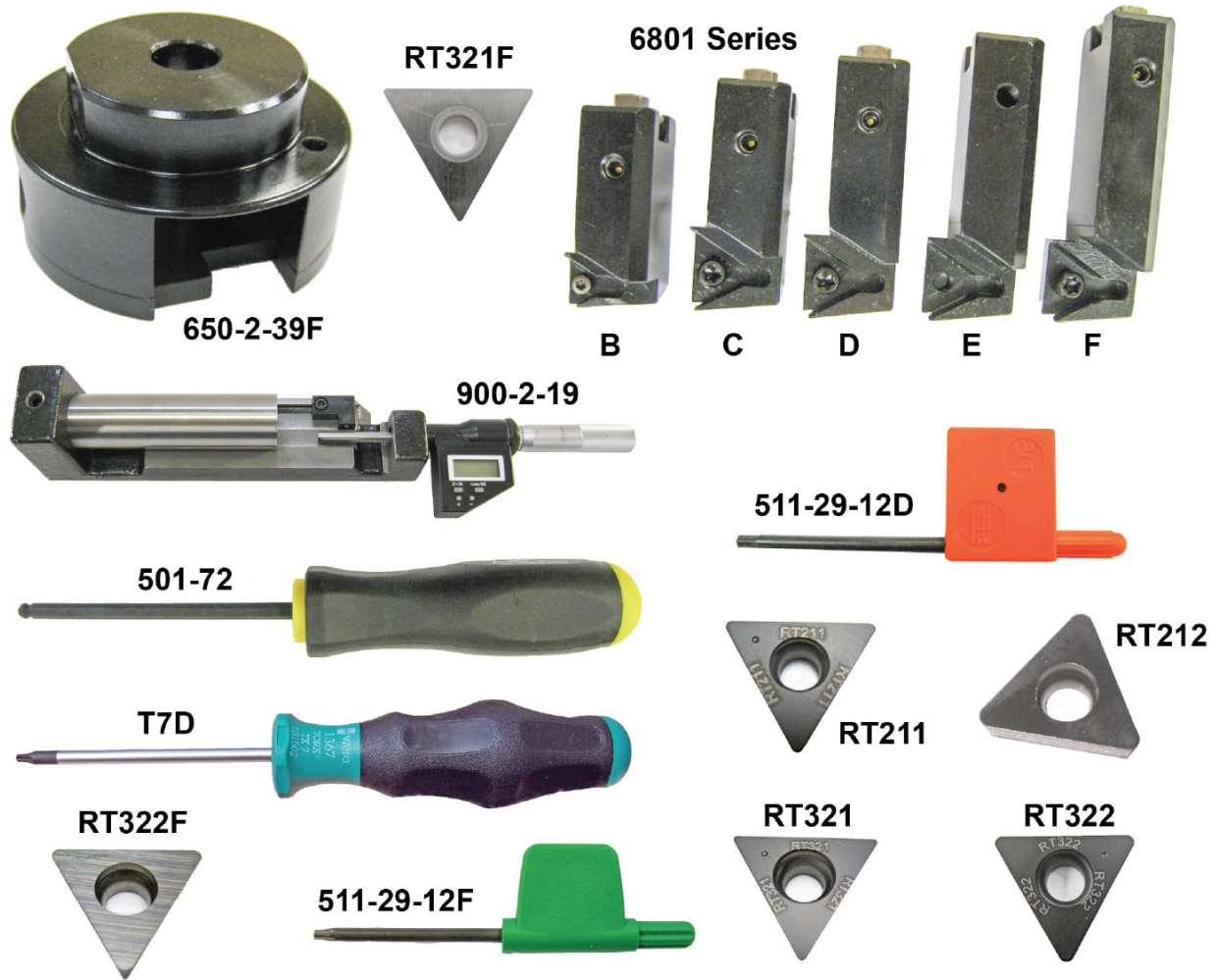


| <b>SPACER SET – R.A.D. ASSEMBLY, EM105H</b> |            |                    |   |
|---|------------|--------------------|---|
| <b>ITEM</b>                                 | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                          |
| 1   | 1          | 650-2-43           | SPACER (1.05" LG) PRECISION LINE BORE HEAD  |
| 2   | 1          | 650-2-43A          | SPACER (1.50" LG) PRECISION LINE BORE HEAD  |
| 3   | 1          | 650-2-43B          | SPACER (.70" LG) PRECISION LINE BORE HEAD   |
| 4   | 1          | 650-2-43D          | SPACER (1.215" LG) PRECISION LINE BORE HEAD |
| 5   | 1          | 650-2-43E          | SPACER (.41" LG) PRECISION LINE BORE HEAD   |
| 6   | 1          | MF-21A             | S.H.C.S 5/16-18 UNC X ½                     |
| 7   | 1          | MF-21              | S.H.C.S 5/16-18 UNC X ⅝                     |
| 8   | 1          | MF-22              | S.H.C.S 5/16-18 UNC X ¾                     |
| 9   | 1          | MF-23              | S.H.C.S 5/16-18 UNC X 1                     |
| 10  | 1          | MF-24              | S.H.C.S 5/16-18 UNC X 1 ¼                   |
| 11  | 1          | MF-25              | S.H.C.S 5/16-18 UNC X 1 ½                   |
| 12  | 1          | MF-26              | S.H.C.S 5/16-18 UNC X 1 ¾                   |
| 13  | 1          | MF-27              | S.H.C.S 5/16-18 UNC X 2                     |
| 14  | 1          | MF-27C             | S.H.C.S 5/16-18 UNC X 2 ¼                   |
| 15  | 1          | MF-27A             | S.H.C.S 5/16-18 UNC X 2 ½                   |
| 16  | 1          | MF-28              | S.H.C.S 5/16-18 UNC X 2 ¾                   |
| 17  | 1          | MF-28E             | S.H.C.S 5/16-18 UNC X 3                     |
| 18  | 1          | MF-28F             | S.H.C.S 5/16-18 UNC X 3 ¼                   |
| 19  | 1          | MF-28A             | S.H.C.S 5/16-18 UNC X 3 ½                   |
| 20  | 1          | MF-28G             | S.H.C.S 5/16-18 UNC X 3 ¾                   |
| 21  | 1          | 650-2-43G          | SPACER (.80" LG) PRECISION LINE BORE HEAD   |

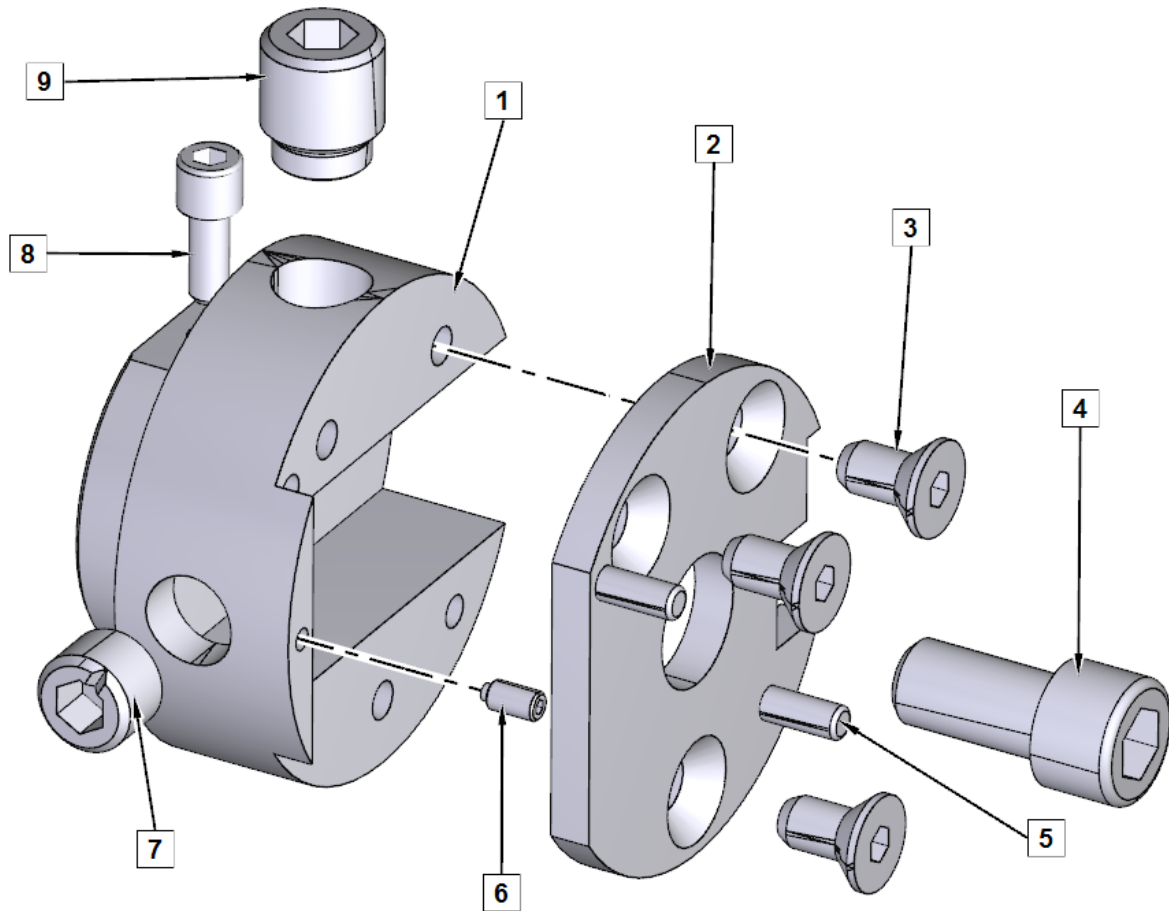


### Right Angle Drive Accessories

#### 650-2-39B Line Boring Cutterhead Kit, 1.94-4.11" (49.28-104.39mm) Dia

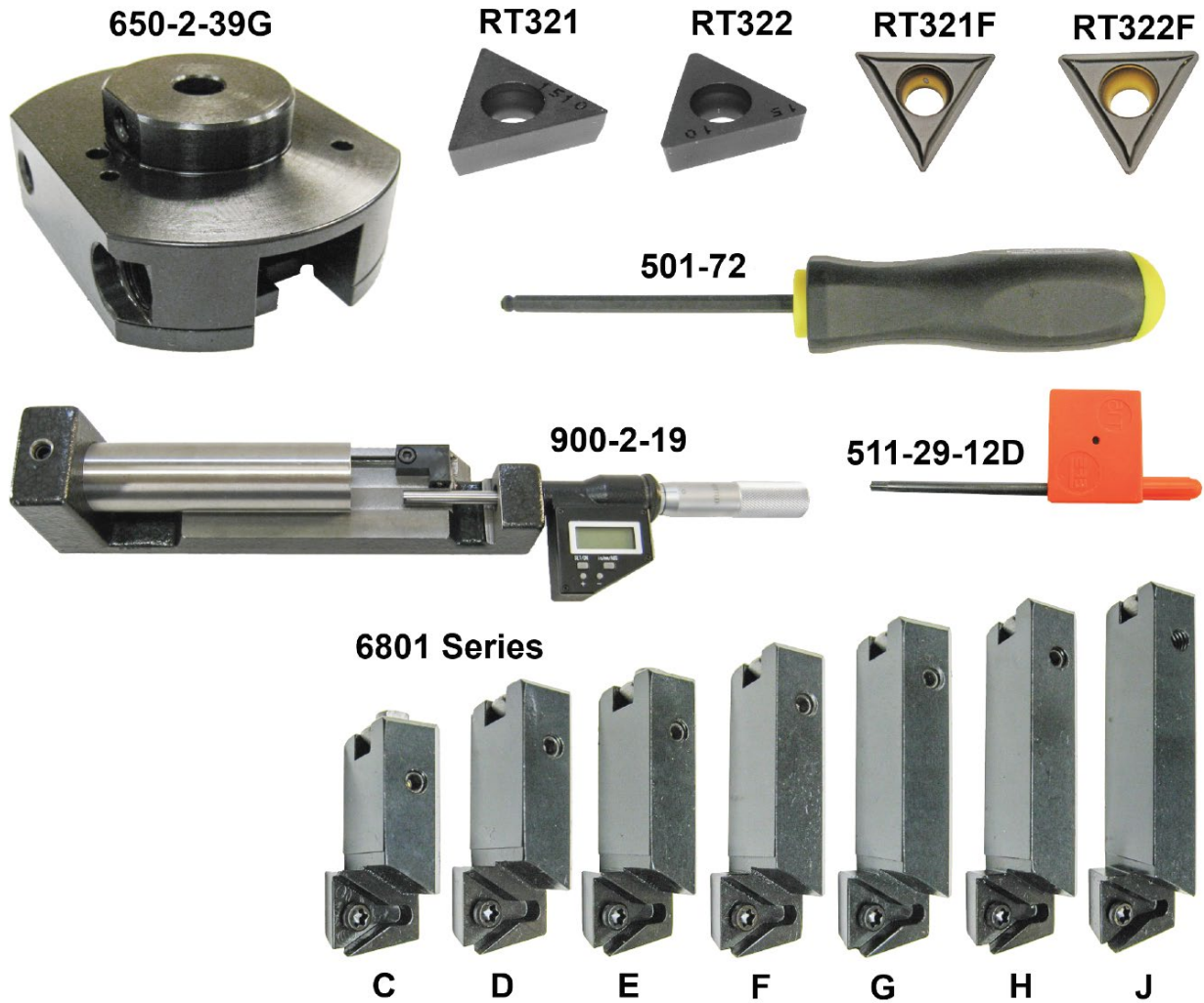


|                     |                   | Tool Diameter Range |       |       |       |       |       |
|---------------------|-------------------|---------------------|-------|-------|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |                     | 6801B | 6801C | 6801D | 6801E | 6801F |
| 1.9"                | -0.650"           | Min                 | 1.94" | 2.31" | 2.70" | 3.11" | 3.51" |
|                     |                   | Max                 | 2.54" | 2.91" | 3.30" | 3.71" | 4.11" |

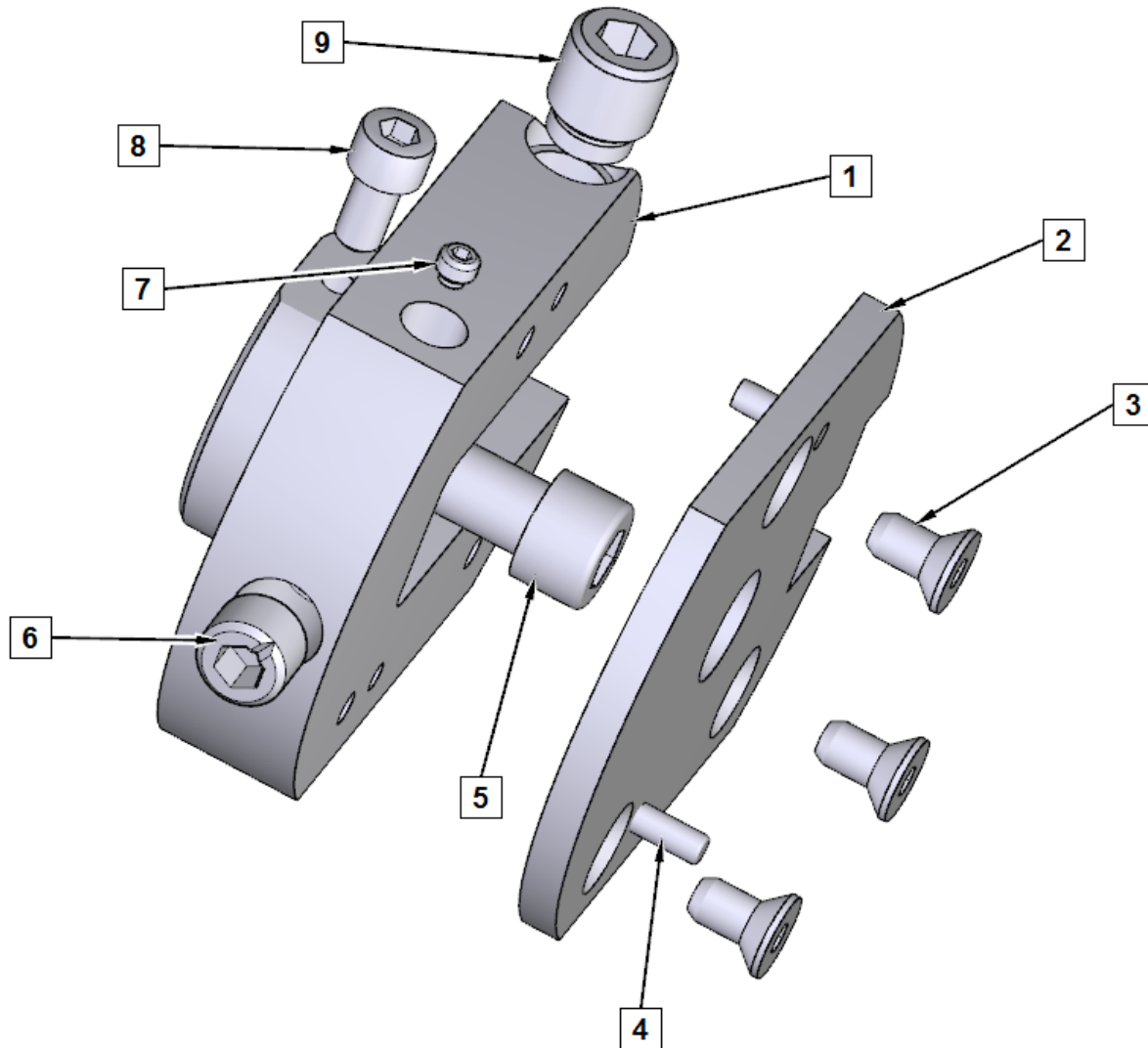


| 650-2-39F CUTTERHEAD PARTS |     |             |   |
|----------------------------|-----|-------------|---|
| ITEM                       | QTY | PART NUMBER | DESCRIPTION                                   |
| 1                          | 1   | 650-2-40A   | BODY, 1.9" PRECISION LINE BORE CUTTERHEAD     |
| 2                          | 1   | 650-2-41    | CAP, 1.9" DIAMETER PRECISION LINE BORE HEAD   |
| 3                          | 3   | MF-78       | SOCKET FLAT HEAD SCREW #10-24 X 3/8"          |
| 4                          | 1   | MF-21       | SOCKET HEAD CAP SCREW 5/16-18 X 5/8"          |
| 5                          | 2   | MF-193C     | DOWEL PIN, 1/8" X 3/8"                        |
| 6                          | 1   | 650-2-6A    | SOCKET SET SCREW, BRASS TIPPED, #4-40 X 3/16" |
| 7                          | 1   | 502-2-85B   | SOCKET SET SCREW, INDEX, 3/8-40 FINE THREAD   |
| 8                          | 1   | MF-4        | SOCKET HEAD CAP SCREW #10-24 X 3/8"           |
| 9                          | 1   | 501-70A     | SCREW, TOOL HOLDER LOCK ASSY                  |

**650-2-39C Line Boring Cutterhead Kit, 2.82-5.52" (71.63-140.21mm) Dia**



|                     |                   | Tool Diameter Range |       |       |       |       |       |       |       |
|---------------------|-------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |                     | 6801C | 6801D | 6801E | 6801F | 6801G | 6801H | 6801J |
| 2.82"               | -0.500"           | Min                 | 2.82" | 2.99" | 3.40" | 3.80" | 4.20" | 4.63" | 4.92" |
|                     |                   | Max                 | 3.20" | 3.59" | 4.00" | 4.40" | 4.80" | 5.23" | 5.52" |



| 650-2-39G CUTTERHEAD PARTS |     |             |  |
|----------------------------|-----|-------------|--|
| ITEM                       | QTY | PART NUMBER | DESCRIPTION                                  |
| 1                          | 1   | 650-2-16E   | BODY, 2.9" PRECISION LINE BORE CUTTERHEAD    |
| 2                          | 1   | 650-2-17A   | CAP, 2.9" DIAMETER PRECISION LINE BORE HEAD  |
| 3                          | 3   | MF-78       | SOCKET FLAT HEAD SCREW #10-24 X 3/8"         |
| 4                          | 2   | MF-193C     | DOWEL PIN, 1/8" X 3/8"                       |
| 5                          | 1   | MF-21       | SOCKET HEAD CAP SCREW 5/16-18 X 5/8"         |
| 6                          | 1   | 502-2-85B   | SOCKET SET SCREW, INDEX, 3/8-40 FINE THREAD  |
| 7                          | 1   | 502-12-4D   | SOCKET SET SCREW, BRASS TIPPED, #8-32 X 1/8" |
| 8                          | 1   | MF-4        | SOCKET HEAD CAP SCREW #10-24 X 3/8"          |
| 9                          | 1   | 501-70A     | SCREW, TOOL HOLDER LOCK ASSY                 |

**650-2-39A Line Boring Cutterhead Kit, 5.4-8.1" (137-206mm) Dia**



**650-2-39E**



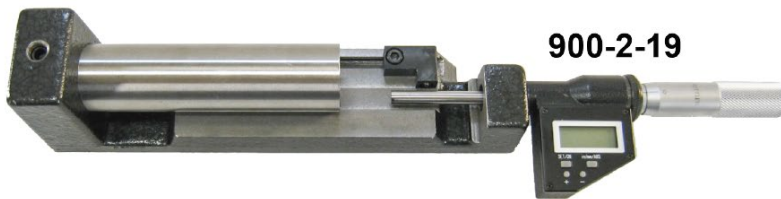
**501-72J**



**501-72**



**T8D**



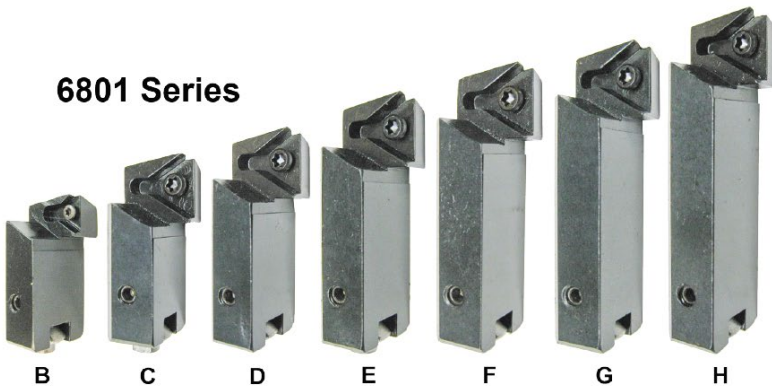
**900-2-19**



**511-29-12F**



**511-29-12D**



**6801 Series**

**B**

**C**

**D**

**E**

**F**

**G**

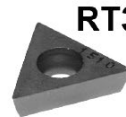
**H**



**RT211**



**RT212**



**RT321**



**RT322**

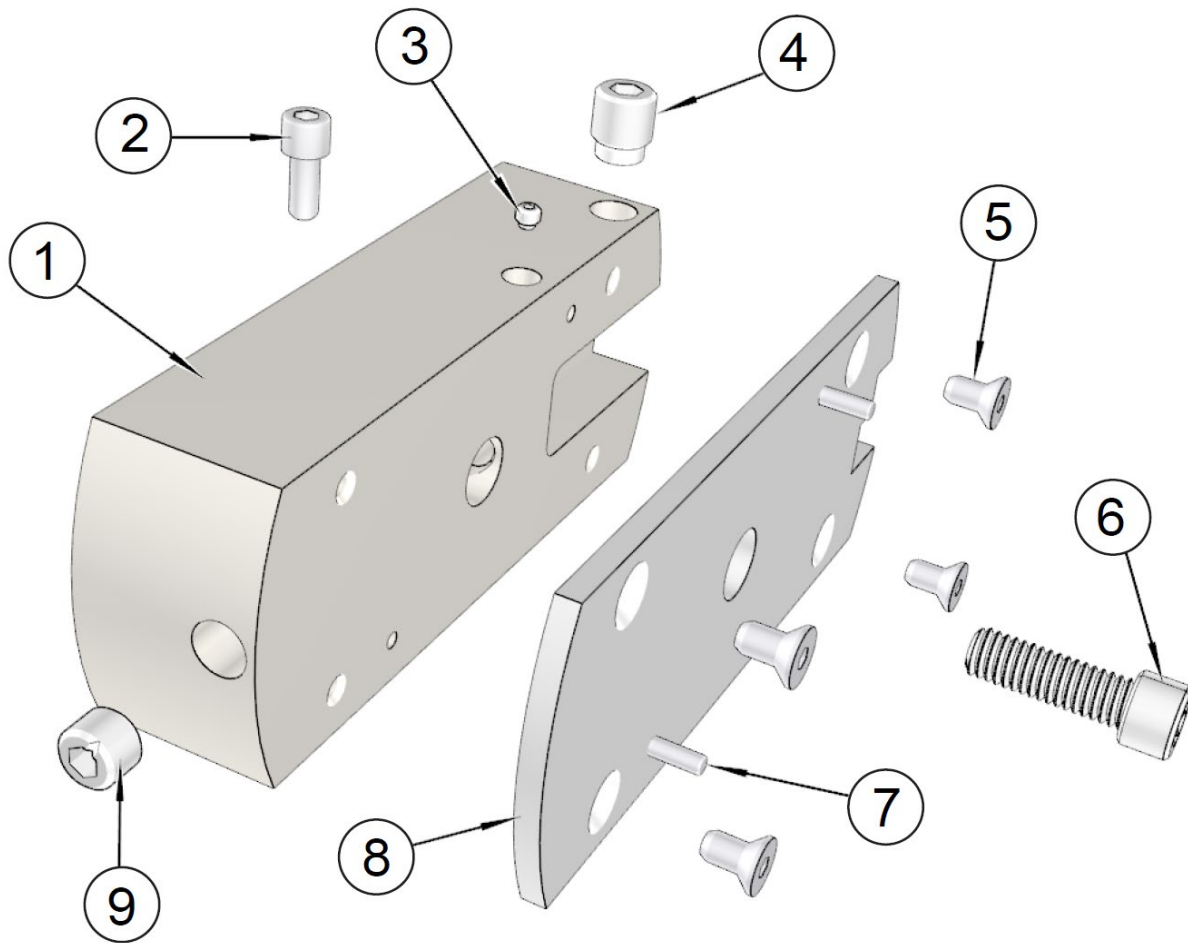


**RT321F**



**RT322F**

|                     |                   | Tool Diameter Range |       |       |       |       |       |       |       |
|---------------------|-------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |                     | 6801B | 6801C | 6801D | 6801E | 6801F | 6801G | 6801H |
| 5.4"                | 0.960"            | Min                 | 5.4"  | 5.46" | 5.85" | 6.26" | 6.66" | 7.06" | 7.49" |
|                     |                   | Max                 | 5.69" | 6.06" | 6.45" | 6.86" | 7.26" | 7.66" | 8.09" |

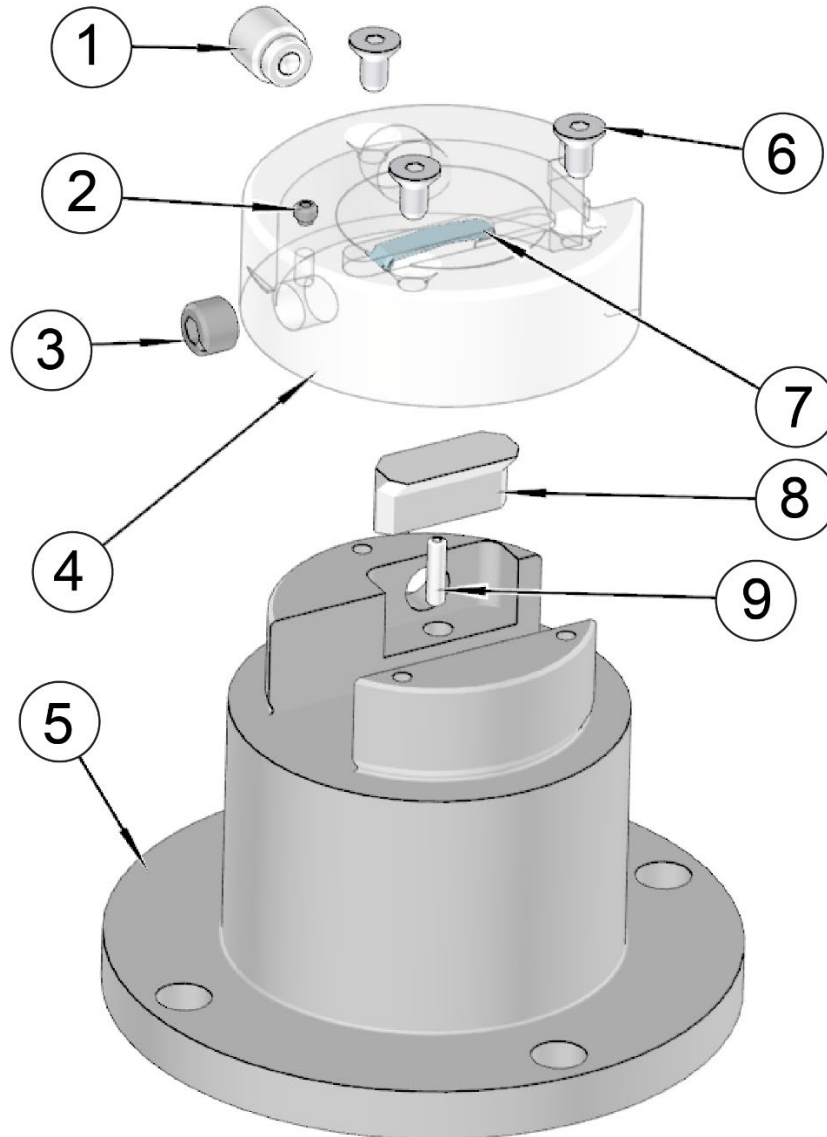


| 650-2-39E CUTTERHEAD PARTS |     |             |  |
|----------------------------|-----|-------------|--|
| ITEM                       | QTY | PART NUMBER | DESCRIPTION                                  |
| 1                          | 1   | 650-2-16C   | BODY, 5.4" PRECISION LINE BORE CUTTERHEAD    |
| 2                          | 1   | MF-4        | SOCKET HEAD CAP SCREW #10-24 X 3/8"          |
| 3                          | 1   | 502-12-4D   | SOCKET SET SCREW, BRASS TIPPED, #8-32 X 1/8" |
| 4                          | 1   | 501-70A     | SCREW, TOOL HOLDER LOCK ASSY                 |
| 5                          | 3   | MF-78       | SOCKET FLAT HEAD SCREW #10-24 X 3/8"         |
| 6                          | 1   | MF-23       | SOCKET HEAD CAP SCREW 5/16-18 X 1"           |
| 7                          | 2   | MF-193C     | DOWEL PIN, 1/8" X 3/8"                       |
| 8                          | 1   | 650-2-17B   | CAP, 5.4" DIAMETER PRECISION LINE BORE HEAD  |
| 9                          | 1   | 502-2-85B   | SOCKET SET SCREW, INDEX, 3/8-40 FINE THREAD  |

**6519V Heavy Duty Line Bore Cutterhead Kit, 5.74-9.84" (145.8-249.9mm) Dia x 3" (76mm)**



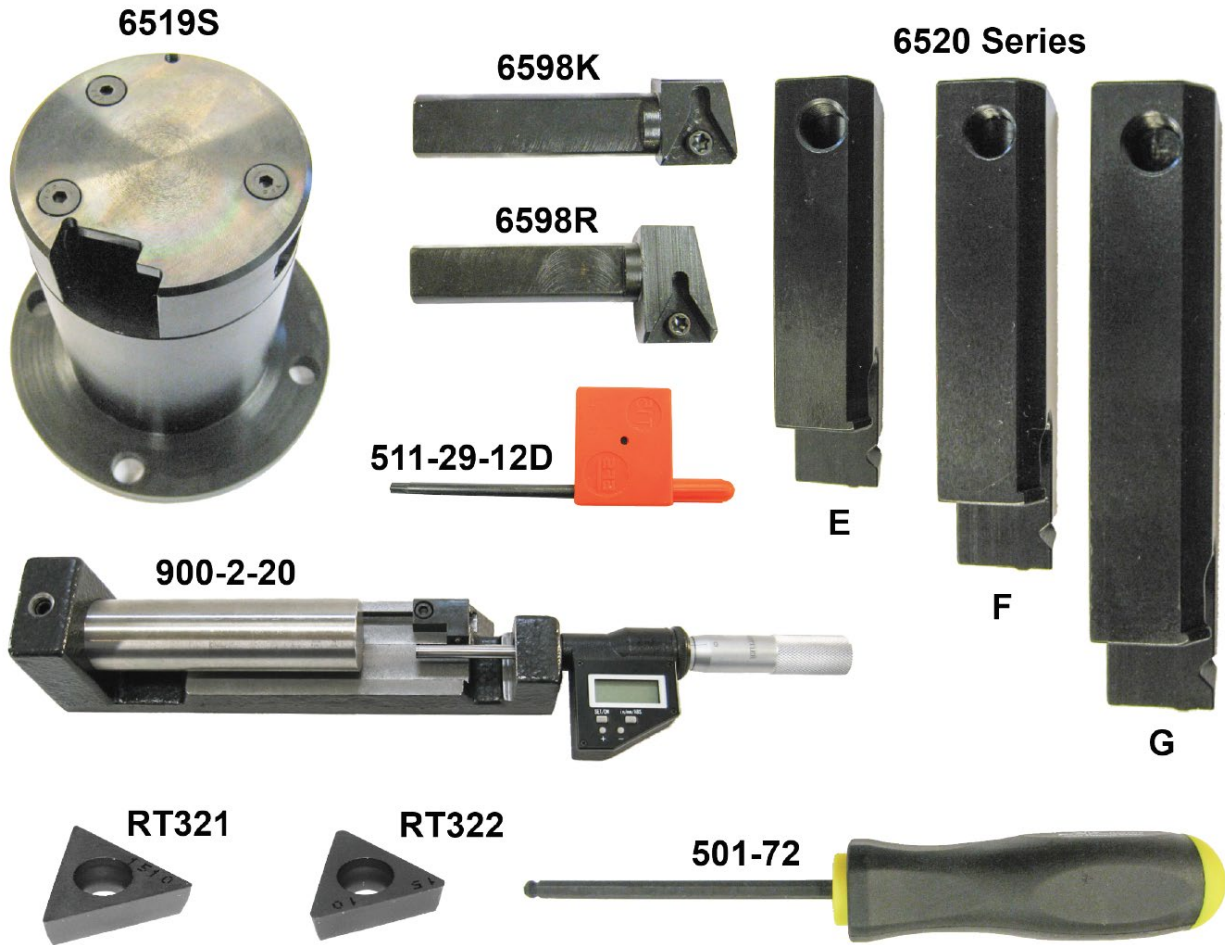
| Tool Diameter Range |                   |       |         |       |       |
|---------------------|-------------------|-------|---------|-------|-------|
| Cutterhead Diameter | Centerline Offset |       | 6520E   | 6520F | 6520G |
|                     |                   | 2.88" | -1.080" | Min   | 5.74" |
|                     |                   | Max   | 8.34"   | 8.84" | 9.84" |



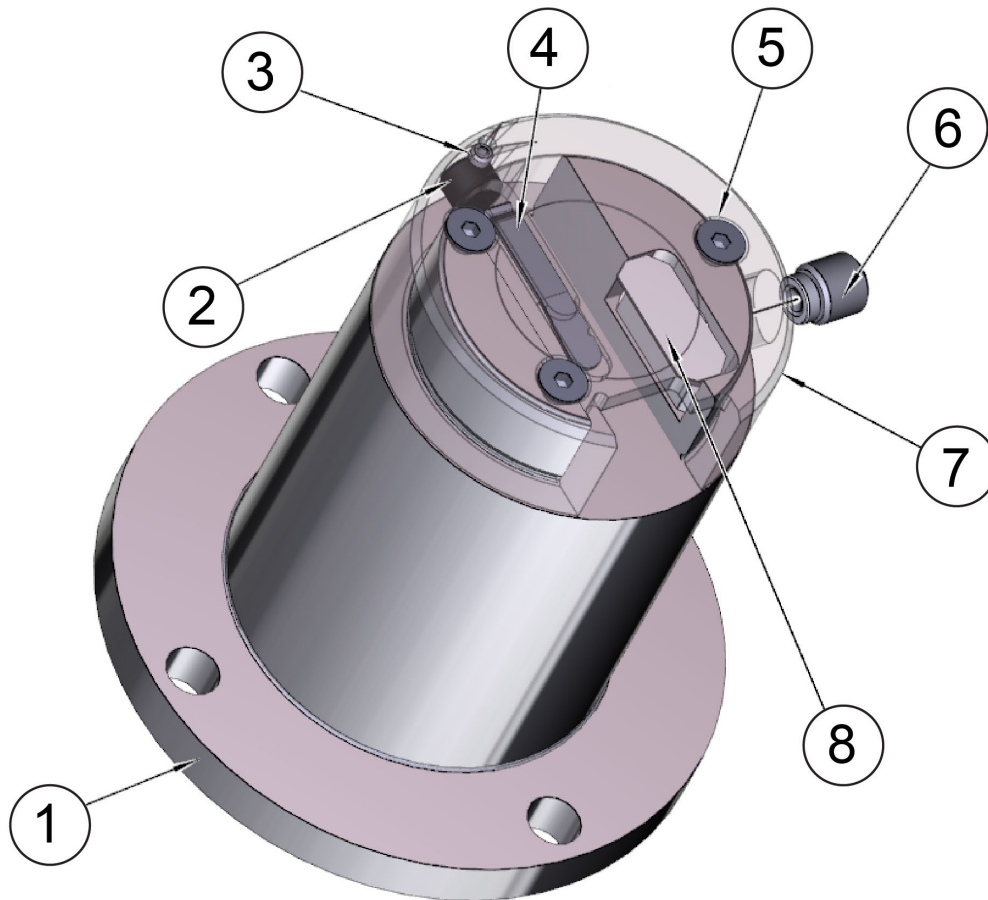
| 650-2-39E CUTTERHEAD PARTS |     |             |   |
|----------------------------|-----|-------------|---|
| ITEM                       | QTY | PART NUMBER | DESCRIPTION                                   |
| 1                          | 1   | 501-70A     | SCREW, TOOL HOLDER LOCK ASSY                  |
| 2                          | 1   | 502-12-4D   | SOCKET SET SCREW, BRASS TIPPED, #8-32 X 1/8"  |
| 3                          | 1   | 502-2-85B   | SCREW, SET, INDEX 3/8-40 UNF                  |
| 4                          | 1   | 650-2-17    | CAP, 2.9" STUB BAR                            |
| 5                          | 3   | 6519T       | CUTTERHEAD BODY                               |
| 6                          | 1   | MF-78       | SOCKET FLAT HEAD SCREW #10-24 X 3/8"          |
| 7                          | 2   | 100-1A      | SPRING, TOOL LOCK 1 13/32"                    |
| 8                          | 1   | 6263A       | SHOE, CLAMP – TOOL HOLDER PRODUCTION STUB BAR |
| 9                          | 1   | MF-217      | ROLL PIN, 1/8 X 1/2"                          |



**6519P Heavy Duty Line Bore Cutterhead Kit, 5.74-9.84" (145.8-249.9mm) Dia x 4.25" (108mm)**

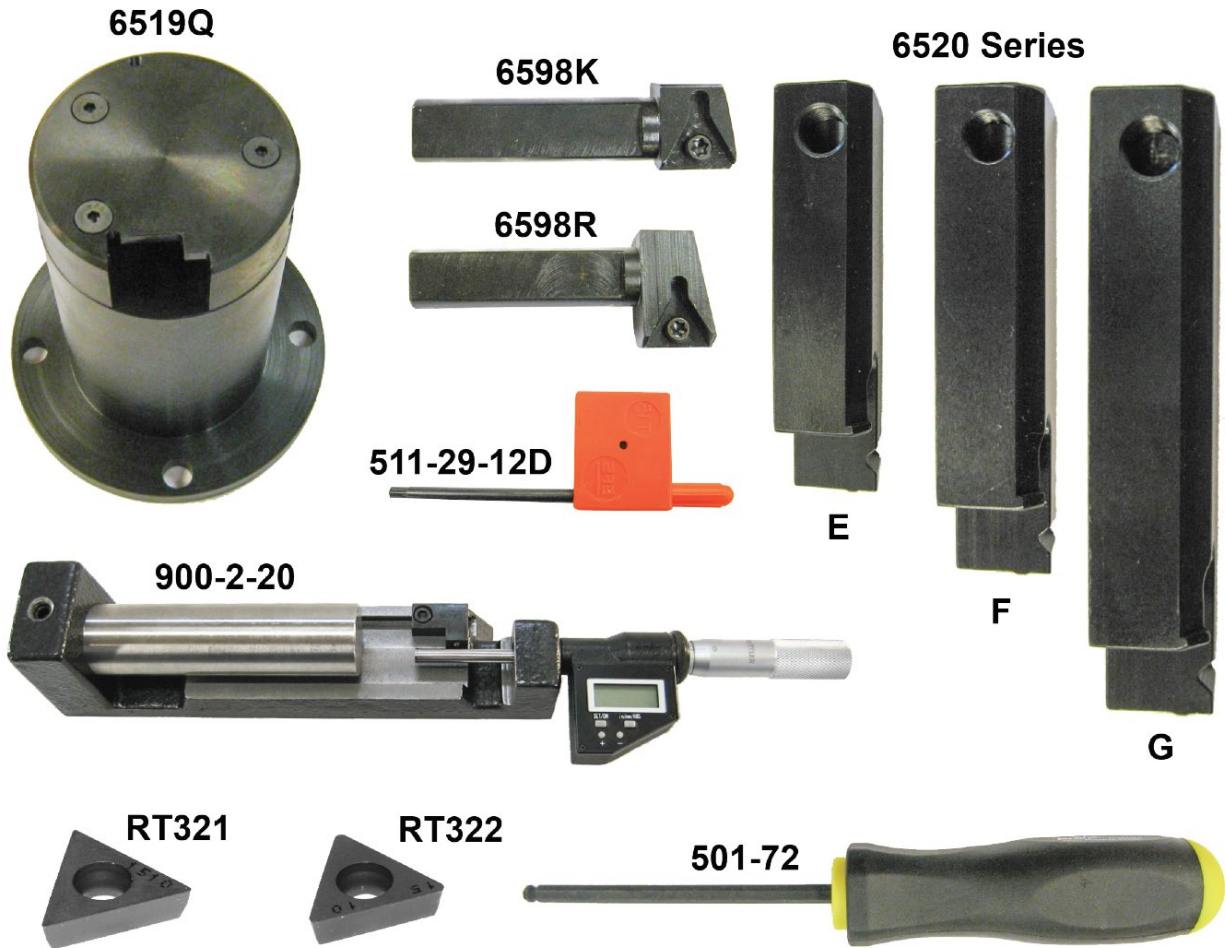


| Tool Diameter Range |                   |     |       |       |       |
|---------------------|-------------------|-----|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |     | 6520E | 6520F | 6520G |
| 2.88"               | -1.080"           | Min | 5.74" | 6.24" | 7.24" |
|                     |                   | Max | 8.34" | 8.84" | 9.84" |

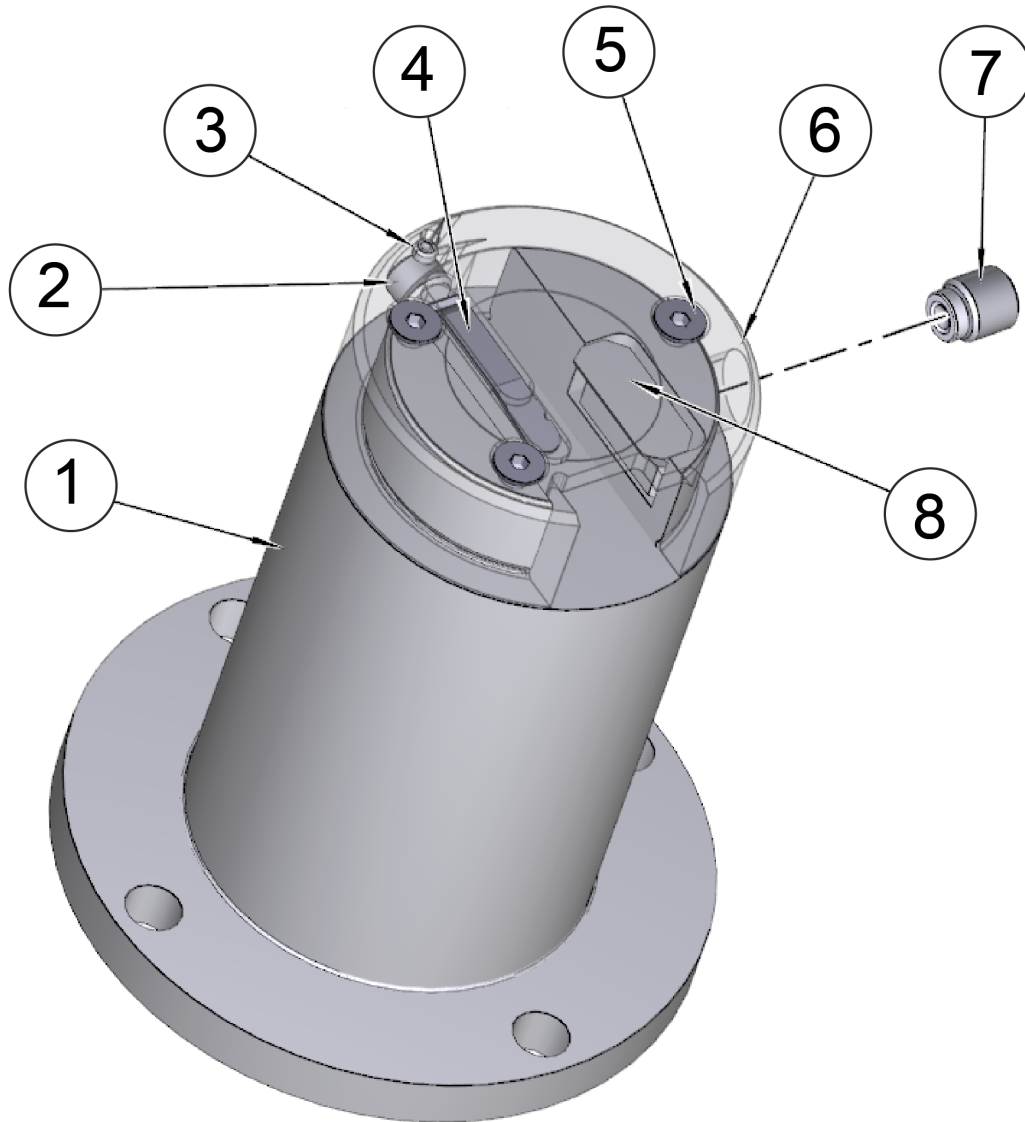


| 6519S CUTTERHEAD PARTS |     |             |   |
|------------------------|-----|-------------|---|
| ITEM                   | QTY | PART NUMBER | DESCRIPTION   |
| 1                      | 1   | 6519T       | CUTTERHEAD BODY   |
| 2                      | 1   | 502-2-85B   | SCREW, SET, INDEX $\frac{3}{8}$ -40 UNF                 |
| 3                      | 1   | 502-12-4D   | SOCKET SET SCREW, BRASS TIPPED, #8-32 X $\frac{1}{8}$ " |
| 4                      | 1   | 100-1A      | SPRING, TOOL LOCK 1 $\frac{13}{32}$ "                   |
| 5                      | 3   | MF-78       | SOCKET FLAT HEAD SCREW #10-24 X $\frac{3}{8}$ "         |
| 6                      | 1   | 501-70A     | SCREW, TOOL HOLDER LOCK ASSY                            |
| 7                      | 1   | 650-2-17    | CAP, 2.9" STUB BAR                                      |
| 8                      | 1   | 6263A       | SHOE, CLAMP – TOOL HOLDER PRODUCTION STUB BAR           |

**6519M Heavy Duty Line Bore Cutterhead Kit, 5.74-9.84" (145.8-249.9mm) Dia x 5.1" (130mm)**

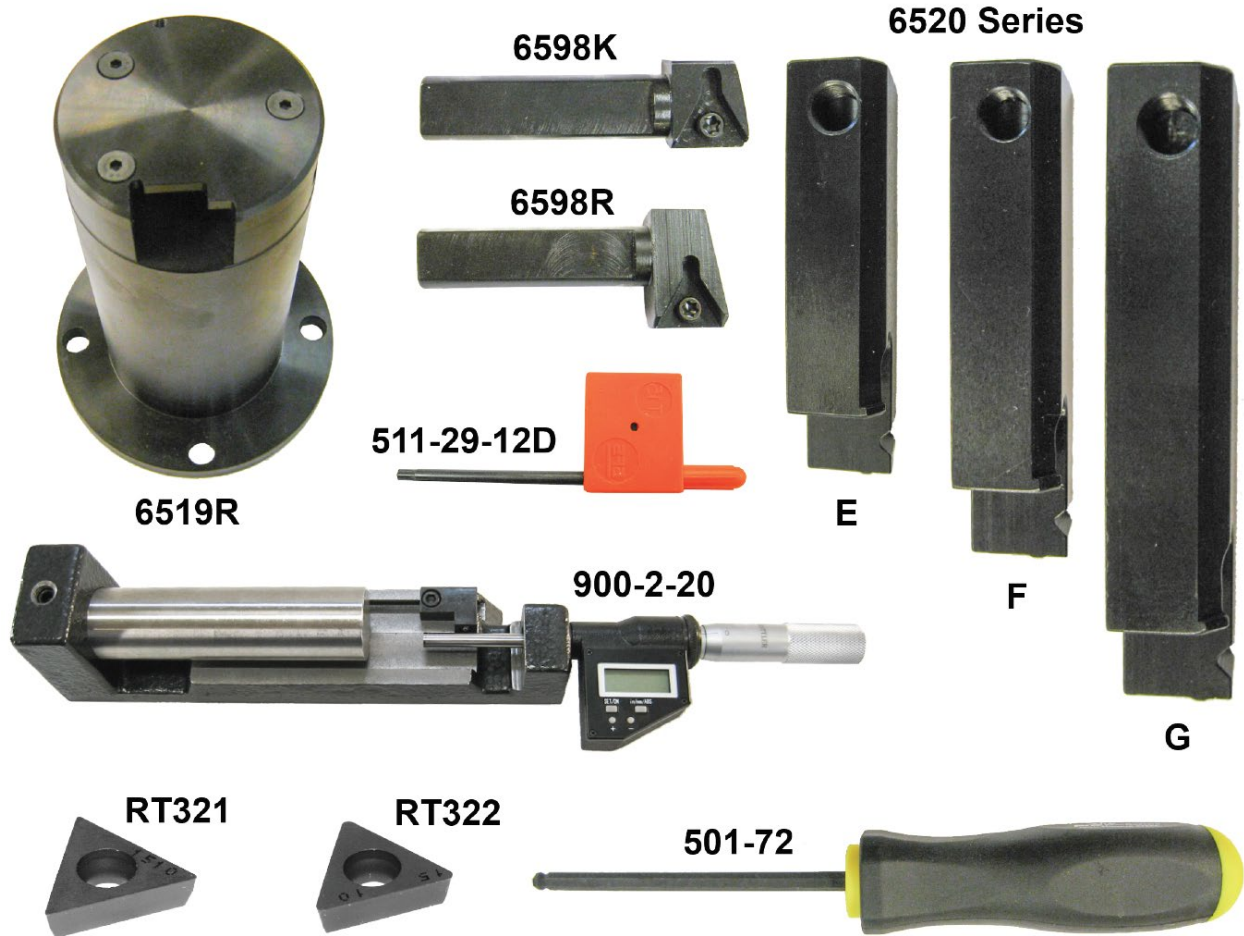


| Tool Diameter Range |                   |     |       |       |       |
|---------------------|-------------------|-----|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |     | 6520E | 6520F | 6520G |
| 2.88"               | -1.080"           | Min | 5.74" | 6.24" | 7.24" |
|                     |                   | Max | 8.34" | 8.84" | 9.84" |

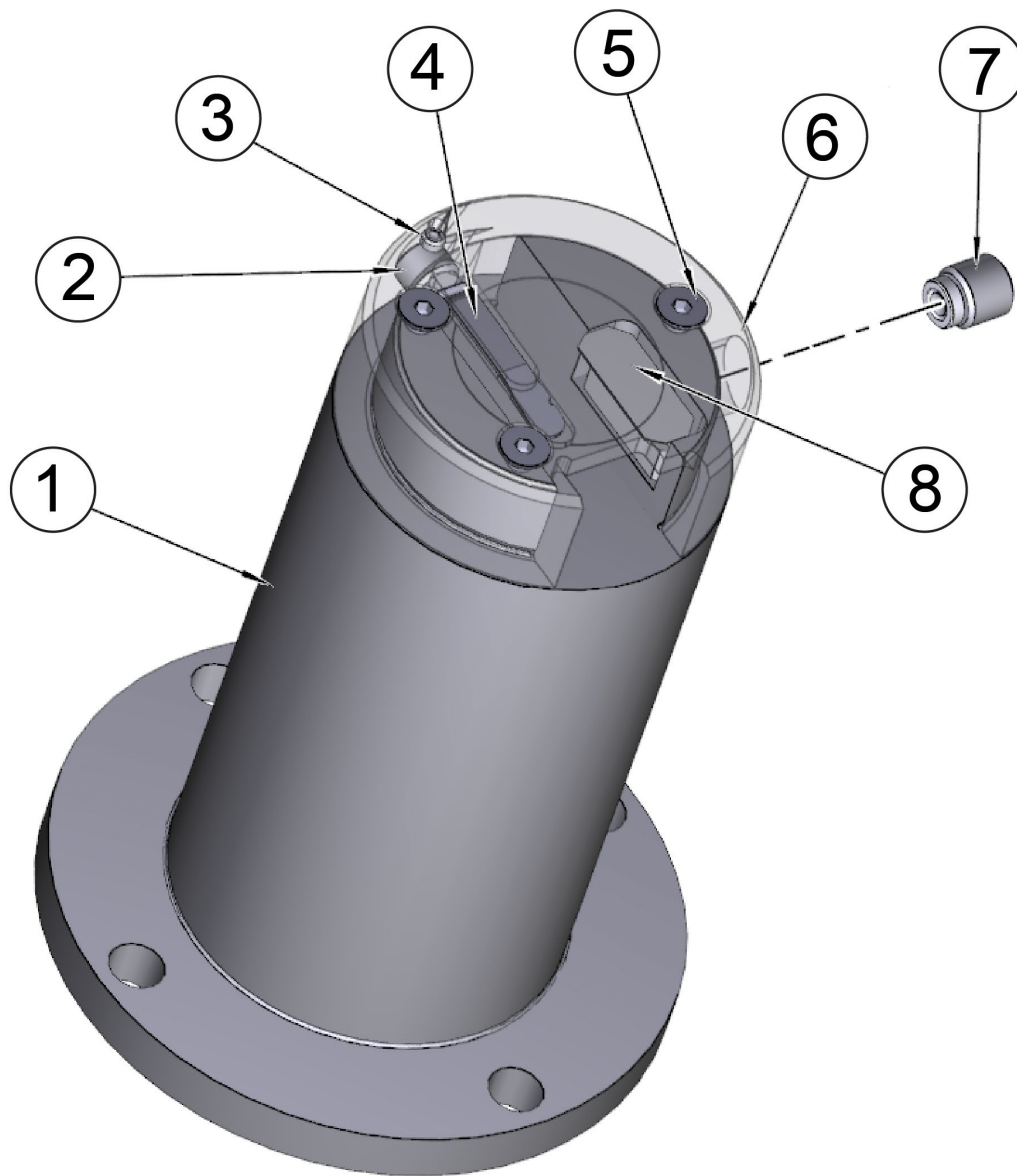


| 6519Q CUTTERHEAD PARTS |     |             |   |
|------------------------|-----|-------------|---|
| ITEM                   | QTY | PART NUMBER | DESCRIPTION   |
| 1                      | 1   | 6519J       | CUTTERHEAD BODY   |
| 2                      | 1   | 502-2-85B   | SCREW, SET, INDEX $\frac{3}{8}$ -40 UNF                 |
| 3                      | 1   | 502-12-4D   | SOCKET SET SCREW, BRASS TIPPED, #8-32 X $\frac{1}{8}$ " |
| 4                      | 2   | 100-1A      | SPRING, TOOL LOCK 1 $\frac{13}{32}$ "                   |
| 5                      | 3   | MF-78       | SOCKET FLAT HEAD SCREW #10-24 X $\frac{3}{8}$ "         |
| 6                      | 1   | 650-2-17    | CAP, 2.9" STUB BAR                                      |
| 7                      | 1   | 501-70C     | SCREW, TOOL HOLDER LOCK                                 |
| 8                      | 1   | 6263A       | SHOE, CLAMP – TOOL HOLDER PRODUCTION STUB BAR           |

**6519N Heavy Duty Line Bore Cutterhead Kit, 5.74-9.84" (145.8-249.9mm) Dia x 6" (152mm)**

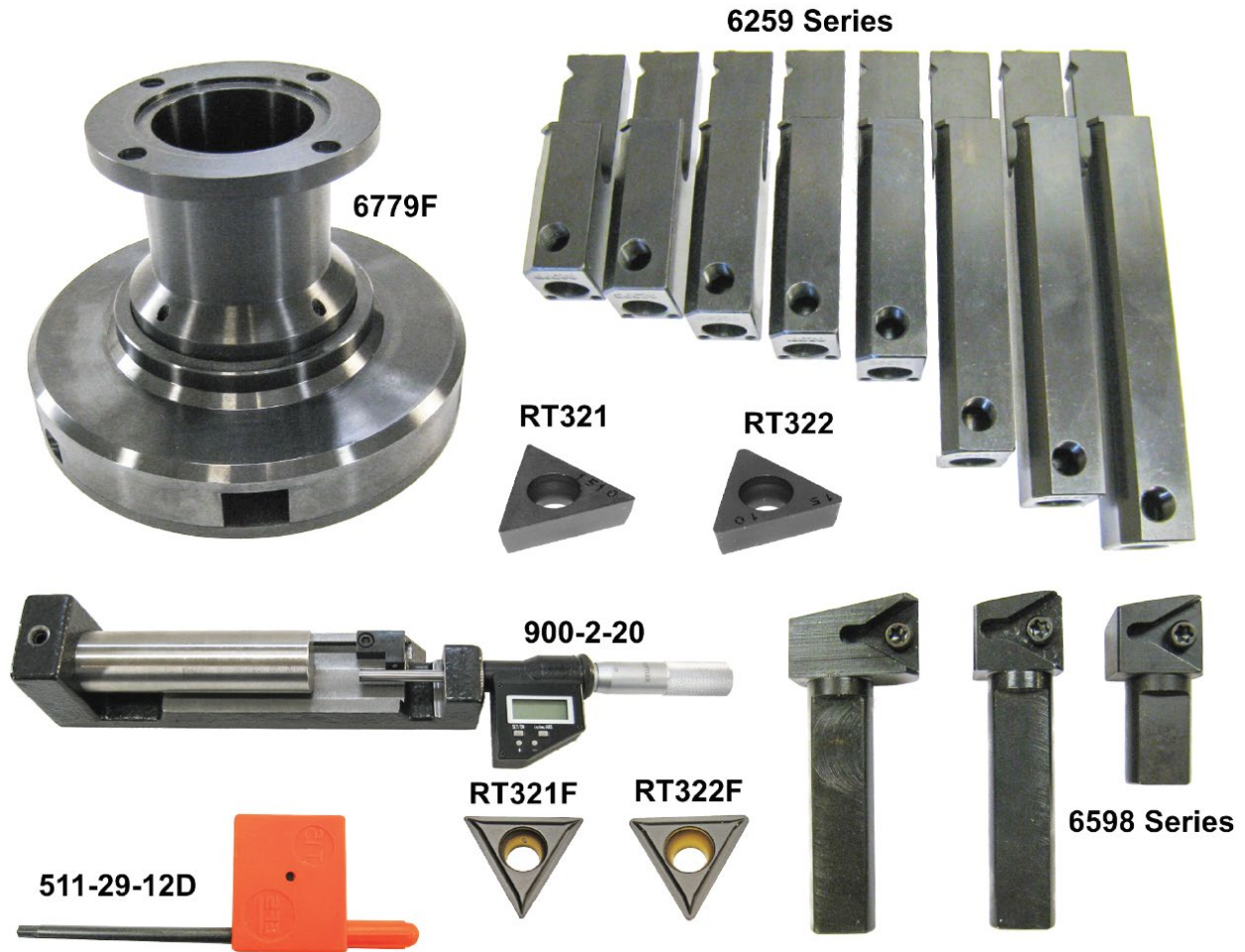


| Tool Diameter Range |                   |     |       |       |       |
|---------------------|-------------------|-----|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |     | 6520E | 6520F | 6520G |
| 2.88"               | -1.080"           | Min | 5.74" | 6.24" | 7.24" |
|                     |                   | Max | 8.34" | 8.84" | 9.84" |

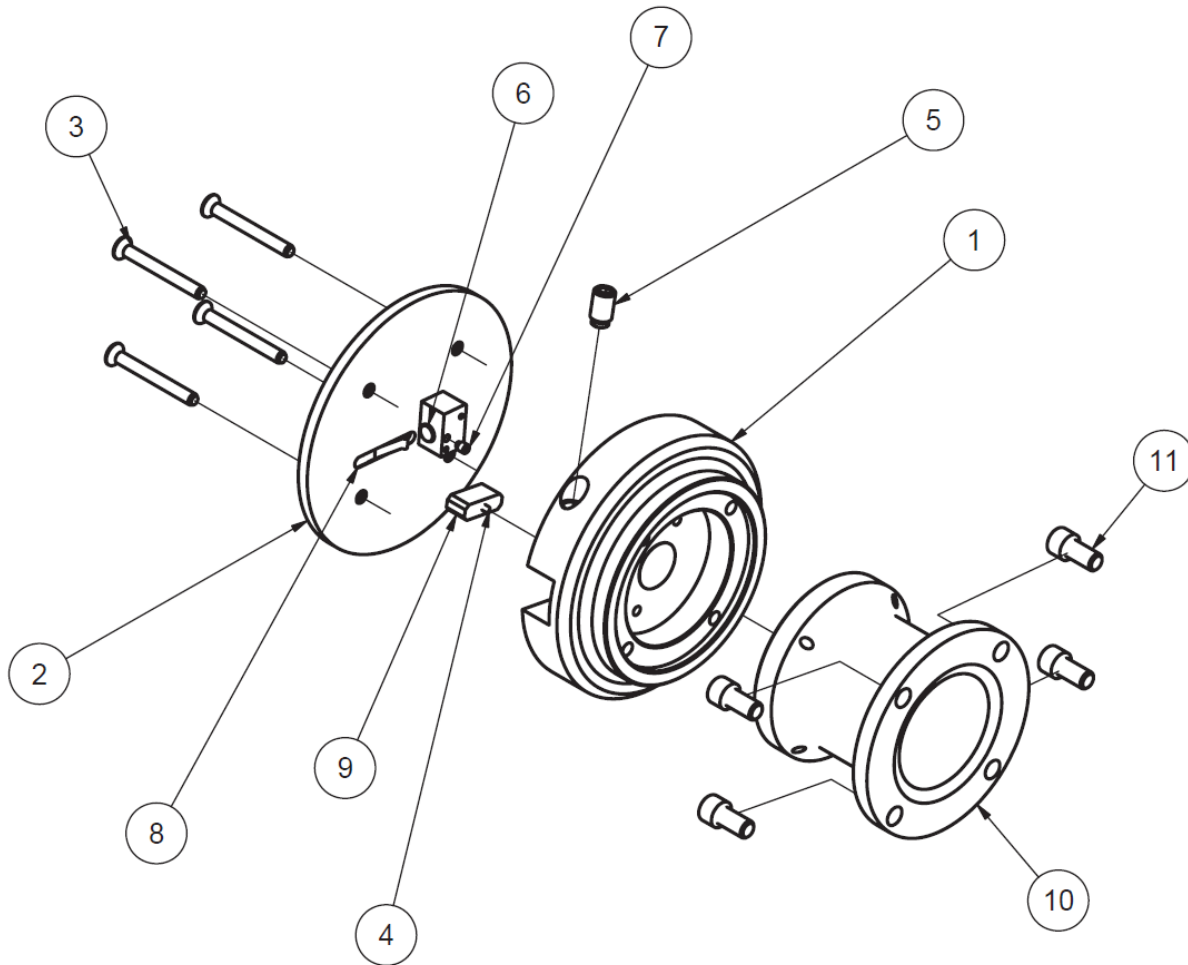


| 6519R CUTTERHEAD PARTS |     |             |   |
|------------------------|-----|-------------|---|
| ITEM                   | QTY | PART NUMBER | DESCRIPTION   |
| 1                      | 1   | 6519K       | CUTTERHEAD BODY   |
| 2                      | 1   | 502-2-85B   | SCREW, SET, INDEX $\frac{3}{8}$ -40 UNF                 |
| 3                      | 1   | 502-12-4D   | SOCKET SET SCREW, BRASS TIPPED, #8-32 X $\frac{1}{8}$ " |
| 4                      | 2   | 100-1A      | SPRING, TOOL LOCK 1 $\frac{13}{32}$ "                   |
| 5                      | 3   | MF-78       | SOCKET FLAT HEAD SCREW #10-24 X $\frac{3}{8}$ "         |
| 6                      | 1   | 650-2-17    | CAP, 2.9" STUB BAR                                      |
| 7                      | 1   | 501-70C     | SCREW, TOOL HOLDER LOCK                                 |
| 8                      | 1   | 6263A       | SHOE, CLAMP – TOOL HOLDER PRODUCTION STUB BAR           |

**6779A Heavy Duty Line Bore Cutterhead Kit**



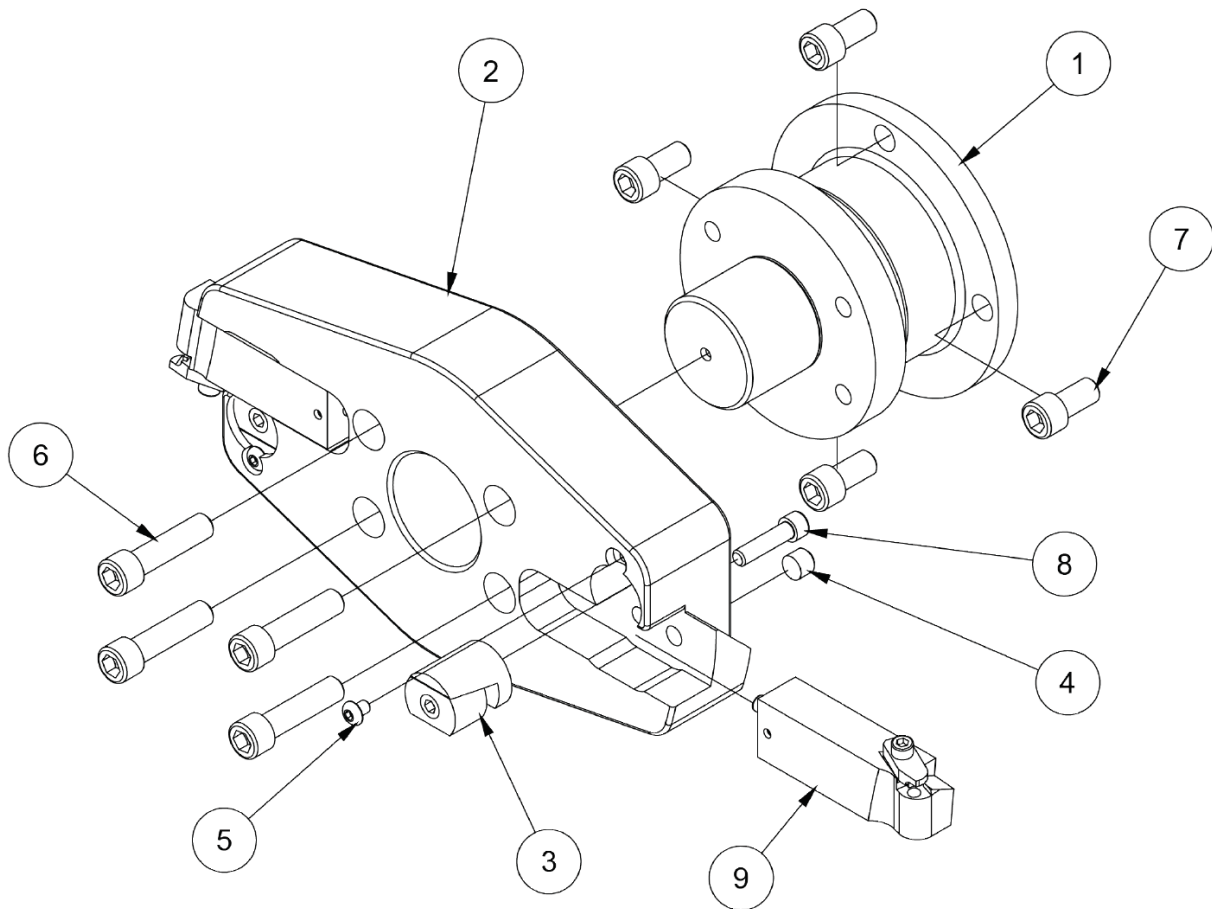
|                     |                   | Tool Diameter Range |       |       |       |       |       |       |       |
|---------------------|-------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|
| Cutterhead Diameter | Centerline Offset |                     | 6259P | 6259C | 6259D | 6259I | 6259E | 6259F | 6259G |
| 7.75"               | -0.280"           | Min                 | 8.58  | 8.68  | 8.58  | 8.58  | 8.99  | 9.99  | 10.99 |
|                     |                   | Max                 | 9.59  | 10.09 | 10.59 | 11    | 10.29 | 11.29 | 12.29 |



| <b>6779F 7.75DIA CUTTERHEAD ASSEMBLY W/O TOOLING - LINE BORE</b> |            |                    |   |
|--|------------|--------------------|---|
| <b>ITEM</b>  | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                              |
| 1  | 1          | 6466B              | BODY, LINE BORE CUTTERHEAD ASSEMBLY 8.00-14.00" |
| 2  | 1          | 6469B              | CAP, 8.00-14.00" LINE BORE HEAD ASSEMBLY        |
| 3  | 4          | -                  | SOCKET FLAT HEAD SCREW 1/4-20 X 2 1/4"          |
| 4  | 1          | MF-193             | DOWEL PIN 1/8" X 1/2"                           |
| 5  | 1          | 501-70             | TOOL HOLDER LOCK SCREW ASS'Y                    |
| 6  | 1          | 6468A              | ADJUSTING SCREW                                 |
| 7  | 1          | 100-82-2           | SET SCREW, BRASS TIPPED                         |
| 8  | 1          | 100-1E             | TOOL LOCK SPRING                                |
| 9  | 1          | 6263B              | CLAMP SHOE (TOOL HOLDER)                        |
| 10   | 1          | 6779E              | ADAPTER, 7 3/4" CUTTERHEAD TO H.D. R.A.D.       |
| 11   | 4          | MF-30              | SOCKET HEAD CAPSCREW 3/8-16 X 3/4"              |

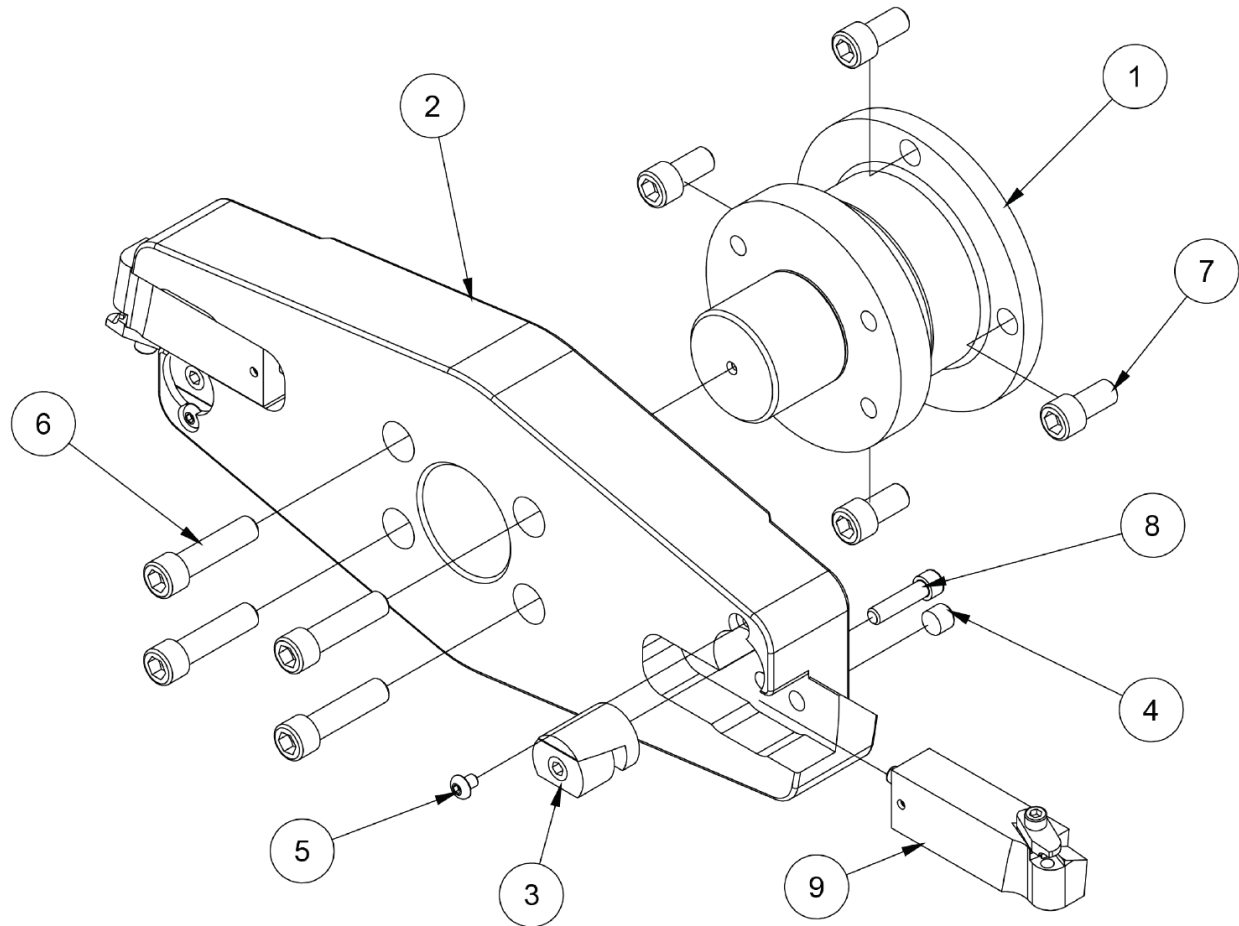


### 6779L Flycutter Kit for Right Angle Drive, 10" (254mm) Dia

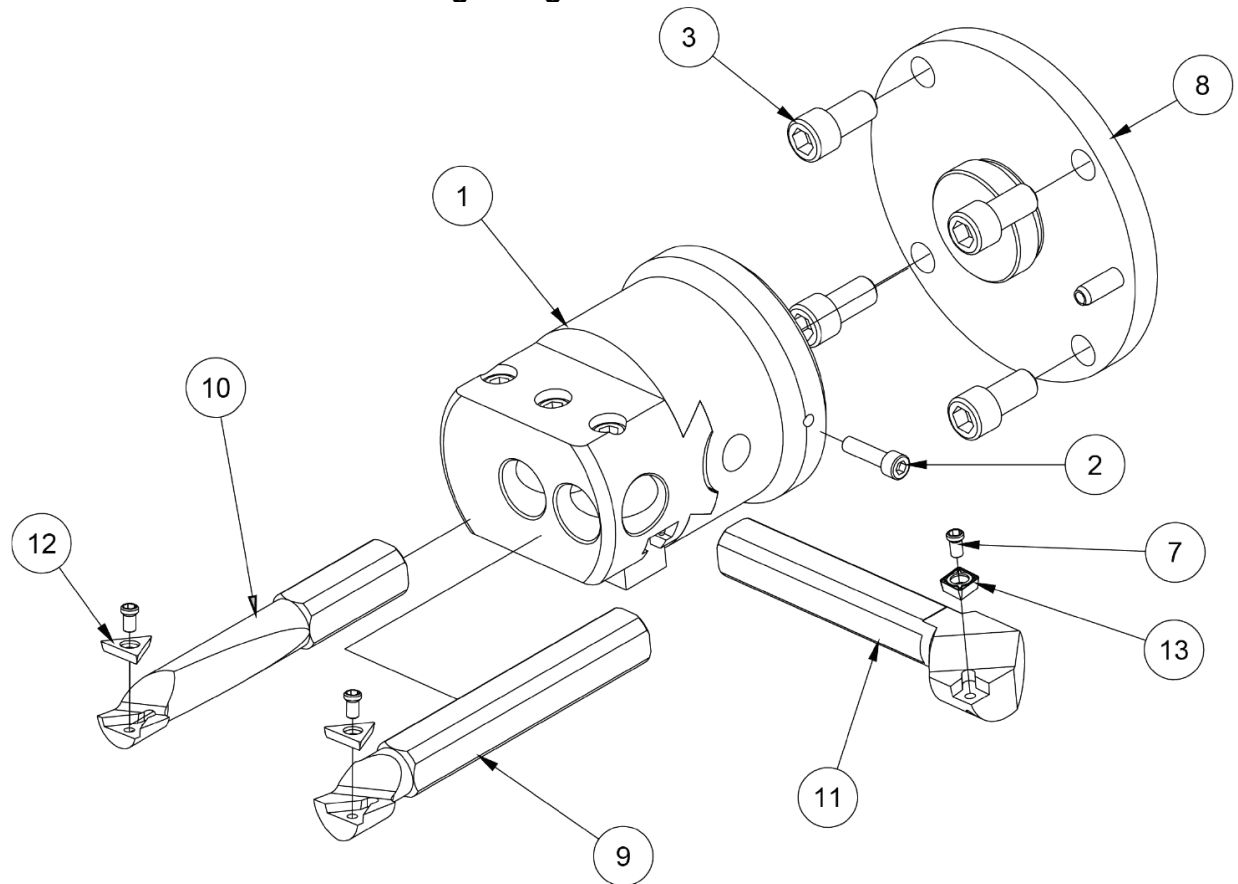


| 6779L CUTTERHEAD PARTS |     |             |   |
|------------------------|-----|-------------|---|
| ITEM                   | QTY | PART NUMBER | DESCRIPTION                                 |
| 1                      | 1   | 6779G       | ADAPTER, 7 3/4" CUTTERHEAD TO H.D. R.A.D.   |
| 2                      | 1   | 7206L       | CUTTERHEAD, SURFACING 10"                   |
| 3                      | 2   | 7206K       | L-LOCK ASSEMBLY                             |
| 4                      | 2   | 7202C       | SOCKET SET SCREW, OVAL POINT, #10-24 X 3/8" |
| 5                      | 2   | MF-87       | SOCKET BUTTON HEAD SCREW, #10-24 X 1/4"     |
| 6                      | 4   | MF-33       | S.H.C.S. 3/8-16 X 1 1/2"                    |
| 7                      | 4   | MF-30       | S.H.C.S. 3/8-16 X 3/4"                      |
| 8                      | 2   | MF-15       | S.H.C.S. 1/4-20 X 1"                        |
| 9                      | 2   | 7202W       | TOOL HOLDER ASSMEBLY, FLY CUTTER            |

### 6779M Flycutter Kit for Right Angle Drive, 14" (356mm) Dia

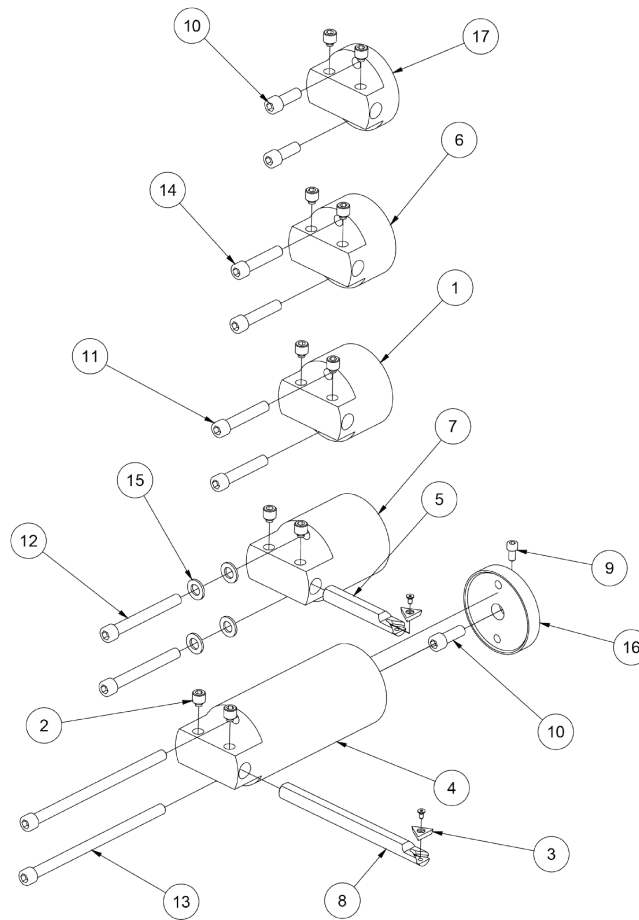


| 6779M CUTTERHEAD PARTS |     |             |   |
|------------------------|-----|-------------|---|
| ITEM                   | QTY | PART NUMBER | DESCRIPTION                                 |
| 1                      | 1   | 6779G       | ADAPTER, 7 3/4" CUTTERHEAD TO H.D. R.A.D.   |
| 2                      | 1   | 7206G       | CUTTERHEAD, SURFACING 14"                   |
| 3                      | 2   | 7206K       | L-LOCK ASSEMBLY                             |
| 4                      | 2   | 7202C       | SOCKET SET SCREW, OVAL POINT, #10-24 X 3/8" |
| 5                      | 2   | MF-87       | SOCKET BUTTON HEAD SCREW, #10-24 X 1/4"     |
| 6                      | 4   | MF-33       | S.H.C.S. 3/8-16 X 1 1/2"                    |
| 7                      | 4   | MF-30       | S.H.C.S. 3/8-16 X 3/4"                      |
| 8                      | 2   | MF-15       | S.H.C.S. 1/4-20 X 1"                        |
| 9                      | 2   | 7202W       | TOOL HOLDER ASSMEBLY, FLY CUTTER            |

**6779N Crossfeed Head Kit for Right Angle Drive**

| 6779N CUTTERHEAD PARTS |     |             |  |
|------------------------|-----|-------------|--|
| ITEM                   | QTY | PART NUMBER | DESCRIPTION  |
| 1                      | 1   | 6565X       | HEAD, CROSSFEED, CRITERION                           |
| 2                      | 1   | MF-10       | S.H.C.S. #10-32 X 3/4"                               |
| 3                      | 4   | MF-30       | S.H.C.S. 3/8-16 X 3/4"                               |
| 7                      | 3   | CLAMP SCREW | SUPPLIED WITH BORING BARS                            |
| 8                      | 1   | 6779P       | ADAPTER ASSEMBLY, CROSSFEED HEAD TO HD OFFSET R.A.D. |
| 9                      | 1   | 650-2-34P   | BORING BAR, 1" PRECISION BORING HEAD ASS'Y           |
| 10                     | 1   | 650-2-34Q   | BORING BAR, 3/4" PRECISION BORING HEAD ASS'Y         |
| 11                     | 1   | 350-2-34U   | FACING BAR – PRECISION BORING HEAD ASS'Y             |
| 12                     | 2   | 350-2-34R   | INSERT, TRIANGULAR POS. RAKE 3/8" I.C.               |
| 13                     | 1   | 650-2-34V   | INSERT, DIAMOND SHAPE 1/32" R.                       |

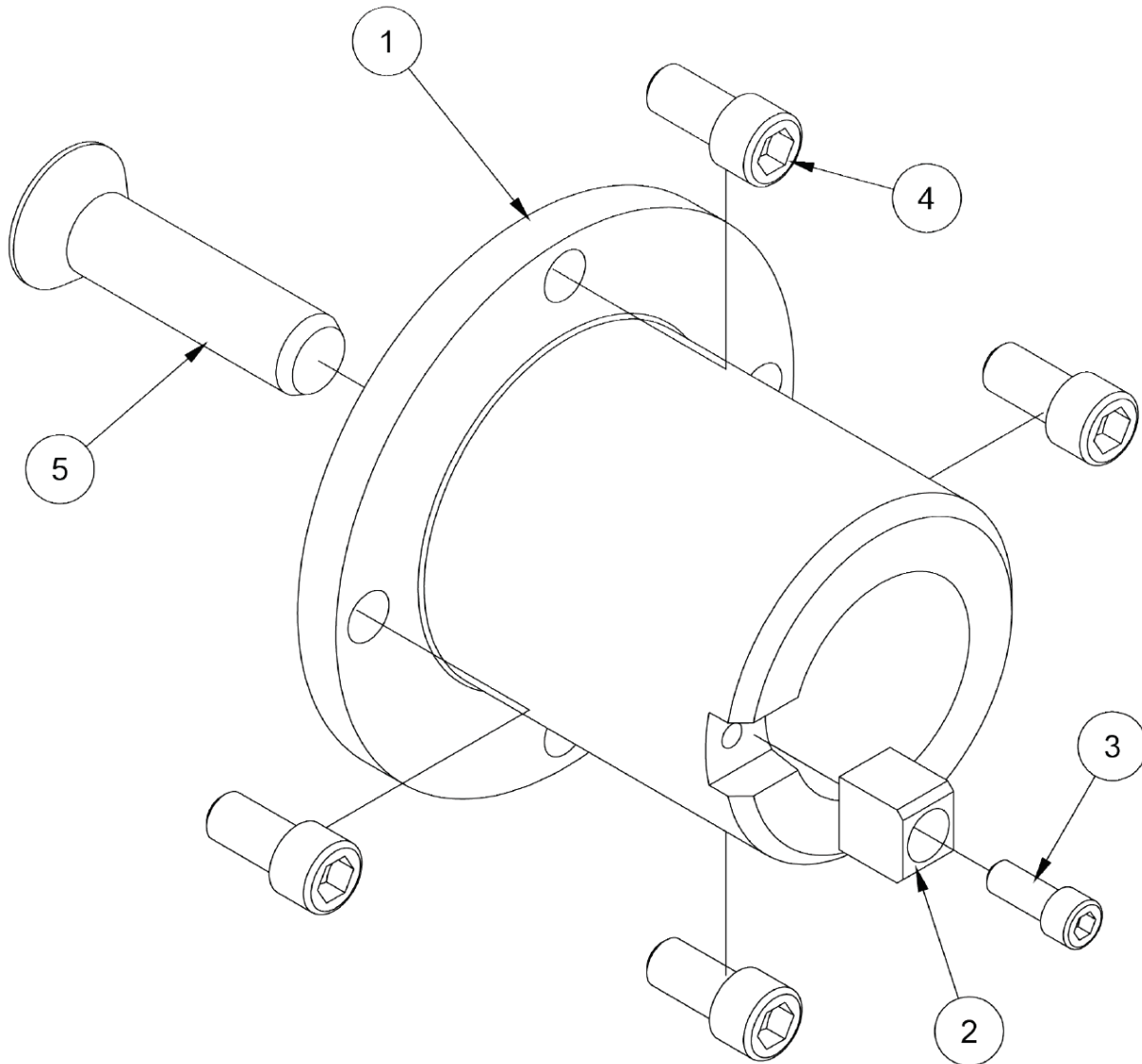
### 6855C Thrust Facing Tooling Package



#### 6779M CUTTERHEAD PARTS

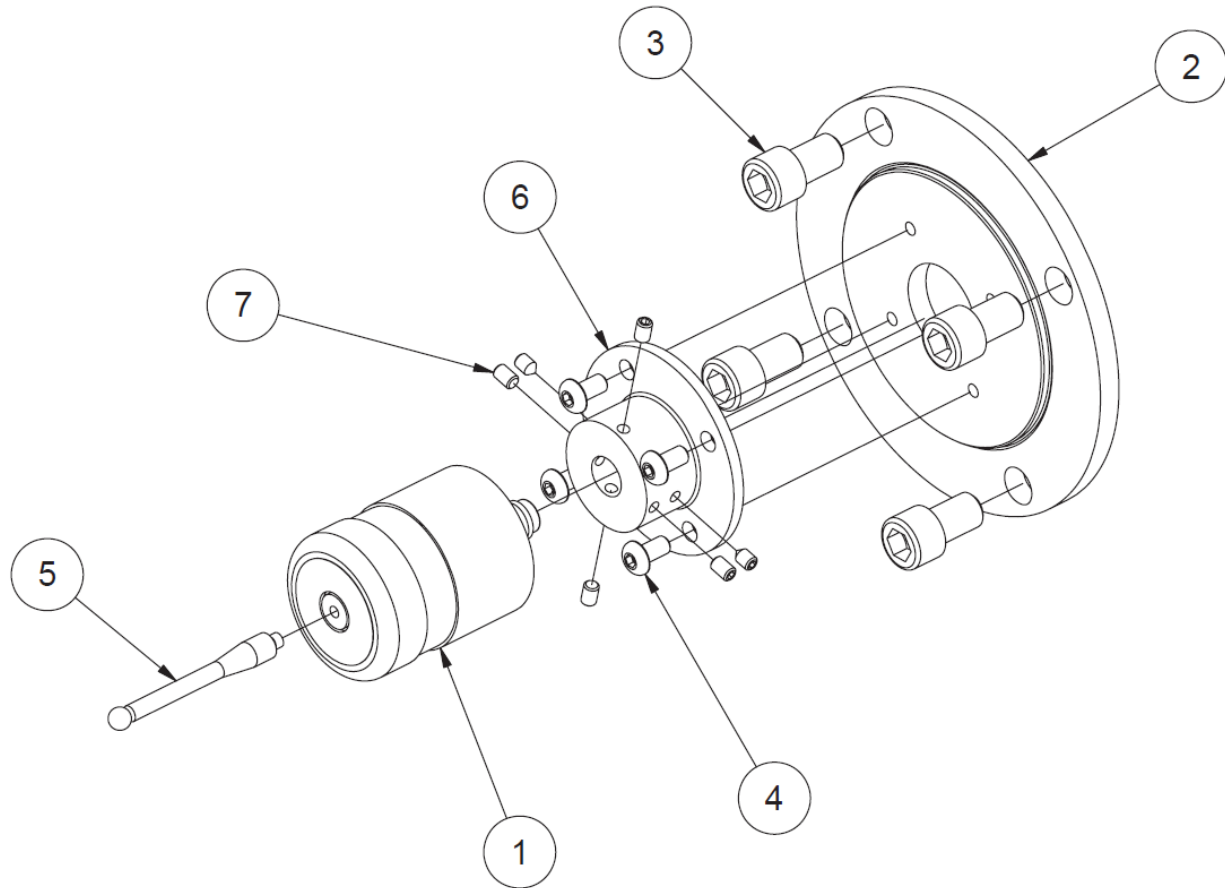
| ITEM | QTY | PART NUMBER | DESCRIPTION   |
|------|-----|-------------|---|
| 1    | 1   | 6855A       | HEAD, THRUST FACING (2.18" LONG) LINE BORE          |
| 2    | 10  | 502-30-10L  | BRASS TIPPED SET SCREW                              |
| 3    | 2   | RT321       | INSERT, TRIANGULAR POS. RAKE $\frac{3}{8}$ " I.C.   |
| 4    | 1   | 6855B       | HEAD, THRUST FACING (6.25" LONG) LINE BORE          |
| 5    | 1   | 6855D       | TRIANGLE INSERT CARTRIDGE – MAIN LINE THRUST FACING |
| 6    | 1   | 6855E       | HEAD, THRUST FACING (1.88" LONG) LINE BORE          |
| 7    | 1   | 6855F       | HEAD, THRUST FACING (3.40" LONG) LINE BORE          |
| 8    | 1   | 6757R       | TRIANGLE INSERT CARTRIDGE – MAIN LINE THRUST FACING |
| 9    | 1   | MF-4        | S.H.C.S. #10-24 X $\frac{3}{8}$ "                   |
| 10   | 3   | MF-21C      | S.H.C.S. 5/16-18 X $\frac{7}{8}$ "                  |
| 11   | 2   | MF-26       | S.H.C.S. 5/16-18 X $1\frac{3}{4}$ "                 |
| 12   | 2   | MF-28       | S.H.C.S. 5/16-18 X $2\frac{3}{4}$ "                 |
| 13   | 2   | MF-28D      | S.H.C.S. 5/16-18 X $5\frac{1}{2}$ "                 |
| 14   | 2   | MF-25       | S.H.C.S. 5/16-18 X $1\frac{1}{2}$ "                 |
| 15   | 4   | MF-177      | 5/16 SAE FLAT WASHER                                |
| 16   | 1   | 6855        | MOUNTING PLATE – THRUST FACING HEAD                 |
| 17   | 1   | 6855J       | HEAD, THRUST FACING (1.25" LONG) LINE BORE          |

### 6779H CAT 40 Adapter Kit for Right Angle Drive



| 6779N CUTTERHEAD PARTS |     |             |   |
|------------------------|-----|-------------|---|
| ITEM                   | QTY | PART NUMBER | DESCRIPTION   |
| 1                      | 1   | 6779J       | CAT 40 ADAPTER – H.D. OFFSET R.A.D.                           |
| 2                      | 1   | 6170H       | DRIVE KEY   |
| 3                      | 1   | MF-13       | S.H.C.S. $\frac{1}{4}$ -20 X $\frac{5}{8}$ "                  |
| 4                      | 4   | MF-30       | S.H.C.S. $\frac{3}{8}$ -16 X $\frac{3}{4}$ "                  |
| 5                      | 1   | 502-1-86D   | SOCKET FLAT HEAD SCREW, $\frac{5}{8}$ -11 X 2 $\frac{1}{2}$ " |

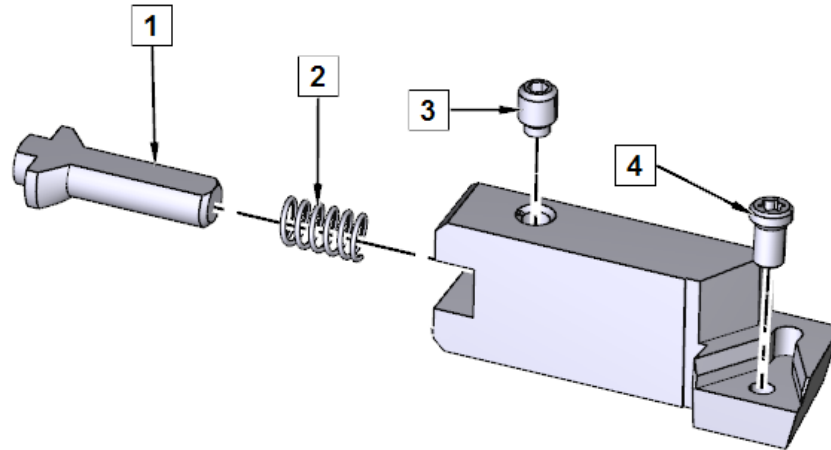
### 6889B Right Angle Drive Probe Kit



| 6889B RADIO PROBE ASSEMBLY – H.D. OFFSET R.A.D. |     |                      |   |
|---|-----|----------------------|---|
| ITEM  | QTY | PART NUMBER          | DESCRIPTION   |
| 1   | 1   | 650-3-59U PROBE      | RMP40 PROBE   |
| 2   | 1   | 6889C                | MOUNT PLATE, RADIO PROBE MOUNT ASSEMBLY, H.D. OFFSET R.A.D. |
| 3   | 4   | 6889E                | SOCKET HEAD CAPSCREW $\frac{3}{8}$ -16 X $\frac{5}{8}$ "    |
| 4   | 4   | MF-88                | SOCKET BUTTON HEAD SCREW #10-24 X $\frac{3}{8}$ "           |
| 5   | 1   | 650-3-59C            | 50mm STYLUS   |
| 6   | 1   | 6889D                | PROBE MOUNT, H.D. OFFSET R.A.D.                             |
| 7   | 6   | 650-3-59U SET SCREWS | METRIC SET SCREWS INCLUDED WITH 650-3-59U PROBE KIT         |

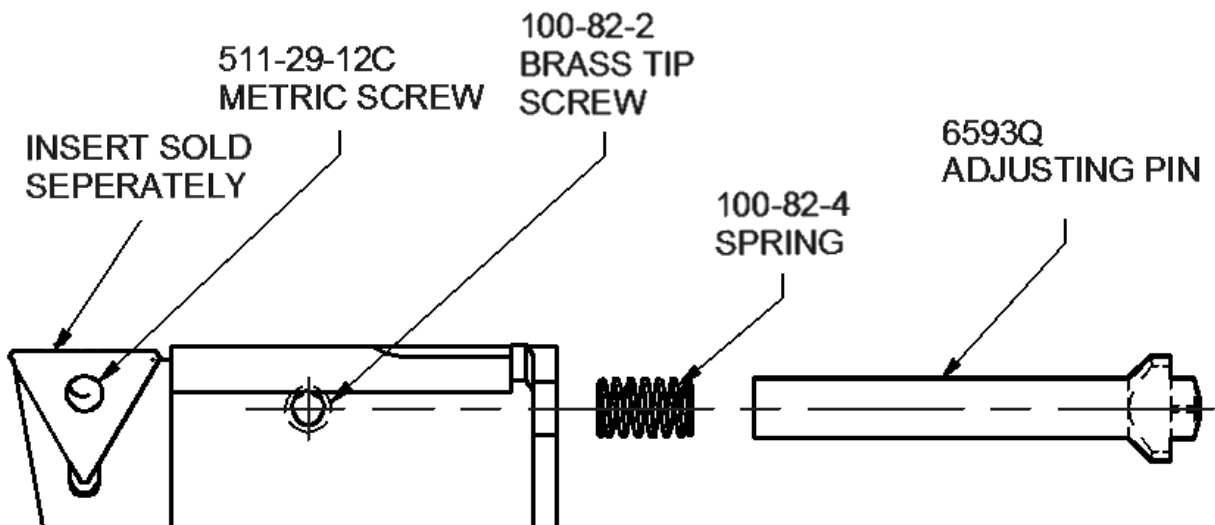
## Insert Holders

### 6801 Series Insert Holders

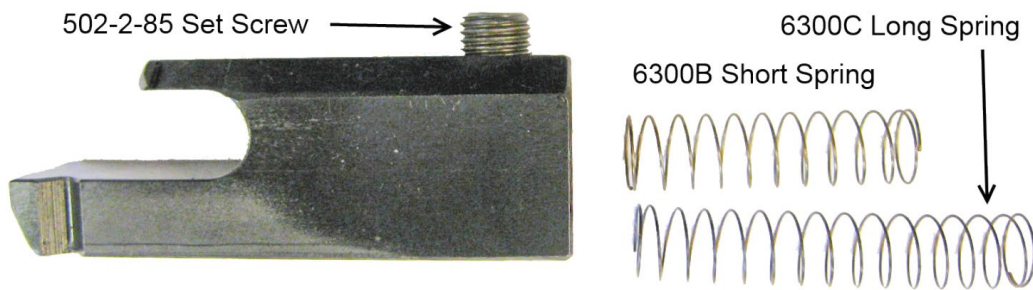
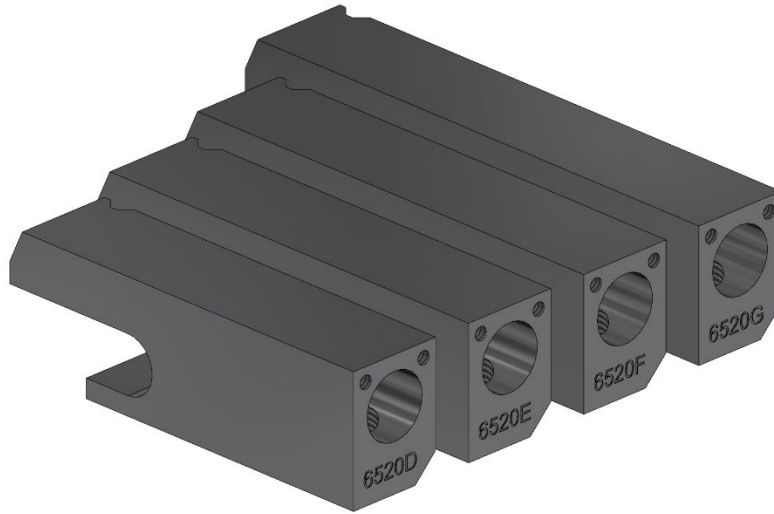


| ITEM | QTY | PART NUMBER | DESCRIPTION                                    |
|------|-----|-------------|--|
| 1    | 1   | 100-82-3B   | PIN ADJUSTING LONG INDEXABLE INSERT TOOLHOLDER |
| 2    | 1   | 100-82-1    | SPRING, ADJUSTING PIN                          |
| 3    | 1   | 100-82-2    | SOCKET SET SCREW, BRASS TIP, 3/16" LG          |
| 4    | 1   | 511-29-12C  | SCREW, TORX M4x.7 X .315" LG                   |

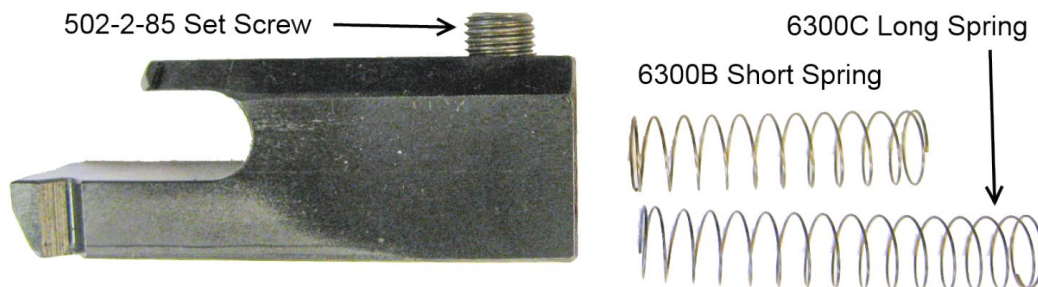
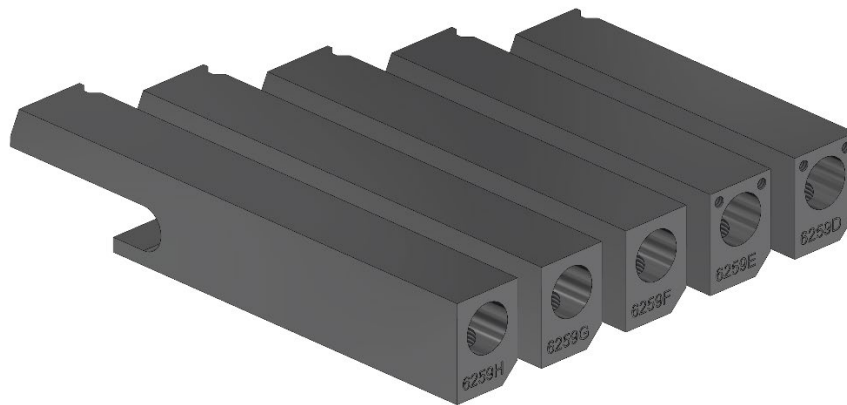
### 6593 Series Insert Holders



### 6520 Series Toolholders

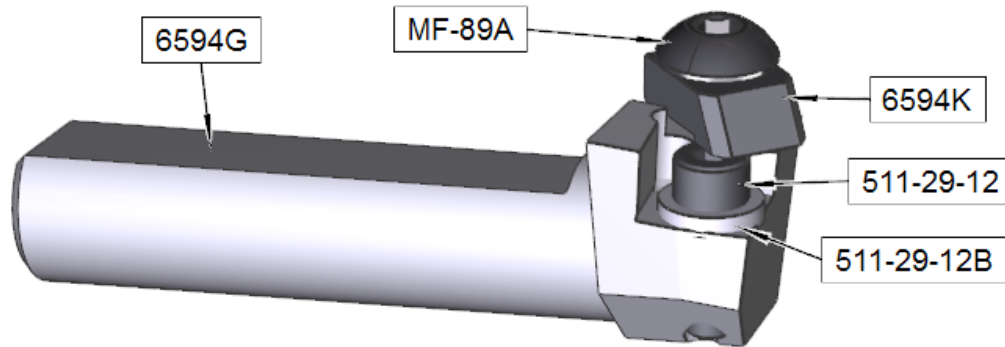


### 6259 Series Toolholders

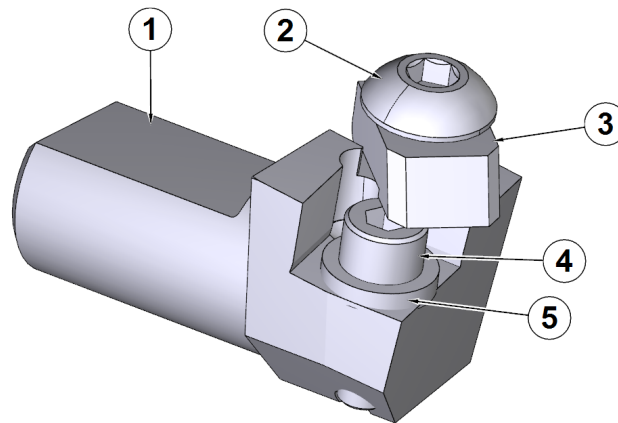




**6206L Tool Cartridge**

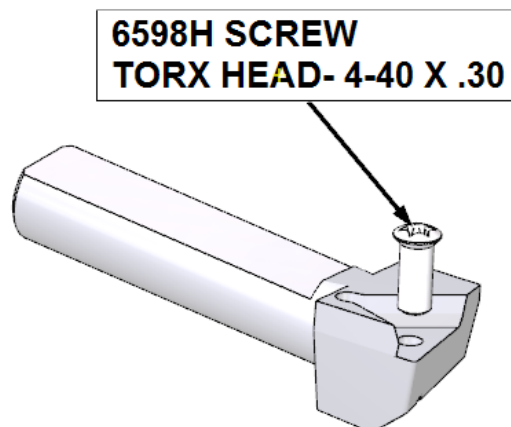


**6206M Tool Cartridge**

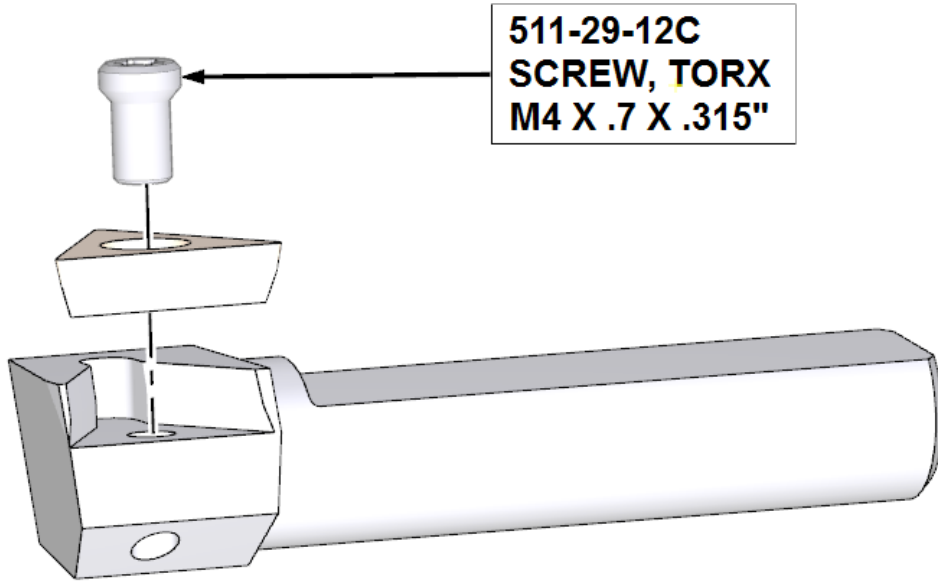


| ITEM | QTY | PART NUMBER | DESCRIPTION                                  |
|------|-----|-------------|--|
| 1    | 1   | 6594H       | CARTRIDGE ONLY, INDEXABLE INSERT 13/16" LONG |
| 2    | 1   | MF-89A      | SOCKET BUTTON HEAD SCREW #10-32 X 5/8"       |
| 3    | 1   | 6594K       | CLAMP, TOOL SQUARE INSERT                    |
| 4    | 1   | 511-29-12   | SOCKET HEAD CAPSCREW, #6-32 X 7/16"          |
| 5    | 1   | 511-29-12B  | WASHER, PRECISION – HOLDING SCREW            |

**6593S Insert Cartridge**

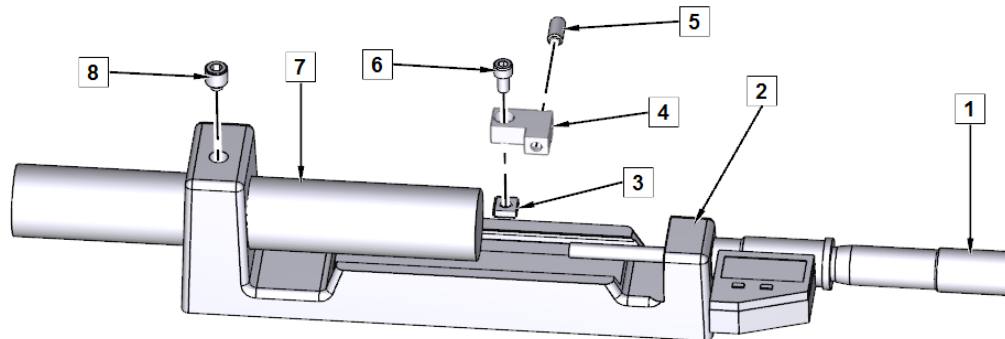


### 6598 Series Insert Cartridges



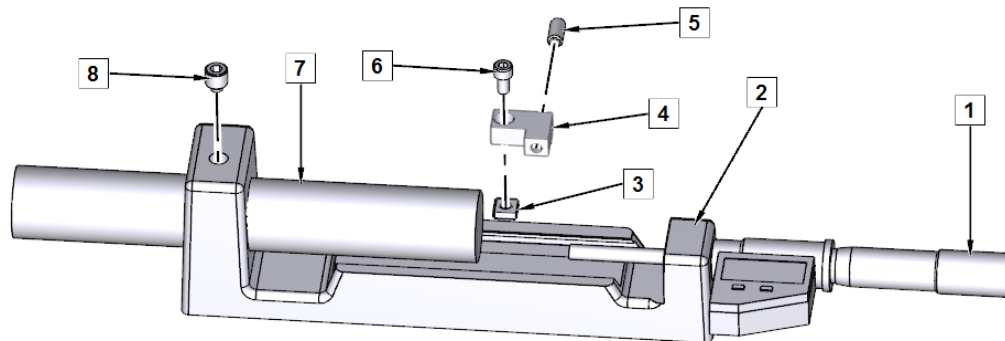
## Micrometers

### 900-2-19 Tool Setting Micrometer, 1/2" Tooling



| ITEM | QTY | PART NUMBER | DESCRIPTION  |
|------|-----|-------------|--|
| 1    | 1   | 501-34-2R   | HEAD, MICROMETER, UNIVERSAL MIC HEAD DIGITAL READING INCH/METRIC |
| 2    | 1   | 502-30-10B  | FRAME, MICROMETER  |
| 3    | 1   | 502-30-10J  | SQUARE NUT - #10-24 MICROMETER FRAME                             |
| 4    | 1   | 502-30-10M  | CLAMP, MICROMETER  |
| 5    | 1   | 502-30-10K  | BALL PLUNGER, 1/4-20 MICROMETER FRAME                            |
| 6    | 1   | MF-9A       | SOCKET HEAD CAPSCREW #10-32 X 3/8"                               |
| 7    | 1   | 502-30-10A  | ANVIL, MICROMETER 7/8" DIA X 5 5/8" LG                           |
| 8    | 1   | 502-30-10L  | SET SCREW, BRASS TIPPED 3/8-24 X 3/8"                            |

### 900-2-20 Tool Setting Micrometer, 3/4" Tooling



| ITEM | QTY | PART NUMBER | DESCRIPTION  |
|------|-----|-------------|--|
| 1    | 1   | 501-34-2R   | HEAD, MICROMETER, UNIVERSAL MIC HEAD DIGITAL READING INCH/METRIC |
| 2    | 1   | 502-30-10C  | FRAME, MICROMETER  |
| 3    | 1   | 502-30-10J  | SQUARE NUT - #10-24 MICROMETER FRAME                             |
| 4    | 1   | 502-30-10M  | CLAMP, MICROMETER  |
| 5    | 1   | 502-30-10K  | BALL PLUNGER, 1/4-20 MICROMETER FRAME                            |
| 6    | 1   | MF-9A       | SOCKET HEAD CAPSCREW #10-32 X 3/8"                               |
| 7    | 1   | 502-30-10A  | ANVIL, MICROMETER 7/8" DIA X 5 5/8" LG                           |
| 8    | 1   | 502-30-10L  | SET SCREW, BRASS TIPPED 3/8-24 X 3/8"                            |

## General Purpose Tooling

### 10121A Caterpillar 3400 Series Tappet Bore Repair Tooling Package



**10124 Collet Kit**



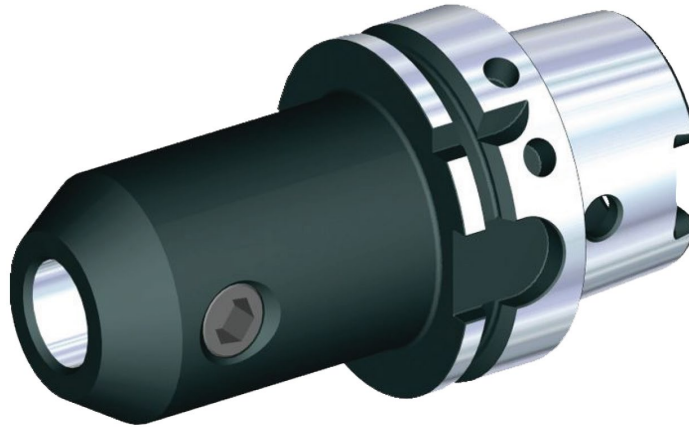
**650-2-45G Carbide End Mill, 1" (25.4mm) Dia x 4.00" (101.4mm)**



**650-2-43F Four Fluted End Mill, 3/4" (19.05mm) x 4.00" (101.4mm)**



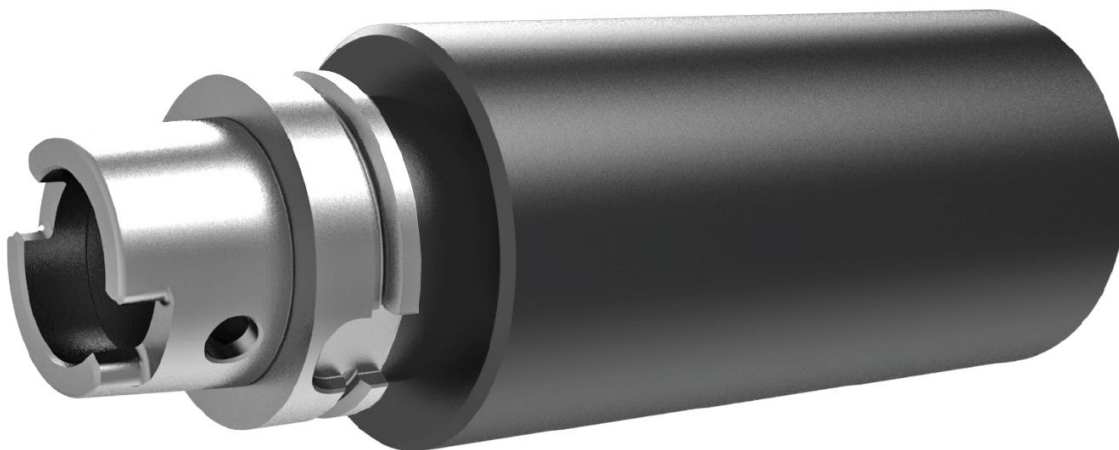
**10113 Spindle Adapter for 1.0" (25.4mm) Diameter Shank Tooling**

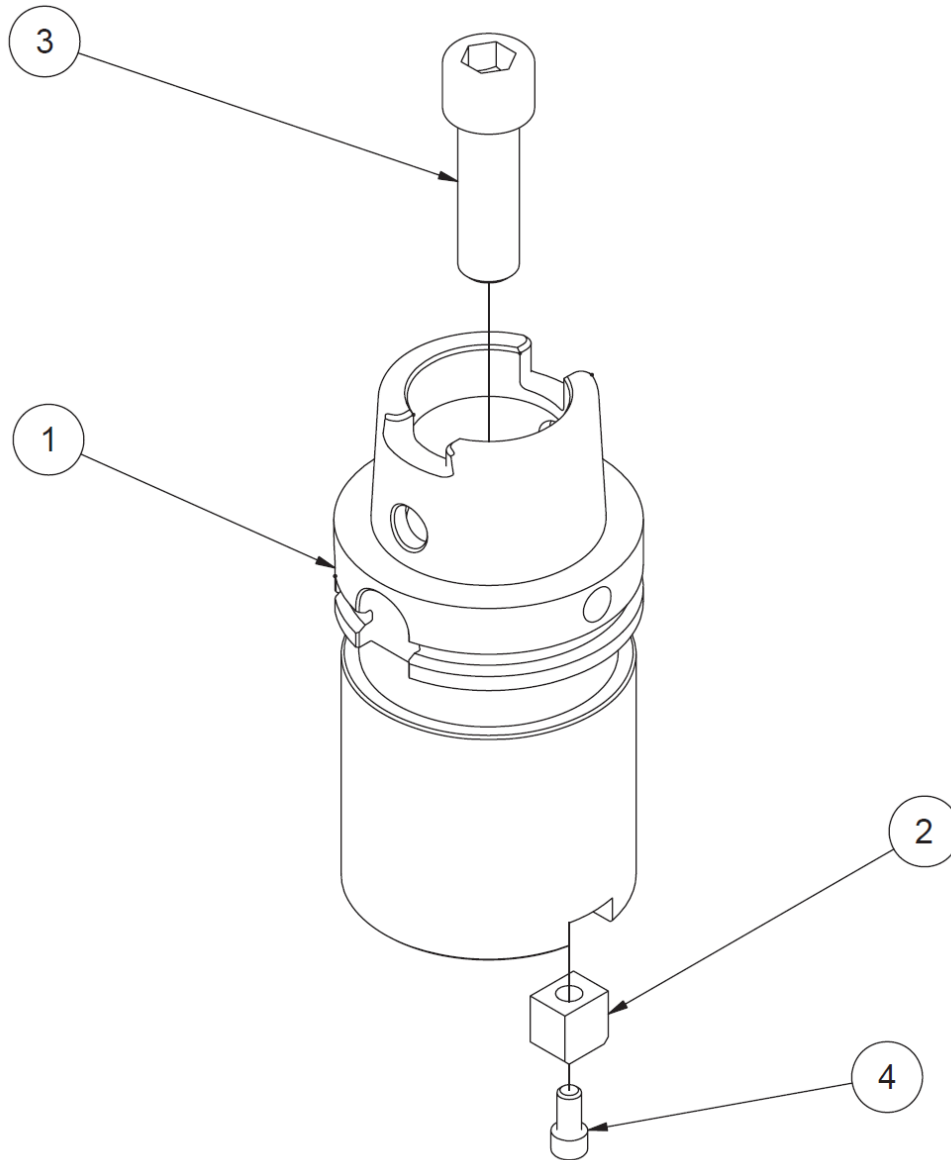


**10113A Spindle Adapter for 0.75" (19.05mm) Diameter Shank Tooling**

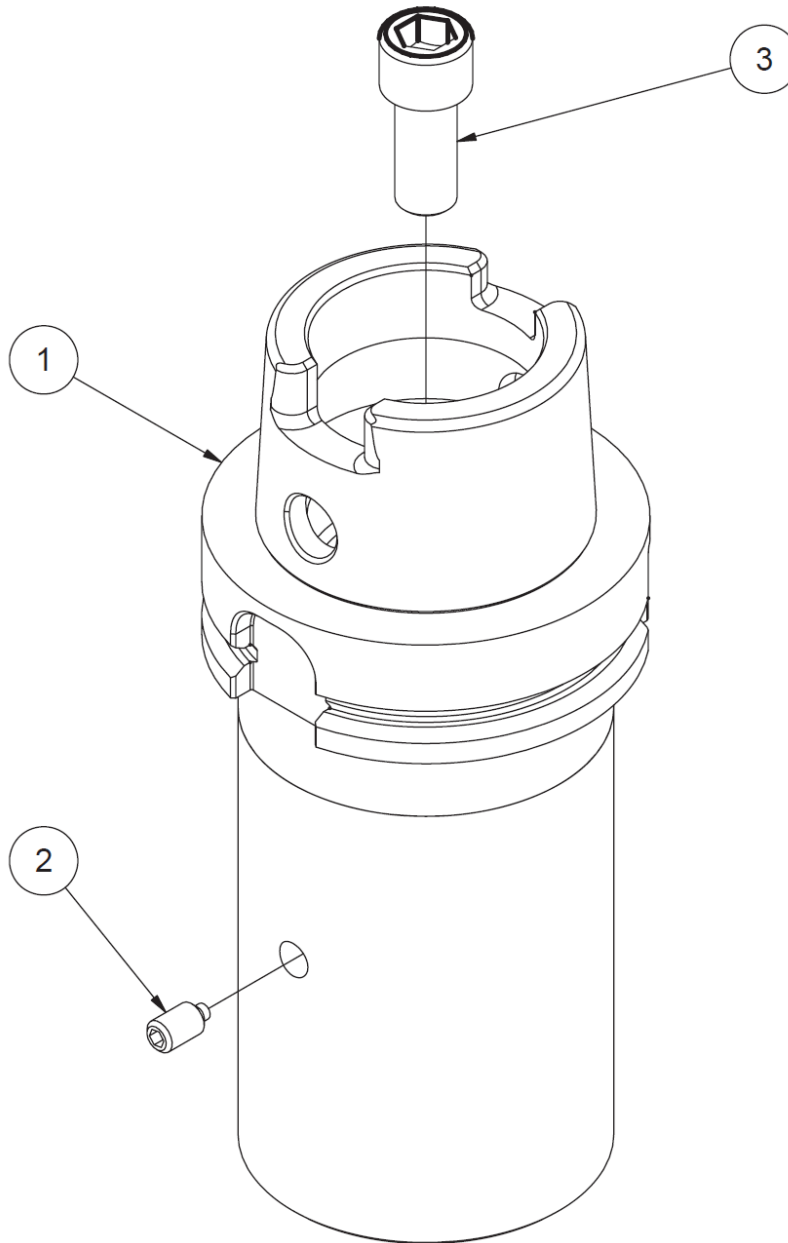


**10125 Adapter, Blank**



**10126 CAT 40 Taper Adapter**

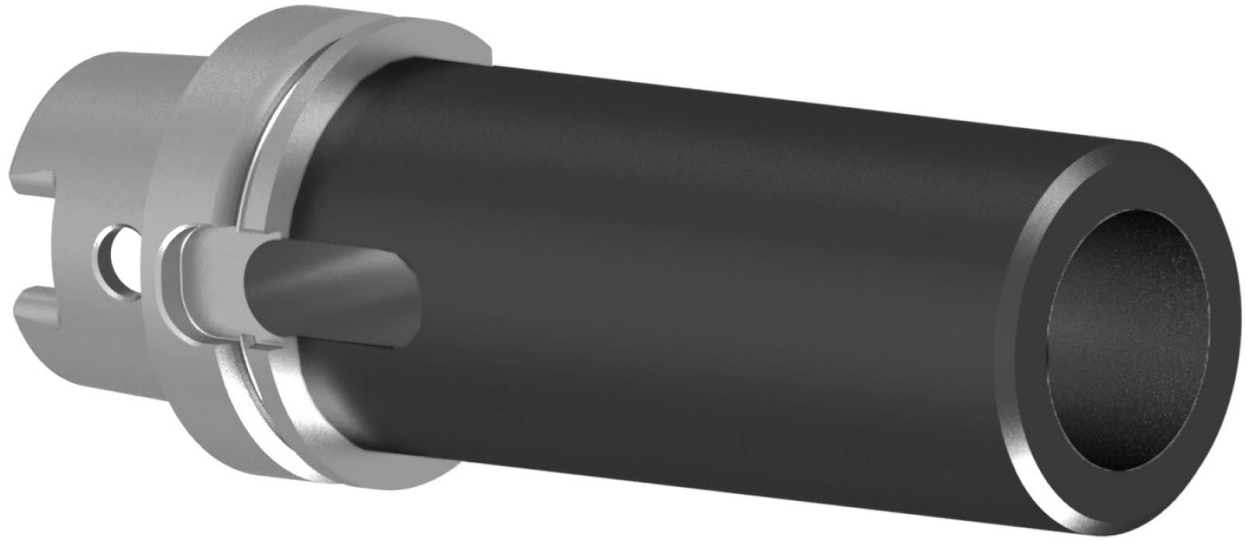
| <b>10126 CAT 40 ADAPTER ASSEMBLY</b> |            |                    |  |
|--------------------------------------|------------|--------------------|--|
| <b>ITEM</b>                          | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                           |
| 1                                    | 1          | 10126A             | ADAPTER, #40 TAPER – HSK80A                  |
| 2                                    | 1          | 6170H              | DRIVE KEY #40 TAPER ADAPTER                  |
| 3                                    | 1          | MF-46D             | S.H.C.S. $\frac{5}{8}$ -11 X 2"              |
| 4                                    | 1          | MF-12              | S.H.C.S. $\frac{1}{4}$ -20 X $\frac{1}{2}$ " |

**10127 R8 Taper Adapter**

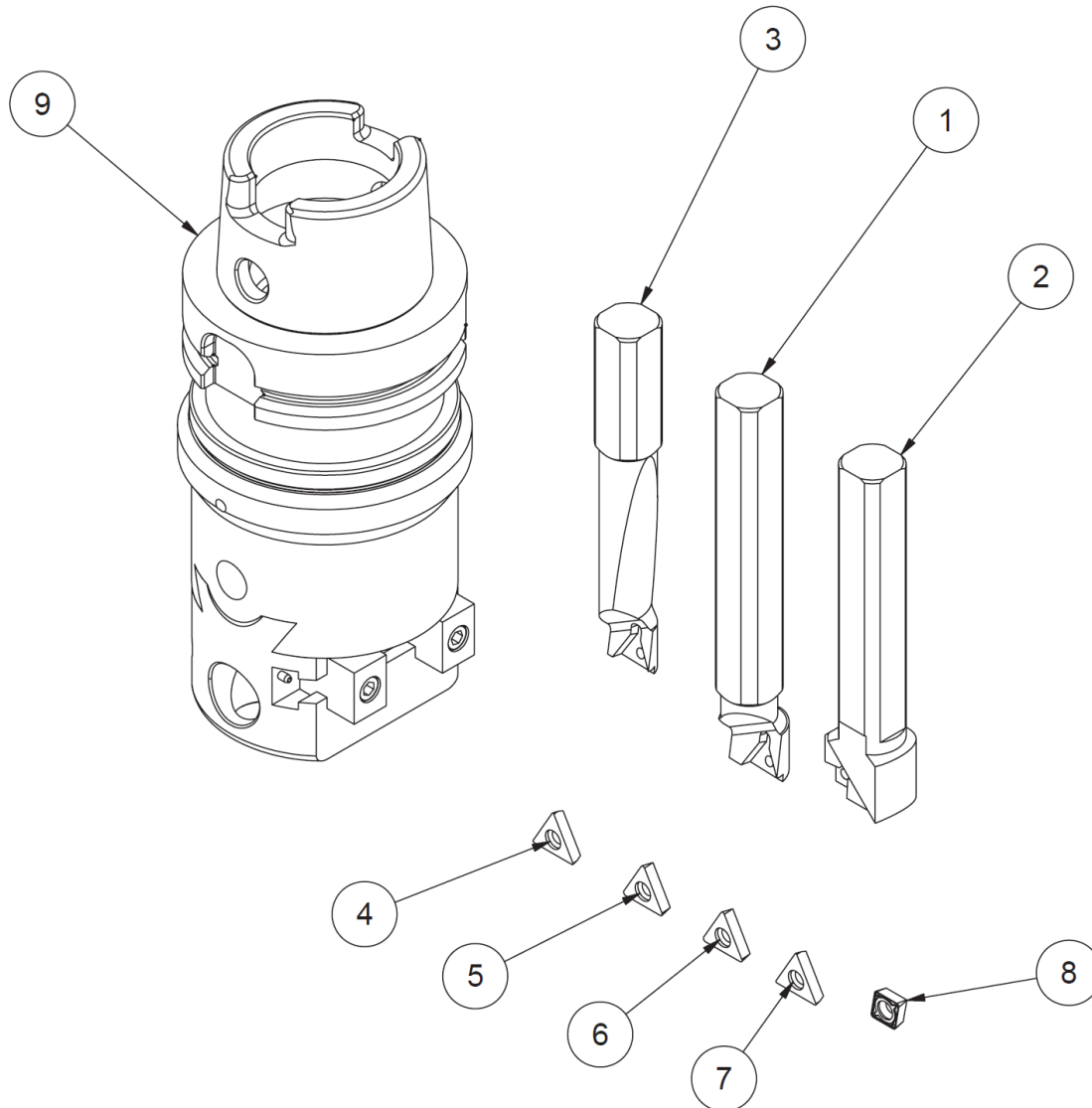
| 10127 R8 ADAPTER ASSEMBLY |     |             |                                  |
|---------------------------|-----|-------------|----------------------------------|
| ITEM                      | QTY | PART NUMBER | DESCRIPTION                      |
| 1                         | 1   | 10127A      | ADAPTER, R8 TAPER – HSK80A       |
| 2                         | 1   | 514-3-12K   | SET SCREW – HALF DOG, 1/4-28 UNF |
| 3                         | 1   | 6170P       | S.H.C.S. 7/16-20 X 1"            |



**10128 #5 Morse Taper Adapter**

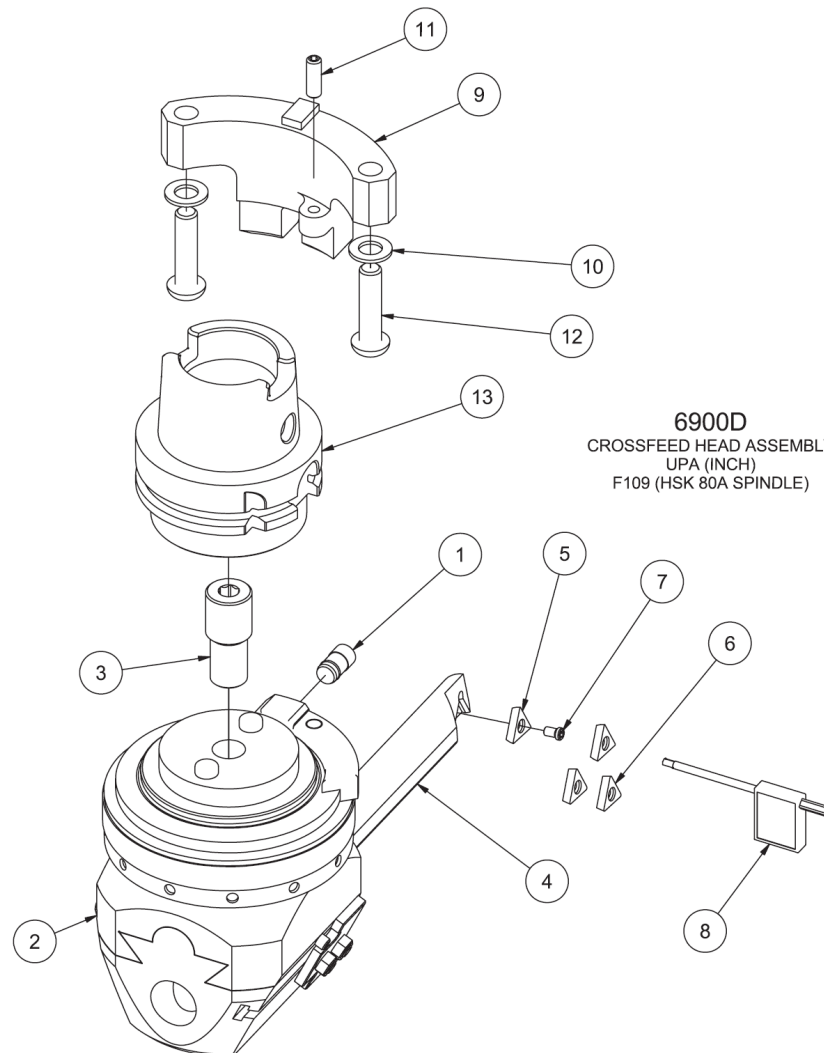


### 10122 Small Precision Adjustable Boring Head Kit



| 10122 SMALL PRECISION BORING HEAD ASSEMBLY W/ TOOLING |     |             |  |
|---|-----|-------------|--|
| ITEM  | QTY | PART NUMBER | DESCRIPTION                                    |
| 1   | 1   | 650-2-34P   | BORING BAR, 1" PRECISION BORING HEAD ASS'Y     |
| 2   | 1   | 650-2-34U   | FACING BAR – PRECISION BORING HEAD ASSEMBLY    |
| 3   | 1   | 650-2-34Q   | BORING BAR, 3/4" PRECISION BORING HEAD ASS'Y   |
| 4   | 1   | RT321       | INSERT, TRIANGULAR POS RAKE 3/8" I.C.          |
| 5   | 1   | RT322       | INSERT, TRIANGULAR 3/8" I.C.                   |
| 6   | 1   | RT322F      | INSERT, TRIANGULAR 1/32" R PRECISION BORING    |
| 7   | 1   | RT321F      | INSERT, TRIANGULAR POS. RAKE 3/8" I.C. 1/64" R |
| 8   | 1   | 650-2-34V   | INSERT, DIAMOND SHAPE 1/32" R.                 |
| 9   | 1   | 10122B      | SMALL PRECISION BORING HEAD W/O TOOLING        |

### 6900B Cross Feed Head Assembly



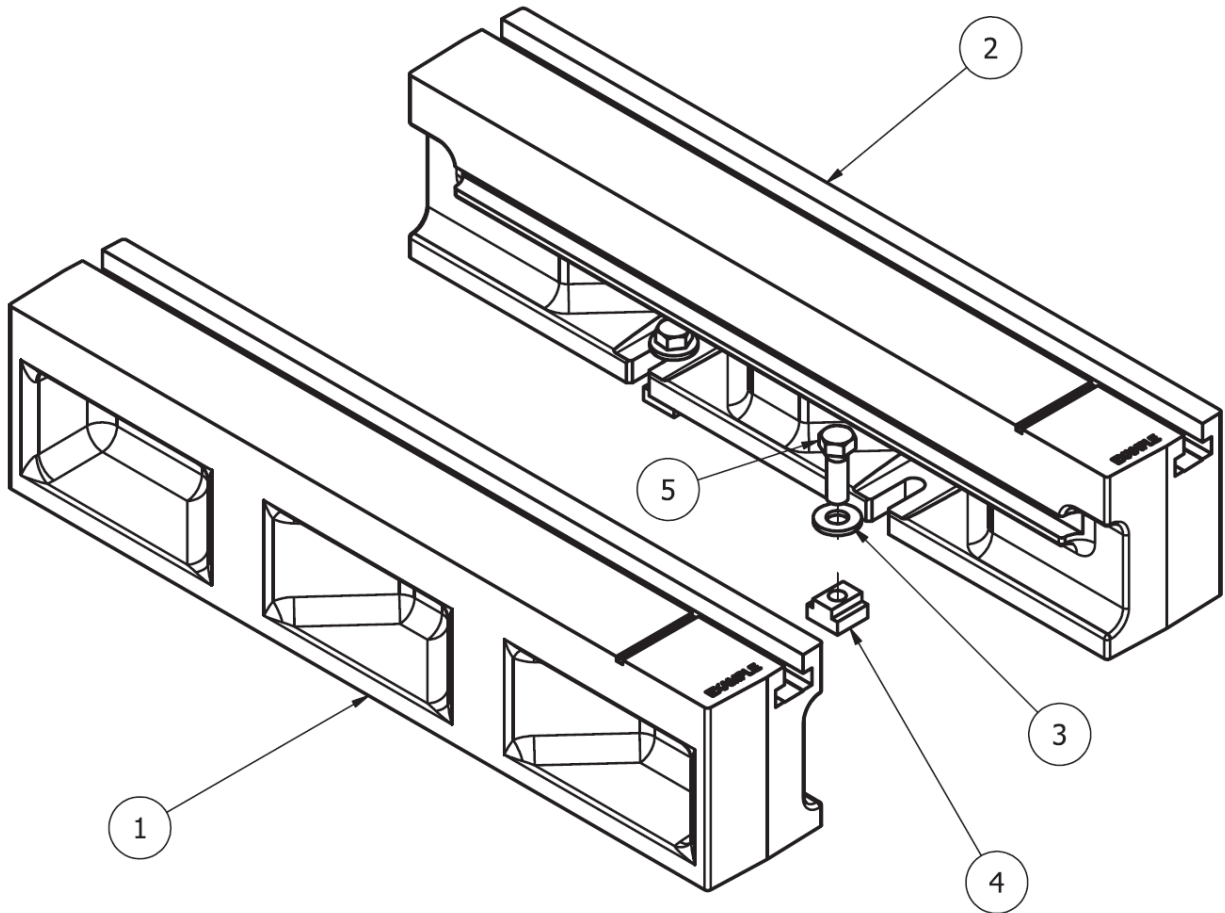
**6900D**  
CROSSFEED HEAD ASSEMBLY  
UPA (INCH)  
F109 (HSK 80A SPINDLE)

| <b>6900D CROSSFEED HEAD ASSEMBLY UPA (INCH) – EM105H</b> |            |                    |   |
|--|------------|--------------------|---|
| <b>ITEM</b>  | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>  |
| 1  | 1          | 6647H              | TORQUE SHAFT REWORK, WOHLHAUPTER CROSSFEED HEAD                   |
| 2  | 1          | 6900               | WOHLHAUPTER CROSSFEED HEAD (INCH)                                 |
| 3  | 1          | 6517Z              | DIFFERENTIAL SCREW  |
| 4  | 1          | 6647J              | INDEXABLE BORING BAR, WOHLHAUPTER HEAD                            |
| 5  | 2          | RT321              | INSERT, TRIANGULAR POS. RAKE $\frac{3}{8}$ " I.C.                 |
| 6  | 2          | RT322              | INSERT, TRIANGULAR $\frac{3}{8}$ " I.C.                           |
| 7  | 1          | 511-29-12C         | TORX SCREW M4x.7  |
| 8  | 1          | 511-29-12D         | TORX WRENCH, T-15   |
| 9  | 1          | 6647Q              | DRIVER, TORQUE SHAFT, CROSSFEED HEAD ASSEMBLY, EM107/9HH          |
| 10   | 4          | MF-178             | $\frac{3}{8}$ " FLAT WASHERS                                      |
| 11   | 1          | MF-64A             | SOCKET SET SCREW, FLAT POINT, $\frac{1}{4}$ -20 X $\frac{3}{4}$ " |
| 12   | 1          | MF-97D             | SOCKET BUTTON HEAD SCREW, $\frac{3}{8}$ -16 X $1 \frac{1}{2}$ "   |
| 13   | 1          | 10132              | ADAPTER, UPA TRIPLE FEED HEAD                                     |

## Fixturing

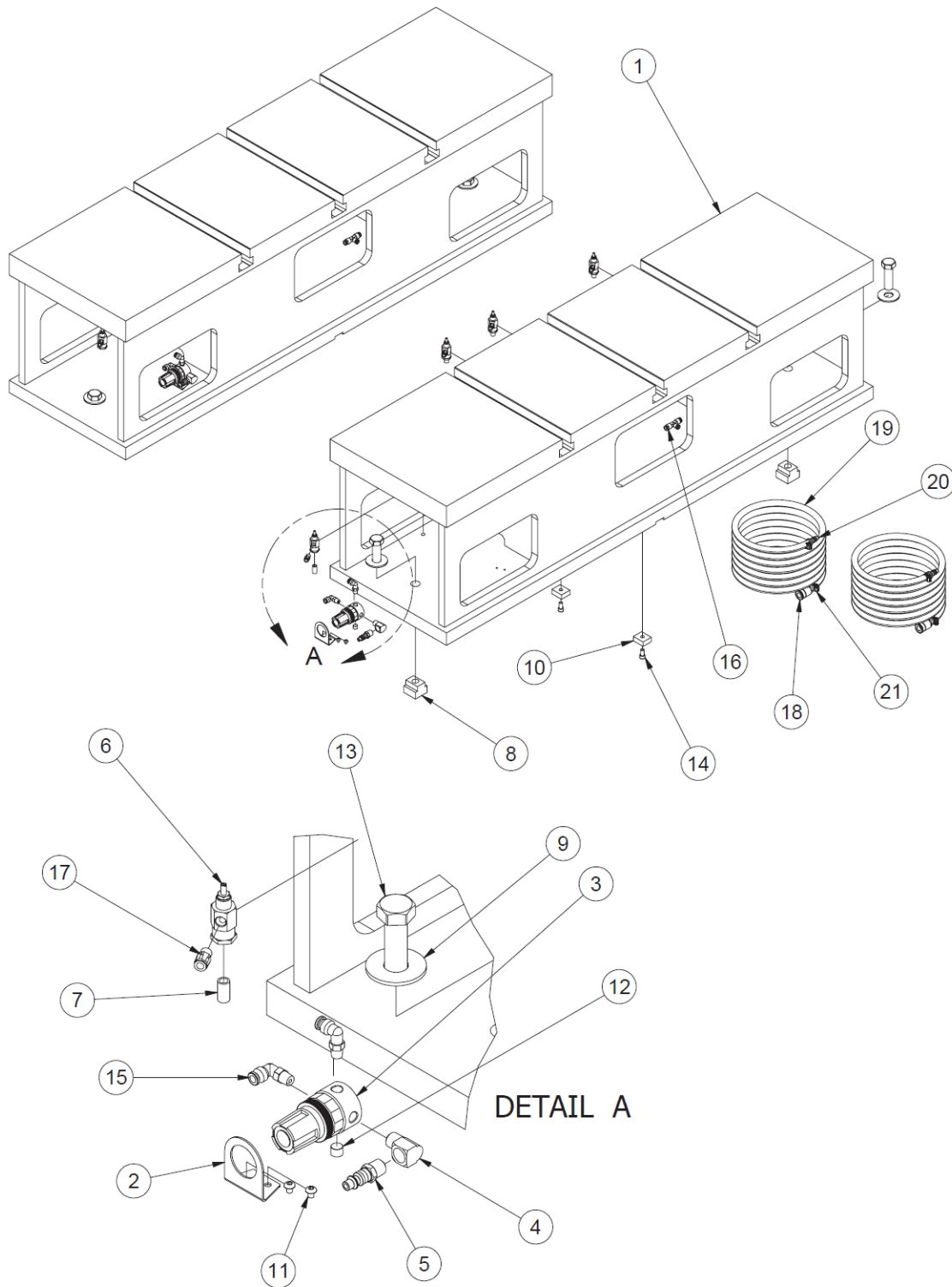
### Parallels

#### 7219W Heavy Duty T-Slot Universal Parallels



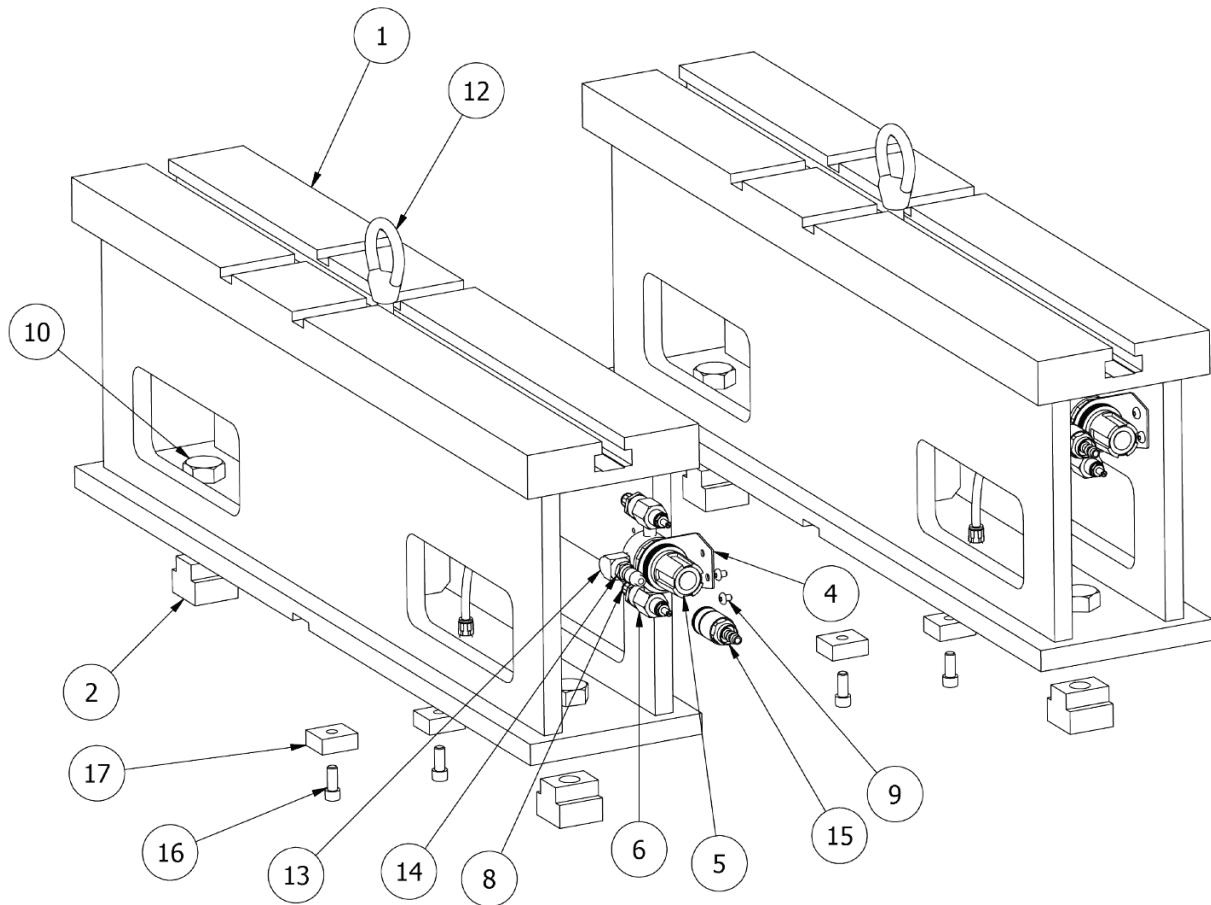
| 7219W HEAVY DUTY T-SLOT UNIVERSAL PARALLELS |     |             |                                   |  |
|---|-----|-------------|-----------------------------------|--|
| ITEM  | QTY | PART NUMBER | DESCRIPTION                       |  |
| 1   | 1   | 7219V       | RISER, 5.19", LEFT HAND           |  |
| 2   | 1   | 7219T       | RISER, 5.19", RIGHT HAND          |  |
| 3   | 4   | 100-19A     | HARDENED WASHER, 17/32"           |  |
| 4   | 4   | 650-3-10    | TN-5, T-NUT                       |  |
| 5   | 4   | MF-137A     | HEX HEAD CAPSCREW 1/2-13 X 1 1/2" |  |

## 10355 Parallels, 15 3/4" (394mm)

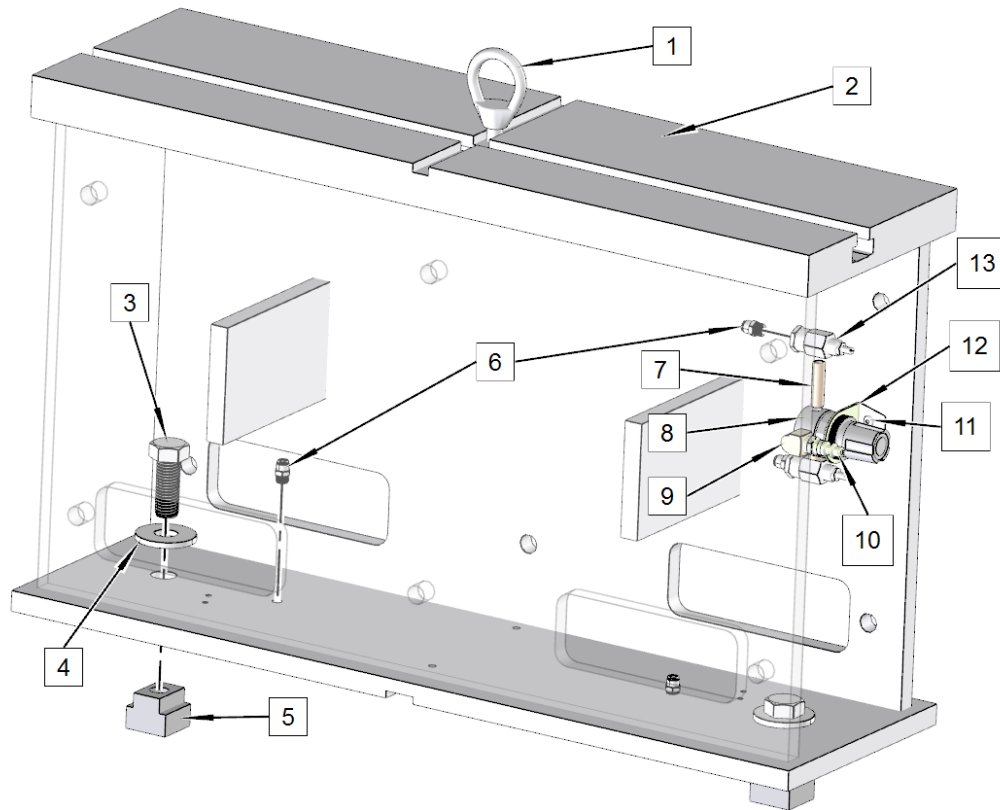




| <b>10355 15 3/4" PARALLELS ASSEMBLY</b> |            |                    |                                       |
|---|------------|--------------------|---------------------------------------|
| <b>ITEM</b>                             | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                    |
| 1                                       | 2          | 10355A             | PARALLEL, 15 3/4"                     |
| 2                                       | 2          | 502-27-17A         | REGULATOR BRACKET                     |
| 3                                       | 2          | 502-27-17          | REGULATOR, 0-60 PSI                   |
| 4                                       | 2          | 502-11-17S         | 1/4 STREET ELL                        |
| 5                                       | 2          | 502-11-16X         | QUICK CONNECT AIR FITTING MALE        |
| 6                                       | 8          | 502-11-35A         | FLO CONTROL                           |
| 7                                       | 8          | 502-11-17J         | NIPPLE, CLOSE, 1/8" NPT               |
| 8                                       | 4          | 6160               | NUT, T, HARDENED                      |
| 9                                       | 4          | MF-181A            | FLAT WASHER, 3/4"                     |
| 10                                      | 4          | 6553K              | LOCATING KEY                          |
| 11                                      | 4          | MF-87              | SOCKET BUTTON HEAD #10-24 X 1/4"      |
| 12                                      | 2          | MF-233             | PIPE PLUG 1/8" NPT                    |
| 13                                      | 4          | MF-154C            | HEX BOLT 3/4-10 X 2 1/2"              |
| 14                                      | 4          | MF-21              | SOCKET HEAD CAPSCREW 5/16-18 X 5/8"   |
| 15                                      | 4          | 514-4-17E          | ELBOW, MALE 1/4" X 1/8"               |
| 16                                      | 4          | 514-4-17N          | TEE, UNION, 1/4" TUBE                 |
| 17                                      | 8          | 514-4-17W          | FITTING, 1/8 NPT X 1/4 POLY, STRAIGHT |
| 18                                      | 2          | 502-11-16W         | QUICK CONNECT AIR FITTING, FEMALE     |
| 19                                      | 2          | 502-1-98           | 1/4" AIR HOSE                         |
| 20                                      | 2          | 502-11-16Y         | CONNECTOR, MALE, AIR 1/4 NPTF         |
| 21                                      | 4          | 502-1-97           | CLAMP, 1/4" I.D. HOSE                 |

**6370Z Parallels, 10" (254mm)**

| <b>6370Z 10" PARALLELS ASSEMBLY</b> |            |                    |                                      |
|-------------------------------------|------------|--------------------|--------------------------------------|
| <b>ITEM</b>                         | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                   |
| 1                                   | 2          | 6370Y              | 10" PARALLEL MACHINING               |
| 2                                   | 4          | 6160               | NUT, T – HARDENED                    |
| 4                                   | 2          | 502-27-17A         | REGULATOR BRACKET                    |
| 5                                   | 2          | 502-27-17          | REGULATOR 0-60 PSI                   |
| 6                                   | 4          | 502-11-35A         | VALVE, CONTROL – RFC FLOW            |
| 7                                   | 4          | 502-11-17J         | CLOS NIPPLE                          |
| 8                                   | 8          | 514-4-17W          | LEGRIS STRAIGHT ¼ X ⅛ NPT            |
| 9                                   | 4          | MF-87              | SOCKET BUTTON HEAD SCREW #10-24 X ¼" |
| 10                                  | 4          | MF-154B            | HEX BOLT, ¾-10 X 1 ¾"                |
| 12                                  | 2          | 502-3-13           | LIFT EYE                             |
| 13                                  | 2          | 502-11-17S         | ¼ STREET 'L'                         |
| 14                                  | 2          | 502-11-16X         | QUICK CONNECT AIR FITTING MALE       |
| 15                                  | 2          | 502-11-16W         | QUICK CONNECT AIR FITTING FEMALE     |
| 16                                  | 4          | MF-21              | S.H.C.S. 5/16-18 X ⅝"                |
| 17                                  | 4          | 6553K              | LOCATING KEY                         |

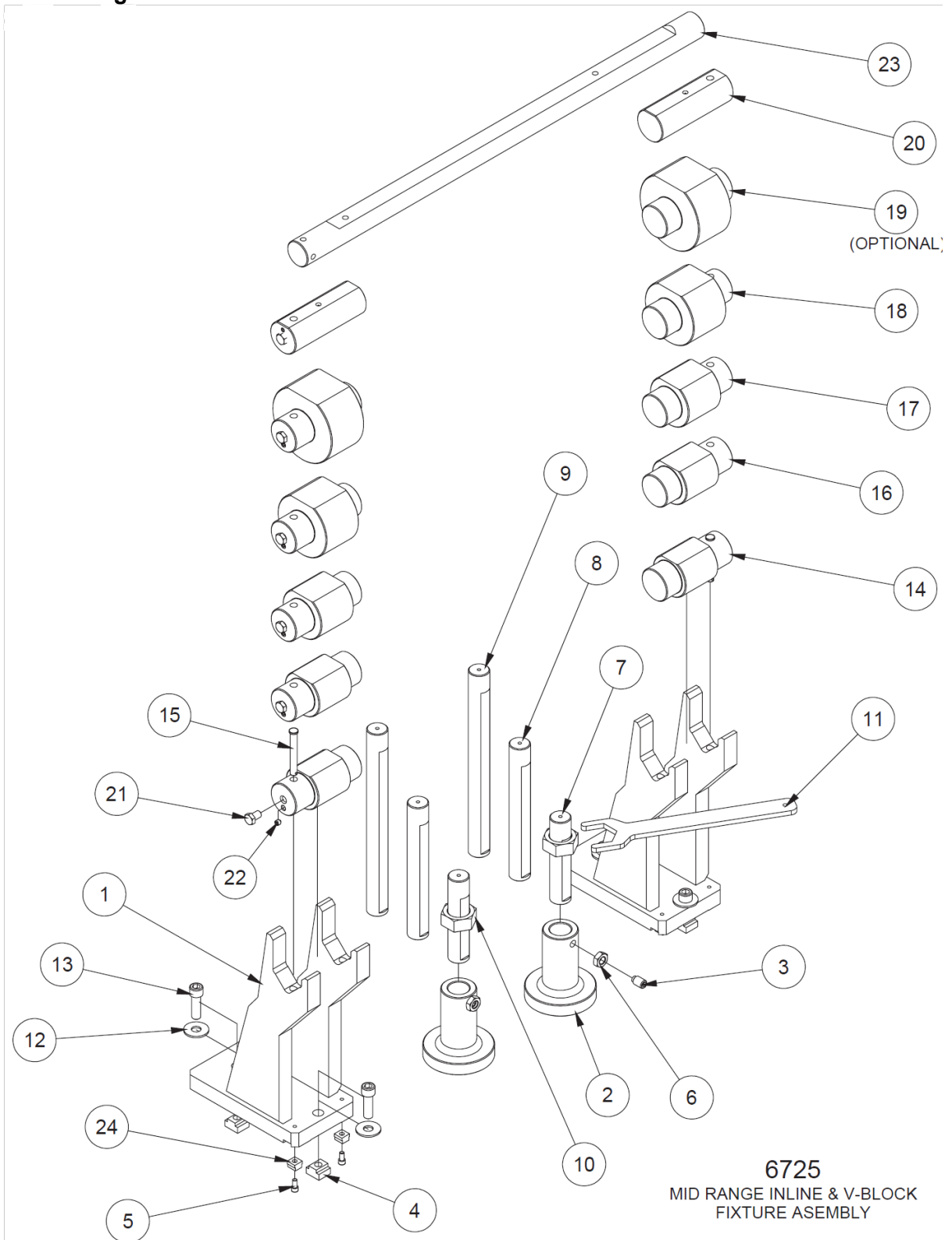
**6370C Parallels, 18" (457mm)**

| <b>6370C 18" PARALLELS ASSEMBLY</b> |            |                    |  |
|-------------------------------------|------------|--------------------|--|
| <b>ITEM</b>                         | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                                       |
| 1                                   | 2          | 502-2-13           | EYE, LIFTING   |
| 2                                   | 2          | 6370K              | SUPPORT, PARALLEL  |
| 3                                   | 4          | MF-154K            | HEX BOLT $\frac{3}{4}$ -10 X 2"                          |
| 4                                   | 4          | MF-181A            | FLAT WASHER, $\frac{3}{4}$ "                             |
| 5                                   | 4          | 6160               | NUT, "T" – HARDENED                                      |
| 6                                   | 6          | 514-4-17W          | FITTING, $\frac{1}{8}$ NPT X $\frac{1}{4}$ POLY STRAIGHT |
| 7                                   | 2          | 502-11-17J         | NIPPLE, CLOSE $\frac{1}{8}$ " NPT                        |
| 8                                   | 2          | 502-27-17          | REGULATOR, AIR 0-60 PSI                                  |
| 9                                   | 2          | 502-11-17S         | ELBOW, ST, $\frac{1}{4}$ NPTF X $\frac{1}{4}$ NPT        |
| 10                                  | 2          | 502-11-16X         | CONNECTOR, MALE THREAD $\frac{1}{4}$ NPTF                |
| 11                                  | 4          | MF-87              | SOCKET BUTTON HEAD SCREW, #10-24 X $\frac{1}{4}$ "       |
| 12                                  | 2          | 502-27-17A         | BRACKET, MOUNTING – REGULATOR                            |
| 13                                  | 2          | 502-11-35A         | VALVE, CONTROL – RFC FLOW                                |



### Main Bore Locating Fixtures

#### 6725 Small- to Mid-Range In-Line and V-Block Fixture Kit, 2"-7" (50.8-177.8mm) Main Bearing Diameter



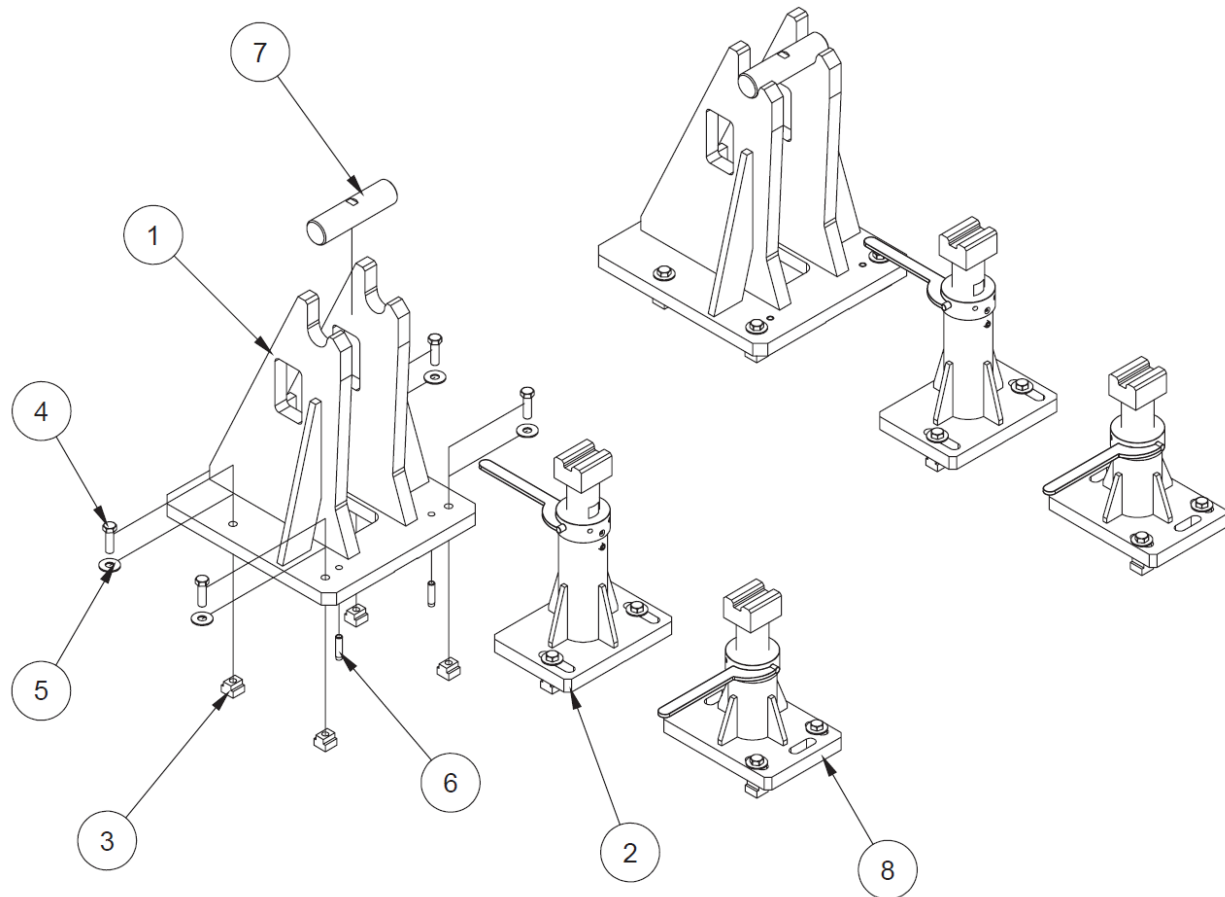
**6725**  
MID RANGE INLINE & V-BLOCK  
FIXTURE ASSEMBLY



| 6725 MID RANGE INLINE & V-BLOCK FIXTURE ASSEMBLY |     |             |  |
|--|-----|-------------|--|
| ITEM   | QTY | PART NUMBER | DESCRIPTION                                    |
| 1  | 2   | 6553F       | MACHINING, MAIN BEARING SUPPORT                |
| 2  | 2   | 6395D       | JACK BODY                                      |
| 3  | 2   | 6395B       | SET SCREW, HALF DOG, 5/8-11 X 1"               |
| 4  | 4   | 502-1-11A   | "T"-NUT 3/4"                                   |
| 5  | 4   | MF-21       | S.H.C.S. 5/16-18 X 5/8"                        |
| 6  | 2   | MF-173      | HEX JAM NUT, 5/8-11                            |
| 7  | 2   | 6396        | JACKING SCREW, 7" LG                           |
| 8  | 2   | 6396A       | JACKING SCREW, 11 1/4" LG                      |
| 9  | 2   | 6396B       | JACKING SCREW, 15 1/2" LG                      |
| 10   | 2   | 6566H       | JACKING NUT                                    |
| 11   | 1   | 6566K       | WRENCH, JACKING NUT – DIESEL FIXTURING         |
| 12   | 4   | MF-181      | FLAT WASHER, 5/8"                              |
| 13   | 4   | MF-46D      | S.H.C.S. 5/8-11 X 2"                           |
| 14   | 2   | 6787C       | LOCATOR, MAIN BEARING, 3.22 TO 3.50 DIA        |
| 15   | 2   | 6553H       | PIN, LOCATION – DIESEL FIXTURE                 |
| 16   | 2   | 6787D       | LOCATOR, MAIN BEARING, 3.50 TO 4.00 DIA        |
| 17   | 2   | 6787E       | LOCATOR, MAIN BEARING, 4.00 TO 5.00 DIA        |
| 18   | 2   | 6787F       | LOCATOR, MAIN BEARING, 5.00 TO 6.00 DIA        |
| 19   | 2   | 6787G       | LOCATOR, MAIN BEARING, 6.00 TO 7.00 DIA (OPT.) |
| 20   | 2   | 6787M       | LOCATOR, MAIN BEARING, 2 1/2 TO 3 DIA          |
| 21   | 10  | MF-137E     | HEX BOLT, 1/2-13 X 3/4"                        |
| 22   | 10  | 6788Q       | SET SCREW, BRASS TIPPED, 3/8-16 X 5/16"        |
| 23   | 1   | 7241E       | LOCATOR BAR, ECONOMY HEAD AND BLOCK FIXTURE    |
| 24   | 4   | 6869A       | STEP KEY 3/4" – 5/8"                           |

### 10100 Large V-Block, Low Crankshaft Fixture Kit

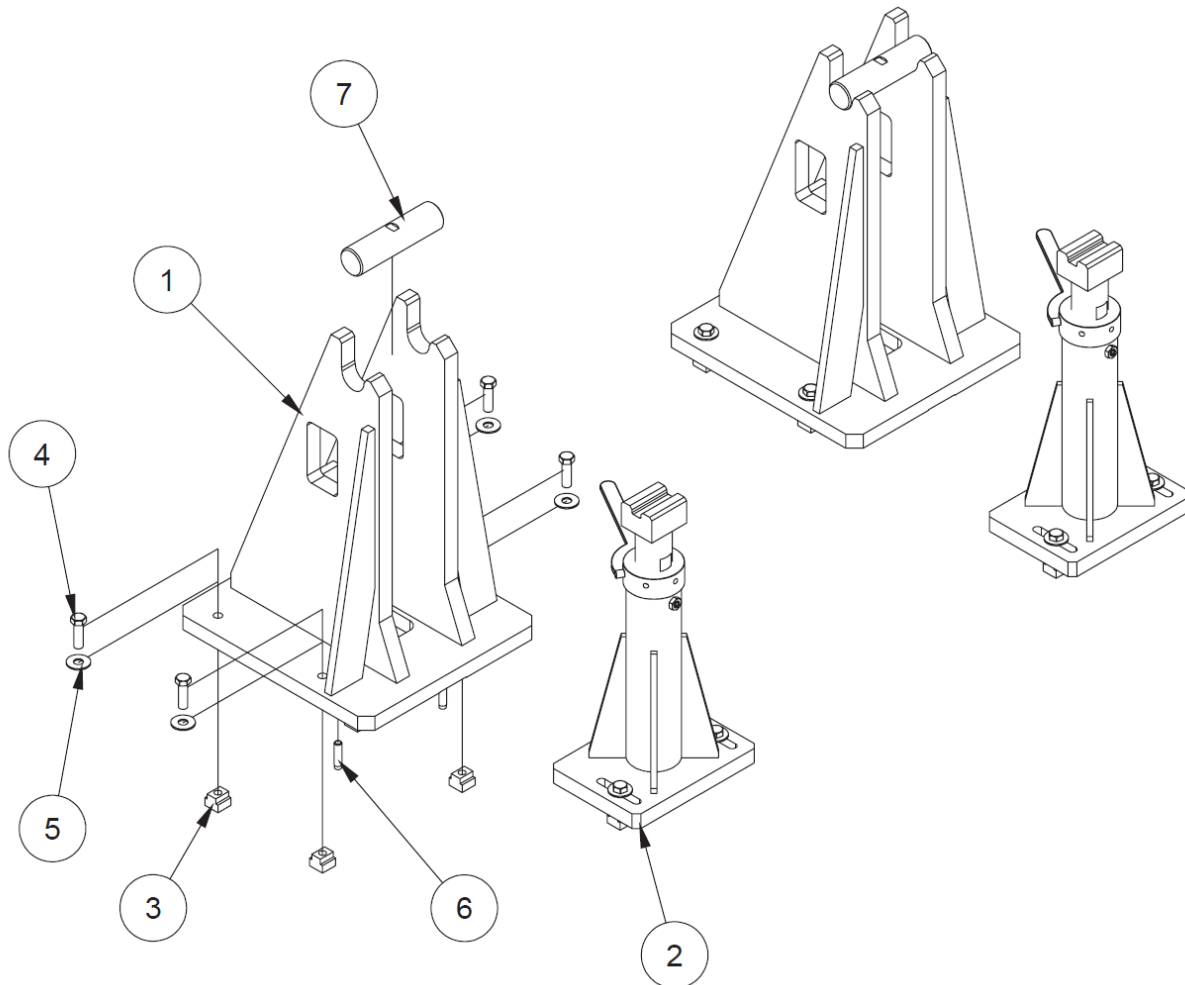
(For use with 10102 series Locators)



| 10100 UPPER END BLOCK MACHINING – V-BLOCK W/ LOW CRANKSHAFT |     |             |  |
|---|-----|-------------|--|
| ITEM  | QTY | PART NUMBER | DESCRIPTION                                    |
| 1   | 2   | 10101       | SUPPORT (MACHINING), MAIN BEARING              |
| 2   | 2   | 10350       | 12" JACK ASSEMBLY                              |
| 3   | 8   | 6160        | NUT, T, HARDENED                               |
| 4   | 8   | MF-154C     | HEX BOLT $\frac{3}{4}$ -10 X 2 $\frac{1}{2}$ " |
| 5   | 8   | MF-181A     | FLAT WASHER $\frac{3}{4}$ "                    |
| 6   | 4   | 10101B      | DOWEL PIN $\frac{5}{8}$ X 2 $\frac{1}{2}$ "    |
| 7   | 2   | 10102       | CENTER PIN, MAIN LOCATOR                       |
| 8   | 2   | 10350D      | 8" JACK ASSEMBLY                               |

**10100A Fixture Parts**

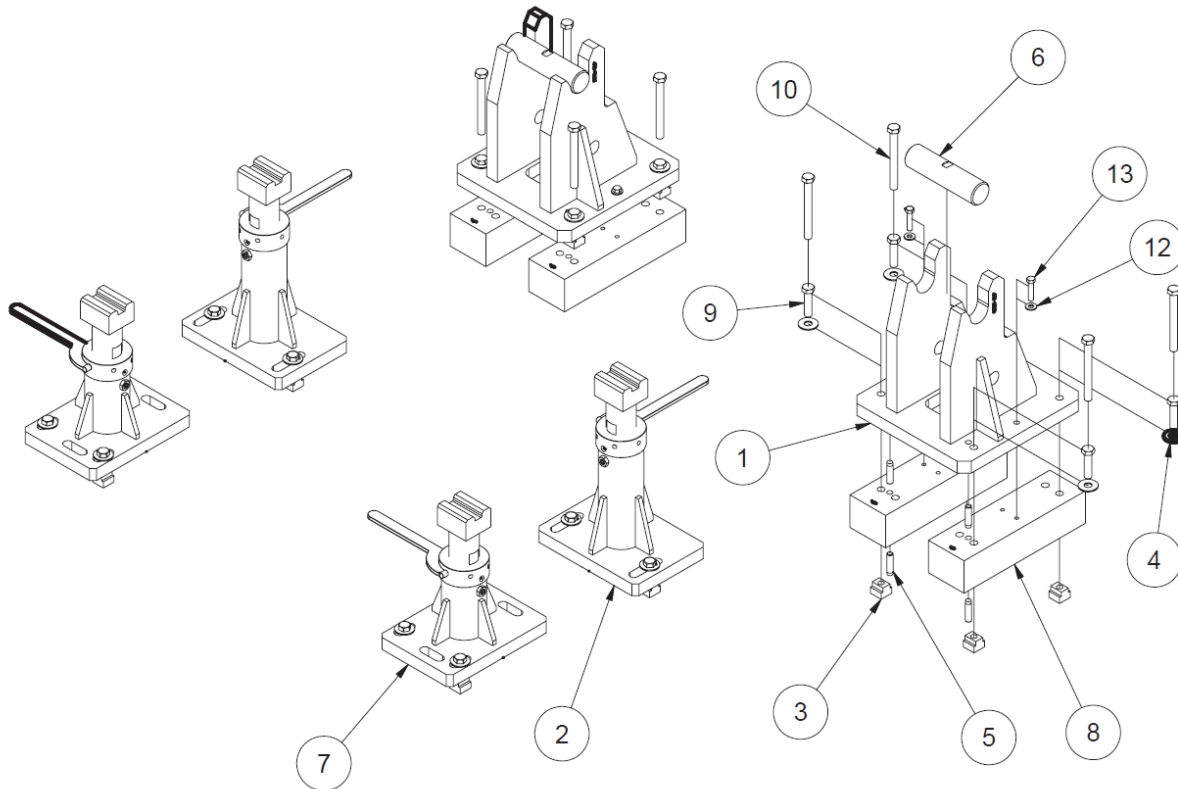
(For use with 10102 series Locators)



| 10100A UPPER END BLOCK MACHINING – V-BLOCK W/ HIGH CRANKSHAFT |     |             |  |
|---|-----|-------------|--|
| ITEM  | QTY | PART NUMBER | DESCRIPTION                                    |
| 1   | 2   | 10100B      | SUPPORT, 30"                                   |
| 2   | 2   | 10350P      | 18" JACK ASSEMBLY                              |
| 3   | 8   | 6160        | NUT, T, HARDENED                               |
| 4   | 8   | MF-154C     | HEX BOLT $\frac{3}{4}$ -10 X 2 $\frac{1}{2}$ " |
| 5   | 8   | MF-181A     | FLAT WASHER $\frac{3}{4}$ "                    |
| 6   | 4   | 10101B      | DOWEL PIN $\frac{5}{8}$ X 2 $\frac{1}{2}$ "    |
| 7   | 2   | 10102       | CENTER PIN, MAIN LOCATOR                       |

### 10100D Large V-Block, EMD710/645, Fixture Kit

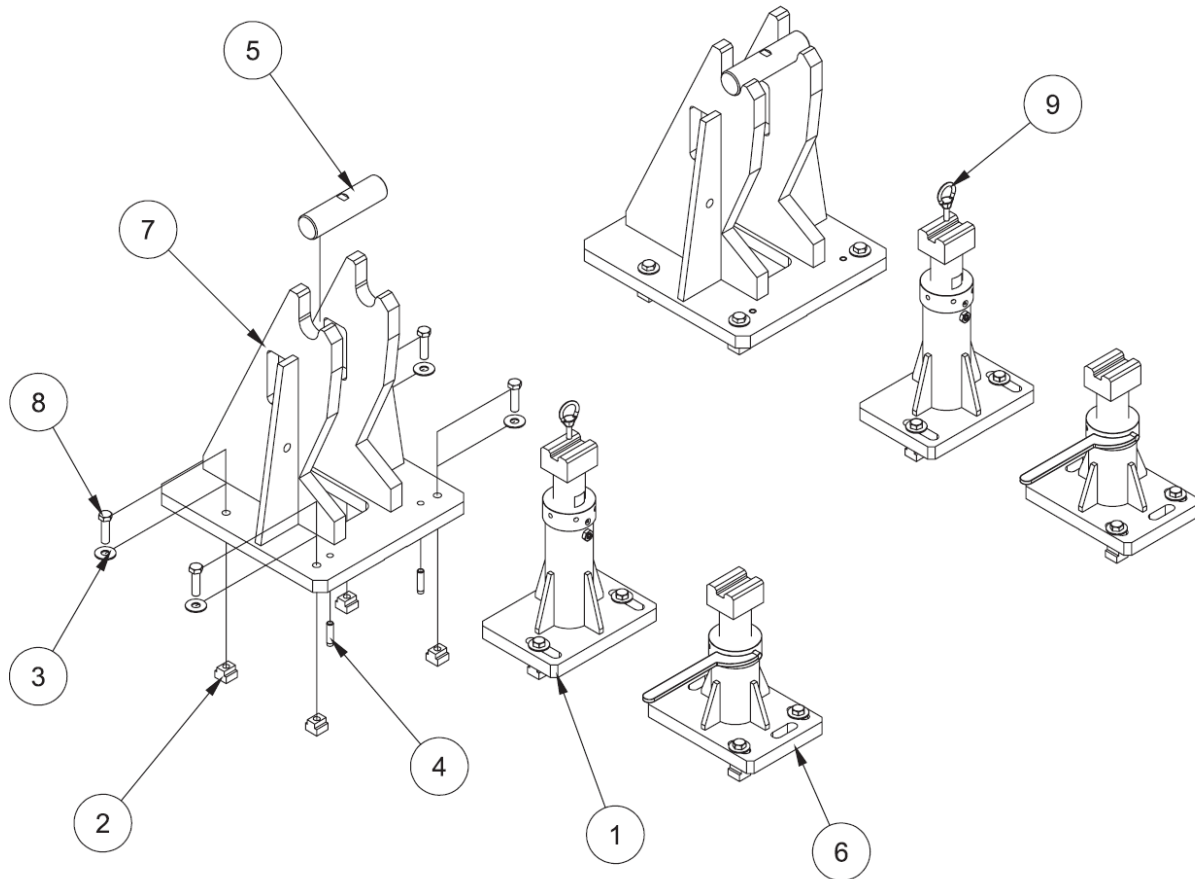
(For use with 10102 series Locators)



| 10100D UPPER END BLOCK MACHINING – EMD710/645 |     |             |   |
|---|-----|-------------|---|
| ITEM  | QTY | PART NUMBER | DESCRIPTION   |
| 1   | 2   | 10100E      | SUPPORT (MACHINING), MAIN BEARING 15.5" – EMD-710/645 |
| 2   | 2   | 10350       | 12" JACK ASSEMBLY                                     |
| 3   | 8   | 6160        | NUT, T, HARDENED                                      |
| 4   | 8   | MF-181A     | FLAT WASHER 3/4"                                      |
| 5   | 8   | 10101B      | DOWEL PIN 5/8 X 2 1/2"                                |
| 6   | 2   | 10102       | CENTER PIN, MAIN LOCATOR                              |
| 7   | 2   | 10350D      | 8" JACK ASSEMBLY                                      |
| 8   | 4   | 10100G      | 4" RISER, 15.5" SUPPORT – EMD 710/645                 |
| 9   | 8   | MF-154J     | SOCKET HEAD CAPSCREW 3/4-10 X 3"                      |
| 10  | 8   | 10100H      | SOCKET HEAD CAPSCREW 3/4-10 X 7"                      |
| 11  | 4   | 100-19A     | HARDENED WASHER 17/32" I.D.                           |
| 12  | 4   | MF-149A     | HEX BOLT 1/2-13 X 2 1/4", GRADE 5                     |

### 10100J Large V-Block, Low Crankshaft Fixture Kit

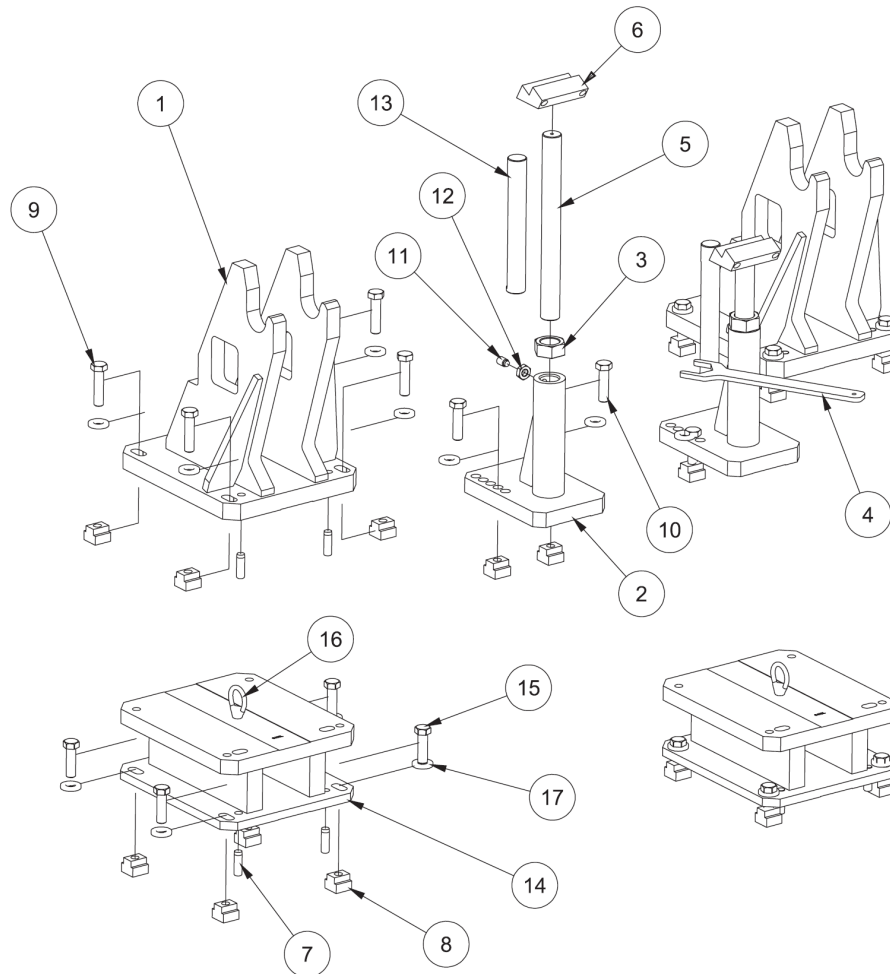
(For use with 10102 series Locators)



| 10100J LARGE V-BLOCK, LOW CRANKSHAFT FIXTURE KIT |     |             |   |
|--|-----|-------------|---|
| ITEM   | QTY | PART NUMBER | DESCRIPTION   |
| 1  | 2   | 10350       | 12" JACK ASSEMBLY                                   |
| 2  | 8   | 6160        | NUT, T, HARDENED                                    |
| 3  | 8   | MF-181A     | FLAT WASHER $\frac{3}{4}$ "                         |
| 4  | 4   | 10101B      | DOWEL PIN $\frac{5}{8}$ X 2 $\frac{1}{2}$ "         |
| 5  | 2   | 10102       | CENTER PIN, MAIN LOCATOR                            |
| 6  | 2   | 10350D      | 8" JACK ASSEMBLY                                    |
| 7  | 2   | 10101D      | SUPPORT (MACHINING), MAIN BEARING – UPPER MACHINING |
| 8  | 8   | MF-154H     | HEX BOLT $\frac{3}{4}$ -10 X 2 $\frac{3}{4}$ "      |
| 9  | 2   | 502-3-13    | LIFT EYE  |

### 6405F Large V-Block Fixture Kit

(For use with 6407 series locators)



| 6405F LARGE V-BLOCK FIXTURE KIT |     |             |  |
|---------------------------------|-----|-------------|--|
| ITEM                            | QTY | PART NUMBER | DESCRIPTION                                    |
| 1                               | 2   | 6405G       | SUPPORT (MACHINING), LARGE V-BLOCK             |
| 2                               | 2   | 6412A       | JACK BODY (MACHINING) – 399 CAT BLOCK          |
| 3                               | 2   | 6566H       | JACKING NUT                                    |
| 4                               | 1   | 6599K       | WRENCH, JACKING NUT – DIESEL FIXTURING         |
| 5                               | 2   | 6396B       | JACKING SCREW, 15.5"                           |
| 6                               | 2   | 6413        | JACKING BLOCK                                  |
| 7                               | 8   | 502-11-60   | DOWEL PIN $\frac{5}{8}$ " X 2"                 |
| 8                               | 20  | 6160        | NUT, T – HARDENED                              |
| 9                               | 8   | MF-154J     | HEX BOLT $\frac{3}{4}$ -10 X 3"                |
| 10                              | 4   | MF-154H     | HEX BOLT $\frac{3}{4}$ -10 X 2 $\frac{3}{4}$ " |
| 11                              | 2   | 6395B       | SET SCREW, HALF DOG, $\frac{5}{8}$ -11 X 1"    |
| 12                              | 2   | MF-173      | HEX JAM NUT, $\frac{5}{8}$ -11                 |
| 13                              | 2   | 6396A       | JACKING SCREW – V-BLOCK FIXTURE, 11.3" LG      |
| 14                              | 2   | 6405K       | 6" RISER                                       |
| 15                              | 8   | MF-154C     | HEX BOLT $\frac{3}{4}$ -10 X 2 $\frac{1}{2}$ " |
| 16                              | 2   | 502-3-13    | LIFT EYE                                       |
| 17                              | 20  | 6287        | WASHER, THRUST $\frac{3}{4}$ "                 |

### 10102 Series Main Bearing Bore Locator Sets

If the Customer requires a size other than those available from stock, Rottler will manufacture the required size. Customer must provide the size, including the tolerance of the main bearing bore.

|  |   |
|--|---|
| <p><b>10102A Locator Assembly, Main, CAT 3600 Std. (Matched Pair), 10.4280" (264.871mm) Dia.</b></p>  | <p><b>10102C Locator Assembly, Main, White Superior (Matched Pair), 8.2690" (210.033mm) Dia.</b></p>  |
| <p><b>10102E Locator Assembly, Main, Waukesha AT (Matched Pair), 9.4400" (239.776mm) Dia.</b></p>    | <p><b>10102G Locator Assembly, Main, EMD 710 (Matched Pair), 9.2420" (234.747mm) Dia.</b></p>        |
| <p><b>10102J Locator Assembly, Main, GE 7FDL (Matched Pair), 8.7420" (222.047mm) Dia.</b></p>       | <p><b>10102L Locator Assembly, Main, MTU 1163 (Matched Pair), 8.3820" (212.903mm) Dia.</b></p>      |



**10102N Locator Assembly, Main, MTU 8000  
(Matched Pair), 13.5780" (344.881mm) Dia.**



**10102R Locator Assembly, Main, EMD 645  
(Matched Pair), 8.2420" (209.347mm) Dia.**



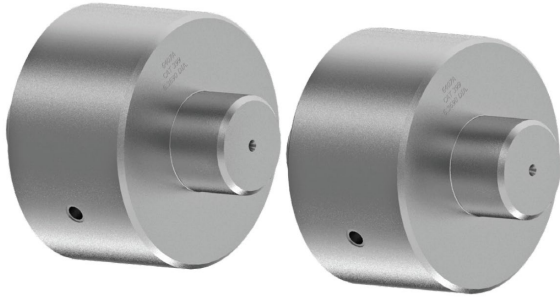
**10102T Locator Assembly, Main, Cummins  
QSK95 (Matched Pair), 8.4280" (214.071mm)  
Dia.**



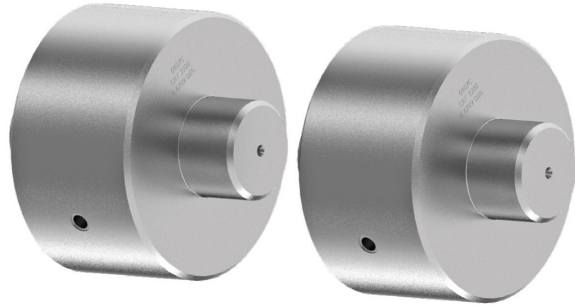
### Main Bearing Bore Locator Sets for 6405F Block Fixture

If the Customer requires a size other than those available from stock, Rottler will manufacture the required size. Customer must provide the size, including the tolerance of the main bearing bore.

**6407A Locator Assembly, Main, CAT 399  
(Matched Pair), 6.3690" (161.773mm) Dia.**



**6407C Locator Assembly, Main, CAT 3500  
(Matched Pair), 6.6789" (169.644mm) Dia.**



**6407E Locator Assembly, Main, Cummins 170  
(Matched Pair), 6.0920" (154.737mm) Dia.**



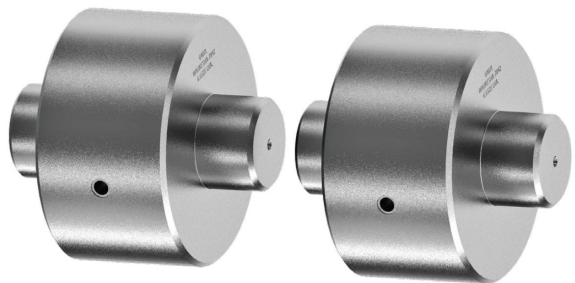
**6407G Locator Assembly, Main, Cummins K50  
(Matched Pair), 6.8420" (173.787mm) Dia.**



**6407J Locator Assembly, Main, Cummins QSK  
(Matched Pair), 7.5915" (192.824mm) Dia.**



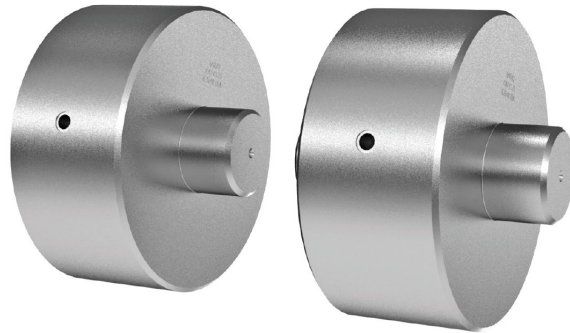
**6407L Locator Assembly, Main, Waukesha  
7042 (Matched Pair), 6.6585" (169.126mm) Dia.**



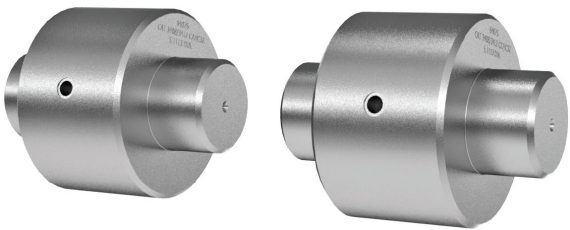
**6407N Locator Assembly, Main, MTU 4000  
(Matched Pair), 6.7292" (170.922mm) Dia.**



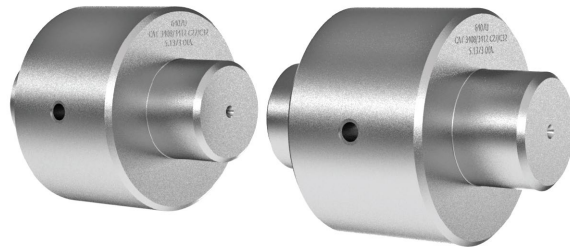
**6407Q Locator Assembly, Main, CAT C175  
(Matched Pair), 8.2640" (209.906mm) Dia.**



**6407S Locator Assembly, Main, (Matched Pair),  
5.1113" (129.827mm) Dia.**



**6407U Locator Assembly, Main, (Matched Pair),  
5.1373" (130.487mm) Dia.**



**6407W Locator Assembly, Main, MTU 396  
(Matched Pair), 5.9010" (149.885mm) Dia.**

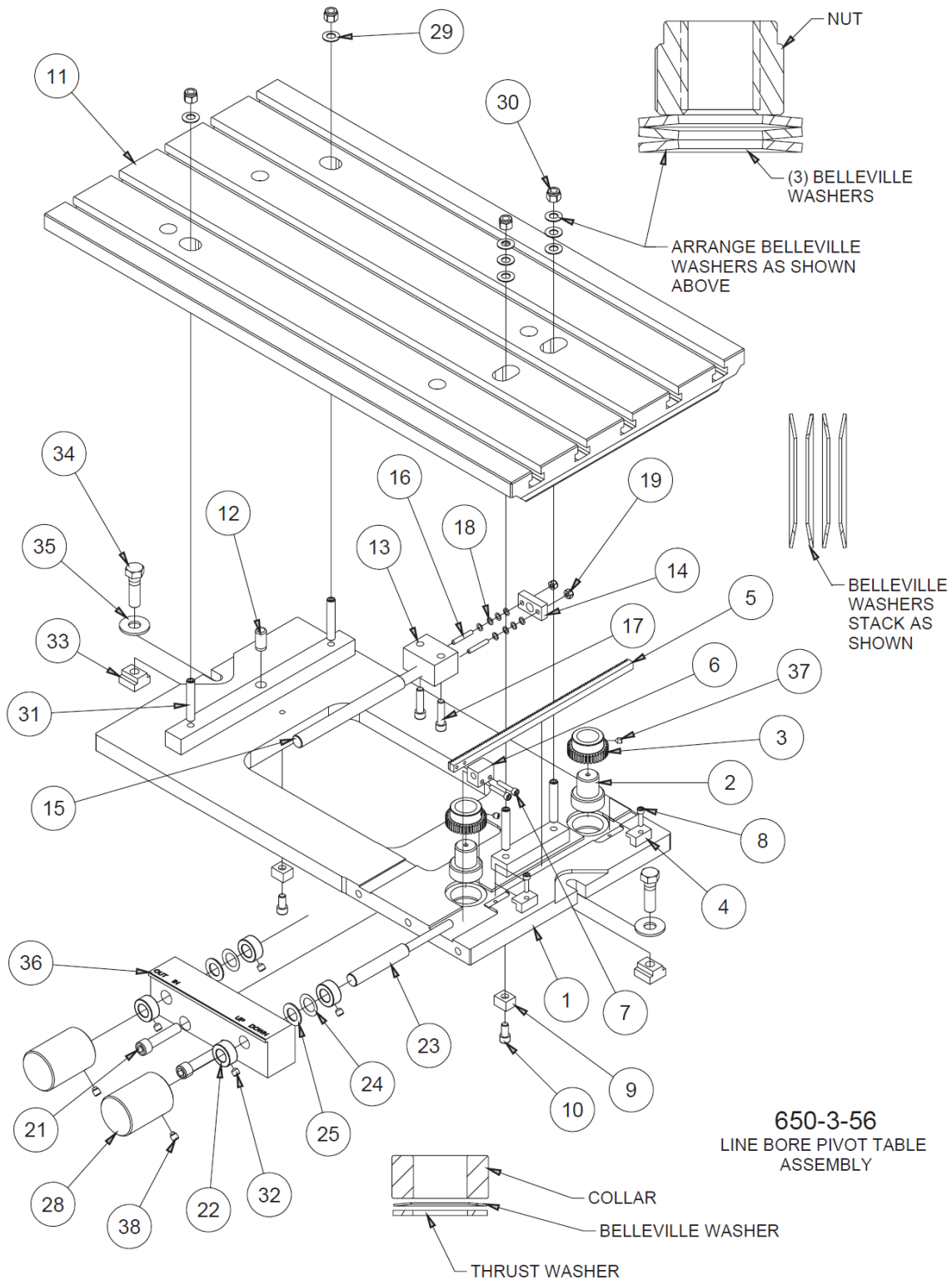


**6419 Locator Assembly, Main, Jenbacher 3,  
(Matched Pair), 4.2095" (106.921mm) Dia.**



## Line Bore Fixturing

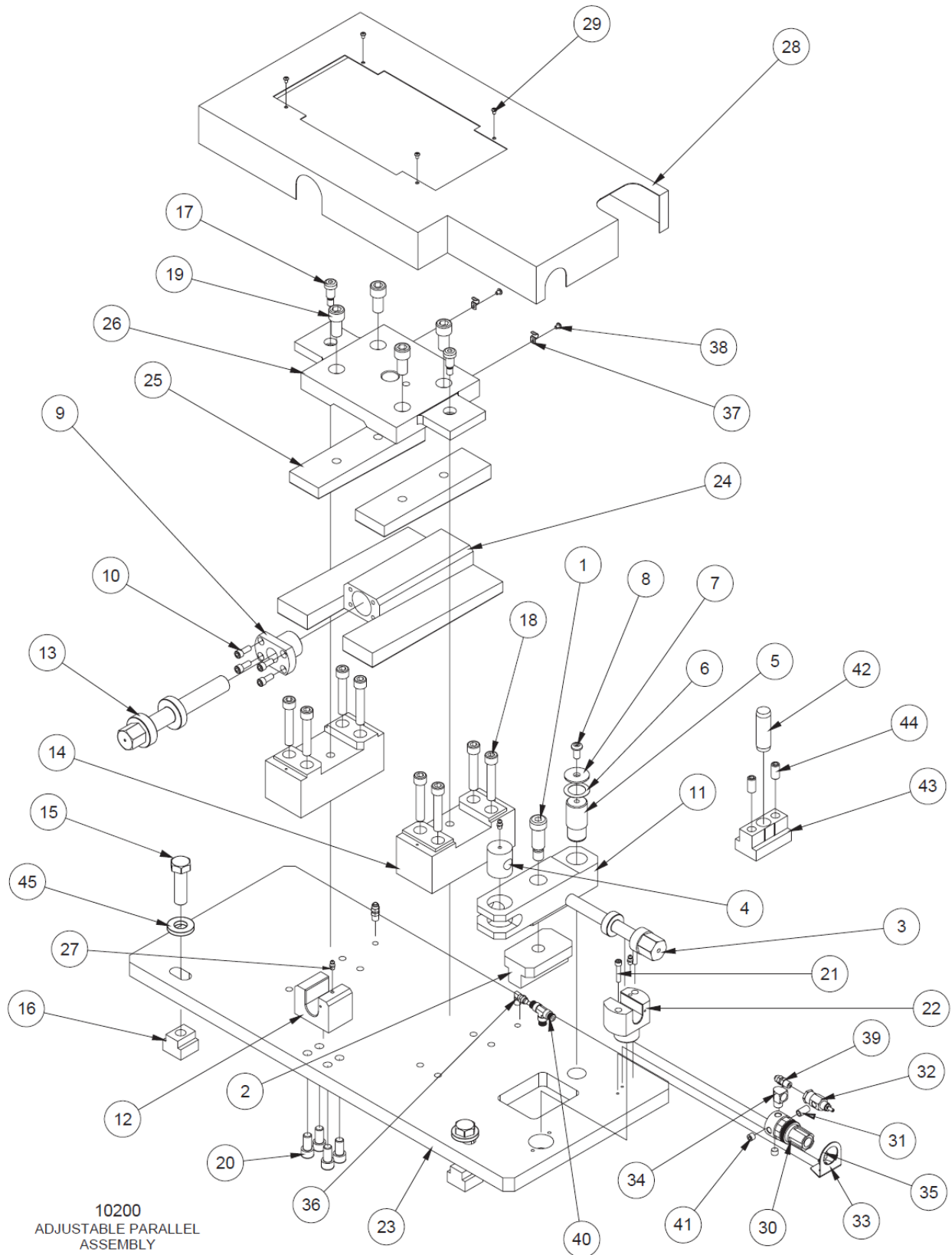
### 650-3-56 Line Bore Pivot Table Fixture Kit





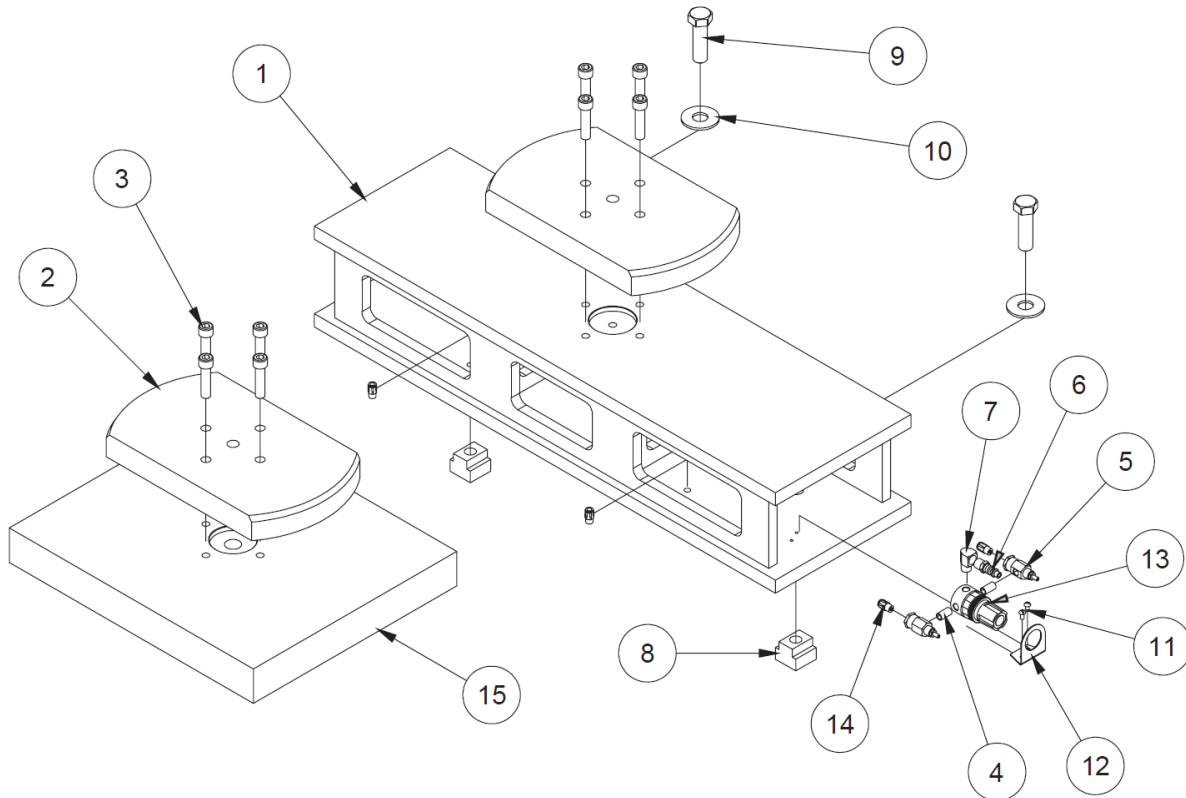
| 650-3-56 LINE BORE PIVOT TABLE ASSEMBLY |     |             |  |
|---|-----|-------------|--|
| ITEM                                    | QTY | PART NUMBER | DESCRIPTION                              |
| 1                                       | 1   | 650-3-56C   | LINE BORE PIVOT TABLE ASSEMBLY           |
| 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   | 650-3-65V   | RACK – PIVOT TABLE                       |
| 6                                       | 1   | 650-3-65W   | THREADED BLOCK – PIVOT TABLE             |
| 7                                       | 2   | MF-6A       | S.H.C.S. #10-24 X 1”                     |
| 8                                       | 2   | MF-6        | S.H.C.S. #10-24 X ¾”                     |
| 9                                       | 2   | 650-3-9     | KEY                                      |
| 10                                      | 2   | MF-21       | S.H.C.S. 5/16-18 X ⅝”                    |
| 11                                      | 1   | 650-3-56A   | TABLE TOP – PIVOT TABLE                  |
| 12                                      | 1   | MF-213B     | DOWEL PIN, ½” X 1”                       |
| 13                                      | 1   | 650-3-56N   | THREAD 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      | SOCKET SET SCREW, #10-24 X 1 ¼”          |
| 17                                      | 2   | MF-24       | S.H.C.S. 5/16-18 X 1 ¼”                  |
| 18                                      | 8   | 650-3-56Q   | BELLEVILLE SPRING                        |
| 19                                      | 2   | MF-186B     | NYLOCK NUT #10-24                        |
| 21                                      | 2   | MF-40A      | S.H.C.S. 7/16-14 X 2”                    |
| 22                                      | 4   | 7199E       | COLLAR ½”                                |
| 23                                      | 1   | 650-3-56U   | LIFT ADJUSTMENT 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     | NYLOCK NUT ⅜-16                          |
| 31                                      | 4   | MF-75B      | SOCKET SET SCREW, ⅜-16 X 2 ¼”            |
| 32                                      | 4   | 6863        | SET SCREW, CONE POINT, 5/16-18 X 5/16”   |
| 33                                      | 2   | 650-3-10    | TN-5 T-NUT                               |
| 34                                      | 2   | MF-137F     | HEX BOLT ½-13 X 1 ¾”                     |
| 35                                      | 2   | MF-180      | FLAT WASHER ½”                           |
| 36                                      | 1   | 650-3-56L   | CONTROL BLOCK – PIVOT TABLE              |
| 37                                      | 2   | MF-59B      | SET SCREW, CONE POINT, ¼-20 X 5/16”      |
| 38                                      | 2   | 504-29-36   | SOCKET SET SCREW, HALF DOG, 5/16-18 X ⅝” |

## 10200 Adjustable Universal Line Boring Fixture Kit





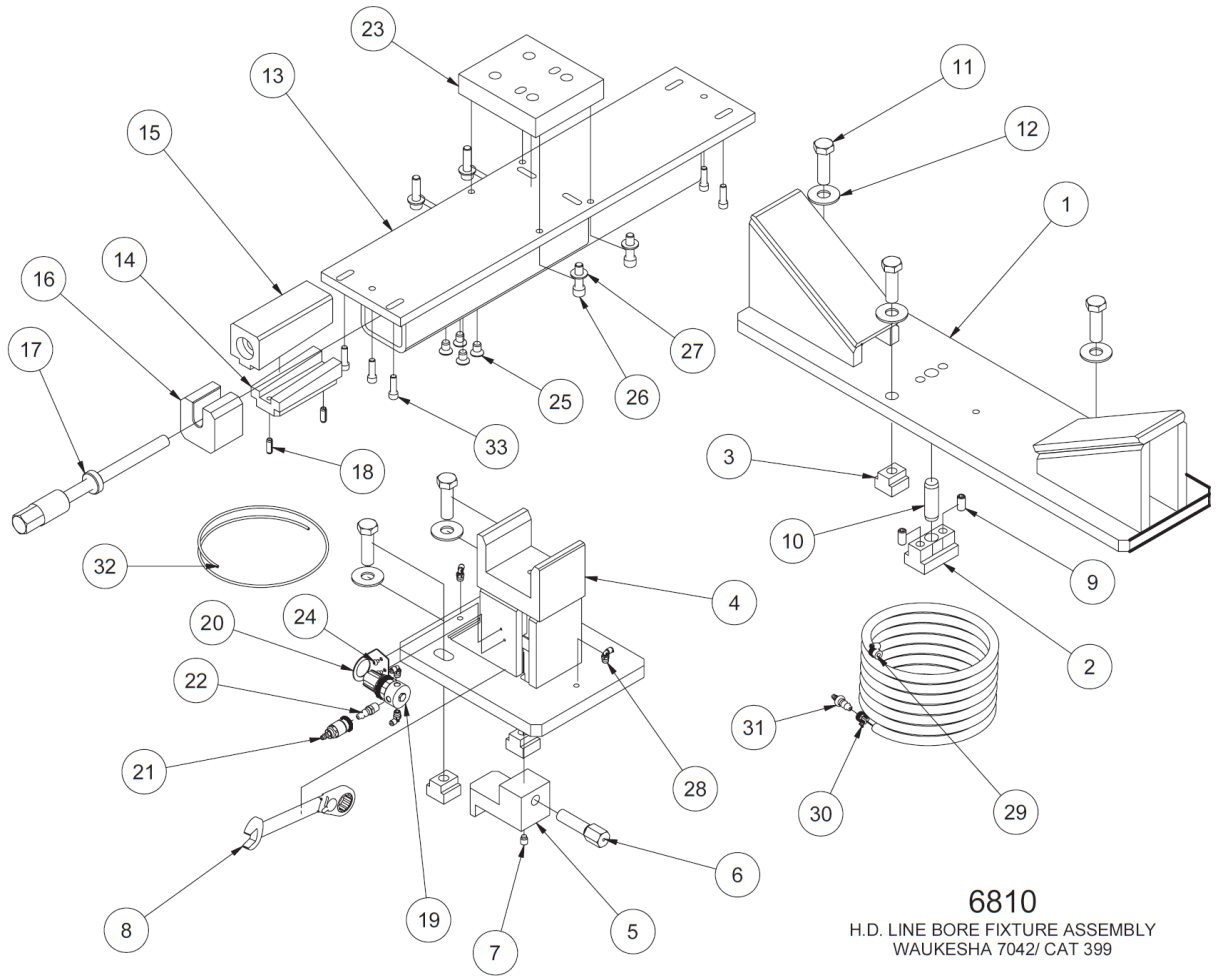
| 10200 ADJUSTABLE PARALLEL ASSEMBLY |     |             |   |
|------------------------------------|-----|-------------|---|
| ITEM                               | QTY | PART NUMBER | DESCRIPTION   |
| 1                                  | 1   | 10201X      | SOCKET SHOULDER SCREW 3/4" X 1 1/2"   |
| 2                                  | 1   | 10201V      | LOWER KEY, IN/OUT ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100              |
| 3                                  | 1   | 6828        | SCREW, ADJUSTABLE PARALLEL F8 LINE BORE FIXTURE                                       |
| 4                                  | 1   | 10201R      | PIVOT NUT, IN/OUT ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100              |
| 5                                  | 1   | 10201Q      | PIVOT PIN, IN/OUT ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100              |
| 6                                  | 1   | 6007A       | BELLVILLE SPRING, BS203   |
| 7                                  | 1   | 10201W      | HOLD DOWN WASHER, IN/OUT ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100       |
| 8                                  | 1   | MF-96       | SOCKET BUTTON HEAD SCREW 3/8-16 X 3/4"  |
| 9                                  | 1   | 10201L      | INSERT NUT, VERTICAL ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100           |
| 10                                 | 4   | MF-22       | SOCKET HEAD CAPSCREW 5/16-18 X 3/4"   |
| 11                                 | 1   | 10201P      | PIVOT ARM, IN/OUT ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100              |
| 12                                 | 1   | 10201N      | BRACKET, SCREW – ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100                       |
| 13                                 | 1   | 10201M      | SCREW, VERTICAL ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100                |
| 14                                 | 2   | 10201E      | ALIGNMENT BLOCK, VERTICAL ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100      |
| 15                                 | 2   | MF-154C     | HEX BOLT 3/4-10 X 2 1/2"  |
| 16                                 | 2   | 6160        | NUT, T, HARDENED  |
| 17                                 | 2   | 650-4-45    | SOCKET SHOULDER SCREW 1/2" X 3/4"   |
| 18                                 | 8   | MF-45B      | SOCKET HEAD CAPSCREW 1/2-13 X 2 3/4"  |
| 19                                 | 4   | MF-46       | SOCKET HEAD CAPSCREW 3/8-11 X 1 1/4"  |
| 20                                 | 4   | MF-42       | SOCKET HEAD CAPSCREW 1/2-13 X 1"  |
| 21                                 | 2   | MF-16       | SOCKET HEAD CAPSCREW 1/4-20 X 1 1/4"  |
| 22                                 | 1   | 10201T      | BRACKET, SCREW (PIVOT), IN/OUT ADJUST, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100 |
| 23                                 | 1   | 10201C      | LOWER PLATE (MACH.) – ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100                  |
| 24                                 | 1   | 10201J      | LOWER WEDGE ASSEMBLY, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100                  |
| 25                                 | 2   | 10201G      | UPPER WEDGE ASSEMBLY, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100                  |
| 26                                 | 1   | 10201F      | TOP PLATE, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100                             |
| 27                                 | 3   | MF-189      | STRAIGHT GREASE FITTING   |
| 28                                 | 1   | 10201Y      | COVER, ADJUSTABLE PARALLEL, LINE BORE FIXTURE – EM100                                 |
| 29                                 | 4   | MF-86       | SOCKET BUTTON HEAD SCREW #8-32 X 1/4"   |
| 30                                 | 1   | 502-27-17   | REGULATOR, 0-60 PSI   |
| 31                                 | 1   | 502-11-17J  | NIPPLE, CLOSE, 1/8" NPT   |
| 32                                 | 1   | 502-11-35A  | FLOW CONTROLLER   |
| 33                                 | 1   | 502-27-17A  | REGULATOR BRACKET   |
| 34                                 | 1   | 502-11-17S  | STREET ELL, 1/2"  |
| 35                                 | 2   | MF-109      | SOCKET BUTTON HEAD SCREW #10-24 X 1/4"  |
| 36                                 | 1   | 502-11-16I  | ELBOW, MALE 1/4 NPTF X 1/8 NPT  |
| 37                                 | 2   | 502-12-16   | WIRE CLIP   |
| 38                                 | 2   | MF-87       | SOCKET BUTTON HEAD SCREW #10-24 X 1/4"  |
| 39                                 | 2   | 502-11-16E  | CONNECTOR, MALE 1/4 X 1/8 NPT   |
| 40                                 | 1   | 514-4-17N   | UNION TEE, 1/4"   |
| 41                                 | 2   | MF-233      | HEX HEAD PLUG 1/8"  |
| 42                                 | 1   | 6819        | LOCATING, PIVOT PIN   |
| 43                                 | 1   | 6820        | LOCATING PIVOT KEY, DIESEL LINE BORE FIXTURE  |
| 44                                 | 2   | MF-72       | SOCKET SET SCREW, FLAT POINT, 1/2-13 X 1"   |
| 45                                 | 2   | 6287        | WASHER, THRUST 3/4"   |

**10204 CAT3600 Line Bore Fixture Kit**

| <b>10204 CAT3600 Line Bore Fixture Kit</b> |            |                    |   |
|--|------------|--------------------|---|
| <b>ITEM</b>                                | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                                  |
| 1  | 1          | 10204C             | STATIONARY SUPPORT WELDMENT, INLINE BLOCK LINE BORE |
| 2  | 2          | 10204A             | LOCATOR, CAT 3600 INLINE LINE BORE FIXTURE          |
| 3  | 8          | MF-45              | SOCKET HEAD CAPSCREW 1/2-13 X 2"                    |
| 4  | 2          | 502-11-17J         | NIPPLE, CLOSE, 1/8" NPT                             |
| 5  | 2          | 502-11-35A         | FLOW CONTROLLER                                     |
| 6  | 1          | 502-11-16X         | QUICK CONNECT AIR FITTING, MALE                     |
| 7  | 1          | 502-11-17S         | STREET ELL, 1/4"                                    |
| 8  | 2          | 6160               | NUT, T, HARDENED                                    |
| 9  | 2          | MF-154C            | HEX BOLT 3/4-10 X 2 1/2"                            |
| 10   | 2          | MF-181A            | FLAT WASHER 3/4"                                    |
| 11   | 2          | MF-110             | SOCKET BUTTON HEAD SCREW #10-24 X 3/8"              |
| 12   | 1          | 502-27-17A         | REGULATOR BRACKET                                   |
| 13   | 1          | 502-27-17          | REGULATOR, 0-60 PSI                                 |
| 14   | 4          | 514-4-17W          | FITTING, STRAIGHT, 1/8" NPT X 1/4" POLY             |
| 15   | 1          | 10204E             | ADAPTER PLATE ASSY - INLINE BLOCK LINE BORE         |



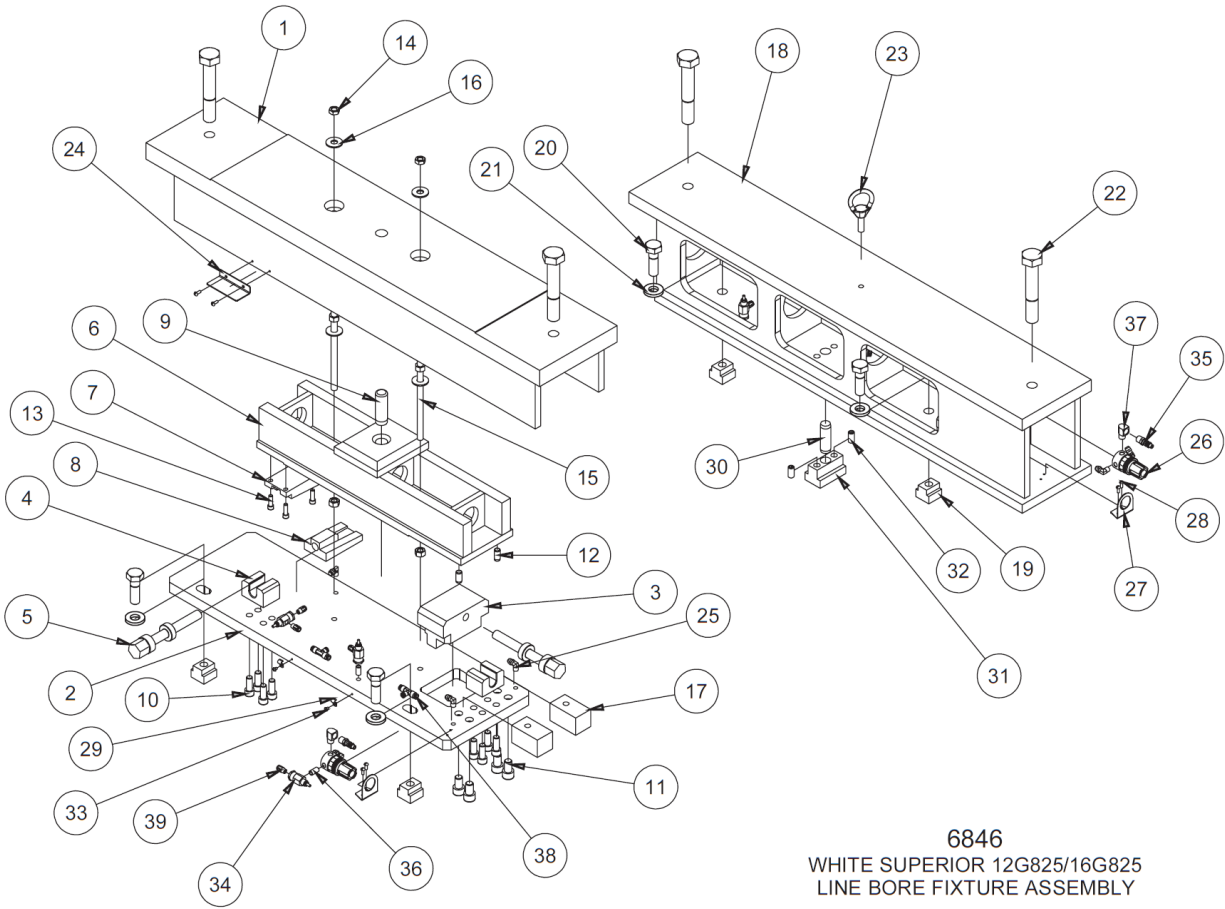
## 6810 Waukesha 7042, 9390 & CAT 379, 398, 399 Line Boring Fixture Kit





| <b>6810 Waukesha 7042, 9390 &amp; CAT 379, 398, 399 Line Boring Fixture Kit</b> |            |                    |  |
|---|------------|--------------------|--|
| <b>ITEM</b>   | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>   |
| 1   | 1          | 6811B              | CRADLE (MACHINING) L.H. ADJUSTING, WAUKESHA 7042 LINE BORE FIXTURE |
| 2   | 1          | 6820               | LOCATING PIVOT KEY, DIESEL LINE BORE FIXTURE                       |
| 3   | 5          | 6160               | NUT, T, HARDENED   |
| 4   | 1          | 6812C              | SUPPORT (MACHINING) – WAUKESHA 7042/CAT 399 LINE BORE FIXTURE      |
| 5   | 1          | 6814A              | ADJUSTING BLOCK – WAUKESHA 7042/CAT399 LINE BORE FIXTURE           |
| 6   | 1          | 6812E              | SCREW, ADJUSTING SUPORT, WAUKESHA 7042/CAT399 LINE BORE FIXTURE    |
| 7   | 1          | 500-96-3C          | SOCKET SET SCREW, BRASS TIPPED, 7/16-14 X 1/2"                     |
| 8   | 1          | 6812F              | 1" REVERSIBLE RATCHETING WRENCH                                    |
| 9   | 2          | MF-72              | SOCKET SET SCREW, FLAT POINT, 1/2-13 X 1"                          |
| 10  | 1          | 6819               | LOCATING, PIVOT PIN  |
| 11  | 5          | MF-154C            | HEX BOLT 3/4-10 X 2 1/2"   |
| 12  | 5          | MF-181A            | FLAT WASHER 3/4"   |
| 13  | 1          | 6813               | TUBE ASSEMBLY, ADJUSTABLE, WAUKESHA 7042/CAT399 LINE BORE FIXTURE  |
| 14  | 1          | 6411               | LOWER LEVELING PAD   |
| 15  | 1          | 6410               | UPPER LEVELING PAD   |
| 16  | 1          | 6409               | BRACKET, LEVELING SCREW (399 CAT)                                  |
| 17  | 1          | 6408               | LEVELING SCREW   |
| 18  | 2          | MF-229B            | PIN – SLOTTED SPRING   |
| 19  | 1          | 502-27-17          | REGULATOR, 0-60 PSI  |
| 20  | 1          | 502-27-17A         | REGULATOR BRACKET  |
| 21  | 1          | 502-11-16W         | QUICK CONNECT AIR FITTING, FEMALE                                  |
| 22  | 1          | 502-11-16X         | QUICK CONNECT AIR FITTING, MALE                                    |
| 23  | 1          | 6813C              | ADAPTER, CAT399 – WAUKESHA 7042/CAT399 LINE BORE FIXTURE           |
| 24  | 2          | MF-87              | SOCKET BUTTON HEAD #10-24 X 1/4"                                   |
| 25  | 4          | 6409A              | SOCKET FLAT HEAD SCREW 1/2-13 X 3/4"                               |
| 26  | 4          | MF-44A             | SOCKET HEAD CAPSCREW   |
| 27  | 4          | MF-180             | FLAT WASHER 1/2"   |
| 28  | 4          | 514-4-18           | 90 DEG FITTING, 1/8" NPT X 1/8" POLY                               |
| 29  | 1          | 502-1-98           | 1/4" AIR HOSE  |
| 30  | 2          | 502-1-97           | CLAMP, 1/4" I.D. HOSE  |
| 31  | 1          | 502-11-16Y         | CONNECTOR, MALE AIR, 1/4 NPTF                                      |
| 32  | 1          | 514-4-24           | 1/4" AIR HOSE – 2 FEET   |
| 33  | 6          | MF-32              | SOCKET HEAD CAPSCREW 3/8-16 X 1 1/4"                               |

### 6846 White Superior 12 & 16 G825 Line Boring Fixture

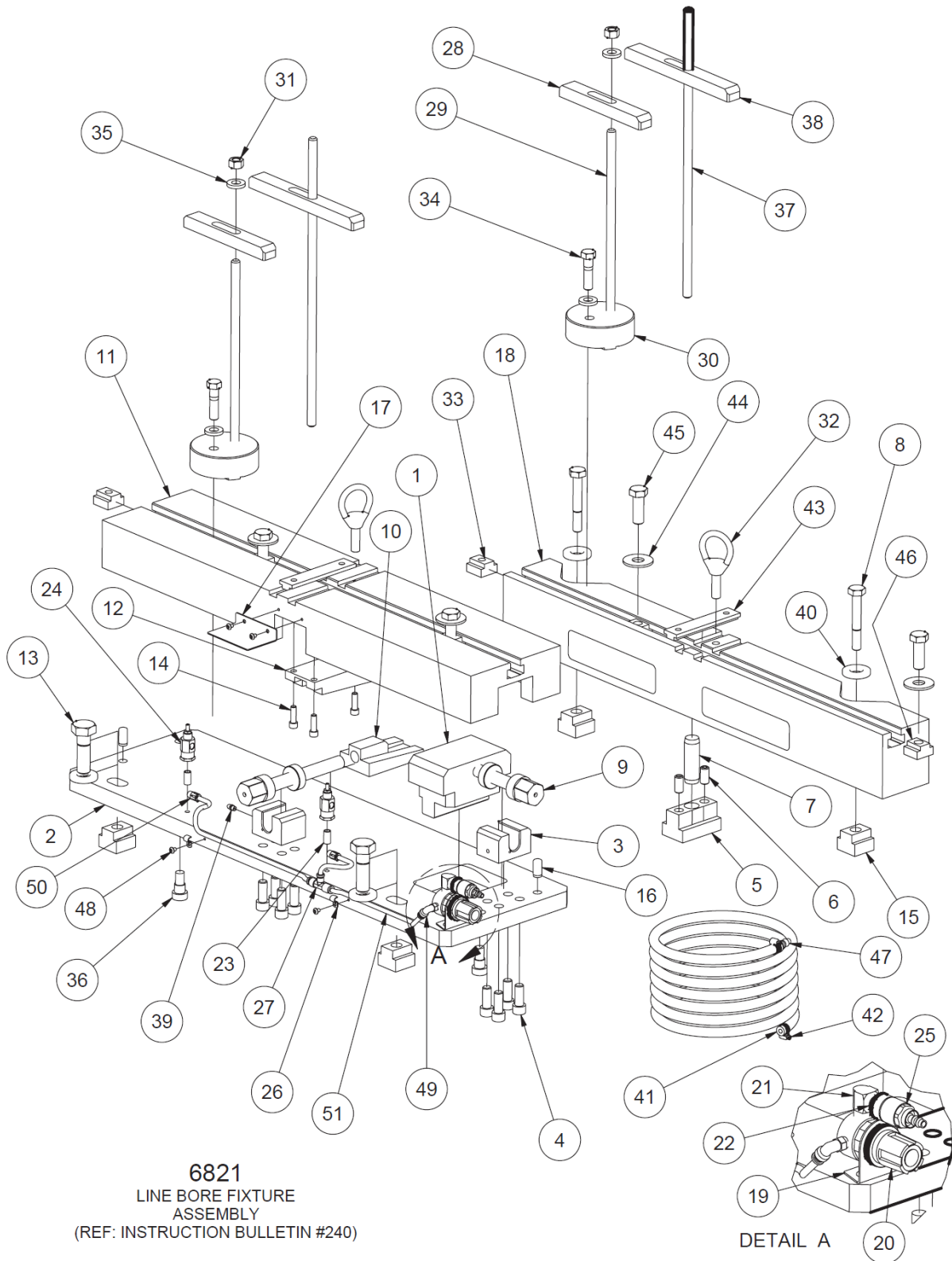


6846  
WHITE SUPERIOR 12G825/16G825  
LINE BORE FIXTURE ASSEMBLY



| 6846 White Superior 12 & 16 G825 Line Boring Fixture |     |             |   |
|--|-----|-------------|---|
| ITEM   | QTY | PART NUMBER | DESCRIPTION   |
| 1  | 1   | 6848A       | ADAPTER (MACH.)   |
| 2  | 1   | 6852        | LOWER PLATE REWORK  |
| 3  | 1   | 6830        | BLOCK, ADJUSTING ADJUSTABLE PARALLEL                                    |
| 4  | 2   | 6829        | BRACKET, SCREW ADJUSTABLE   |
| 5  | 2   | 6828        | SCREW, ADJUSTABLE PARALLEL  |
| 6  | 1   | 6849A       | TILT ARM (MACH.)  |
| 7  | 1   | 6826        | WEDGE, UPPER ADJUSTABLE PARALLEL  |
| 8  | 1   | 6827        | WEDGE, LOWER ADJUSTABLE PARALLEL  |
| 9  | 1   | 6853        | LOCATING PIN  |
| 10   | 8   | MF-43       | SOCKET HEAD CAPSCREW 1/2-13 X 1 1/4"                                    |
| 11   | 4   | MF-46F      | SOCKET HEAD CAPSCREW 5/8-11 X 1"  |
| 12   | 2   | MF-213B     | DOWEL PIN 1/2" DIA X 1"   |
| 13   | 3   | MF-23       | SOCKET HEAD CAPSCREW 5/16-18 X 1"                                       |
| 14   | 6   | MF-165      | HEX NUT 1/2-13  |
| 15   | 2   | 6848B       | CLAMP STUD, ADJUSTABLE PARALLEL, WHITE SUPERIOR LINE BORE FIXTURE – F90 |
| 16   | 4   | MF-180      | FLAT WASHER 1/2"  |
| 17   | 2   | 6850        | LIFT BLOCK  |
| 18   | 1   | 6847A       | STATIONARY PARALLEL   |
| 19   | 4   | 6160        | NUT, T, HARDENED  |
| 20   | 4   | MF-154C     | HEX BOLT 3/4-10 X 2 1/2"  |
| 21   | 4   | 6287        | WASHER, THRUST 3/4"   |
| 22   | 4   | 6854        | HEX BOLT 1"-8 X 6"  |
| 23   | 1   | 502-3-13    | LIFT EYE  |
| 24   | 1   | 6851        | CHIP SHILED, UPPER PAD ADJUSTABLE PARALLEL                              |
| 25   | 6   | 502-11-16I  | ELBOW, MALE 1/4 NPTF X 1/8 NPT  |
| 26   | 2   | 502-27-17   | REGULATOR, 0-60 PSI   |
| 27   | 2   | 502-27-17A  | REGULATOR BRACKET   |
| 28   | 6   | MF-111      | SLOTTED ROUND HEAD SCREW, #10-24 X 1/2"                                 |
| 29   | 2   | 502-12-16   | WIRE CLIP   |
| 30   | 1   | 6819        | LOCATING, PIVOT PIN   |
| 31   | 1   | 6820        | LOCATING PIVOT KEY, WAUKESHA 7042/CAT399                                |
| 32   | 2   | MF-72       | SOCKET SET SCREW, FLAT POINT, 1/2-13 X 1"                               |
| 33   | 2   | MF-86       | SOCKET BUTTON HEAD SCREW #8-32 X 1/4"                                   |
| 34   | 6   | 502-11-35A  | FLOW CONTROL  |
| 35   | 2   | 502-11-16X  | QUICK CONNECT AIR FITTING, MALE   |
| 36   | 5   | 502-11-17J  | NIPPLE, CLOSE, 1/8" NPT   |
| 37   | 2   | 502-11-17S  | STREET ELL, 1/4"  |
| 38   | 3   | 514-4-17N   | TEE, UNION, 1/4" TUBE   |
| 39   | 7   | 514-4-17W   | FITTING, STRAIGHT, 1/8 NPT X 1/4 POLY                                   |

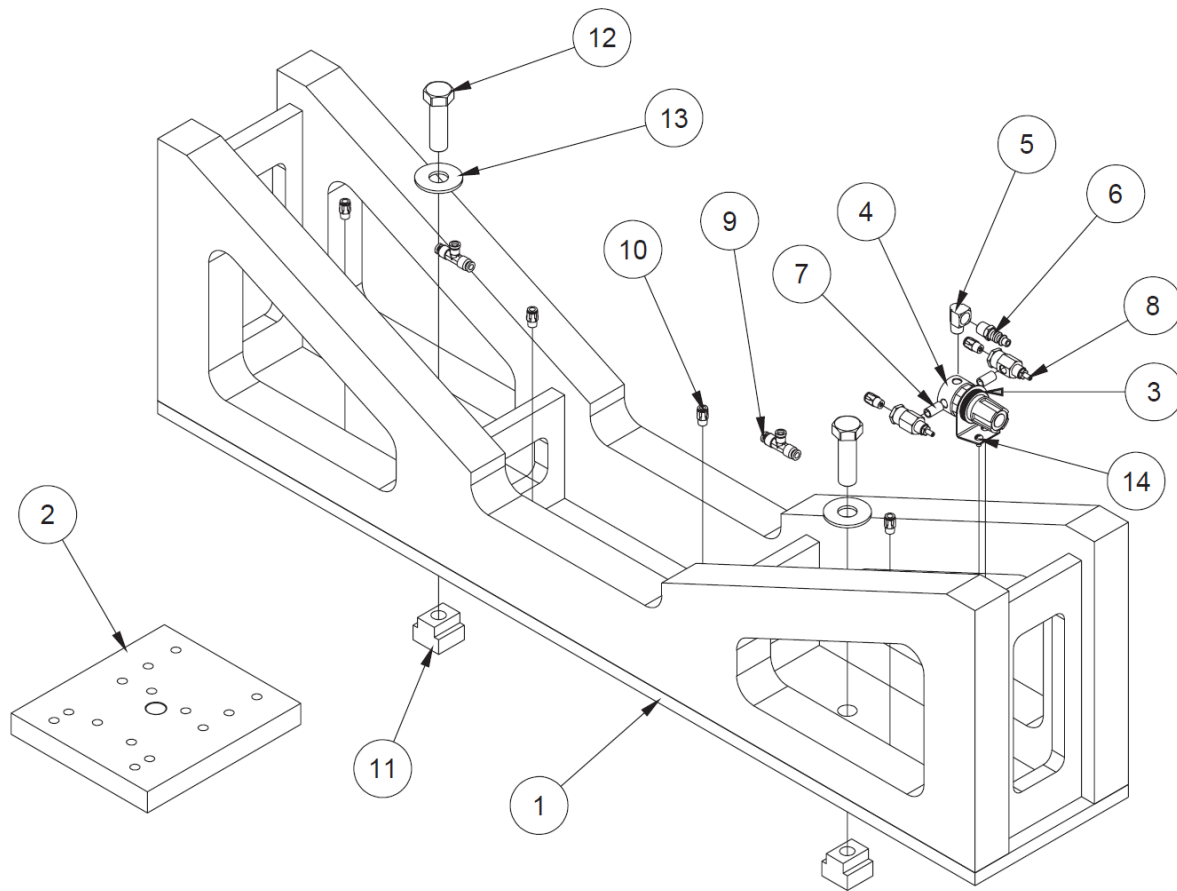
## 6821 Adjustable Universal Line Boring Fixture Kit



| 6821 LINE BORE FIXTURE ASSEMBLY – F90 |        |             |  |
|---------------------------------------|--------|-------------|--|
| ITEM                                  | QTY    | PART NUMBER | DESCRIPTION  |
| 1                                     | 1      | 6830        | ADJUSTING BLOCK, ADJUSTABLE PARALLEL                         |
| 2                                     | 1      | 6825A       | PLATE, LOWER ADJUSTABLE                                      |
| 3                                     | 2      | 6829        | BRACKET, SCREW – ADJUSTABLE PARALLEL – F88 LINE BORE FIXTURE |
| 4                                     | 8      | MF-43       | S.H.C.S. ½-13 X 1”   |
| 5                                     | 1      | 6820        | LOCATING PIVOT KEY, WAUKESHA 7042/CAT 399                    |
| 6                                     | 2      | MF-72       | SET SCREW, FLAT POINT, ½-13 X 1”                             |
| 7                                     | 1      | 6819        | LOCATING, PIVOT PIN  |
| 8                                     | 2      | 6822B       | HEX BOLT, ¾-10 X 2 ½”  |
| 9                                     | 2      | 6828        | SCREW, ADJUSTABLE PARALLEL, F-8 LINE BORE FIXTURE            |
| 10                                    | 1      | 6827 **     | LOWER WEDGE – ADJUSTABLE PARALLEL, F88 LINE BORE FIXTURE     |
| 11                                    | 1      | 6824A       | UPPER PAD (MACH.) ADJ. PARALLEL F88 LINE BORE FIXTURE        |
| 12                                    | 1      | 6826 **     | UPPER WEDGE – ADJUSTABLE PARALLEL F88 LINE BORE FIXTURE      |
| 13                                    | 2      | MF-154C     | HEX BOLT ¾-10 X 2 ½”   |
| 14                                    | 3      | MF-23       | S.H.C.S. 5/16-18 X 1”  |
| 15                                    | 4      | 6160        | NUT, “T”-HARDENED  |
| 16                                    | 2      | MF-213B     | DOWEL PIN ½” X 1”  |
| 17                                    | 1      | 6834        | CHIP SHIELD, UPPER PAD F88 LINE BORE FIXTURE                 |
| 18                                    | 1      | 6822A       | PARALLEL (STATIONARY) F90 LINE BORE FIXTURE                  |
| 19                                    | 1      | 502-27-17A  | REGULATOR BRACKET  |
| 20                                    | 1      | 502-27-17   | REGULATOR 0-60 PSI   |
| 21                                    | 1      | 502-11-17S  | STREET ELL, ¼ NPT  |
| 22                                    | 1      | 502-11-16X  | CONNECTOR, MALE THREAD ¼ NPT, V6/V8 FIXTURE                  |
| 23                                    | 2      | 502-11-17J  | NIPPLE, CLOSE, ⅛” NPT  |
| 24                                    | 2      | 502-11-35A  | FLOW CONTROLLER  |
| 25                                    | 1      | 502-11-16W  | QUICK CONNECT AIR FITTING, FEMALE                            |
| 26                                    | 2      | 502-12-16   | WIRE CLIP  |
| 27                                    | 1      | 514-4-17N   | TEE, UNION, ¼ TUBE   |
| 28                                    | 2      | 6833A       | CLAMP BAR ( 7” LG), INLINE BLOCK F88 LINE BORE FIXTURE       |
| 29                                    | 2      | 6833B       | CLAMP ROD (12”), INLINE BLOCK F88 LINE BORE FIXTURE          |
| 30                                    | 2      | 6833        | LOCATOR, INLINE BLOCK  |
| 31                                    | 2      | MF-165      | HEX NUT, ½-13  |
| 32                                    | 2      | 502-3-13    | LIFT EYE   |
| 33                                    | 2      | 502-1-11B   | T-NUT, ¾”  |
| 34                                    | 2      | MF-149C     | HEX BOLT, ½-13 X 2”  |
| 35                                    | 4      | MF-180      | FLAT WASHER, ½”  |
| 36                                    | 2      | 514-7-22    | SCREW, SHOULDER  |
| 37                                    | 2      | 6833D       | CLAMP ROD (18”) INLINE BLOCK, F88 LINE BORE FIXTURE          |
| 38                                    | 2      | 6833E       | CLAMP ROD (9”) INLINE BLOCK, F88 LINE BORE FIXTURE           |
| 39                                    | 1      | MF-189      | ¼-28 STRAIGHT LUBE GREASE FITTINGS                           |
| 40                                    | 4      | 6287        | WASHER, THRUST, ¾”   |
| 41                                    | 2      | 502-1-98    | AIR HOSE, ¼”   |
| 42                                    | 2      | 502-1-97    | CLAMP, ¼” I.D. HOSE  |
| 43                                    | 4      | 6372        | KEY, LOCATION – 10” PARALLEL, F90                            |
| 44                                    | 4      | MF-181      | FLAT WASHER, ⅝”  |
| 45                                    | 4      | MF-154F     | HEX BOLT, ⅝-11 X 1 ¾”  |
| 46                                    | 1      | 502-1-11A   | T-NUT, ¾”  |
| 47                                    | 4      | 502-11-16Y  | CONNECTOR, MALE, AIR ¼ NPT                                   |
| 48                                    | 1      | MF-87       | SOCKET BUTTON HEAD SCREW, #10-24 X ⅝”                        |
| 49                                    | 1      | 514-4-17E   | ELBOW, 90 DEGREE MALE – ¼ TUBE X ⅛ NPT                       |
| 50                                    | 2      | 514-4-17W   | FITTING ⅝ NPT X ¼ POLY STRAIGHT                              |
| 51                                    | 2.5 ft | 502-11-15   | BLACK POLY TUBING, ¼”  |

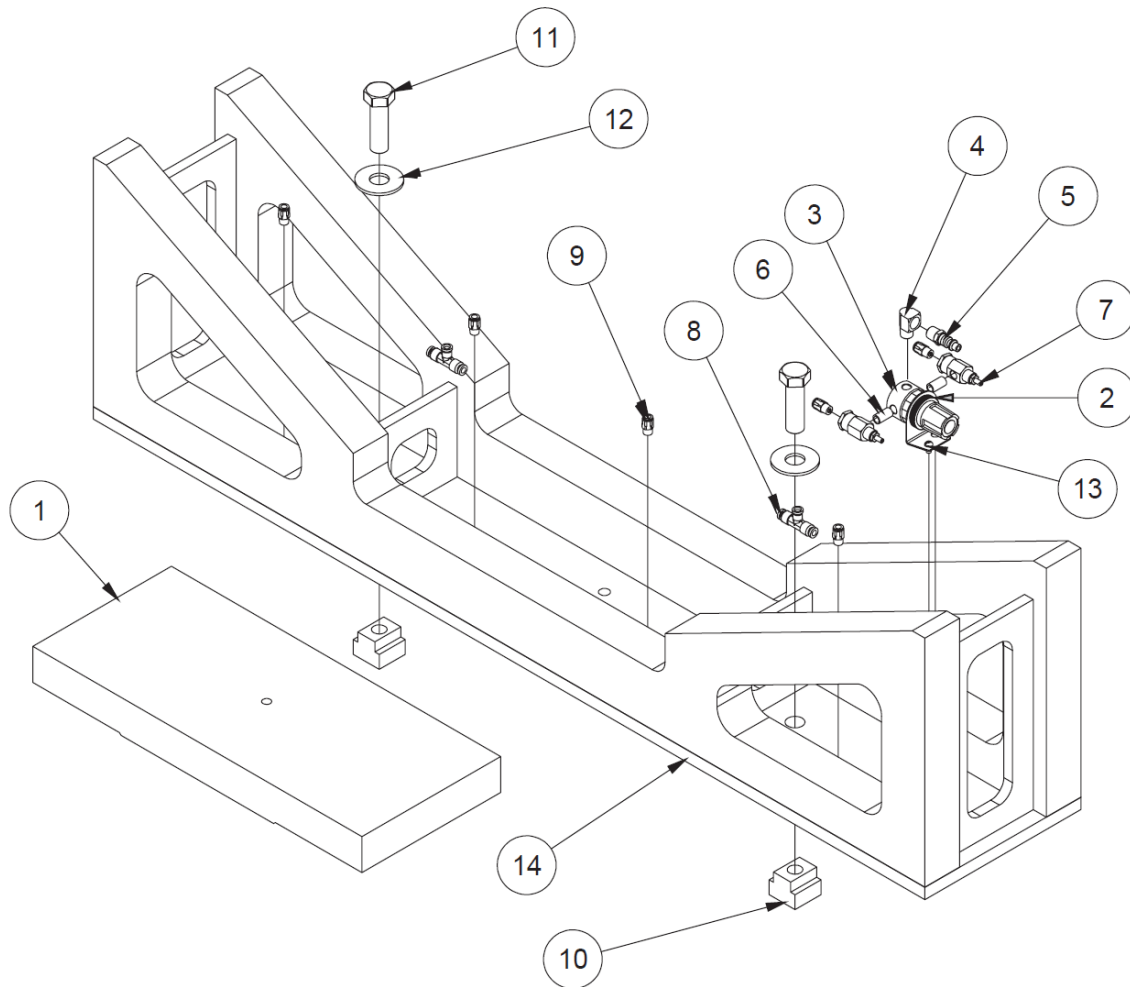
\*\*NOTE: ONLY SOLD IN A MATCHED SET

### 10201 CAT 3600 Cradle Kit



| 10201 CAT 3616 LINE BORE FIXTURE ASSEMBLY |     |             |  |
|---|-----|-------------|--|
| ITEM                                      | QTY | PART NUMBER | DESCRIPTION  |
| 1   | 1   | 10201A      | CRADLE (MACHINING), CAT 3616 LINE BORE                                   |
| 2   | 1   | 10203C      | ADAPTER PLATE ASSEMBLY, CAT 3616, ADJUSTABLE PARALLEL, LINE BORE FIXTURE |
| 3   | 1   | 502-27-17A  | REGULATOR BRACKET  |
| 4   | 1   | 502-27-17   | REGULATOR, 0-60 PSI  |
| 5   | 1   | 502-11-17S  | STREET ELL, 1/4"   |
| 6   | 1   | 502-11-16X  | QUICK CONNECT AIR FITTING, MALE  |
| 7   | 2   | 502-11-17J  | NIPPLE, CLOSE, 1/8" NPT  |
| 8   | 2   | 502-11-35A  | FLOW CONTROL   |
| 9   | 2   | 514-4-17N   | TEE, UNION, 1/4" TUBE  |
| 10  | 6   | 514-4-17W   | FITTING, STRAIGHT, 1/8 NPT X 1/4 POLY                                    |
| 11  | 2   | 6160        | NUT, T, HARDENED   |
| 12  | 2   | MF-154C     | HEX BOLT 3/4-10 X 2 1/2"   |
| 13  | 2   | MF-181A     | FLAT WASHERS 3/4"  |
| 14  | 2   | MF-110      | SOCKET BUTTON HEAD SCREW #10-24 X 3/8"                                   |

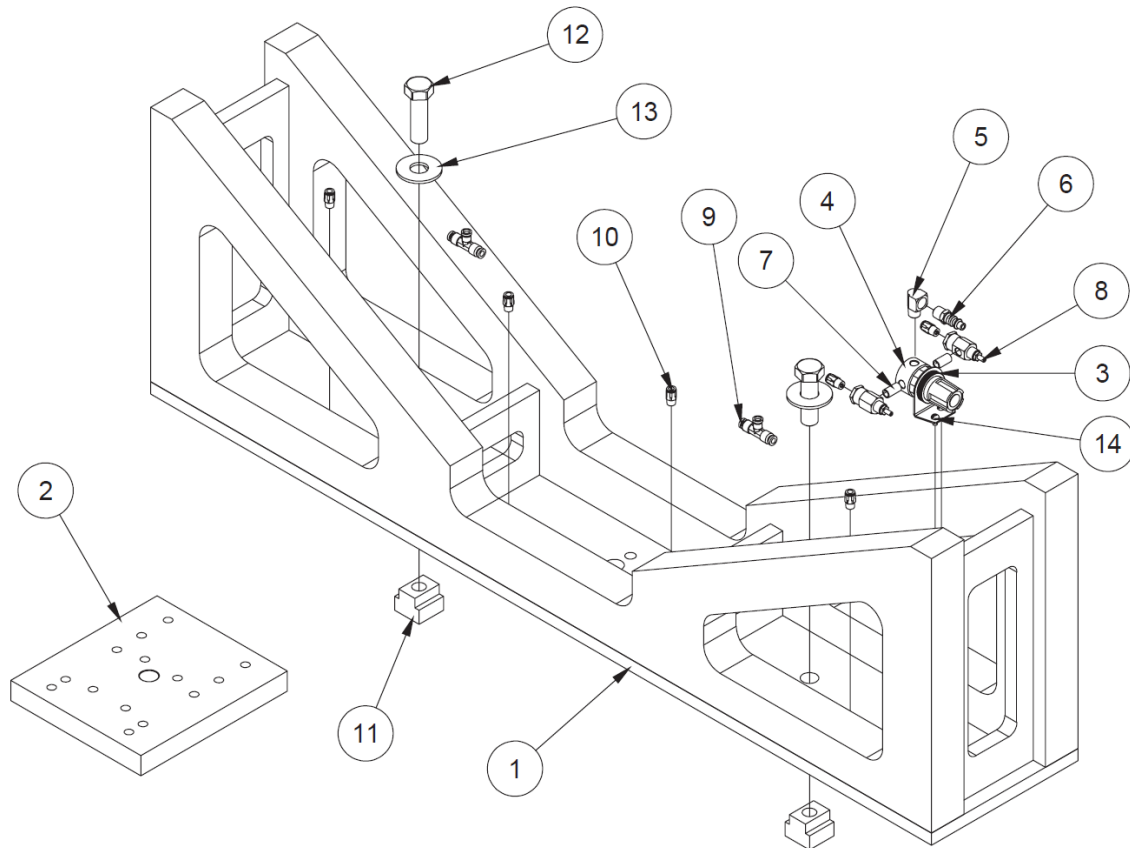
### 10202 Waukesha AT Cradle Kit



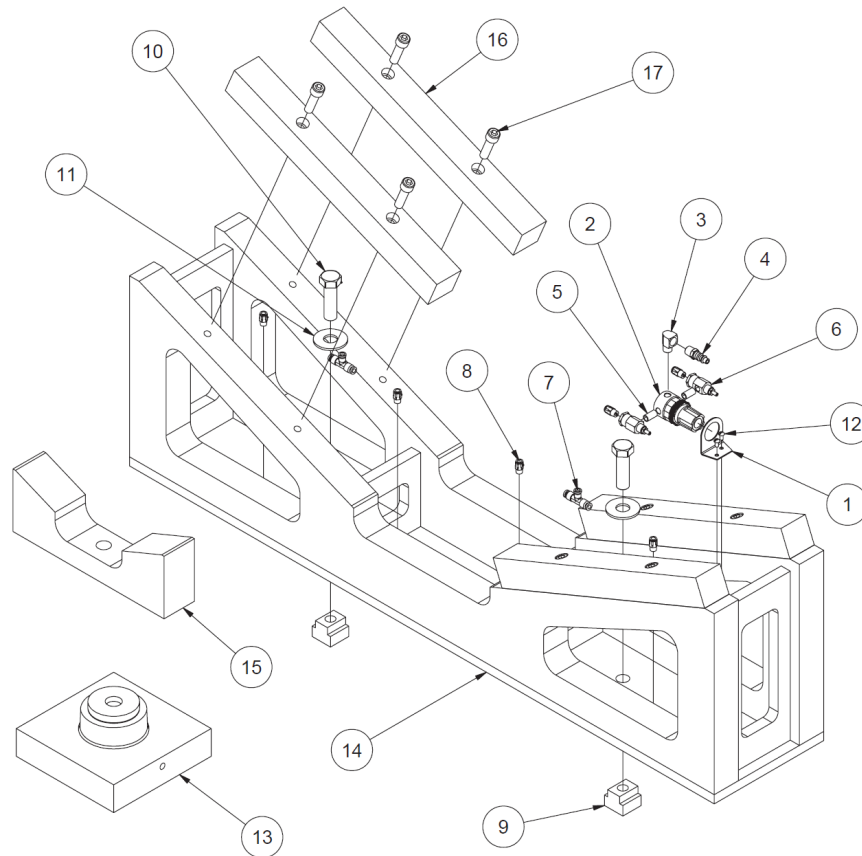
| 10202 WAUKESHA AT LINE BORE FIXTURE ASSEMBLY |     |             |   |
|--|-----|-------------|---|
| ITEM   | QTY | PART NUMBER | DESCRIPTION   |
| 1  | 1   | 10202C      | ADAPTER PLATE ASSEMBLY, WAUKESHA AT, ADJUSTABLE PARALLEL, LINE BORE FIXTURE |
| 2  | 1   | 502-27-17A  | REGULATOR BRACKET   |
| 3  | 1   | 502-27-17   | REGULATOR, 0-60 PSI   |
| 4  | 1   | 502-11-17S  | STREET ELL, 1/4"  |
| 5  | 1   | 502-11-16X  | QUICK CONNECT AIR FITTING, MALE   |
| 6  | 2   | 502-11-17J  | NIPPLE, CLOSE, 1/8" NPT   |
| 7  | 2   | 502-11-35A  | FLOW CONTROL  |
| 8  | 2   | 514-4-17N   | TEE, UNION, 1/4" TUBE   |
| 9  | 6   | 514-4-17W   | FITTING, STRAIGHT, 1/8 NPT X 1/4 POLY                                       |
| 10   | 2   | 6160        | NUT, T, HARDENED  |
| 11   | 2   | MF-154C     | HEX BOLT 3/4-10 X 2 1/2"  |
| 12   | 2   | MF-181A     | FLAT WASHER 3/4"  |
| 13   | 2   | MF-110      | SOCKET BUTTON HEAD SCREW #10-24 X 3/8"                                      |
| 14   | 1   | 10202A      | CRADLE (MACHINING) FOR WAUKESHA AT LINE BORING-F100 SERIES                  |



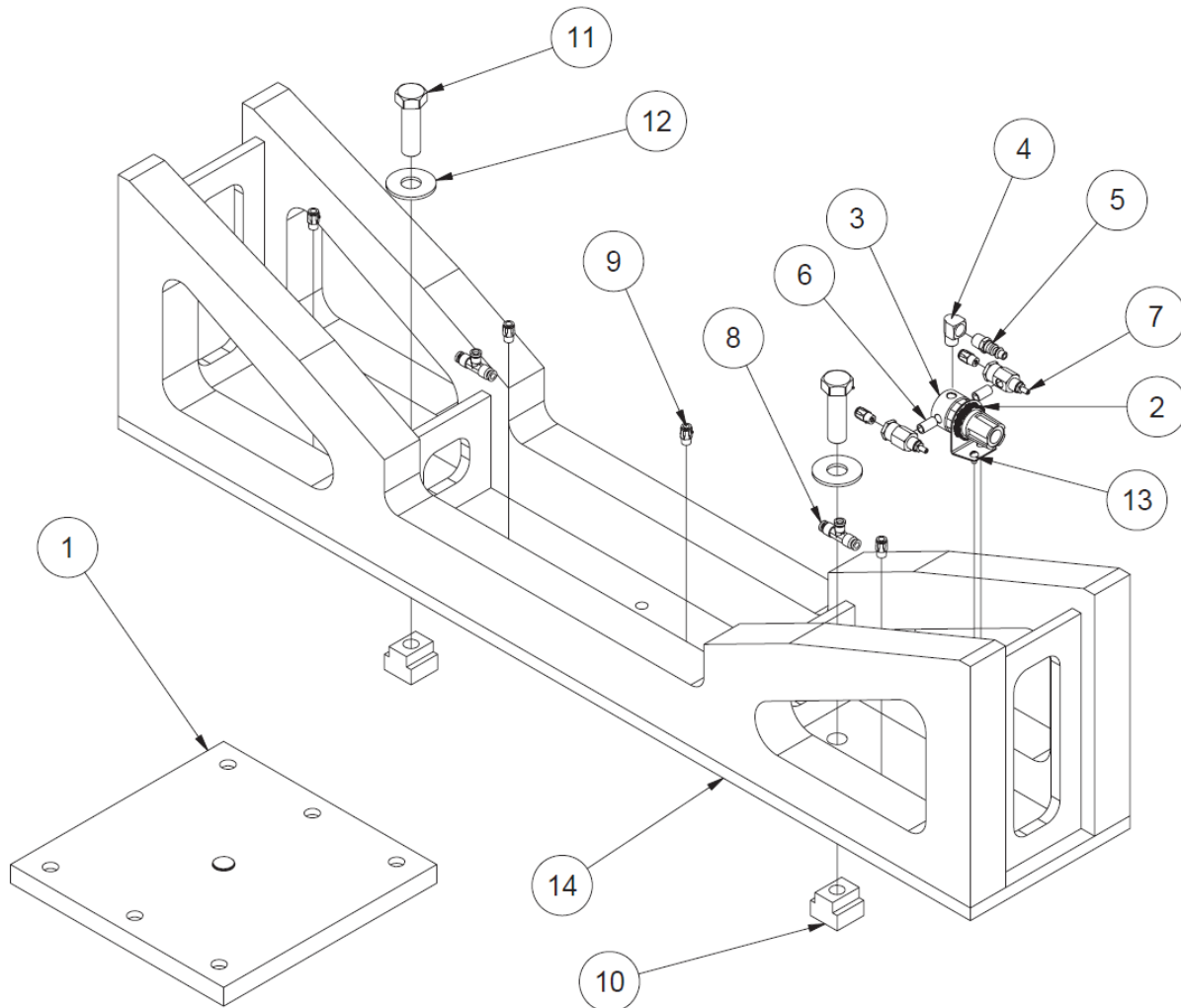
## 10203 White Superior 2416 Cradle Kit



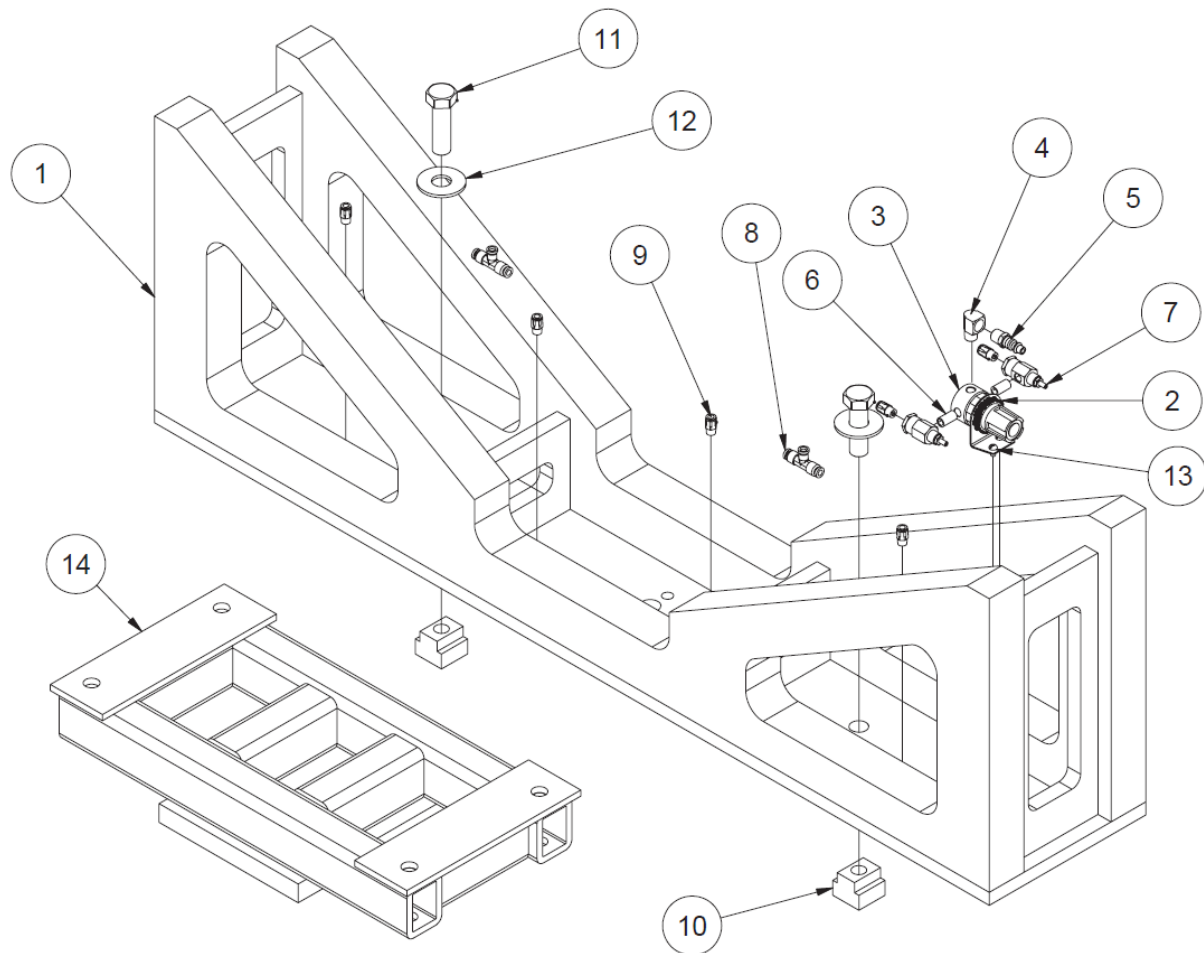
| 10203 WHITE SUPERIOR 2416 LINE BORE FIXTURE ASSEMBLY |     |             |  |
|--|-----|-------------|--|
| ITEM   | QTY | PART NUMBER | DESCRIPTION  |
| 1  | 1   | 10203A      | CRADLE, WHITE SUPERIOR 2416 LINE BORE  |
| 2  | 1   | 10203C      | ADAPTER PLATE ASSEMBLY, CAT 3616/W.S. 2416, ADJUSTABLE PARALLEL, LINE BORE FIXTURE |
| 3  | 1   | 502-27-17A  | REGULATOR BRACKET  |
| 4  | 1   | 502-27-17   | REGULATOR, 0-60 PSI  |
| 5  | 1   | 502-11-17S  | STREET ELL, 1/4"   |
| 6  | 1   | 502-11-16X  | QUICK CONNECT AIR FITTING, MALE  |
| 7  | 2   | 502-11-17J  | NIPPLE, CLOSE, 1/8" NPT  |
| 8  | 2   | 502-11-35A  | FLOW CONTROL   |
| 9  | 2   | 514-4-17N   | TEE, UNION, 1/4" TUBE  |
| 10   | 6   | 514-4-17W   | FITTING, STRAIGHT, 1/8 NPT X 1/4 POLY  |
| 11   | 2   | 6160        | NUT, T, HARDENED   |
| 12   | 2   | MF-154C     | HEX BOLT 3/4-10 X 2 1/2"   |
| 13   | 2   | MF-181A     | FLAT WASHER 3/4"   |
| 14   | 2   | MF-110      | SOCKET BUTTON HEAD SCREW #10-24 X 3/8"   |

**10205 GE EVO/7 Cradle Kit**

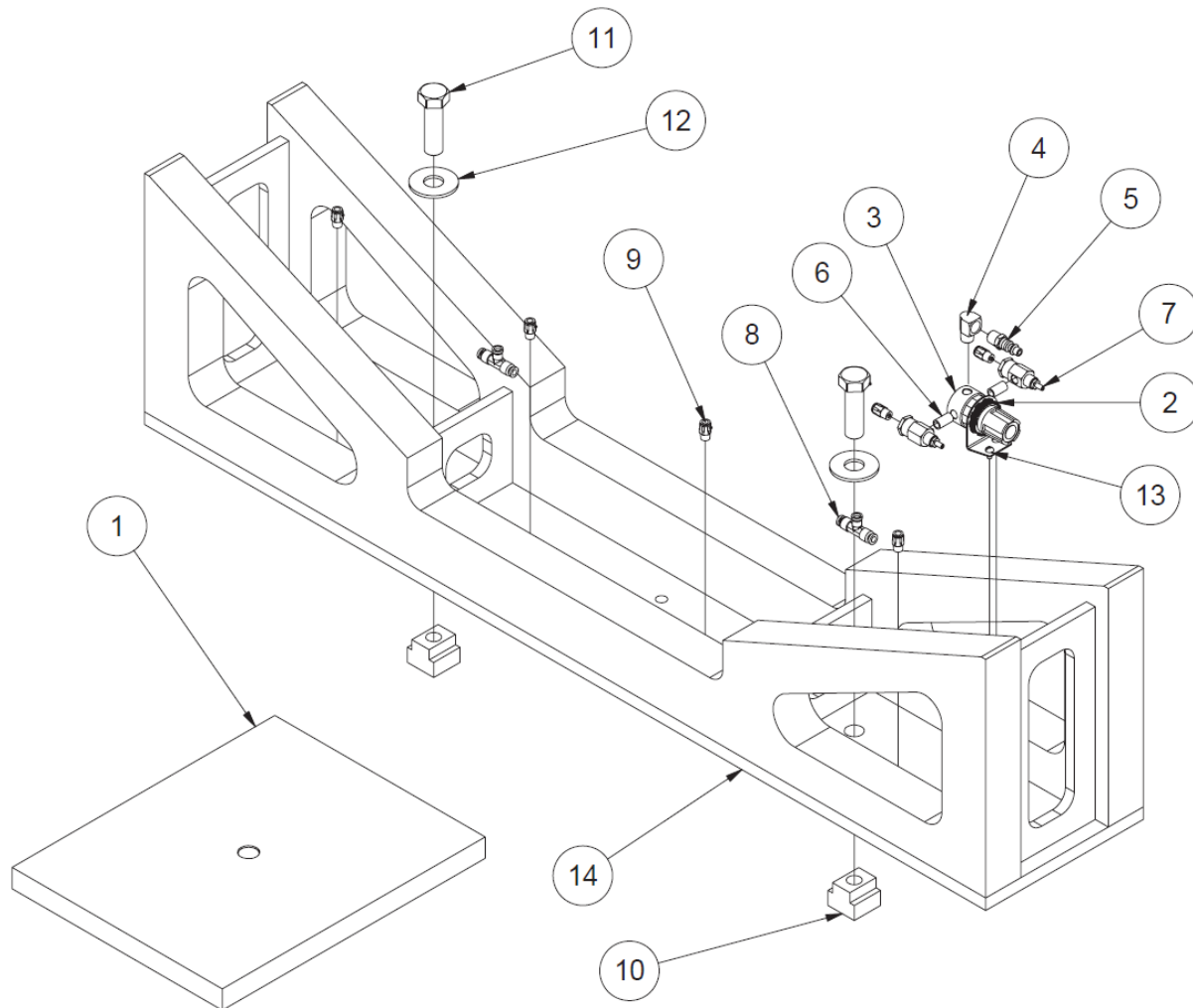
| <b>10205 GE EVO/7 Cradle Kit</b> |            |                    |   |
|----------------------------------|------------|--------------------|---|
| <b>ITEM</b>                      | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                                    |
| 1                                | 1          | 502-27-17A         | REGULATOR BRACKET                                     |
| 2                                | 1          | 502-27-17          | REGULATOR, 0-60 PSI                                   |
| 3                                | 1          | 502-11-17S         | STREET ELL, 1/4"                                      |
| 4                                | 1          | 502-11-16X         | QUICK CONNECT AIR FITTING, MALE                       |
| 5                                | 2          | 502-11-17J         | NIPPLE, CLOSE, 1/8" NPT                               |
| 6                                | 2          | 502-11-35A         | FLOW CONTROLER  |
| 7                                | 2          | 514-4-17N          | TEE, UNION, 1/4" TUBE                                 |
| 8                                | 6          | 514-4-17W          | FITTING, STRAIGHT, 1/8" NPT X 1/4" POLY               |
| 9                                | 2          | 6160               | NUT, T, HARDENED                                      |
| 10                               | 2          | MF-154C            | HEX BOLT 3/4-10 X 2 1/2"                              |
| 11                               | 2          | MF-181A            | FLAT WASHER 3/4"                                      |
| 12                               | 2          | MF-110             | SOCKET BUTTON HEAD SCREW #10-24 X 3/8"                |
| 13                               | 1          | 10205B             | ADAPTER ASSEMBLY, GE BLOCK, LINE BORE FIXTURE         |
| 14                               | 1          | 10205A             | CRADLE (REWORK), GE EVO/7FSL BLOCK, LINE BORE FIXTURE |
| 15                               | 1          | 10205G             | ADAPTER ASSEMBLY, GE 7FDL LINE BORE FIXTURE ASSEMBLY  |
| 16                               | 4          | 10205K             | SPACER, CRADLE, GE 7FDL LINE BORE FIXTURE ASSEMBLY    |
| 17                               | 8          | MF-44A             | SOCKET HEAD CAP SCREW 1/2-13 X 1 3/4"                 |

**10206 EMD 710 Cradle Kit**

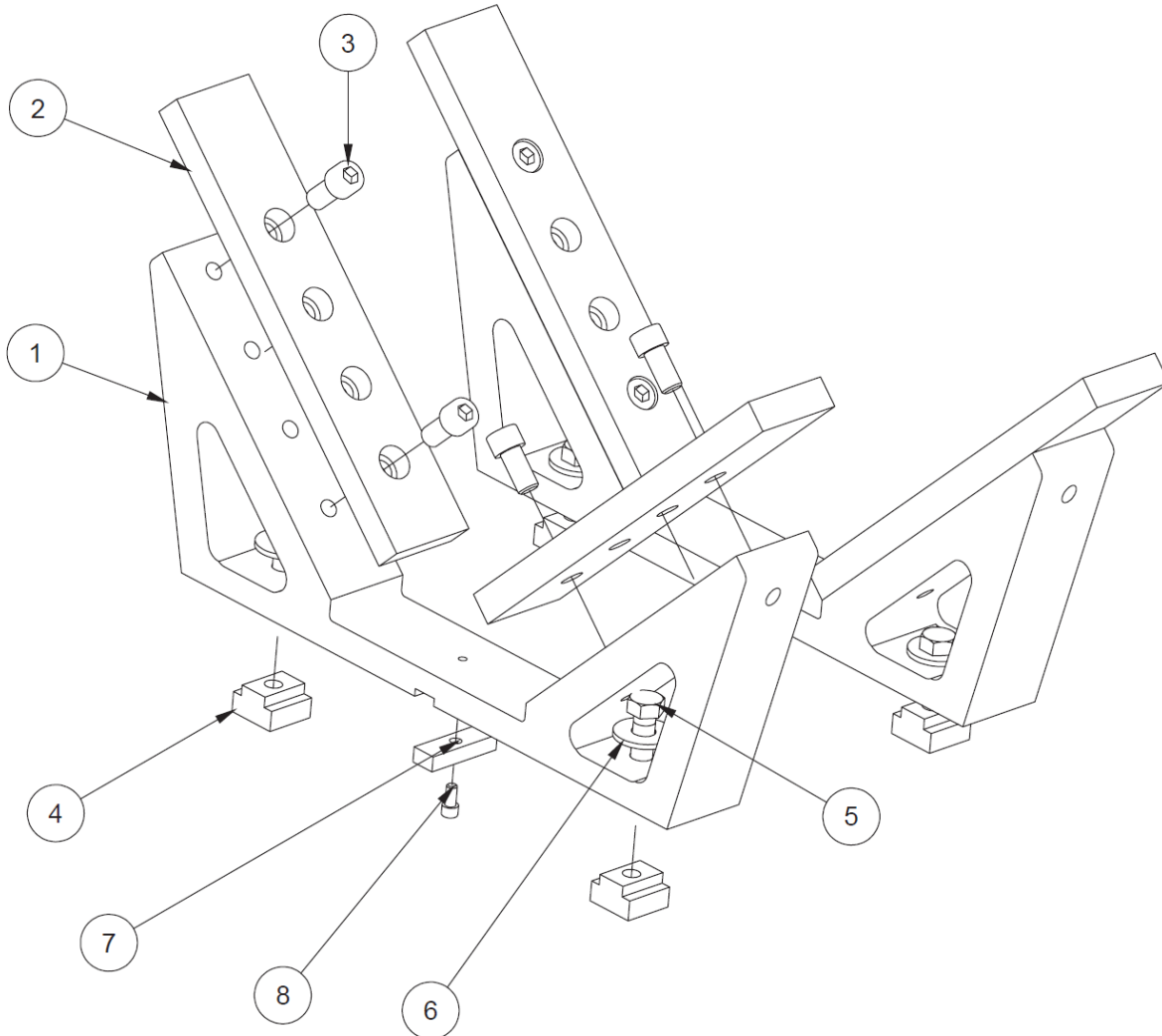
| <b>10206 EMD 710 Cradle Kit</b> |            |                    |   |
|---------------------------------|------------|--------------------|---|
| <b>ITEM</b>                     | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>  |
| 1                               | 1          | 10206B             | ADAPTER PLATE ASSEMBLY – EMD710, ADJUSTABLE PARALLEL, LINE BORE FIXTURE |
| 2                               | 1          | 502-27-17A         | REGULATOR BRACKET   |
| 3                               | 1          | 502-27-17          | REGULATOR, 0-60 PSI   |
| 4                               | 1          | 502-11-17S         | STREET ELL, 1/4"  |
| 5                               | 1          | 502-11-16X         | QUICK CONNECT AIR FITTING, MALE   |
| 6                               | 2          | 502-11-17J         | NIPPLE, CLOSE, 1/8" NPT   |
| 7                               | 2          | 502-11-35A         | FLOW CONTROLER  |
| 8                               | 2          | 514-4-17N          | TEE, UNION, 1/4" TUBE   |
| 9                               | 6          | 514-4-17W          | FITTING, STRAIGHT, 1/8" NPT X 1/4" POLY                                 |
| 10                              | 2          | 6160               | NUT, T, HARDENED  |
| 11                              | 2          | MF-154C            | HEX BOLT 3/4-10 X 2 1/2"  |
| 12                              | 2          | MF-181A            | FLAT WASHER 3/4"  |
| 13                              | 2          | MF-110             | SOCKET BUTTON HEAD SCREW #10-24 X 3/8"                                  |
| 14                              | 1          | 10206A             | CRADLE (MACHINING), EMD710, LINE BORE FIXTURE                           |

**10207 MTU 1163 Cradle Kit**

| <b>10207 MTU 1163 Cradle Kit</b> |            |                    |  |
|----------------------------------|------------|--------------------|--|
| <b>ITEM</b>                      | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                           |
| 1                                | 1          | 10203A             | CRADLE, WHITE SUPERIOR 2416 LINE BORE        |
| 2                                | 1          | 502-27-17A         | REGULATOR BRACKET                            |
| 3                                | 1          | 502-27-17          | REGULATOR, 0-60 PSI                          |
| 4                                | 1          | 502-11-17S         | STREET ELL, 1/4"                             |
| 5                                | 1          | 502-11-16X         | QUICK CONNECT AIR FITTING, MALE              |
| 6                                | 2          | 502-11-17J         | NIPPLE, CLOSE, 1/8" NPT                      |
| 7                                | 2          | 502-11-35A         | FLOW CONTROLER                               |
| 8                                | 2          | 514-4-17N          | TEE, UNION, 1/4" TUBE                        |
| 9                                | 6          | 514-4-17W          | FITTING, STRAIGHT, 1/8" NPT X 1/4" POLY      |
| 10                               | 2          | 6160               | NUT, T, HARDENED                             |
| 11                               | 2          | MF-154C            | HEX BOLT 3/4"-10 X 2 1/2"                    |
| 12                               | 2          | MF-181A            | FLAT WASHER 3/4"                             |
| 13                               | 2          | MF-110             | SOCKET BUTTON HEAD SCREW #10-24 X 3/8"       |
| 14                               | 1          | 10207A             | ADAPTER ASSEMBLY, MTU 1163 LINE BORE FIXTURE |

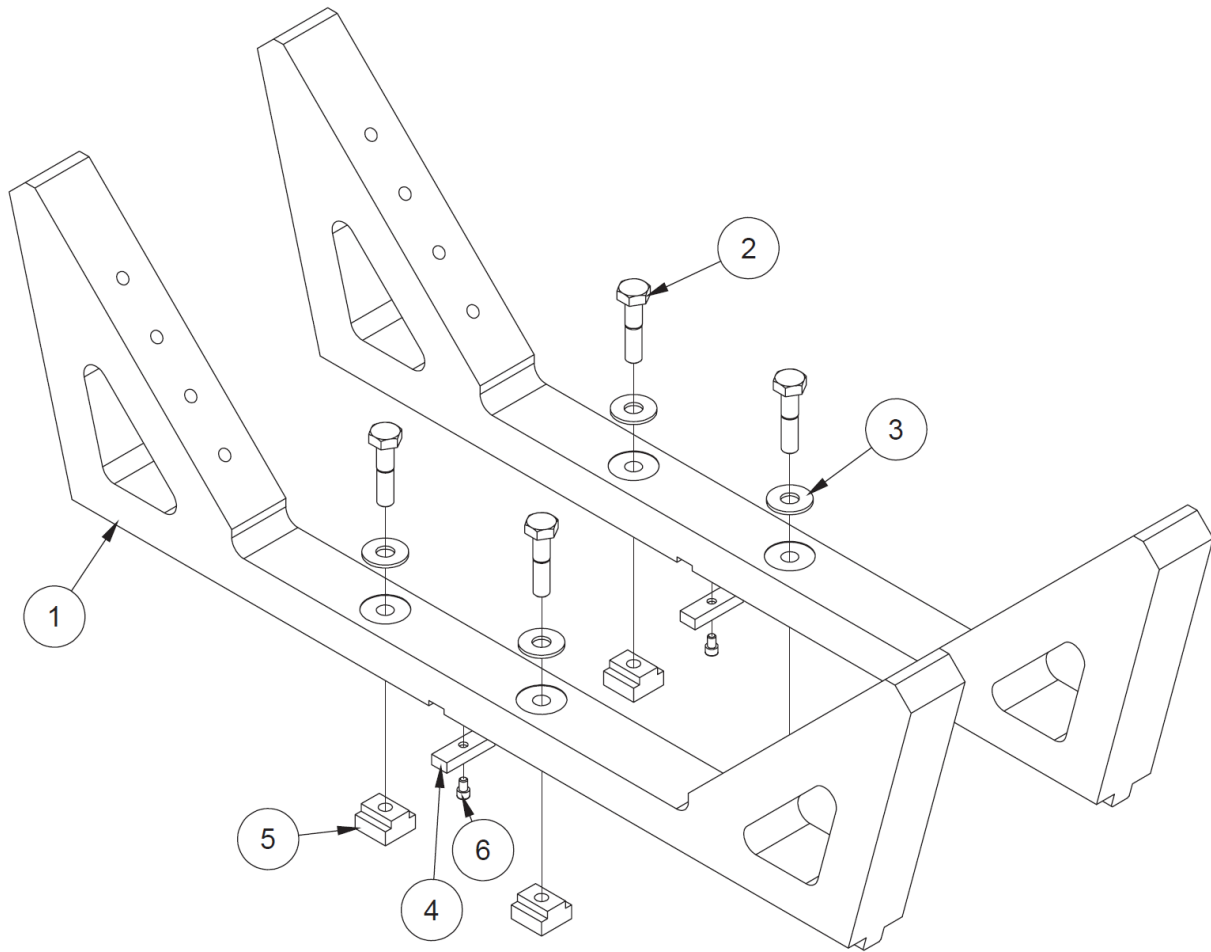
**10208 MTU 8000 Cradle Kit**

| <b>10208 MTU 8000 Cradle Kit</b> |            |                    |   |
|----------------------------------|------------|--------------------|---|
| <b>ITEM</b>                      | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>  |
| 1                                | 1          | 10208B             | ADAPTER PLATE ASSEMBLY – MTU 8000, ADJUSTABLE PARALLEL, LINE BORE FIXTURE |
| 2                                | 1          | 502-27-17A         | REGULATOR BRACKET   |
| 3                                | 1          | 502-27-17          | REGULATOR, 0-60 PSI   |
| 4                                | 1          | 502-11-17S         | STREET ELL, ¼   |
| 5                                | 1          | 502-11-16X         | QUICK CONNECT AIR FITTING, MALE   |
| 6                                | 2          | 502-11-17J         | NIPPLE, CLOSE, ⅛ NPT  |
| 7                                | 2          | 502-11-35A         | FLOW CONTROLER  |
| 8                                | 2          | 514-4-17N          | TEE, UNION, ¼" TUBE   |
| 9                                | 6          | 514-4-17W          | FITTING, STRAIGHT, ⅛ NPT X ¼ POLY   |
| 10                               | 2          | 6160               | NUT, T, HARDENED  |
| 11                               | 2          | MF-154C            | HEX BOLT ¾-10 X 2 ½"  |
| 12                               | 2          | MF-181A            | FLAT WASHER ¾"  |
| 13                               | 2          | MF-110             | SOCKET BUTTON HEAD SCREW #10-24 X ¾"                                      |
| 14                               | 1          | 10208A             | CRADLE (MACHINING), MTU 8000, LINE BORE FIXTURE                           |

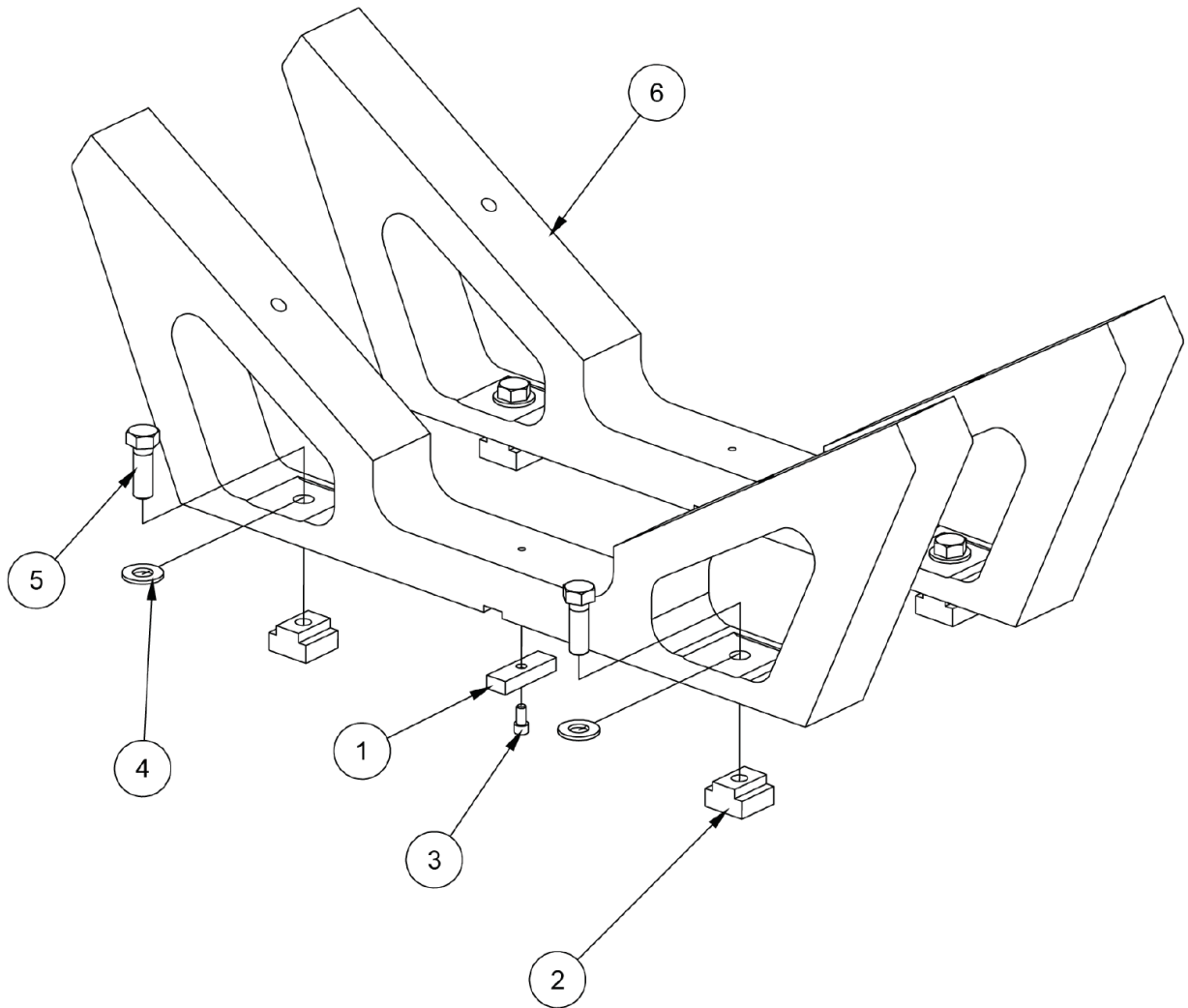
**6843 90° V-Block Support Kit**

| <b>6843 90° V-Block Support Kit</b> |            |                    |                                      |
|-------------------------------------|------------|--------------------|--------------------------------------|
| <b>ITEM</b>                         | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                   |
| 1                                   | 2          | 6843A              | CRADLE, RIGHT AND LEFT, V-BLOCK      |
| 2                                   | 4          | 6789D              | ADAPTER PLATE, V-BLOCK CRADLE        |
| 3                                   | 8          | MF-42              | SOCKET HEAD CAPSCREW 1/2-13 X 1 1/2" |
| 4                                   | 4          | 502-1-11B          | T-NUT 3/4"                           |
| 5                                   | 4          | MF-150A            | HEX BOLT 1/2-13 X 1 1/2"             |
| 6                                   | 4          | MF-180             | FLAT WASHER 1/2"                     |
| 7                                   | 2          | 6831               | KEY, FIXTURE                         |
| 8                                   | 2          | MF-12              | SOCKET HEAD CAPSCREW 1/4-20 X 1/2"   |

### 6823E 90° V-Block Support Kit, Large Blocks

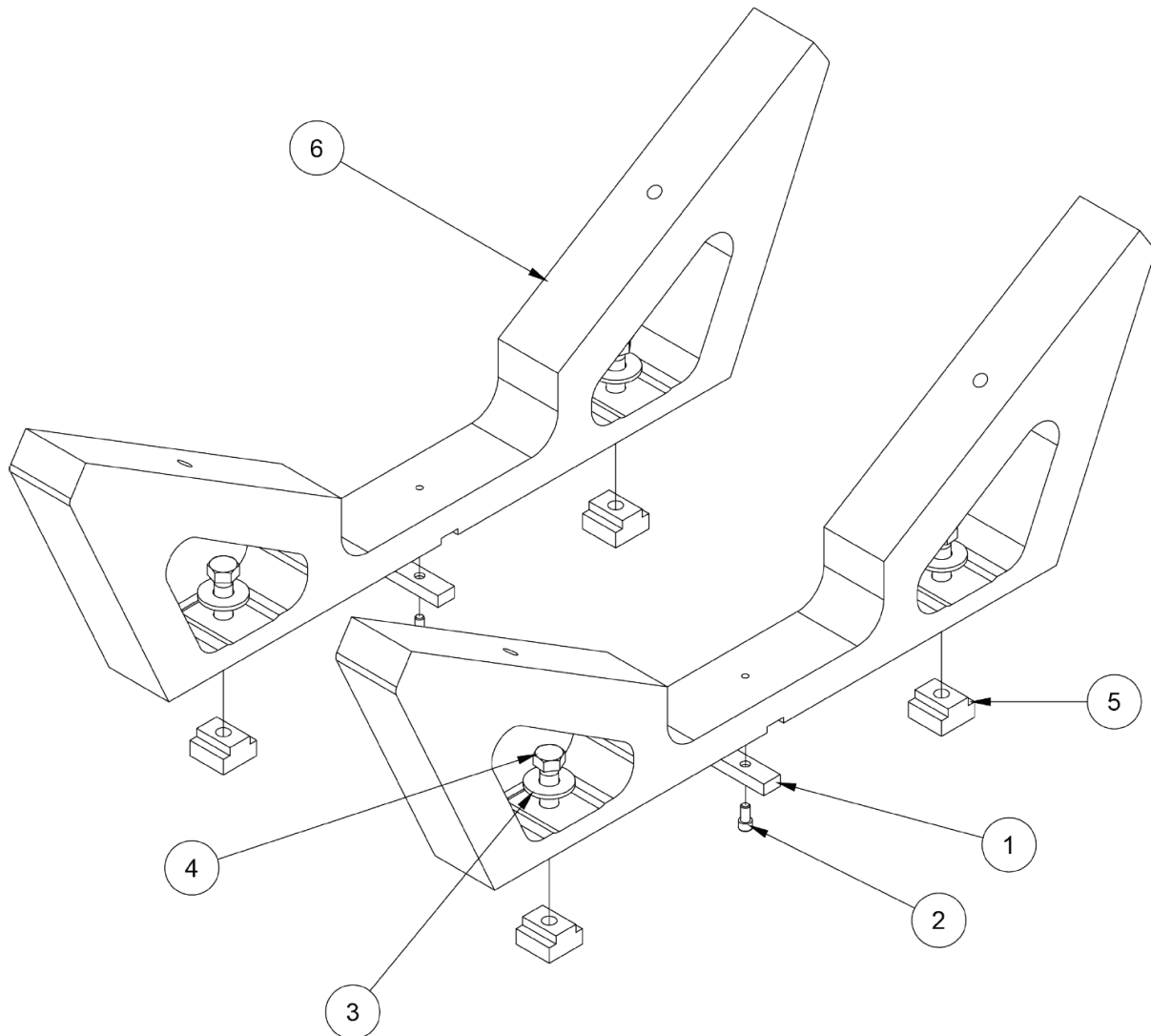


| 6823E LARGE 90 DEG V-BLOCK CRADLE ASSEMBLY |     |             |                                 |
|--|-----|-------------|---------------------------------|
| ITEM                                       | QTY | PART NUMBER | DESCRIPTION                     |
| 1  | 2   | 6823D       | CRADLE, LARGE 90 DEGREE V-BLOCK |
| 2  | 4   | MF-149A     | HEX BOLT, 1/2-13 X 2 1/4"       |
| 3  | 4   | MF-180      | FLAT WASHER, 1/2"               |
| 4  | 2   | 6831        | KEY, FIXTURE                    |
| 5  | 4   | 502-1-11B   | T-NUT, 3/4"                     |
| 6  | 2   | MF-149A     | S.H.C.S. 1/4-20 X 3/8"          |

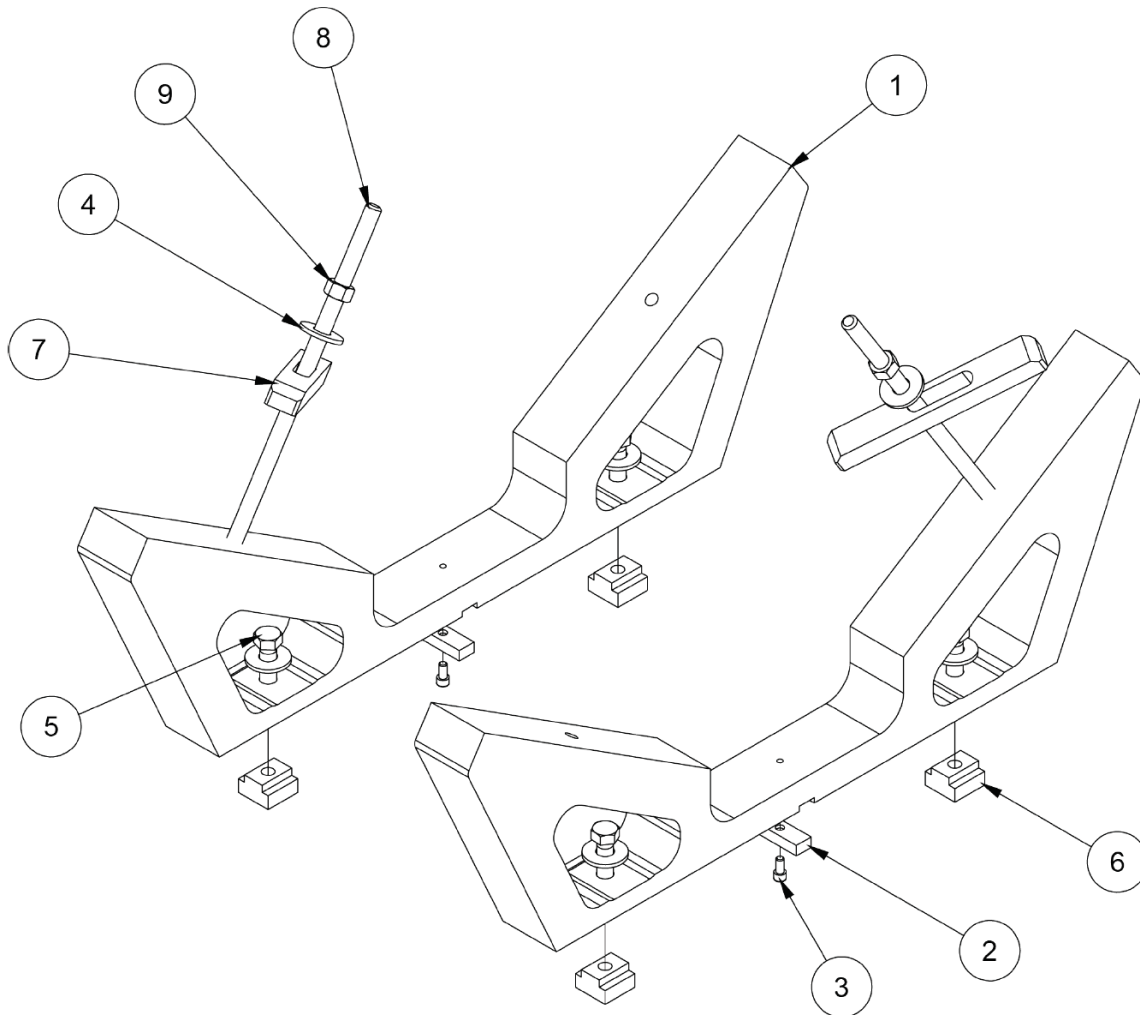
**6789L 113° V-Block Support Kit**

| 6789L 113 DEG V-BLOCK CRADLE ASSEMBLY |     |             |   |
|---------------------------------------|-----|-------------|---|
| ITEM                                  | QTY | PART NUMBER | DESCRIPTION                                     |
| 1                                     | 2   | 6831        | KEY, FIXTURE                                    |
| 2                                     | 4   | 502-1-11B   | T-NUT, $\frac{3}{4}$ "                          |
| 3                                     | 2   | MF-12       | S.H.C.S. $\frac{1}{4}$ -20 X $\frac{1}{2}$ "    |
| 4                                     | 4   | MF-180      | FLAT WASHER, $\frac{1}{2}$ "                    |
| 5                                     | 4   | MF-150A     | HEX BOLT, $\frac{1}{2}$ -13 X $1 \frac{1}{2}$ " |
| 6                                     | 2   | 6789M       | CRADLE, DETROIT DIESEL V53 BLOCK, 113 DEG. 11'  |

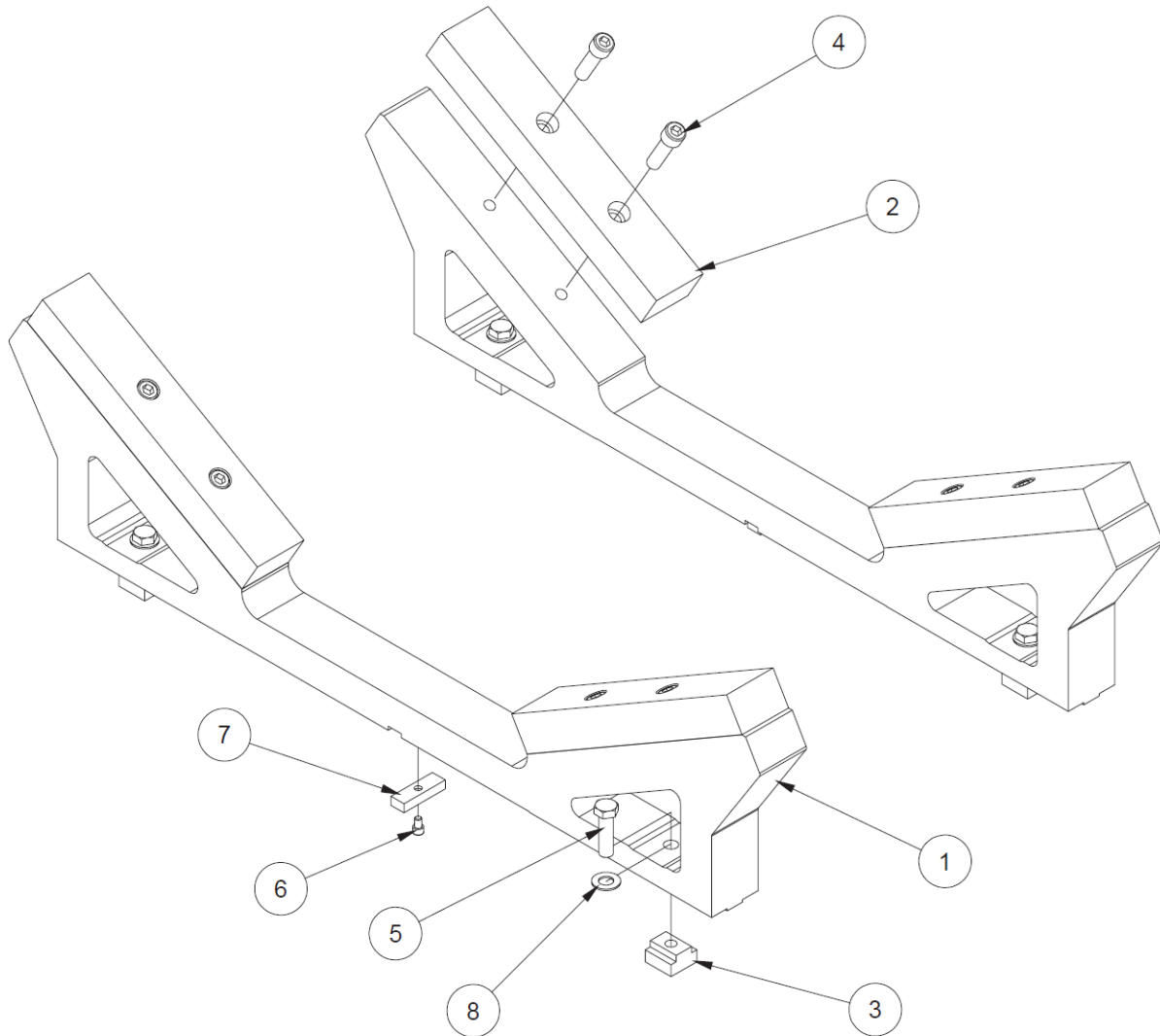


**6789N 116° V-Block Support Kit**

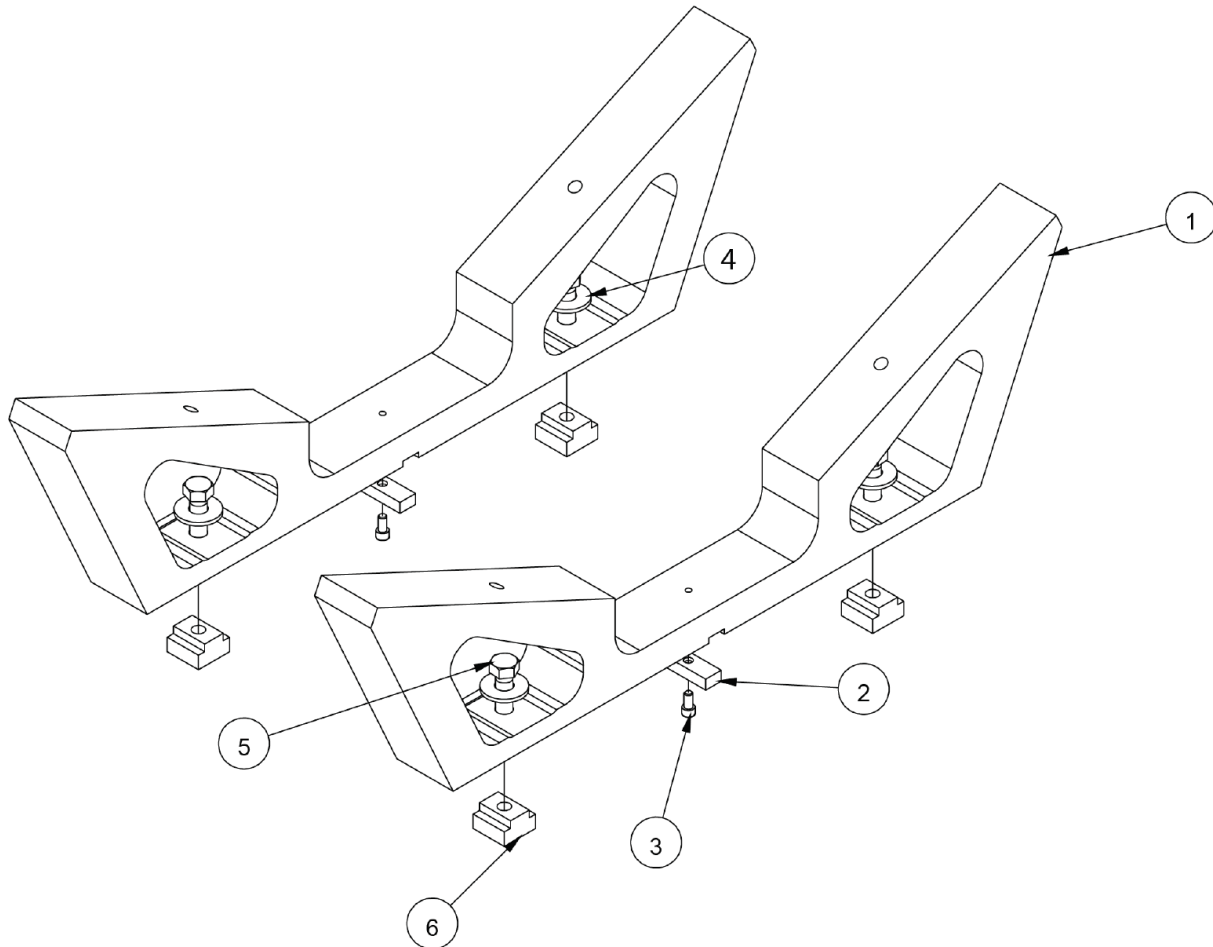
| 6789N 116 DEG 12 MIN V-BLOCK CRADLE ASSEMBLY |     |             |                            |
|--|-----|-------------|----------------------------|
| ITEM   | QTY | PART NUMBER | DESCRIPTION                |
| 1  | 2   | 6831        | KEY, FIXTURE               |
| 2  | 2   | MF-12       | S.H.C.S. 1/4-20 X 1/2"     |
| 3  | 4   | MF-180      | FLAT WASHER, 1/2"          |
| 4  | 4   | MF-150A     | HEX BOLT, 1/2-13 X 1 1/2"  |
| 5  | 4   | 502-1-11B   | T-NUT, 1/2-13              |
| 6  | 2   | 6789P       | 116 DEG 12' V-BLOCK CRADLE |

**6789E 115° V-Block Support Kit**

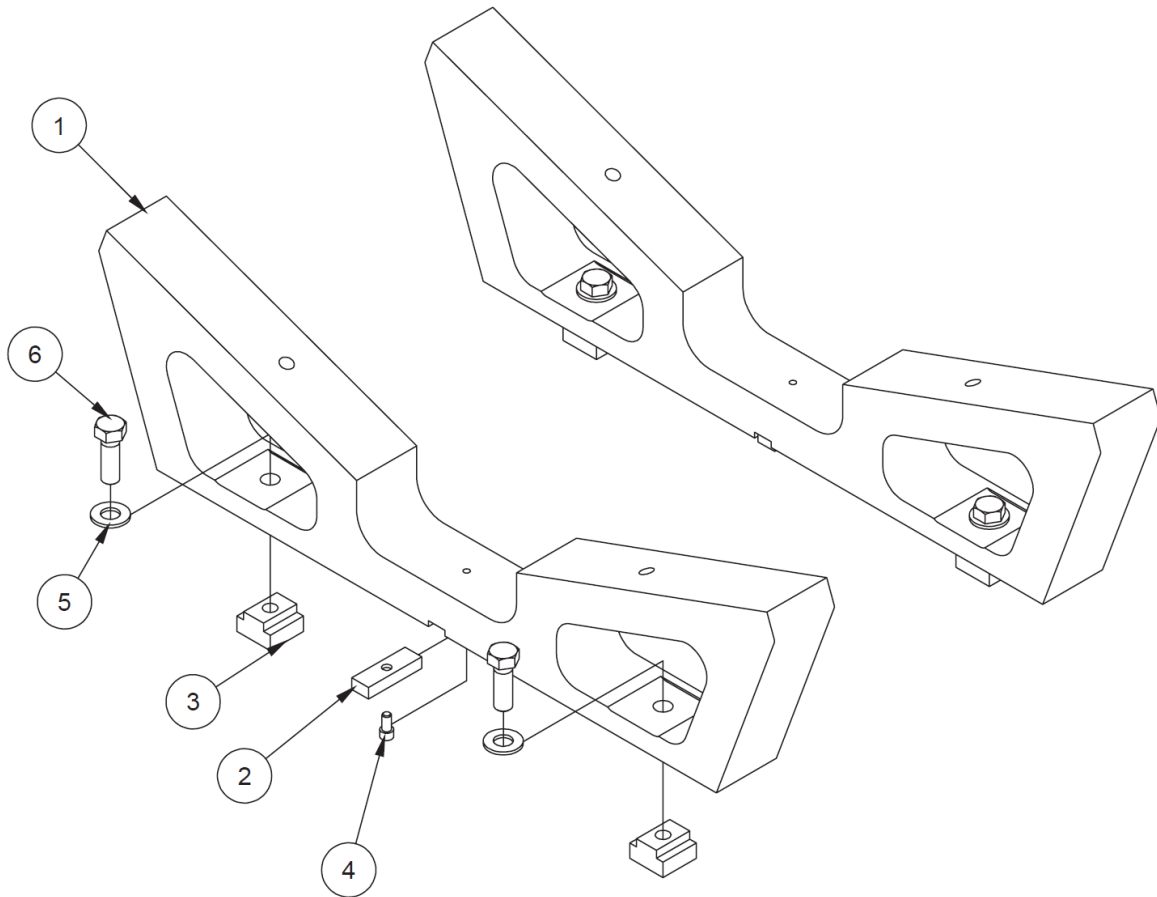
| 6789N 116 DEG 12 MIN V-BLOCK CRADLE ASSEMBLY |     |             |                           |
|--|-----|-------------|---------------------------|
| ITEM   | QTY | PART NUMBER | DESCRIPTION               |
| 1  | 2   | 6789F       | 115 DEG V-BLOCK CRADLE    |
| 2  | 2   | 6831        | KEY, FIXTURE              |
| 3  | 2   | MF-12       | S.H.C.S. 1/4-20 X 1/2"    |
| 4  | 4   | MF-180      | FLAT WASHER, 1/2"         |
| 5  | 4   | MF-150A     | HEX BOLT, 1/2-13 X 1 1/2" |
| 6  | 4   | 502-1-11B   | T-NUT, 1/2-13             |
| 7  | 2   | 6833A       | CLAMP BAR                 |
| 8  | 2   | 6833B       | CLAMP ROD                 |
| 9  | 2   | MF-165      | HEX NUT, 1/2-13           |

**6823B 120° Degree V-Block Support**

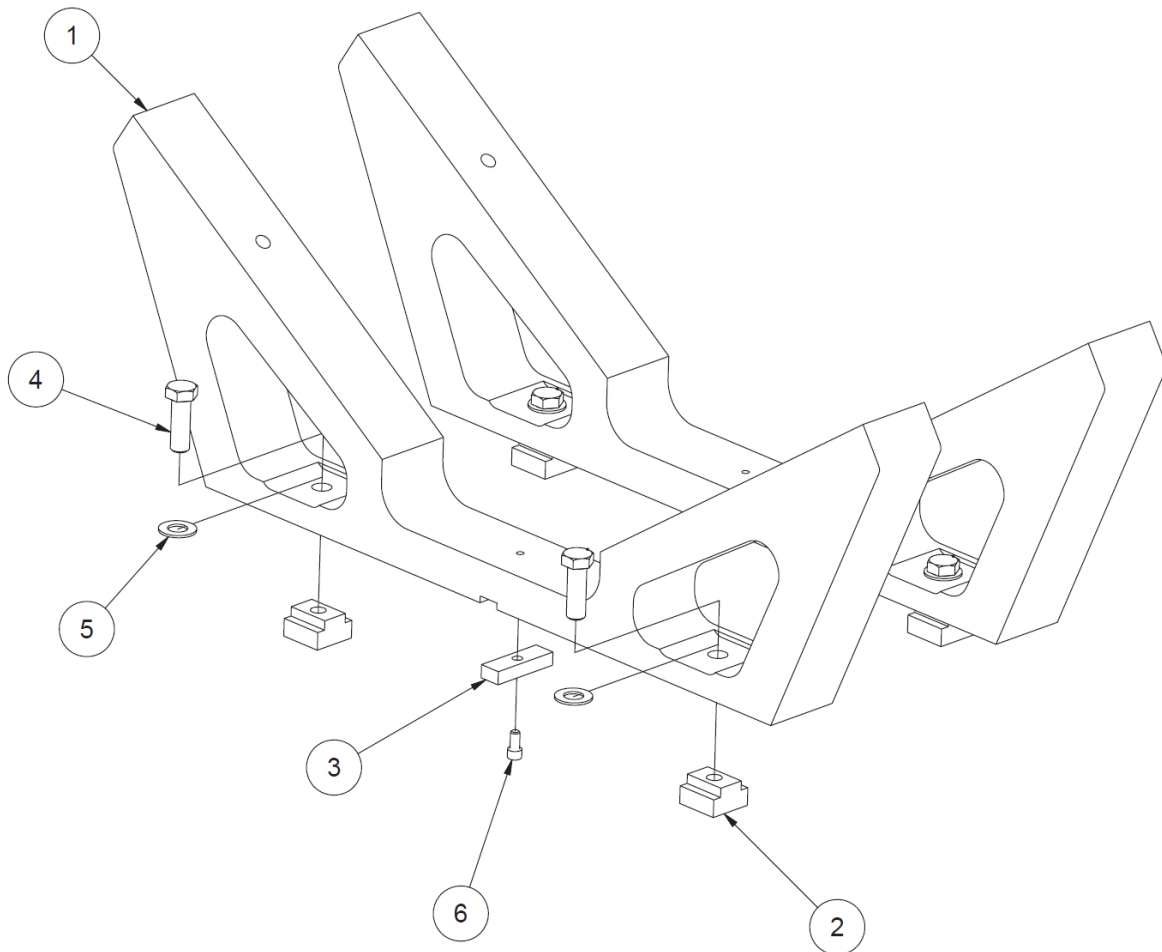
| 6823B CAT 3500, 120° V-BLOCK CRADLE ASSEMBLY |     |             |                                      |
|--|-----|-------------|--------------------------------------|
| ITEM   | QTY | PART NUMBER | DESCRIPTION                          |
| 1  | 2   | 6823A       | CAT 3500 CRADLE                      |
| 2  | 4   | 6789H       | ADAPTER PLATE, 1.5"                  |
| 3  | 4   | 502-1-11B   | T-NUT, 3/4"                          |
| 4  | 8   | MF-44A      | SOCKET HEAD CAPSCREW 1/2-13 x 1 3/4" |
| 5  | 4   | MF-149B     | HEX BOLT 1/2-13 X 1 3/4"             |
| 6  | 2   | MF-11       | SOCKET HEAD CAPSCREW 1/4-20 X 3/8"   |
| 7  | 2   | 6831        | KEY, FIXTURE                         |
| 8  | 4   | MF-180      | FLAT WASHER 1/2"                     |

**6789K 130° V-Block Support Kit**

| 6789K 130 DEGREE V-BLOCK CRADLE ASSEMBLY |     |             |                           |
|--|-----|-------------|---------------------------|
| ITEM                                     | QTY | PART NUMBER | DESCRIPTION               |
| 1  | 2   | 6789J       | 130 DEG V-BLOCK CRADLE    |
| 2  | 2   | 6831        | KEY, FIXTURE              |
| 3  | 2   | MF-12       | S.H.C.S. 1/4-20 X 1/2"    |
| 4  | 4   | MF-180      | FLAT WASHER, 1/2"         |
| 5  | 4   | MF-150A     | HEX BOLT, 1/2-13 X 1 1/2" |
| 6  | 4   | 502-1-11B   | T-NUT, 1/2-13             |

**6789Q 140° V-Block Support Kit**

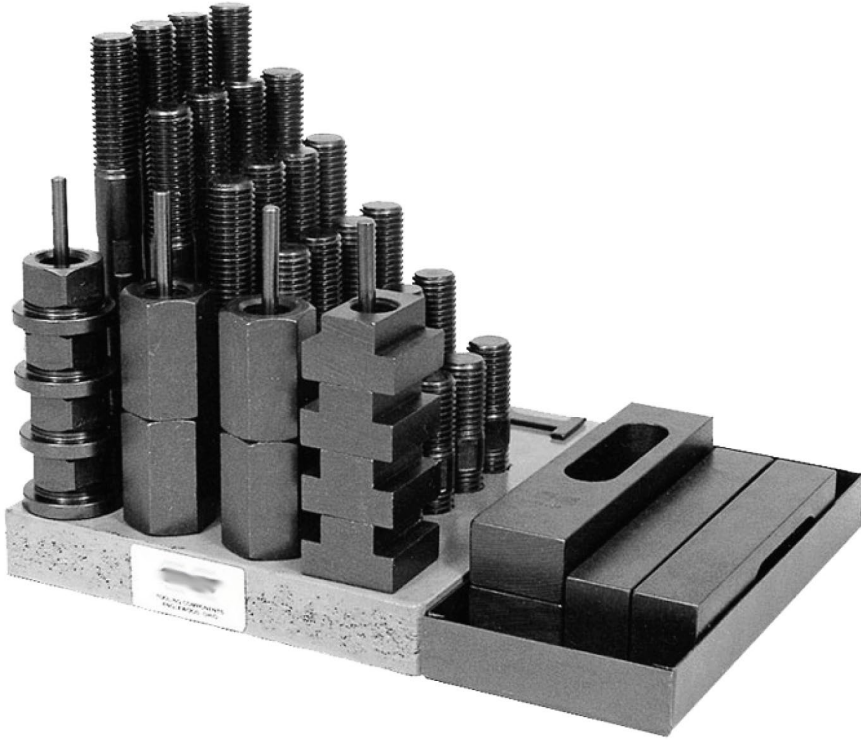
| <b>6789Q 140 DEGREE V-BLOCK CRADLE ASSEMBLY</b> |            |                    |                           |
|---|------------|--------------------|---------------------------|
| <b>ITEM</b>                                     | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>        |
| 1   | 2          | 6789J              | 140 DEG V-BLOCK CRADLE    |
| 2   | 2          | 6831               | KEY, FIXTURE              |
| 3   | 4          | 502-1-11B          | T-NUT, 1/2-13             |
| 4   | 2          | MF-12              | S.H.C.S. 1/4-20 X 1/2"    |
| 5   | 4          | MF-180             | FLAT WASHER, 1/2"         |
| 6   | 4          | MF-150A            | HEX BOLT, 1/2-13 X 1 1/2" |

**6789T 110° V-Block Support Kit**

| <b>6789T CRADLE ASSEMBLY, GE JENBACHER 3 BLOCK (110 DEG) – LINE BORE<br/>FIXTURE – F105</b> |            |                    |                           |
|---|------------|--------------------|---------------------------|
| <b>ITEM</b>   | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>        |
| 1   | 2          | 6789J              | 140 DEG V-BLOCK CRADLE    |
| 2   | 4          | 502-1-11B          | T-NUT, 1/2-13             |
| 3   | 2          | 6831               | KEY, FIXTURE              |
| 4   | 4          | MF-150A            | HEX BOLT, 1/2-13 X 1 1/2" |
| 5   | 4          | MF-180             | FLAT WASHER, 1/2"         |
| 6   | 2          | MF-12              | S.H.C.S. 1/4-20 X 1/2"    |

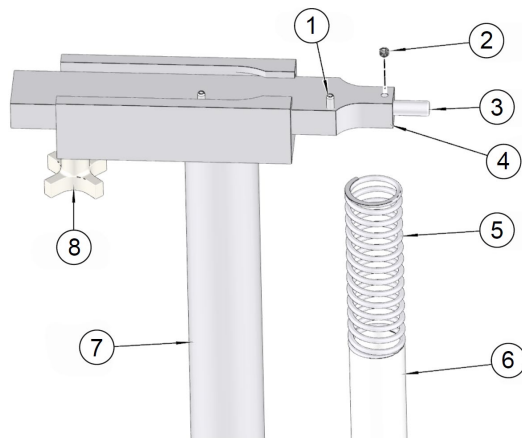
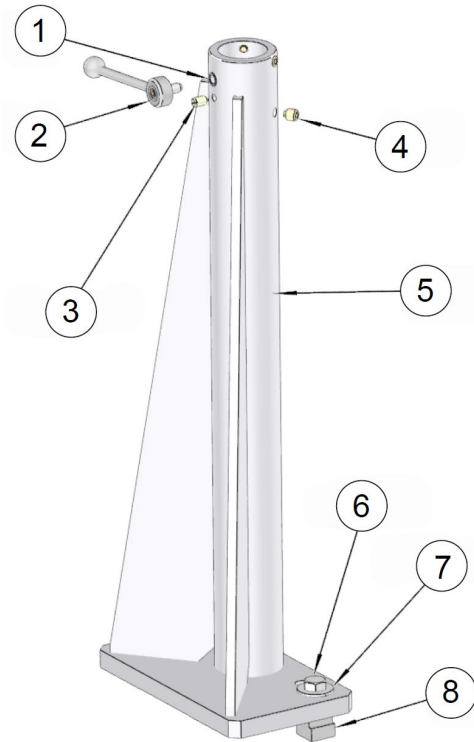
## Miscellaneous Fixtures/Accessories

### 6511 3/4" (19.05mm) Clamp Kit



## 6309P Tower Type Block Hold-down Clamp Kit

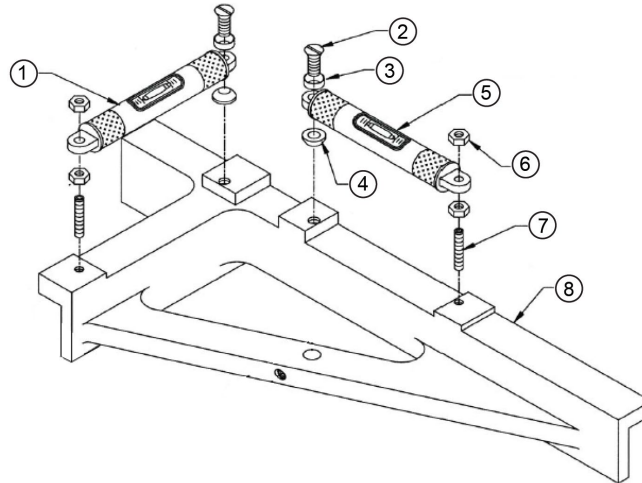
| 6309N CLAMP TOWER ASSEMBLY |     |             |                                      |
|----------------------------|-----|-------------|--------------------------------------|
| ITEM                       | QTY | PART NUMBER | DESCRIPTION                          |
| 1                          | 1   | 6310R       | INSERT, THREAD                       |
| 2                          | 1   | 6310N       | HANDLE ASSY, CLAMP TOWER             |
| 3                          | 1   | 502-8-52C   | PLUNGER, SPRING                      |
| 4                          | 1   | 6310Y       | SET SCREW, BRASS TIPPED, 5/8-11 X 2" |
| 5                          | 1   | 6309R       | BASE, CLAMP ARM                      |
| 6                          | 2   | MF-154K     | HEX BOLT 3/4-10 X 2"                 |
| 7                          | 2   | MF-181A     | FLAT WASHERS 3/4"                    |
| 8                          | 2   | 6160        | NUT, T, HARDENED                     |



| 6309J CLAMP TOWER BASE ASSEMBLY |     |             |  |
|---------------------------------|-----|-------------|--|
| ITEM                            | QTY | PART NUMBER | DESCRIPTION                                  |
| 1                               | 2   | MF-227      | ROLL PIN 1/4 X 1 1/4"                        |
| 2                               | 1   | MF-67       | SOCKET SET SCREW, FLAT POINT, 5/16-18 X 1/4" |
| 3                               | 1   | MF-124      | SOCKET FLAT HEAD SCREW #8-32 X 1"            |
| 4                               | 1   | 6310H       | SHOE, BLOCK CLAMPS                           |
| 5                               | 1   | 6310S       | SPRING, SHOCK CLAMP LEG                      |
| 6                               | 1   | 6309S       | SPACER, EXTRA LONG-SPRING SHOCK              |
| 7                               | 1   | 6310T       | LEG, LONG BLOCK CLAMPS                       |
| 8                               | 1   | 6310K       | HAND KNOB BLOCK CLAMP                        |



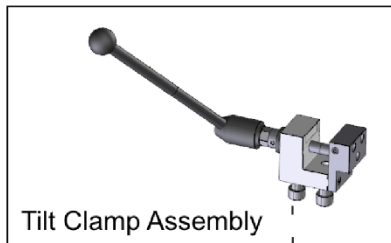
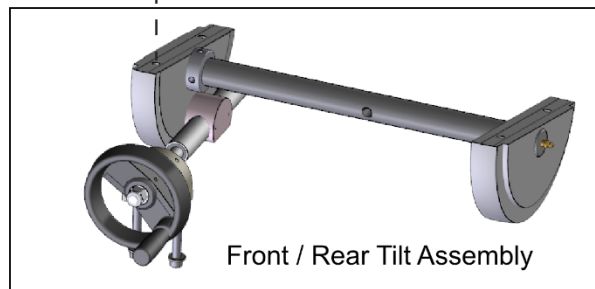
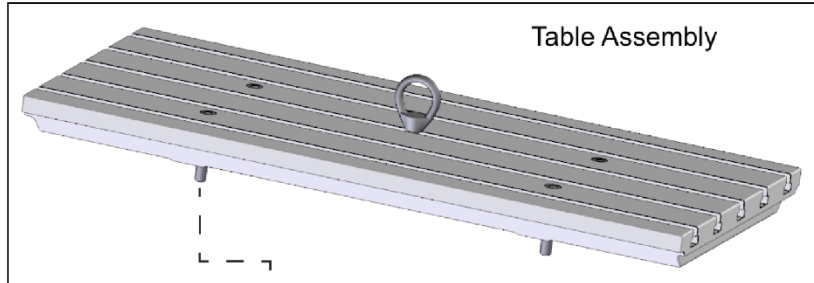
### 7152A Dual Axis Level



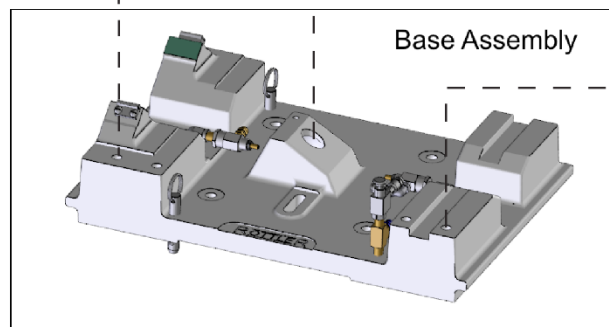
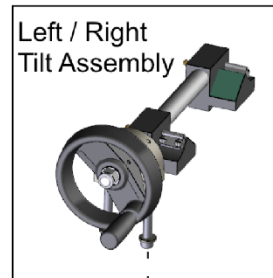
| ITEM | QTY | PART NUMBER | DESCRIPTION                                   |
|------|-----|-------------|---|
| 1    | 1   | 7152        | VIAL ONLY, LEVEL SF                           |
| 2    | 2   | 7153G       | SCREW, FLAT HEAD, #12-24, SURFACING LEVEL     |
| 3    | 2   | 7153Z       | WASHER, LEVEL MOUNTING (COUNTERSUNK HEAD)     |
| 4    | 2   | 7153V       | WASHER, LEVEL MOUNTING (RADIUS HEAD)          |
| 5    | 1   | 7152C       | COMPLETED VIAL, LONGITUDINAL SF LEVEL ASS'Y   |
| 6    | 4   | 7153H       | NUT, #12-24, HEAD SURFACING LEVEL             |
| 7    | 2   | 7153J       | SCREW, SOCKET SET #12-24 X 1" SURFACING LEVEL |
| 8    | 1   | 7153S       | BASE, HEAD SURFACE LEVEL                      |

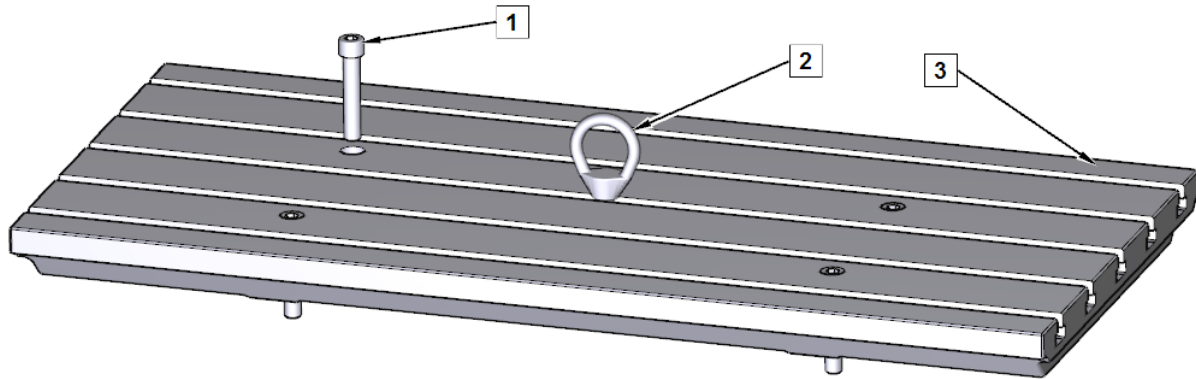
### 7209M Dual Axis Leveling Table

#### 7209M Leveling Table Sections

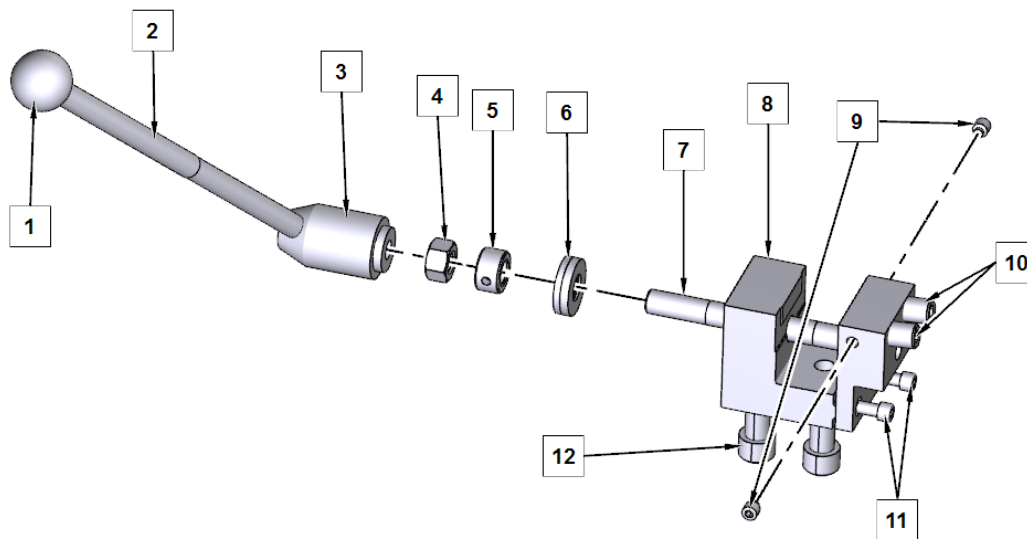


#### Tensioner Assembly

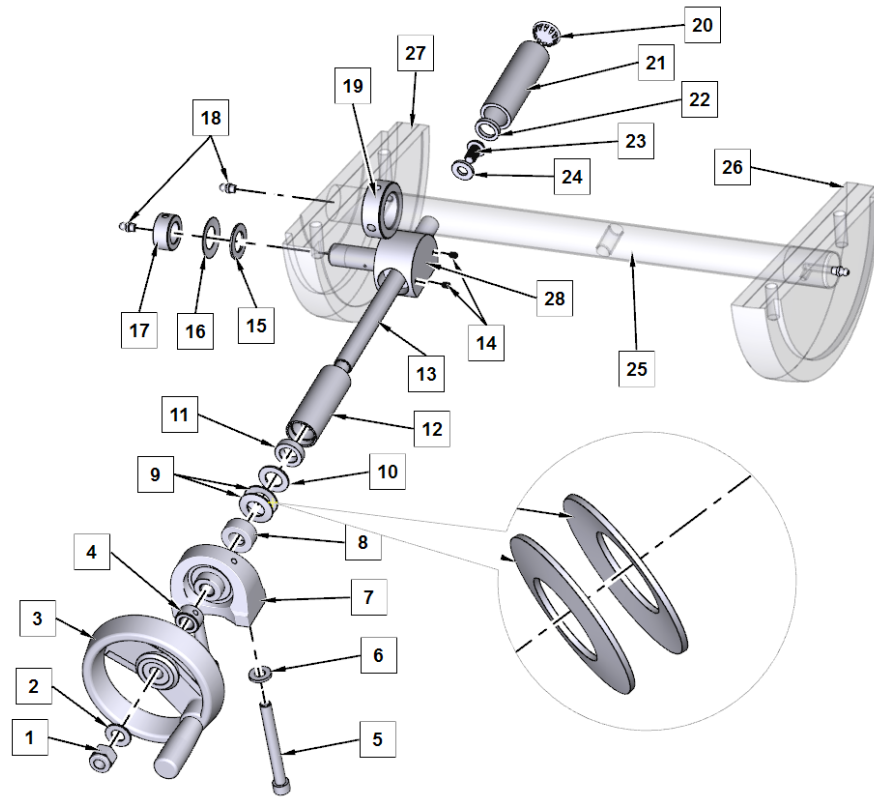




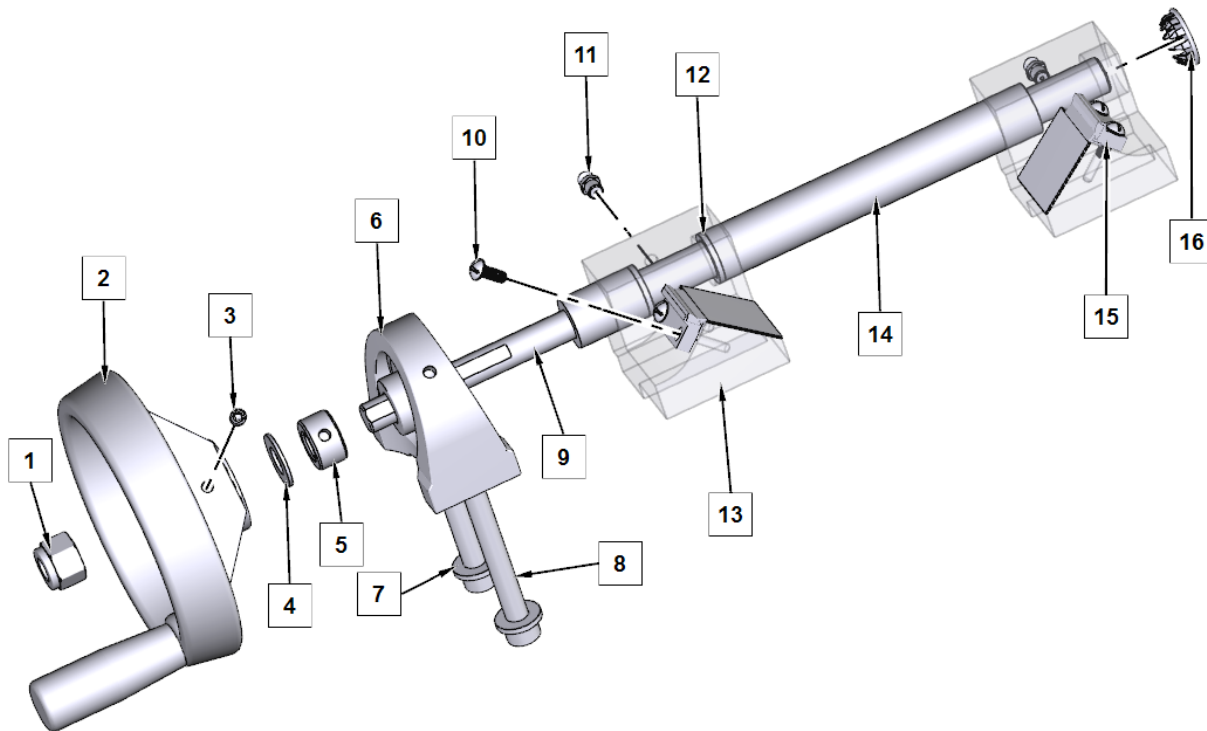
| ITEM | QTY | PART NUMBER | DESCRIPTION                       |
|------|-----|-------------|-----------------------------------|
| 1    | 4   | MF-45       | SOCKET HEAD CAPSCREW, 1/2-13 X 2" |
| 2    | 1   | 502-3-13    | EYE, LIFTING                      |
| 3    | 1   | 7207C       | TABLE, DUAL AXIS HEAD FIXTURE     |



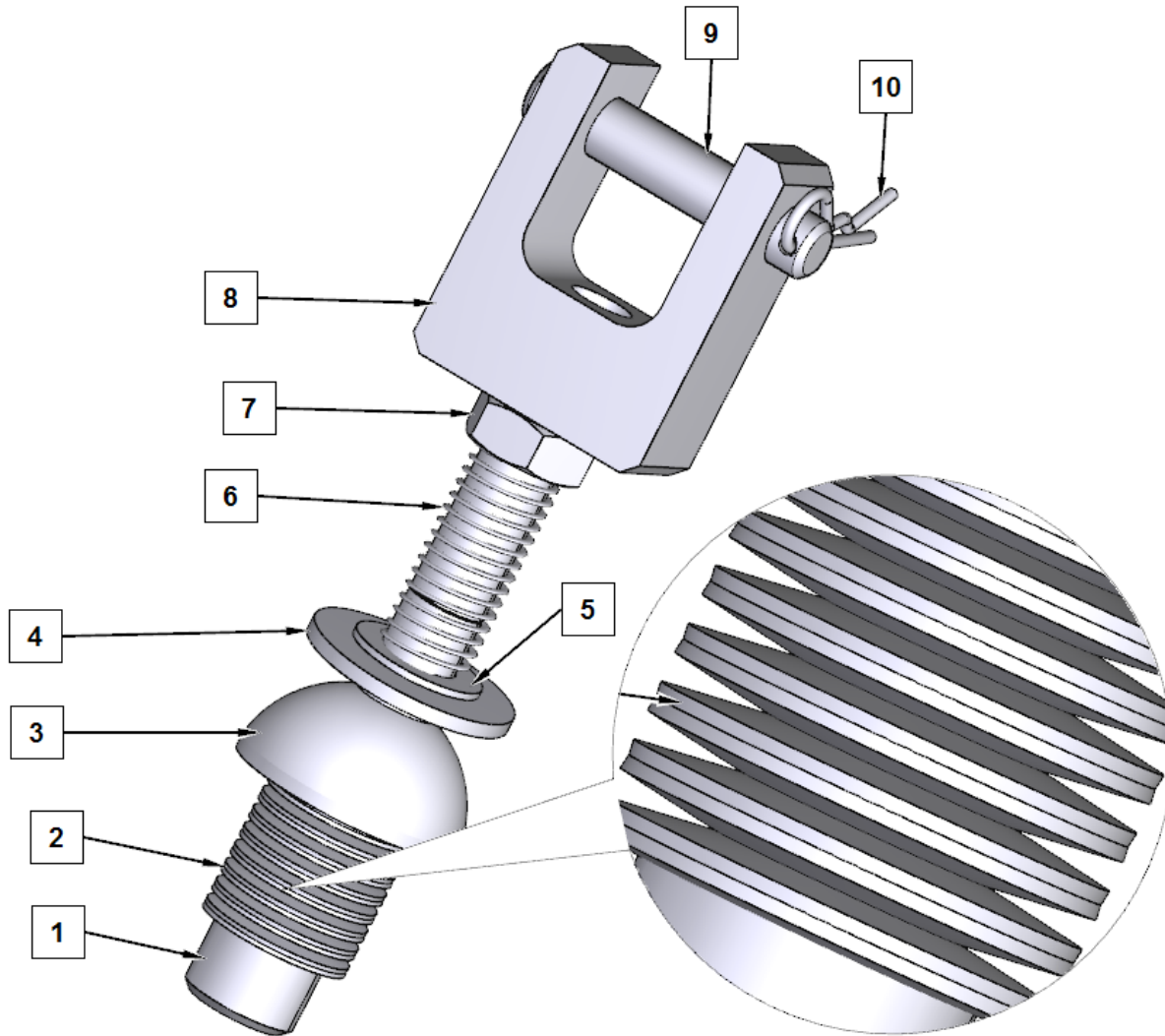
| ITEM | QTY | PART NUMBER | DESCRIPTION                               |
|------|-----|-------------|---|
| 1    | 1   | 514-2-39E   | KNOB, ADJUSTABLE HANDLE                   |
| 2    | 1   | 514-2-39B   | EXTENDER, ADJUSTABLE HANDLE               |
| 3    | 1   | 514-2-39D   | HANDLE, ADJUSTABLE - CLAMP STOP           |
| 4    | 1   | MF-165      | HEX NUT, 1/2-13                           |
| 5    | 1   | 7209J       | COLLAR, 1/2" SHAFT                        |
| 6    | 1   | 7209E       | WASHER, SPHERICAL                         |
| 7    | 1   | 7207Z       | SHAFT, JOURNAL CLAMP                      |
| 8    | 1   | 7210J       | CLAMP BLOCK, JOURNAL CLAMP                |
| 9    | 2   | 504-29-36   | SCREW, SET - BRASS TIPPED 5/16-18 X 5/16" |
| 10   | 2   | 7209B       | SCREW, SET - BRASS TIPPED 1/2-20 X 3/4"   |
| 11   | 2   | MF-12       | SOCKET HEAD CAP SCREW, 1/4-20 X 1/2"      |
| 12   | 2   | MF-45       | SOCKET HEAD CAP SCREW, 1/2-13 X 2"        |



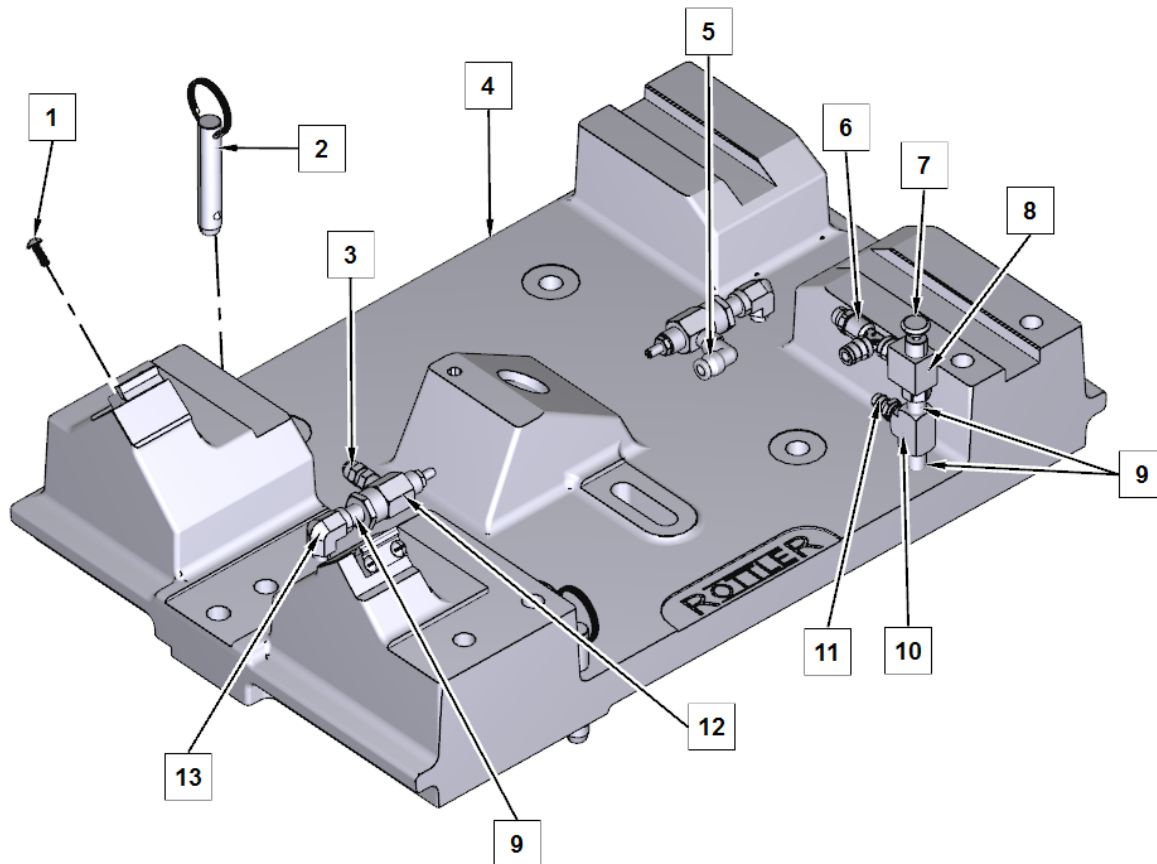
| ITEM | QTY | PART NUMBER | DESCRIPTION                                |
|------|-----|-------------|--|
| 1    | 1   | MF-186      | NYLOCK NUT, 1/2-13                         |
| 2    | 1   | 100-19      | WASHER, THRUST                             |
| 3    | 1   | 7201M       | HANDWHEEL                                  |
| 4    | 1   | 7209J       | COLLAR, 1/2" SHAFT                         |
| 5    | 2   | MF-36A      | SOCKET HEAD CAPSCREW, 3/8-16 X 3 1/2"      |
| 6    | 2   | 100-28-32   | WASHER, 3/32" THICK                        |
| 7    | 1   | 7201D       | BLOCK, PILLOW, LEVEL ADJUST                |
| 8    | 1   | 7199E       | COLLAR, SUPPORT BLOCK (5/8" DIA)           |
| 9    | 2   | 514-7-21    | WASHER, BELLEVILLE                         |
| 10   | 1   | 514-7-20    | WASHER, THRUST                             |
| 11   | 1   | 7209F       | SEAL, PIVOT NUT TUBE                       |
| 12   | 1   | 7201Y       | TUBE, SEALED – PIVOT NUT                   |
| 13   | 1   | 7209Q       | SHAFT, FRONT/REAR TABLE TILT               |
| 14   | 2   | MF-52       | SOCKET SET SCREW, CUP POINT, #10-24 X 1/4" |
| 15   | 1   | 514-2-90    | WASHER, THRUST                             |
| 16   | 1   | 7209K       | WASHER, BELLEVILLE – PIVOT NUT             |
| 17   | 1   | 7201X       | COLLAR, PIVOT NUT                          |
| 18   | 2   | MF-189      | 1/4-28 STRAIGHT LUBE GREASE FITTING        |
| 19   | 1   | 7207X       | COLLAR, CLAMP BAR – 1 1/4"                 |
| 20   | 1   | 506-3-1     | PLUG, SNAP-IN HOLE – 7/8"                  |
| 21   | 1   | 7201T       | TUBE, CAPPED – PIVOT NUT                   |
| 22   | 1   | 514-7-35    | O-RING, LEVELING TABLE                     |
| 23   | 1   | MF-97       | SOCKET BUTTON HEAD SCREW 3/8-16 X 5/8"     |
| 24   | 1   | 100-28-32   | WASHER, 3/32"                              |
| 25   | 1   | 7207V       | BAR, CLAMP                                 |
| 26   | 1   | 7207J       | JOURNAL, RIGHT                             |
| 27   | 1   | 7207H       | JOURNAL, LEFT                              |



| ITEM | QTY | PART NUMBER | DESCRIPTION                                |
|------|-----|-------------|--|
| 1    | 1   | MF-186      | NYLOCK NUT, 1/2-13                         |
| 2    | 1   | 7201M       | HANDWHEEL                                  |
| 3    | 1   | MF-60       | SOCKET SET SCREW, CUP POINT, 1/4-20 X 1/4" |
| 4    | 1   | 100-19      | WASHER, THRUST                             |
| 5    | 1   | 7209J       | COLLAR, 1/2" SHAFT                         |
| 6    | 1   | 7201D       | BLOCK, PILLOW, LEVEL ADJUST                |
| 7    | 2   | 100-28-32   | WASHER, 3/32" THICK                        |
| 8    | 2   | MF-36A      | SOCKET HEAD CAPSCREW, 3/8-16 X 3 1/2"      |
| 9    | 1   | 7207M       | SHAFT, LEFT/RIGHT TILT                     |
| 10   | 1   | MF-111      | ROUND HEAD MACHINE SCREW, #10-24 X 1/2"    |
| 11   | 1   | MF-189      | 1/4-28 STRAIGHT LUBE GREASE FITTING        |
| 12   | 1   | 7209H       | BUMPER, LEFT/RIGHT PIVOT                   |
| 13   | 1   | 7222        | BLOCK, FRONT BEARING                       |
| 14   | 1   | 7207N       | COVER, LEFT/RIGHT TILT SHAFT               |
| 15   | 1   | 7198Y       | WIPER, JOURNAL                             |
| 16   | 1   | 506-3-1     | PLUG, SNAP-IN HOLE - 7/8"                  |

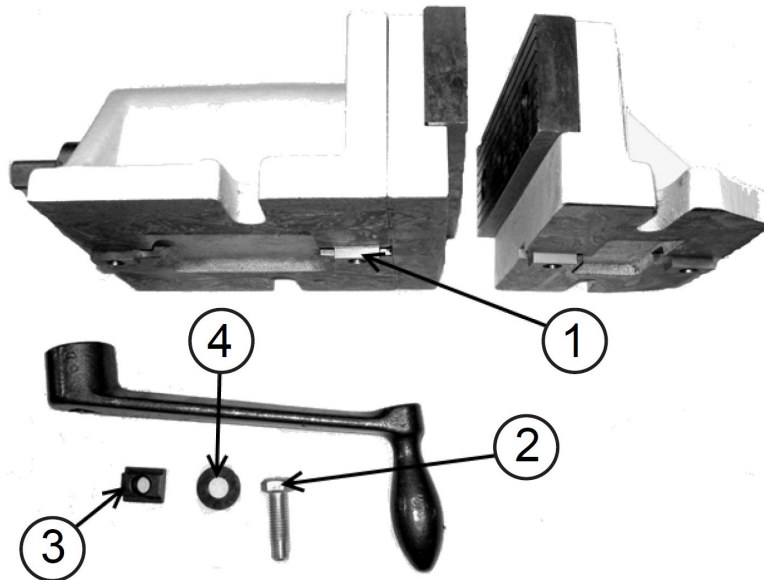


| ITEM | QTY | PART NUMBER | DESCRIPTION                    |
|------|-----|-------------|--------------------------------|
| 1    | 1   | 7209W       | SCREW, CLAMP BAR               |
| 2    | 16  | 514-7-21    | WASHER, BELLEVILLE             |
| 3    | 1   | 7209U       | WASHER, SPHERICAL – HOLD DOWN  |
| 4    | 1   | MF-181      | FLAT WASHER, $\frac{5}{8}$ "   |
| 5    | 1   | 514-7-20    | WASHER, THRUST                 |
| 6    | 1   | 100-28-20C  | SPRING, HOLD DOWN              |
| 7    | 1   | MF-173      | HEX JAM NUT, $\frac{5}{8}$ -11 |
| 8    | 1   | 7209S       | ROD END, CLAMP BAR             |
| 9    | 1   | 7210B       | PIN, CLEVIS                    |
| 10   | 1   | 7232K       | HITCH PIN CLIP                 |



| ITEM | QTY | PART NUMBER | DESCRIPTION                             |
|------|-----|-------------|---|
| 1    | 4   | MF-11       | ROUND HEAD MACHINE SCREW, #10-24 X 1/2" |
| 2    | 1   | 7201C       | PIN, GUIDE, ROTTLER LEVELING TABLE      |
| 3    | 1   | 502-11-16E  | CONNECTOR, MALE, 1/4 X 1/8" NPT         |
| 4    | 1   | 7233        | FRAME, TABLE                            |
| 5    | 1   | 514-4-17E   | ELBOW, 90 DEGREE MALE - 1/4 X 1/8" NPT  |
| 6    | 1   | 514-4-17X   | TEE, RUNNING 1/8" NPT X 1/4"            |
| 7    | 1   | 502-1-56    | PUSHBUTTON                              |
| 8    | 1   | 514-2-65    | VALVE, AIR - LIMIT & STOP               |
| 9    | 2   | 502-11-17J  | NIPPLE, CLOSE 1/8" NPT                  |
| 10   | 1   | 502-11-17C  | TEE, 1/8" X 1/8"                        |
| 11   | 1   | 502-1-96A   | INSERT, BARBED - HOSE                   |
| 12   | 2   | 502-11-35A  | VALVE, CONTROL - RFC FLOW               |
| 13   | 2   | 502-11-17R  | ELBOW, ST, 1/8" NPTF X 1/8" NPTM        |

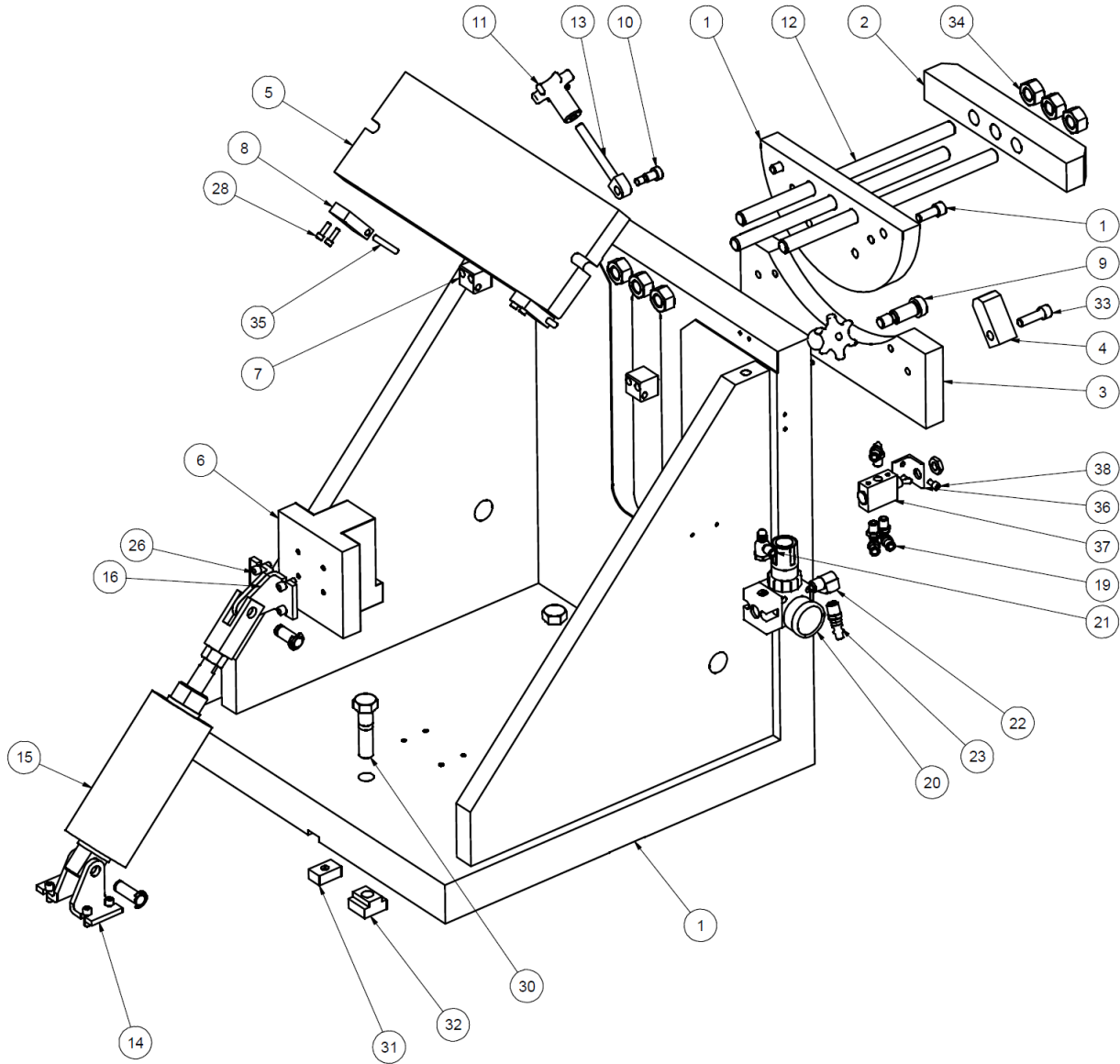
## 7209N 2-Piece Vise



| ITEM | QTY | PART NUMBER | DESCRIPTION                  |
|------|-----|-------------|------------------------------|
| 1    | 1   | 7210E       | KEY, STEPPED                 |
| 2    | 1   | MF-137F     | HEX BOLT, 1/2-13 X 1 3/4"    |
| 3    | 1   | 7137B       | NUT, "T"                     |
| 4    | 1   | 100-19A     | WASHER, HARDENED 17/32" I.D. |



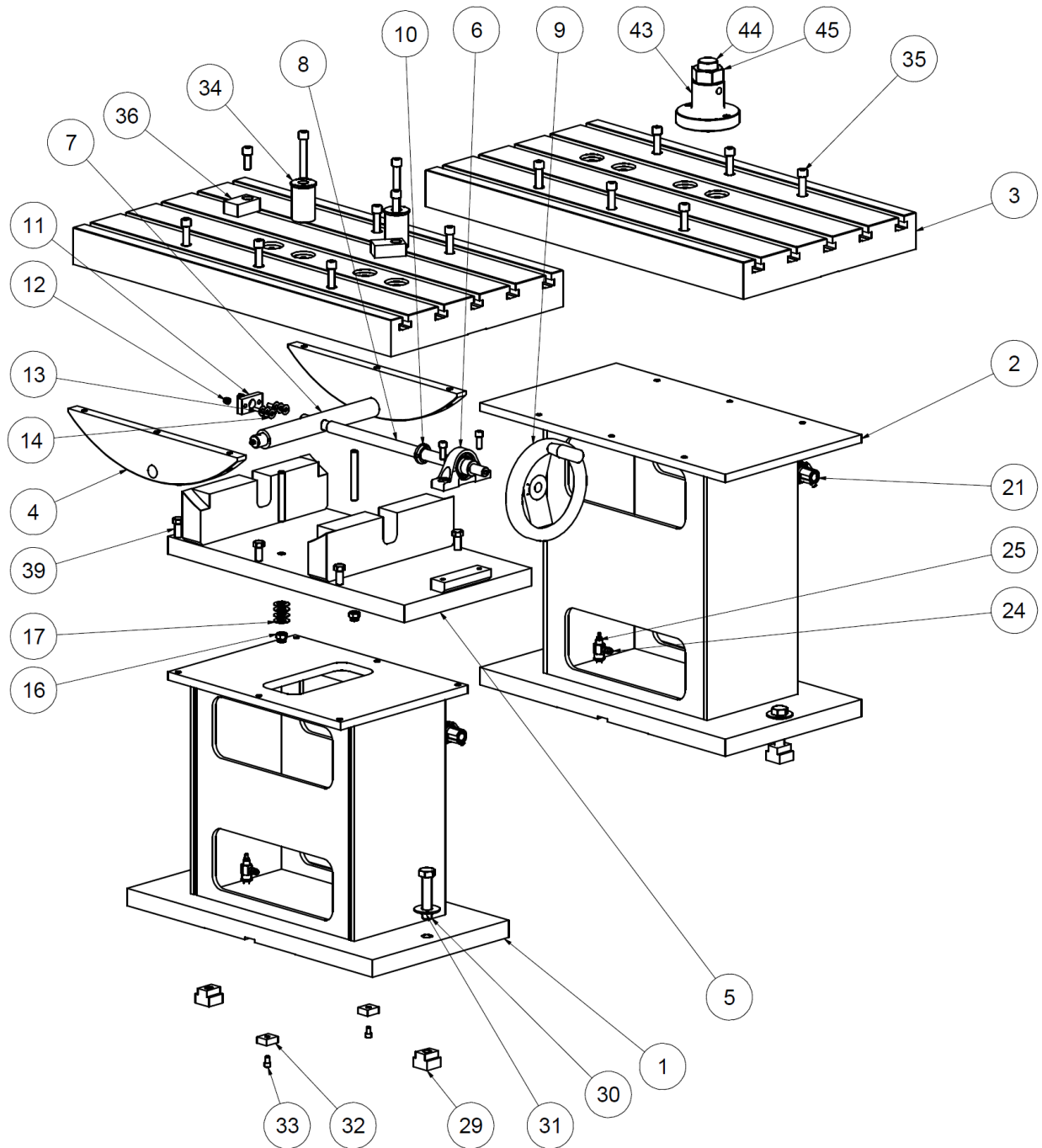
## 650-3-66 Compressor Conrod Cap Surfacing Fixture Kit





| <b>650-3-66 COMPRESSOR CONROD CAP SURFACING FIXTURE ASSEMBLY</b> |            |                    |  |
|--|------------|--------------------|--|
| <b>ITEM</b>  | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>   |
| 1  | 1          | 650-3-66K          | MAIN FRAME ASSEMBLY  |
| 2  | 1          | 650-3-66B          | CLAMP BAR  |
| 3  | 1          | 650-3-66C          | CARRIAGE, CAP CUTTING FIXTURE                              |
| 4  | 2          | 650-3-66E          | LIFT ARM   |
| 5  | 1          | 650-3-66D          | LOCATE PLATE   |
| 6  | 1          | 650-3-66G          | SLIDE ASS'Y (TURCITE)                                      |
| 7  | 2          | 650-3-66H          | LOWER HINGE  |
| 8  | 2          | 650-3-66J          | UPPER HINGE  |
| 9  | 1          | 650-3-66Q          | SHOULDER SCREW $\frac{5}{8}$ X 1 $\frac{1}{4}$ "           |
| 10   | 2          | 650-3-66R          | SHOULDER SCREW, CONROD CAP FIXTURE ASS'Y, F88S             |
| 11   | 2          | 650-3-66N          | KNOB – REID TC2A   |
| 12   | 3          | 650-3-66M          | CLAMP STUD   |
| 13   | 2          | 650-3-66P          | EYE BOLT   |
| 14   | 1          | 650-3-45H          | PIVOT BRACKET, BIMBA #D-13512-A                            |
| 15   | 2          | 650-3-45G          | LOCATE CYLINDER, CONROD                                    |
| 16   | 1          | 650-3-45H          | PIVOT BRACKET, BIMBA #D-13512-A                            |
| 19   | 3          | 514-4-17V          | FITTING $\frac{1}{8}$ NPT X $\frac{1}{4}$ POLY – 90 DEGREE |
| 20   | 1          | 514-2-70K          | REGULATOR ASS'Y  |
| 21   | 1          |                    | FLOW CONTROLLER  |
| 22   | 1          | 502-11-17S         | $\frac{1}{4}$ STREET ELL                                   |
| 23   | 1          | 502-11-16X         | CONNECTOR, MALE THREAD $\frac{1}{4}$ NPT, V6/V8 FIXTURE    |
| 26   | 8          | MF-13              | SOCKET HEAD CAPSCREW $\frac{1}{4}$ -20 X $\frac{5}{8}$ "   |
| 27   | 4          | MF-6               | SOCKET HEAD CAPSCREW #10-24 X $\frac{3}{4}$ "              |
| 28   | 4          | MF-5               | SOCKET HEAD CAPSCREW #10-24 X $\frac{5}{8}$ "              |
| 30   | 3          | MF-152A            | HEX BOLT $\frac{5}{8}$ -11 X 2 $\frac{1}{2}$ "             |
| 31   | 2          | 6553J              | GUIDE KEY  |
| 32   | 3          | 502-1-11A          | T-NUT $\frac{3}{4}$ TABLE, $\frac{5}{8}$ -11 THREAD        |
| 33   | 1          | MF-32              | SOCKET HEAD CAPSCREW $\frac{3}{8}$ -16 X 1 $\frac{1}{4}$ " |
| 34   | 6          | MF-166             | HEX NUT $\frac{5}{8}$ -11                                  |
| 35   | 2          | MF-207             | DOWEL PIN $\frac{1}{4}$ " X 1 $\frac{1}{2}$ "              |
| 36   | 1          | 502-1-55A          | AIR SWITCH MOUNT BRACKET                                   |
| 37   | 1          | 502-1-55           | AIR SWITCH, CLIPPARD #MJTU-4                               |
| 38   | 2          | MF-4               | SOCKET HEAD CAPSCREW #10-24 X $\frac{3}{8}$ "              |

## 6870 Precision Large Connecting Rod Fixture Kit

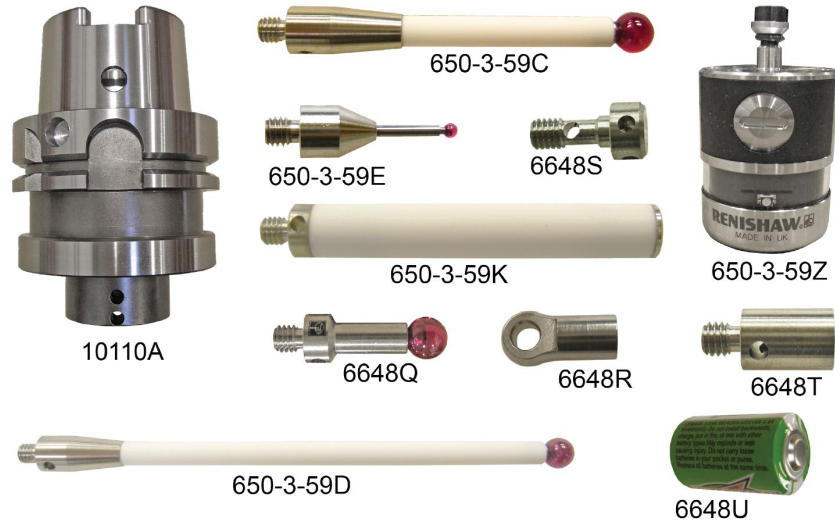




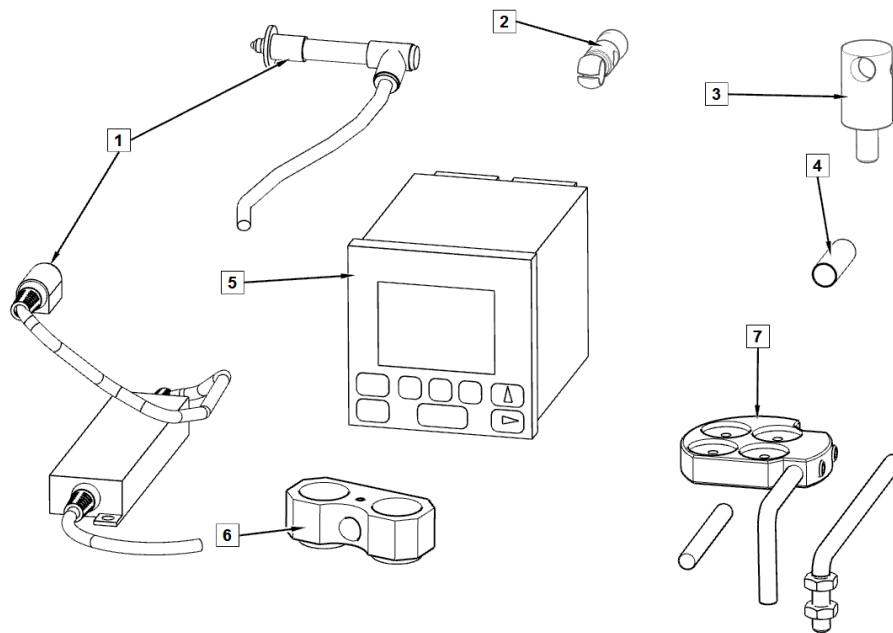
| <b>6870 Precision Large Connecting Rod Fixture Kit</b> |            |                    |   |
|--|------------|--------------------|---|
| <b>ITEM</b>  | <b>QTY</b> | <b>PART NUMBER</b> | <b>DESCRIPTION</b>                              |
| 1  | 1          | 6872B              | PIVOT TABLE SUPPORT, EXTRA LARGE CONROD FIXTURE |
| 2  | 1          | 6871C              | TABLE SUPORT, EXTRA LARGE CONROD FIXTURE        |
| 3  | 2          | 6871D              | TABLE TOP                                       |
| 4  | 2          | 6874C              | PIVOT ARC                                       |
| 5  | 1          | 6872E              | CRADLE, MACHINING                               |
| 6  | 1          | 6871B              | PILLOW BLOCK                                    |
| 7  | 1          | 6874D              | PIVOT SHAFT                                     |
| 8  | 1          | 6874               | PIVOT SCREW                                     |
| 9  | 1          | 6874A              | HANDWHEEL                                       |
| 10   | 1          | 504-34-54          | LOCKNUT BEARING (BH-05) F5 SERIES               |
| 11   | 1          | 6874B              | BACKLASH PLATE                                  |
| 12   | 2          | MF-186A            | NYLOCK NUT, ¼-20                                |
| 13   | 2          | MF-66              | SOCKET SET SCREW, CUP POINT, ¼-20 X 1 ½"        |
| 14   | 6          | 9024E              | SPRING, BELLEVILLE – GIB F90 SERIES             |
| 15   | 2          | 6874F              | SET-UP STUD                                     |
| 16   | 2          | MF-186             | NYLOCK NUT, ½-13                                |
| 17   | 8          | 514-7-21           | BELLVILLE SPRING                                |
| 18   | 1          | 6396               | JACKING SCREW, 7" LG                            |
| 19   | 1          | 6395E              | JACK BODY                                       |
| 20   | 2          | 502-27-17A         | REGULATOR BRACKET                               |
| 21   | 2          | 502-27-17          | REGULATOR, 0-60 PSI                             |
| 22   | 2          | 502-11-17S         | ¼ STREET ELL                                    |
| 23   | 2          | 502-11-16X         | CONNECTOR, MALE THREAD, ¼ NPT, V6/V8 FIXTURE    |
| 24   | 4          | 502-11-16E         | CONNECTOR, MALE ¼ X ⅛ PT                        |
| 25   | 4          | 502-11-35A         | FLOW CONTROLLER                                 |
| 26   | 4          | 502-11-17J         | NIPPLE, CLOSE, ⅛" NPT                           |
| 27   | 4          | 6870D              | SUPPORT TUBE ASSEMBLY                           |
| 29   | 4          | 6160               | NUT, "T", HARDENED                              |
| 30   | 4          | MF-154E            | HEX BOLT ¾-10 X 3 ½"                            |
| 31   | 4          | MF-181A            | FLAT WASHER, ¾"                                 |
| 32   | 4          | 6553K              | LOCATING KEY                                    |
| 33   | 4          | MF-21A             | SOCKET HEAD CAPSCREW 5/16-18 X ½"               |
| 34   | 2          | 6874E              | LOCATOR   |
| 35   | 14         | MF-41D             | SOCKET HEAD CAPSCREW ½-13 X 3 ¼"                |
| 36   | 2          | 6874G              | PARALLEL  |
| 37   | 4          | 650-3-10           | TN-5 T-NUT                                      |
| 38   | 2          | MF-43              | SOCKET HEAD CAPSCREW ½-13 X 1 ¼"                |
| 39   | 8          | MF-149C            | HEX BOLT ½-13 X 2"                              |
| 40   | 2          | 100-19A            | WASHER, HARDENED, 17/32" I.D.                   |
| 41   | 2          | MF-31              | SOCKET HEAD CAPSCREW ⅜-16 X 1"                  |
| 42   | 2          | MF-189             | ¼-28 STRAIGHT LUBE GREASE FITTING               |
| 43   | 1          | 7241Q              | JACK BODY, ECONOMY FIXTURE, F60 SERIES          |
| 44   | 1          | 7241N              | JACKING SCREW, 4 ¾" LG. – F60 ECONOMY FIXTURE   |
| 45   | 2          | 6566H              | JACKING NUT                                     |

## Auxiliary Equipment

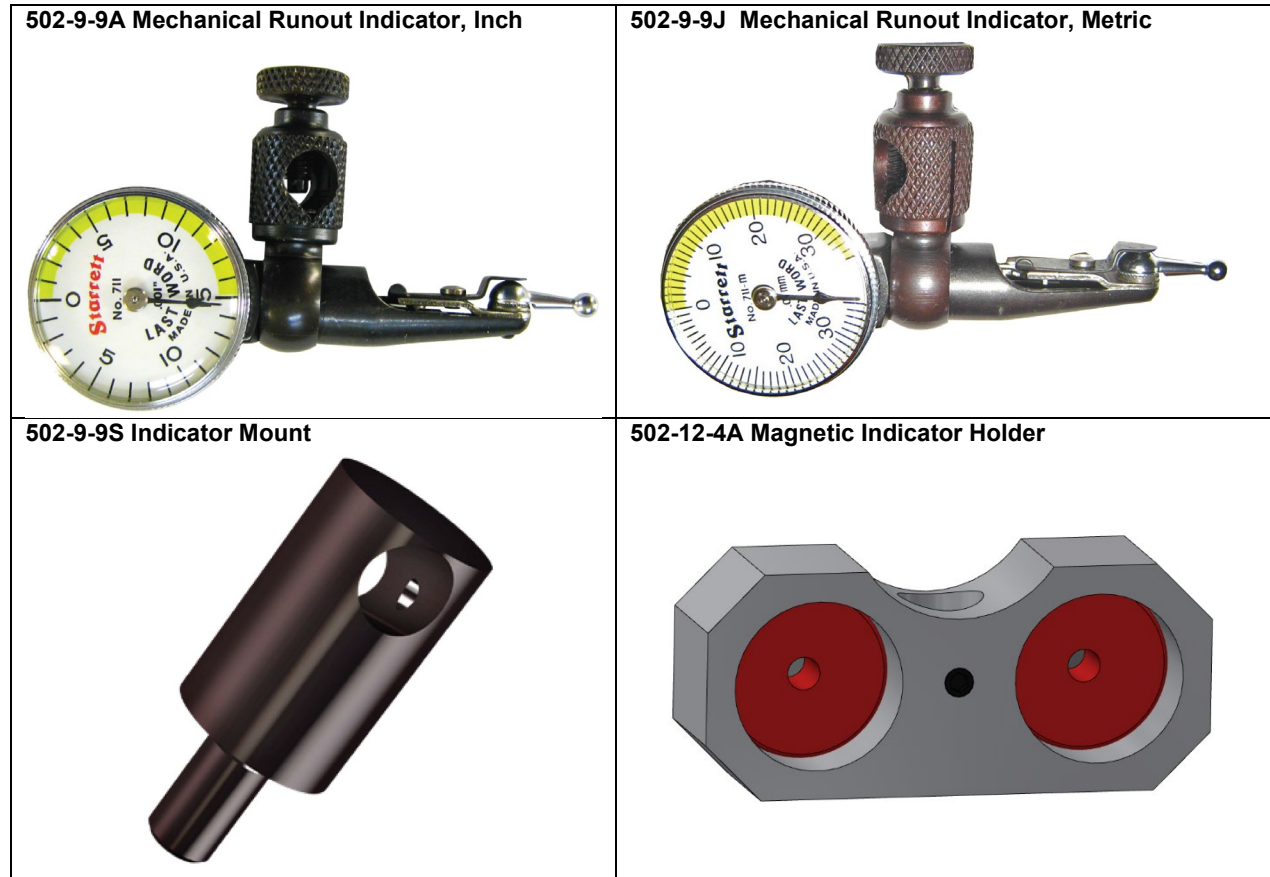
### 10110 Renishaw Wireless Radio Probing System Kit



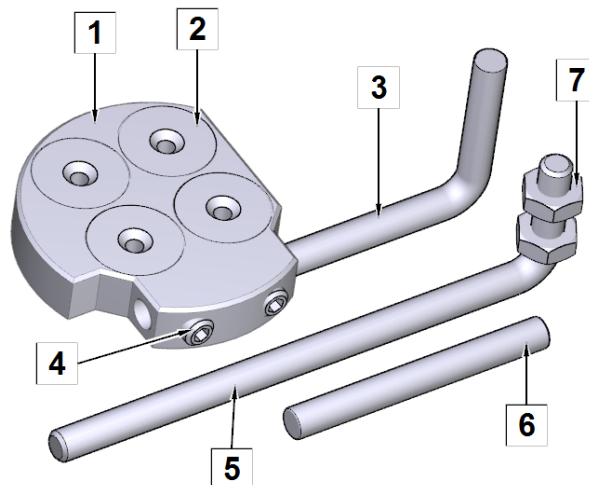
### 502-12-7B Digital Runout Probe and Readout Kit



| ITEM | QTY | PART NUMBER | DESCRIPTION                                  |
|------|-----|-------------|--|
| 1    | 1   | 502-12-7C   | DIGITAL GAUGE                                |
| 2    | 1   | 502-11-40   | CLAMP BODY                                   |
| 3    | 1   | 502-9-9S    | INDICATOR MOUNT, RIGHT ANGLE DRIVE           |
| 4    | 1   | 502-12-7E   | GAUGE ADAPTER SLEEVE                         |
| 5    | 1   | 502-12-7D   | 1-AXIS GAGING DISPLAY – DIGITAL RUNOUT GAUGE |
| 6    | 1   | 502-12-4A   | MAGNETIC HOLDER ASSEMBLY                     |
| 7    | 1   | 502-12-4    | MAGNETIC HOLDER ASSEMBLY                     |

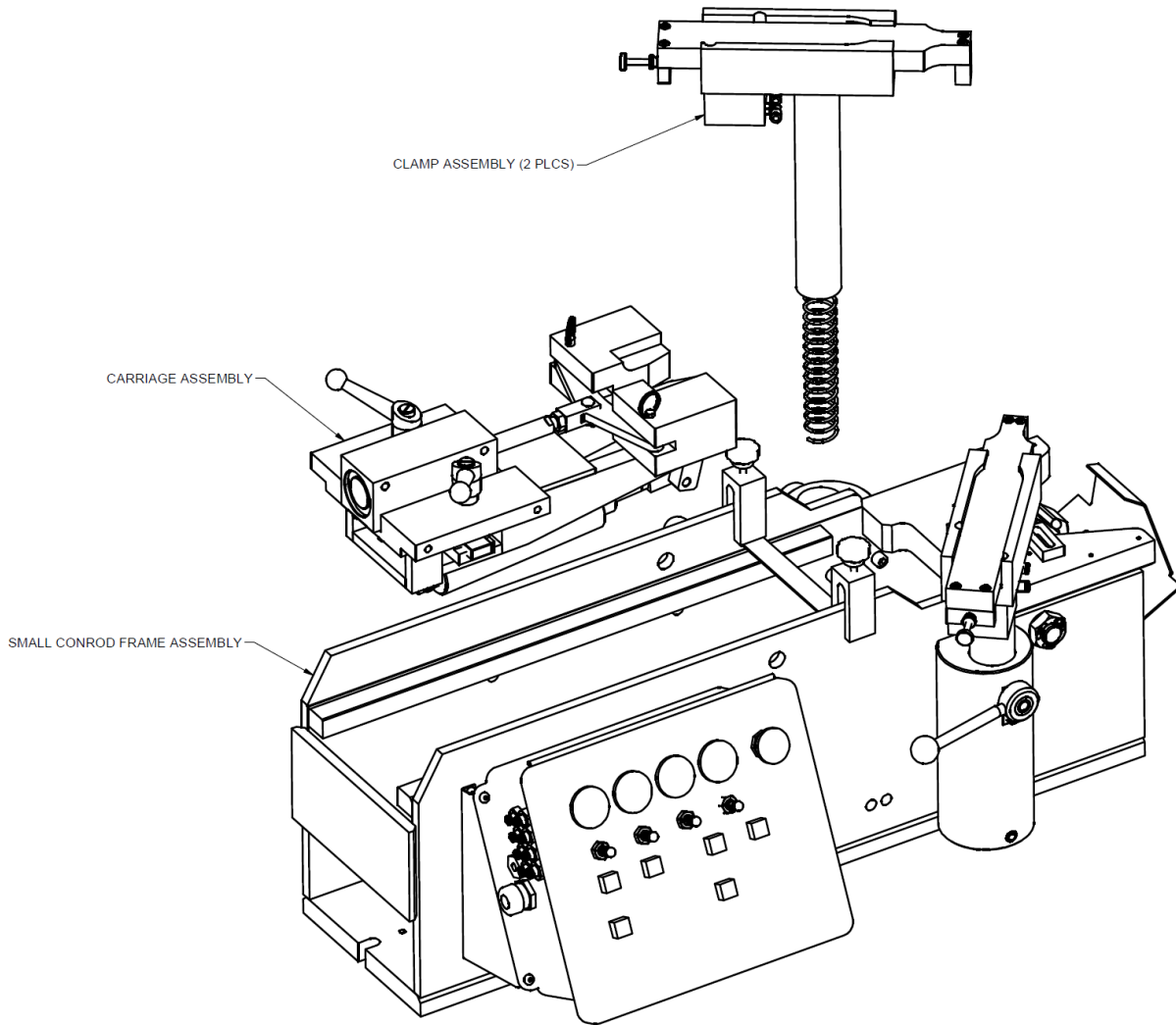


### 502-12-4 General Purpose Magnetic Indicator Holder

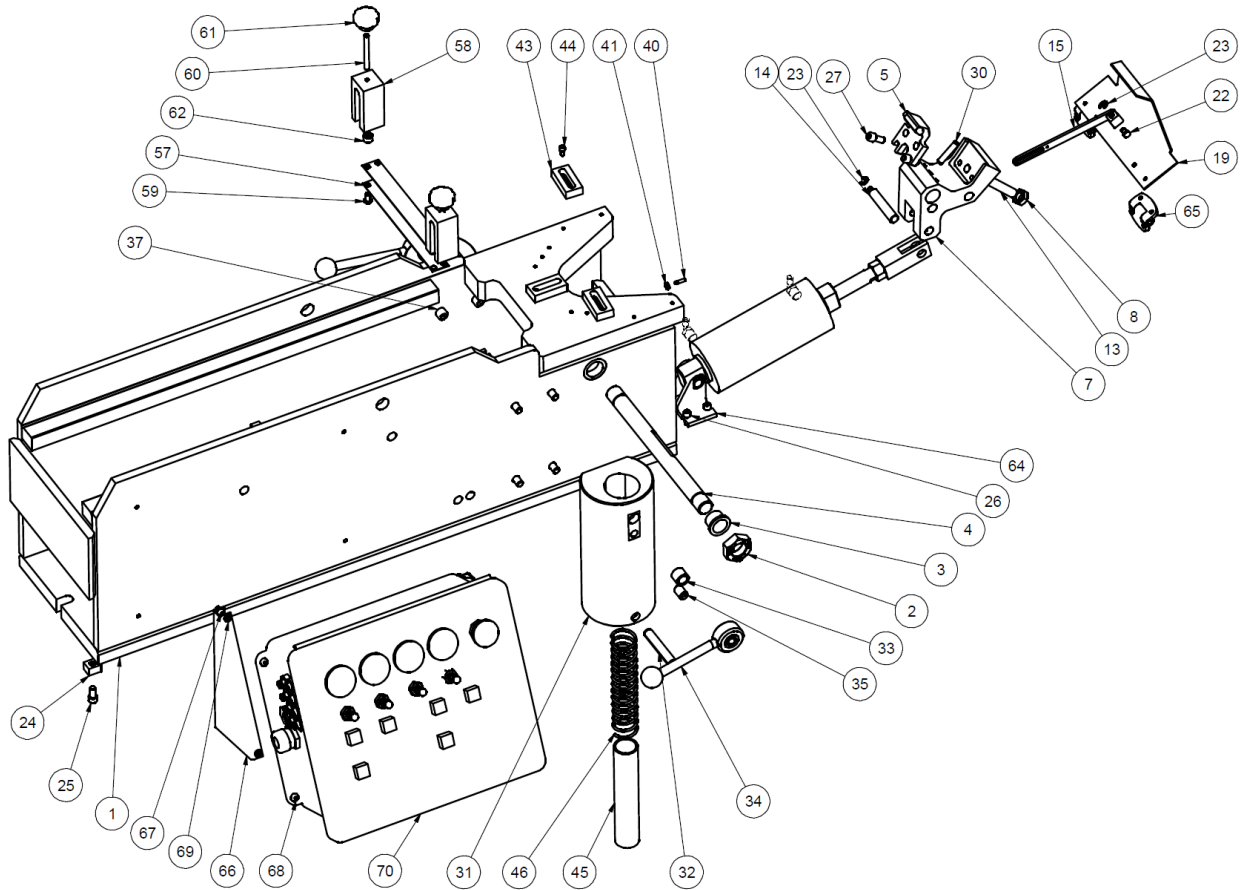


| ITEM | QTY | PART NUMBER | DESCRIPTION                                 |
|------|-----|-------------|---|
| 1    | 1   | 502-11-39A  | HOLDER, MAGNET                              |
| 2    | 4   | 502-11-39   | MAGNETS, SHALLOW POT                        |
| 3    | 1   | 502-11-39B  | ROD, ADAPTER, RIGHT ANGLE – SHORT           |
| 4    | 2   | MF-58       | SOCKET SET SCREW, FLAT POINT, 1/4-20 X 1/4" |
| 5    | 1   | 502-11-39Q  | ROD, ADAPTER, RIGHT ANGLE – LONG            |
| 6    | 1   | MF-208      | DOWEL PIN 1/4" X 2 1/4"                     |
| 7    | 2   | MF-163      | HEX NUT 1/4-20                              |

**650-3-44R Precision Connecting Rod Fixturing System**  
For 8-24" (203-610mm) Long Rods



### Conrod Frame Assembly

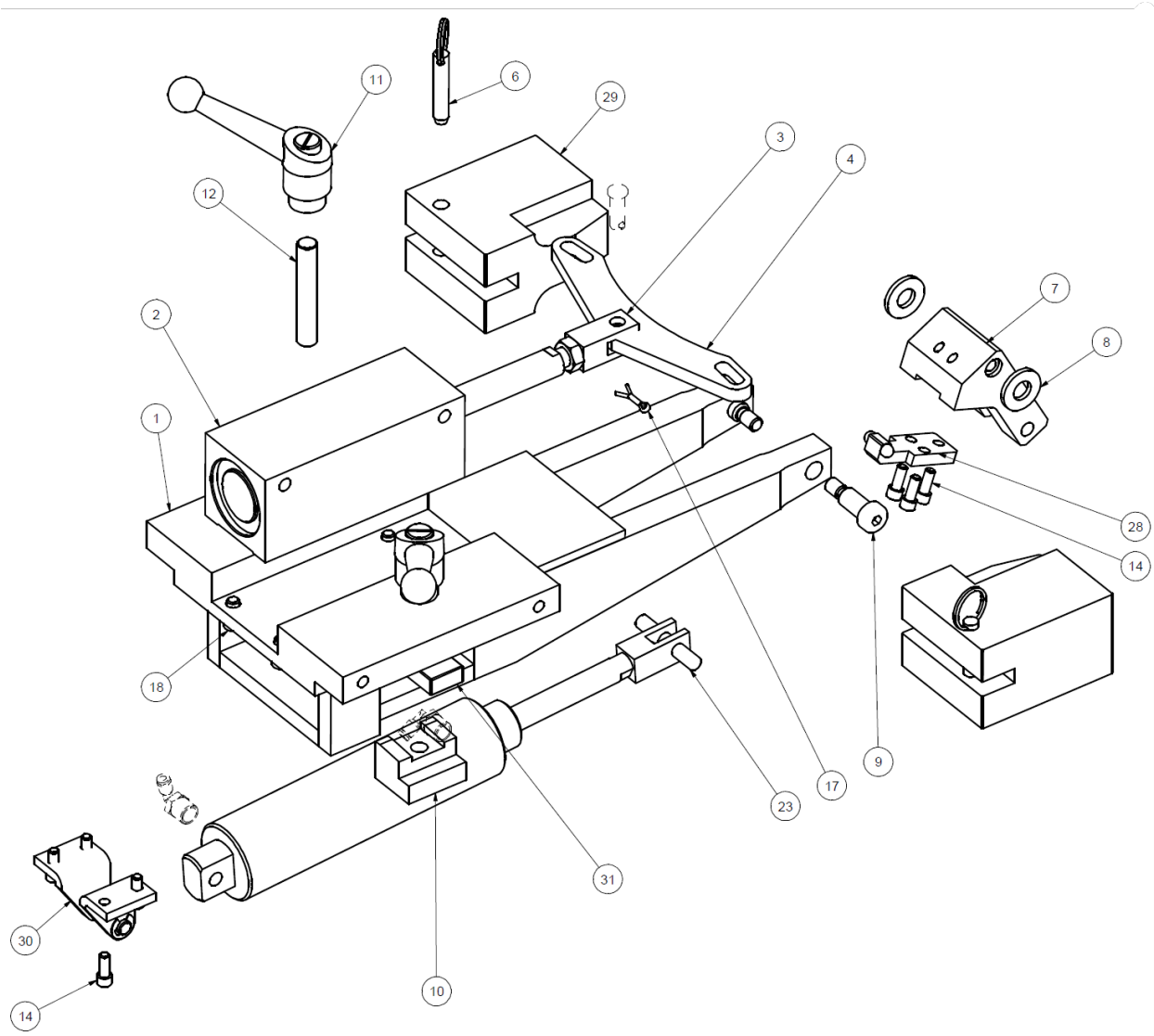






| CONROD FRAME ASSEMBLY |     |             |   |
|-----------------------|-----|-------------|---|
| ITEM                  | QTY | PART NUMBER | DESCRIPTION                                   |
| 1                     | 1   | 650-3-6-67B | BASE, FRAME                                   |
| 2                     | 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   | 650-3-46V   | LOCATOR 2.50                                  |
| 7                     | 1   | 650-3-46J   | LOCATOR HOLDER                                |
| 8                     | 1   | MF-171      | HEX JAM NUT, 1/2-13                           |
| 13                    | 1   | 650-3-47K   | STOP SCREW                                    |
| 14                    | 1   | 650-3-46K   | PIVOT PIN                                     |
| 15                    | 1   | 650-3-46L   | LINKAGE ARM                                   |
| 19                    | 1   | 650-3-46Q   | LOCATOR COVER CONROD FIXTURE                  |
| 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       | SOCKET HEAD CAPSCREW, 5/16-18 X 5/8"          |
| 26                    | 4   | MF-13       | SOCKET HEAD CAPSCREW, 1/4-20 X 5/8"           |
| 27                    | 2   | MF-22       | SOCKET HEAD CAPSCREW, 5/16-18 X 3/4"          |
| 28                    | 2   | MF-53       | SOCKET SET SCREW, CUP POINT, #10-24 X 3/8"    |
| 29                    | 2   | MF-60       | SOCKET SET SCREW, CUP POINT, 1/4-20 X 1/4"    |
| 30                    | 1   | MF-228      | ROLL PIN 5/16" X 1 1/2"                       |
| 31                    | 2   | 650-3-49Q   | CLAMP BASE, CONROD CLAMP ARMS                 |
| 32                    | 2   | MF-230B     | ROLL PIN 1/2" X 3"                            |
| 33                    | 2   | 6310R       | THREAD INSERT                                 |
| 34                    | 2   | 6310J       | CLAMP HANDLE                                  |
| 35                    | 2   | 502-8-52C   | SPRING PLUNGER                                |
| 37                    | 8   | MF-31       | SOCKET HEAD CAPSCREW, 3/8-16 X 1"             |
| 40                    | 1   | 650-3-48P   | SPRING ANCHOR, REID CSA-50                    |
| 41                    | 1   | MF-160      | HEX NUT, #8-32                                |
| 42                    | 1   | 514-7-83N   | EXTENSION SPRING                              |
| 43                    | 3   | 650-3-48L   | SUPPORT PARALLEL                              |
| 44                    | 3   | MF-4        | SOCKET HEAD CAPSCREW, #10-24 X 3/8"           |
| 45                    | 2   | 650-3-49G   | CLAMP LEG SPACER TUBE                         |
| 46                    | 2   | 650-3-49M   | SPRING  |
| 57                    | 2   | 650-3-47B   | SUPPORT STRAP                                 |
| 58                    | 2   | 650-3-47C   | SUPPORT STRAP HOLDER                          |
| 59                    | 4   | MF-90       | SOCKET BUTTON HEAD SCREW, 1/4-20 X 1/2"       |
| 60                    | 2   | MF-74       | SET SCREW, 1/4-20 X 2 1/2"                    |
| 61                    | 2   | 514-6-86    | PLASTIC KNOB                                  |
| 62                    | 2   | 650-3-47L   | FOOT, SUPPORT STRAP                           |
| 63                    | 1   | 650-3-45G   | CENTERING CYLINDER, CONROD FIXTURE ASSEMBLY   |
| 64                    | 1   | 650-3-45H   | PIVOT BRACKET, BIMBA #D-13512-A               |
| 65                    | 2   | 650-3-46S   | HINGE, LOCATOR COVER, CONROD FIXTURE ASSEMBLY |
| 66                    | 2   | 650-3-65D   | BRACKET, CONTROL BOX, CONROD FIXTURE          |
| 67                    | 4   | MF-248      | SOCKET BUTTON HEAD SCREW, 1/4-20 X 3/8"       |
| 68                    | 4   | MF-91       | SOCKET BUTTON HEAD SCREW, 1/4-20 X 5/8"       |
| 69                    | 4   | 650-3-47W   | RIVET NUT, REID ALC-47850                     |
| 70                    | 1   | 650-3-47T   | CONTROL BOX, CONROD FIXTURE ASSEMBLY          |

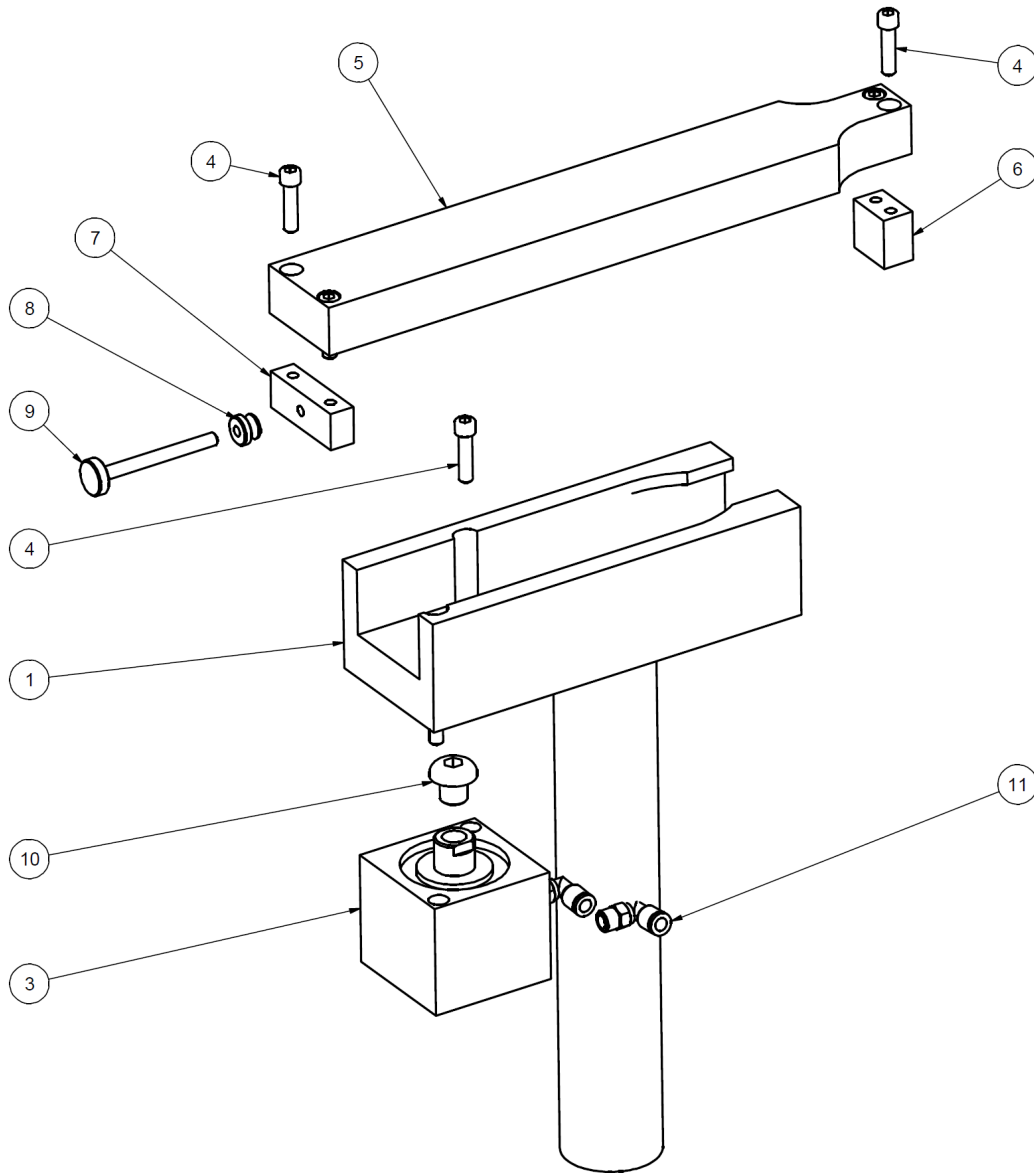
### Conrod Carriage Assembly





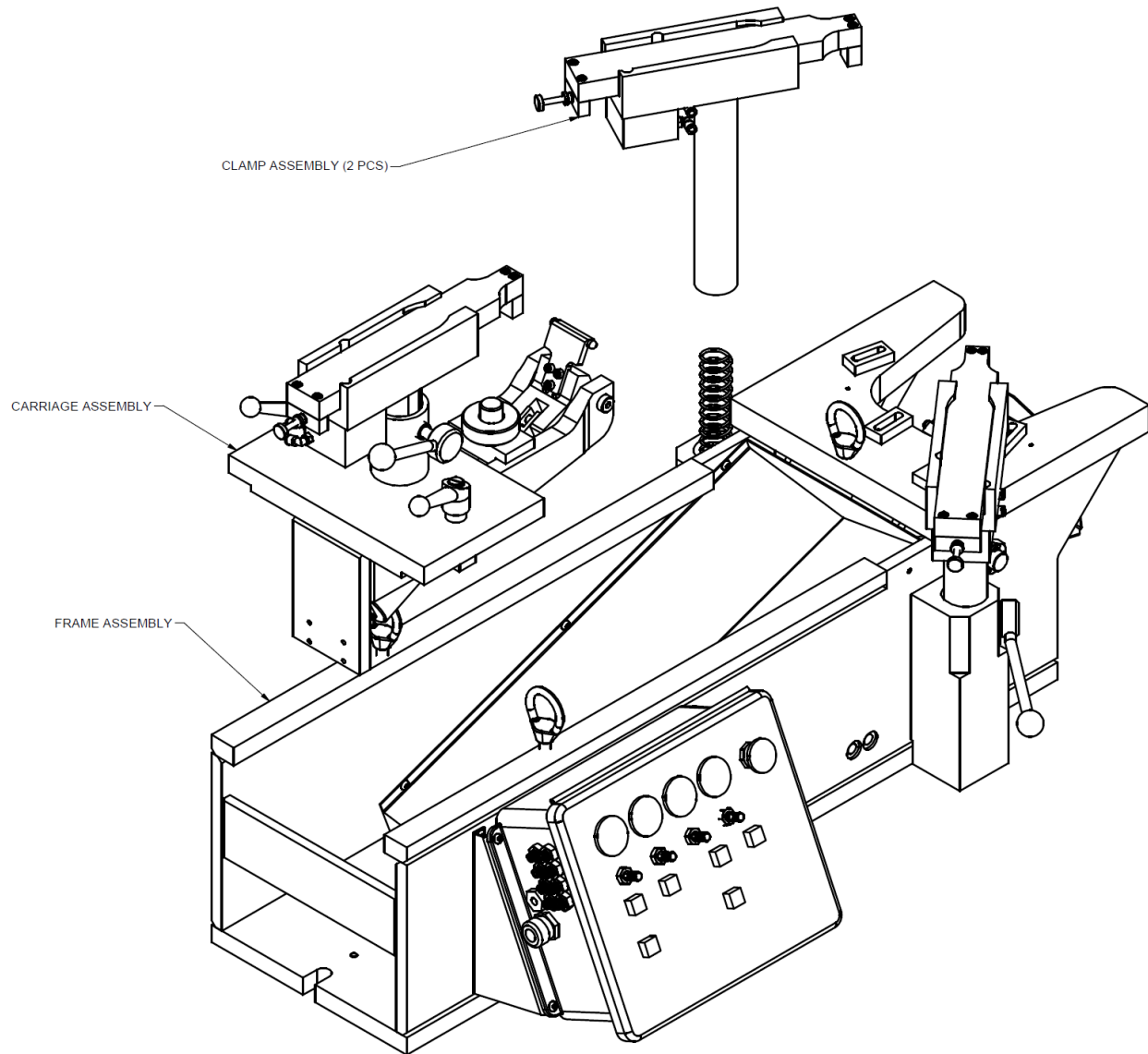
| CONROD CARRIAGE ASSEMBLY |     |             |   |
|--------------------------|-----|-------------|---|
| ITEM                     | QTY | PART NUMBER | DESCRIPTION                                     |
| 1                        | 1   | 650-3-67    | CARRIAGE, MACHINING                             |
| 2                        | 1   | 650-3-45D   | WEDGE CYLINDER                                  |
| 3                        | 2   | 650-3-45L   | CLEVIS  |
| 4                        | 1   | 650-3-48J   | LINKAGE, WEDGE                                  |
| 6                        | 2   | 650-3-48K   | RELEASE PIN, CLAMP WEDGE                        |
| 7                        | 1   | 650-3-47D   | CENTERING LEVER                                 |
| 8                        | 2   | 100-19A     | WASHER, HARDENED 17/32" I.D.                    |
| 9                        | 2   | 650-4-45    | SOCKET HEAD SHOULDER SCREW 1/2" X 1"            |
| 10                       | 2   | 650-3-48    | CLAMP SHOE                                      |
| 11                       | 2   | 514-2-39    | HANDLE  |
| 12                       | 2   | 514-4-5B    | STUD  |
| 14                       | 7   | MF-13       | SOCKET HEAD CAPSCREW 1/4-20 X 5/8"              |
| 15                       | 1   | MF-172      | HEX NUT 1/2-20                                  |
| 17                       | 1   | MF-231      | PIN, COTTER, 1/16" DIA X 3/4"                   |
| 18                       | 4   | MF-21A      | SOCKET HEAD CAPSCREW 5/16-18 X 1/2"             |
| 23                       | 1   | MF-212A     | DOWEL PIN 3/8" X 2 1/4"                         |
| 24                       | 1   | MF-60       | SOCKET SET SCREW, CUP POINT, 1/4-20 X 1/4"      |
| 28                       | 1   | 650-3-47H   | CENTERING BLOCK – SMALL CONROD FIXTURE ASSEMBLY |
| 29                       | 2   | 650-3-48T   | WEDGE CLAMP, SPECIAL SMALL CONROD FIXTURE       |
| 30                       | 1   | 5531B       | LOWER CYLINDER MOUNT                            |
| 31                       | 1   | 650-3-48Q   | CLAMP BAR, CARRIAGE, SMALL CONROD FIXTURE       |
| 32                       | 1   | 650-3-45F   | CENTERING CYLINDER                              |

## Conrod Clamp Assembly

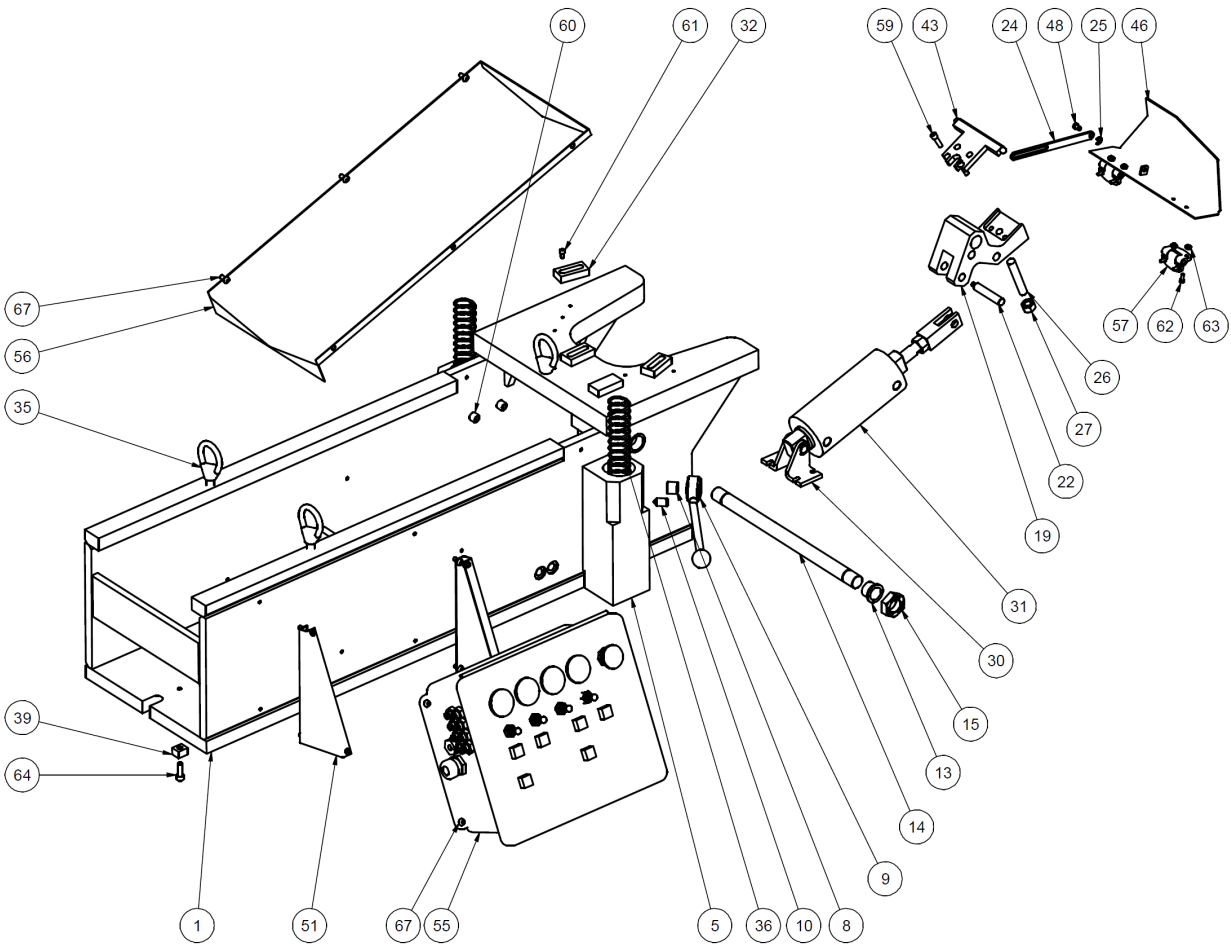


| CONROD CARRIAGE ASSEMBLY |     |             |   |
|--------------------------|-----|-------------|---|
| ITEM                     | QTY | PART NUMBER | DESCRIPTION                             |
| 1                        | 1   | 650-3-49H   | CLAMP LEG                               |
| 2                        | 1   | 502-8-52C   | SPRING PLUNGER                          |
| 3                        | 1   | 650-3-45E   | CLAMP ARM CYLINDER                      |
| 4                        | 6   | MF-15       | SOCKET HEAD CAPSCREW 1/4-20 X 1"        |
| 5                        | 1   | 650-3-49K   | CLAMP ARM                               |
| 6                        | 1   | 650-3-49L   | CLAMP ARM EXTENSION                     |
| 7                        | 1   | 650-3-49N   | STOP BLOCK                              |
| 8                        | 1   | 650-3-34J   | THUMB KNOB, REID AJ-721                 |
| 9                        | 1   | 650-3-34S   | CLAMP SCREW                             |
| 10                       | 1   | 650-3-61S   | SOCKET BUTTON HEAD SCREW, 1/2-13 X 5/8" |
| 11                       | 2   | -           | 1/8" NPT X 1/4" PTL 90 DEG FITTING      |

**650-3-64 Heavy Duty Precision Connecting Rod Fixturing System**  
For large blocks, such as CAT 3500, Waukesha 7042, White Superior 825



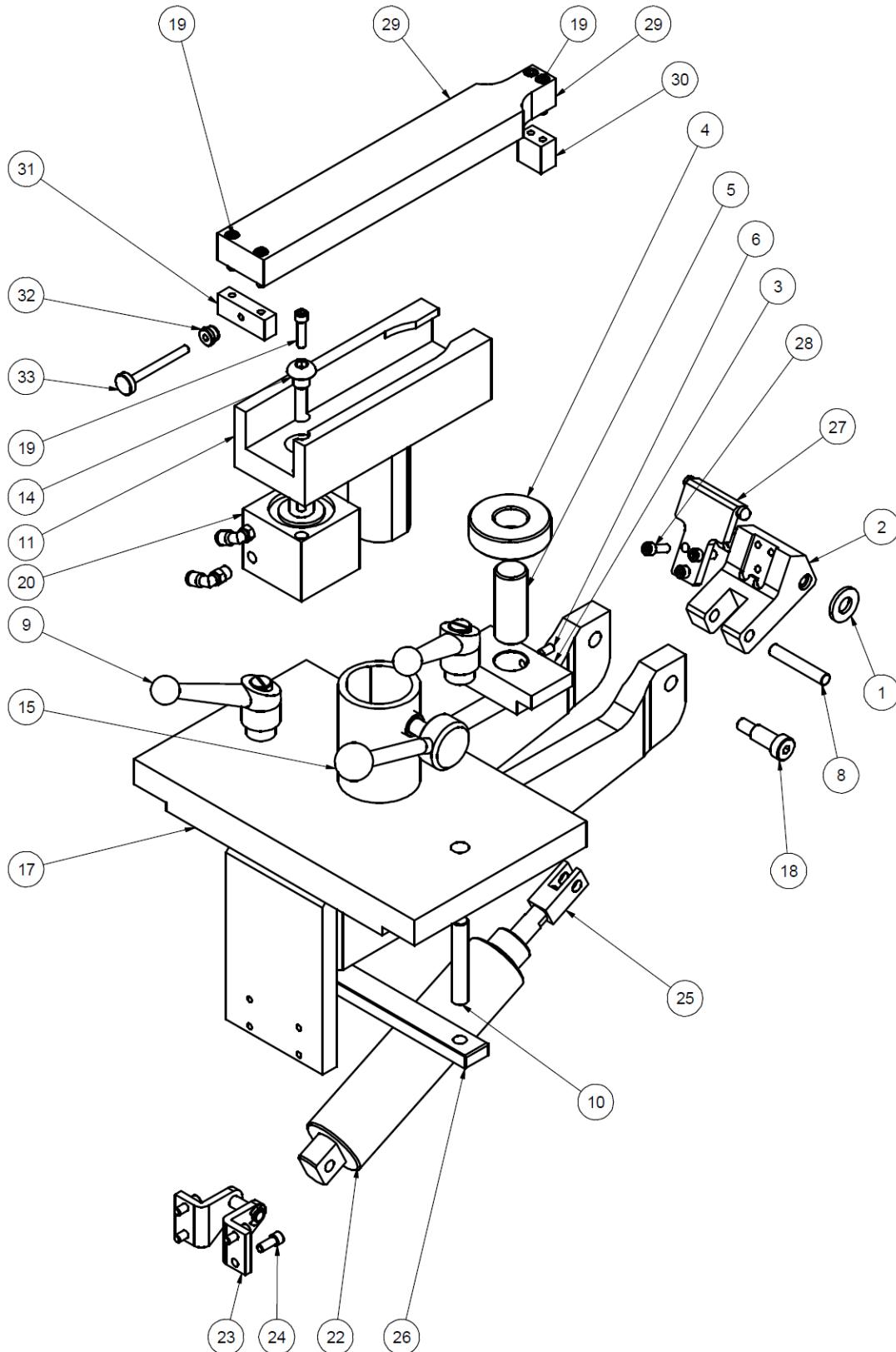
## Conrod Frame Assembly





| CONROD FRAME ASSEMBLY |     |             |  |
|-----------------------|-----|-------------|--|
| ITEM                  | QTY | PART NUMBER | DESCRIPTION  |
| 1                     | 1   | 650-3-64A   | MAIN FRAME (MACHINING)                               |
| 5                     | 1   | 650-3-49E   | CLAMP BASE – RIGHT SIDE                              |
| 6                     | 1   | 650-3-49F   | CLAMP BASE – LEFT SIDE                               |
| 8                     | 2   | 6310R       | THREAD INSERT  |
| 9                     | 2   | 6310J       | CLAMP HANDLE   |
| 10                    | 2   | 502-8-52C   | SPRING PLUNGER                                       |
| 13                    | 2   | 650-3-46U   | FLANGE BEARING, SYMMCO SF-2832-12                    |
| 14                    | 2   | 650-3-64M   | SHAFT-LOCATING BLOCK HEAVY DUTY CONROD FIXTURE ASS'Y |
| 15                    | 2   | 650-3-46T   | LOCK NUT, REID BLN-105                               |
| 19                    | 1   | 650-3-64G   | LOCATOR HOLDER                                       |
| 22                    | 1   | 650-3-46K   | PIVOT PIN  |
| 24                    | 1   | 650-3-65G   | LINKAGE ARM  |
| 25                    | 2   | 650-3-46R   | E-CLIP – TRUEARC #RE-25ST                            |
| 26                    | 1   | 650-3-47K   | STOP SCREW   |
| 27                    | 1   | MF-165      | HEX NUT, 1/2-13                                      |
| 28                    | 1   | 650-3-64J   | LOCATOR – 3.83" HEAVY DUTY CONROD FIXTURE ASS'Y      |
| 30                    | 1   | 650-3-45H   | PIVOT BRACKET, BIMBA #D-13512-A                      |
| 31                    | 1   | 650-3-45G   | CENTERING CYLINDER, CONROD FIXTURE ASS'Y             |
| 32                    | 3   | 650-3-48L   | SUPPORT PARALLEL                                     |
| 33                    | 1   | 650-3-48M   | SUPPORT PARALLEL, +.002                              |
| 35                    | 3   | 502-3-13    | LIFT EYE   |
| 36                    | 2   | 650-3-49M   | SPRING   |
| 37                    | 2   | 650-3-49G   | CLAMP LEG SPACER TUBE                                |
| 39                    | 2   | 650-3-9     | KEY  |
| 43                    | 1   | 650-3-64H   | LOCATOR – 4.95" HEAVY DUTY CONROD FIXTURE            |
| 46                    | 1   | 650-3-65F   | DUST COVER   |
| 48                    | 1   | 650-3-46H   | LINKAGE PIN  |
| 51                    | 2   | 650-3-65D   | BRACKET, CONTROL BOX, CON-ROD FIXTURE                |
| 54                    | 4   | 650-3-47W   | RIVET NUT, REID ALC-47850                            |
| 55                    | 1   | 650-3-47T   | CONTROL BOX, CONROD FIXTURE ASS'Y                    |
| 56                    | 1   | 650-3-65E   | CHIP CHUTE   |
| 57                    | 2   | 650-3-46S   | HINGE, LOCATOR COVER CONROD FIXTURE ASS'Y            |
| 58                    | 1   | MF-162      | HEX NUT #10-24                                       |
| 59                    | 6   | MF-15       | SOCKET HEAD CAPSCREW 1/4-20 X 1"                     |
| 60                    | 8   | MF-32       | SOCKET HEAD CAPSCREW 3/8-16 X 1 1/4"                 |
| 61                    | 3   | MF-78       | SOCKET HEAD CAPSCREW #10-24 X 3/8"                   |
| 62                    | 8   | MF-3D       | SOCKET HEAD CAPSCREW #8-32 X 3/8"                    |
| 63                    | 3   | MF-160      | HEX NUT #8-32  |
| 64                    | 2   | MF-21C      | SOCKET HEAD CAPSCREW 5/16-18 X 7/8"                  |
| 66                    | 2   | MF-59       | SOCKET SET SCREW, FLAT POINT, 1/4-20 X 3/8"          |
| 67                    | 14  | MF-90       | SOCKET BUTTON HEAD SCREW 1/4-20 X 1/2"               |

## Conrod Carriage Assembly



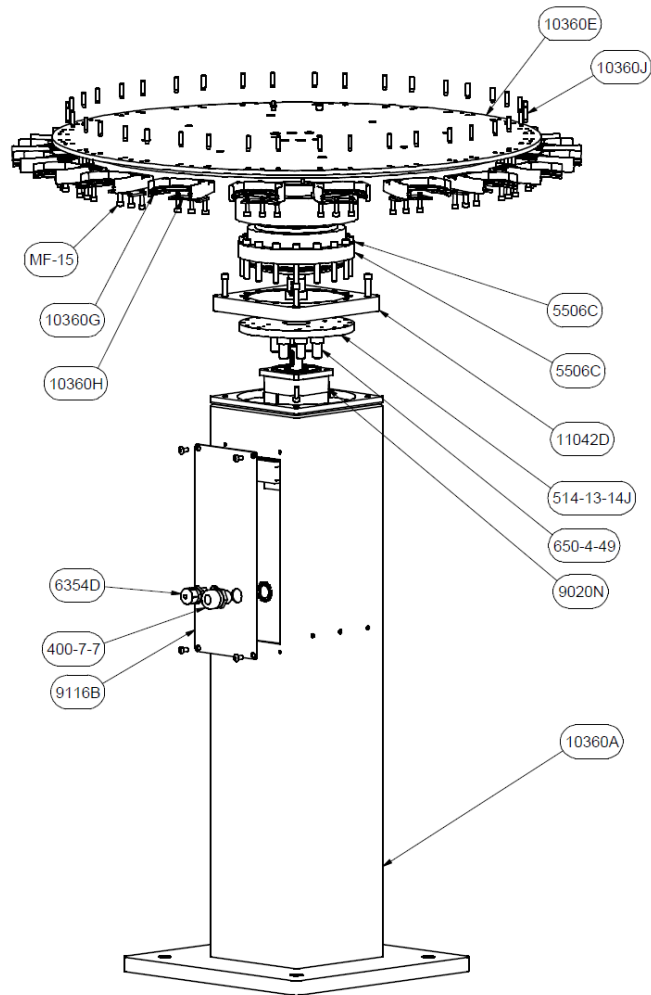
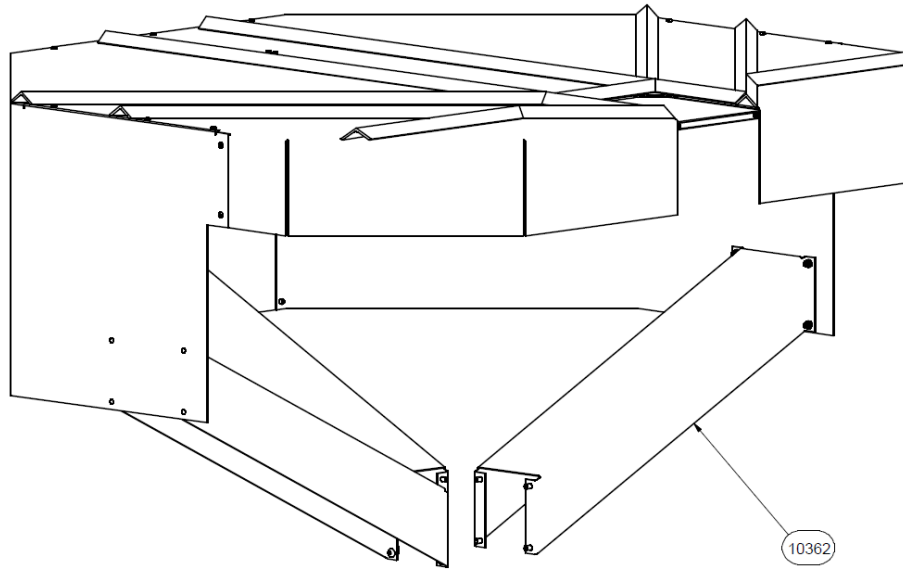




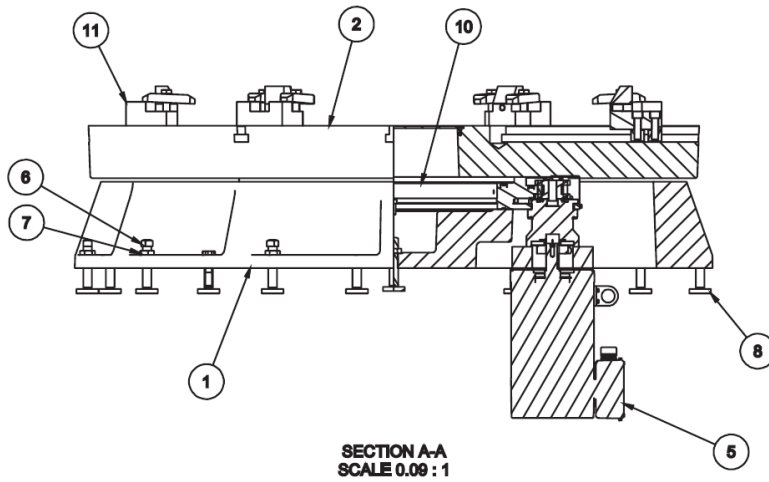
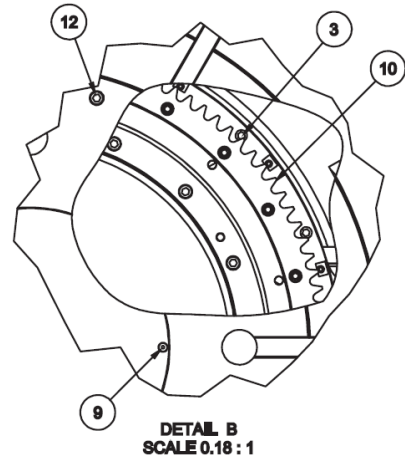
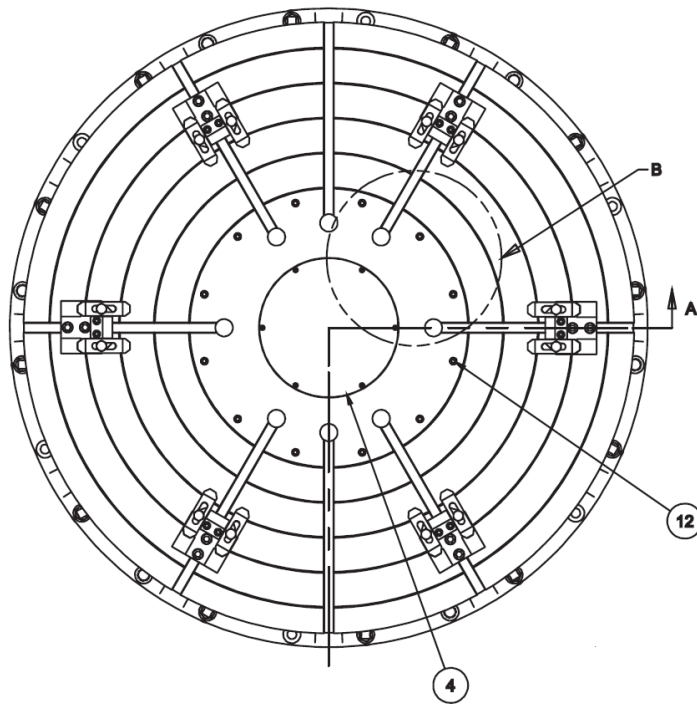
| CONROD CARRIAGE ASSEMBLY |     |             |  |
|--------------------------|-----|-------------|--|
| ITEM                     | QTY | PART NUMBER | DESCRIPTION  |
| 1                        | 2   | 100-19A     | WASHER, HARDENED, 17/32" I.D.                          |
| 2                        | 1   | 650-3-47D   | CENTERING LEVER  |
| 3                        | 1   | 650-3-65A   | JACK BODY  |
| 4                        | 1   | 650-3-65B   | JACKING NUT  |
| 5                        | 1   | 650-3-65C   | JACKING SCREW  |
| 6                        | 1   | MF-61       | SOCKET SET SCREW, CUP POINT, 1/4-20 X 1/2"             |
| 7                        | 1   | MF-59       | SOCKET SET SCREW, CUP POINT, 1/4-20 X 3/8"             |
| 8                        | 1   | MF-212A     | DOWEL PIN, 3/8" X 2 1/4"                               |
| 9                        | 2   | 514-2-39    | HANDLE   |
| 10                       | 2   | 514-4-5B    | STUD   |
| 11                       | 1   | 650-3-64F   | SHORT CLAMP ARM  |
| 14                       | 1   | 650-3-61S   | SOCKET BUTTON HEAD SCREW 1/2-13 X 5/8"                 |
| 15                       | 1   | 6310J       | CLAMP HANDLE   |
| 16                       | 1   | 6310R       | THREAD INSERT  |
| 17                       | 1   | 650-3-64C   | CARRIAGE   |
| 18                       | 2   | 650-4-18A   | SHOULDER SCREW, 1/2" X 1"                              |
| 19                       | 6   | MF-15       | SOCKET HEAD CAPSCREW, 1/4-20 X 1"                      |
| 20                       | 1   | 650-3-45E   | CLAMP ARM CYLINDER                                     |
| 22                       | 1   | 650-3-45F   | CENTERING CYLINDER                                     |
| 23                       | 1   | 5531B       | LOWER CYLINDER MOUNT                                   |
| 24                       | 4   | MF-82A      | SOCKET HEAD CAPSCREW 1/4-20 X 5/8"                     |
| 25                       | 1   | 650-3-45L   | CLEVIS   |
| 26                       | 1   | 650-3-48R   | CLAMP BAR, CARRIAGE, LARGE CONROD FIXTURE              |
| 27                       | 1   | 650-3-64L   | CENTERING BLOCK – 2.68 HEAVY DUTY CONROD FIXTURE ASS'Y |
| 28                       | 3   | MF-14       | SOCKET HEAD CAPSCREW 1/4-20 X 3/4"                     |
| 29                       | 1   | 650-3-49K   | CLAMP ARM  |
| 30                       | 1   | 650-3-49L   | CLAMP ARM EXTENSION                                    |
| 31                       | 1   | 650-3-49N   | STOP BLOCK   |
| 32                       | 1   | 650-3-34J   | THUMBKNOB – REID AJ-721                                |
| 33                       | 1   | 350-3-34S   | CLAMP SCREW  |



## 10360 Automatic Rotary Tool Changer



### 10361 Large Vertical Lathe



| 10361 LARGE VERTICAL LATHE |     |             |   |
|----------------------------|-----|-------------|---|
| ITEM                       | QTY | PART NUMBER | DESCRIPTION                                     |
| 1                          | 1   | 10401A      | BASE, TURNTABLE (MACHINING) – VERTICAL LATHE    |
| 2                          | 1   | 10402A      | FIXTURE PLATE (MACHINING), ROTARY TABLE         |
| 3                          | 15  | MF-39C      | SOCKET HEAD CAPSCREW 7/16-14 X 1 1/4"           |
| 4                          | 1   | 10403A      | COVER, FIXTURE PLATE – VERTICAL LATHE           |
| 5                          | 1   | 10404       | MOTOR – EM109 VERTICAL LATHE                    |
| 6                          | 13  | 6150E       | JACKING SCREW – 1"-12 X 5" – EM100              |
| 7                          | 13  | 6150F       | HEX JAM NUT 1"-12                               |
| 8                          | 13  | 6080F       | JACKING PAD                                     |
| 9                          | 6   | MF-82       | SOCKET FLAT HEAD SCREW 1/4-20 X 1/2"            |
| 10                         | 1   | 10404A      | UNIT, RING DRIVE – VERTICAL LATHE EM109         |
| 11                         | 6   | 6397        | ASSEMBLY, POSITION CLAMP – VERTICAL LATHE EM109 |
| 12                         | 12  | 10400C      | SOCKET HEAD CAPSCREW M12x1.75 X 150mm           |
| 13                         | 4   | 10400D      | SOCKET HEAD CAPSCREW M12x1.75 X 40mm            |
| 14                         | 1   | 10400B      | VERTICAL LATHE SUPPORT FRAME                    |
| 15                         | 6   | MF-154K     | HEX BOLT, 3/4-10 X 2"                           |
| 16                         | 6   | MF-154E     | HEX BOLT, 3/4-10 X 3 1/2"                       |
| 17                         | 4   | 10401B      | EYE BOLT, 1"-12 X 2 1/2"                        |

### 1033D Elevated Operator Platform

