INSTALLATION & OPERATION
MANUAL

FlexArm Assembler:

Models:

CVA-30 &
FAV-14-30

Distributed by Ergonomic Partners
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www.ErgonomicPartners.com
Tel: (314) 884-8884
FLEXARM

Limited Warranty

A new FlexArm has a 3 year limited warranty on parts and labor. This warranty does not apply to a FlexArm determined to have been misused or abused, improperly maintained, or having defects attributed to the use of non-genuine repair parts.

Original pressure cylinders have a 3 year limited warranty from the date of purchase. When replacing one of the pressure cylinders, make sure not to scratch, mar, or nick the shaft or tube on either the old cylinder being replaced or the new cylinder being installed. All warranty cylinders must be returned to Midwest Specialties for evaluation. The warranty is void if the cylinder to be evaluated shows signs of scratches or nicks on the cylinder shaft or tube. Damaged cylinders cannot be returned to the manufacturer for warranty claims. Replacement cylinders carry a limited 1 year warranty from the date of purchase.

Pneumatic motors have a 3 year limited warranty (warranted to be free of defects in material and workmanship from the date of purchase). This warranty does not apply to the following (perishable) components:
- filters
- springs
- blades/vanes
- O-rings

This warranty is void if it has been determined that the motor was misused, abused or improperly maintained.
Midwest Specialties is not responsible for a customer’s air quality. We supply the basic tools and offer a coalescent filter option for those who have experienced excessive moisture and water. The responsibility for clean, dry air falls upon the individual shop. Any pneumatic motor coming in for evaluation or repair with rusted components will not get warranty coverage because this is considered improper maintenance.

Once the original warranty expires, repaired Motors and Arms carry a limited 60 day warranty from the date of the repair.

Tap Holders and Helicoil components are considered perishable tooling and therefore do not carry a warranty. However, Size 2 through Size 4 Tap Holders may be reworked depending of the severity of the damage or wear. Please contact Midwest Specialties for a return authorization and the holders can be evaluated.

The warranty is void if changes to the FlexArm or motor, or attempts to repair it or its components are made without the expressed authorization of Midwest Specialties Inc.
The warranty is based on normal usage which would be the equivalent of a 40hr work week.

For technical assistance or questions concerning the proper care and maintenance of the FlexArm unit or the pneumatic/hydraulic motors, please contact Midwest Specialties, Inc. at 800-837-2503.

Revision 7/01/14
# Torque and Weight Limitations

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Max Motor Torque</th>
<th>Working Range</th>
<th>Max Tool Weight</th>
</tr>
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<tr>
<td></td>
<td>Ft Lbs</td>
<td>Nm</td>
<td>Inches</td>
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<tr>
<td>OCVA-24</td>
<td>7</td>
<td>9.5</td>
<td>13-36</td>
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<td>G-60</td>
<td>800</td>
<td>1085</td>
<td>20-84</td>
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***Exceeding the weight and Torque Limitations will void the factory warranty***
Installation

1) Drill and tap 3/8-16 bolt holes on a flat, smooth table or work bench. If mounting on a wood surface, use comparable carriage bolts. (See Figure 1.)

Figure 1
Profile and Base Mount Diagram for FAV-14-30 and CVA-30
2) Secure the base mount with (4) 3/8-16 x 1” bolts.

3) Adjust the collar on the post of the base mount to reach the desired height for the unit.

4) Slide the unit onto the post.

5) The unit is counterbalanced at the factory to accommodate the required tool weight. If adjustments are needed, see the Counterbalance Adjustments Sheet enclosed for instructions on changing the counterbalance.

6) If the unit is ordered with an air motor, check the air line connections to make sure the hose has not come loose from the press-to-release fittings during shipping; the hose must be completely pushed into the fittings to lock in under air pressure.

7) SEE FILTER/LUBRICATOR DIAGRAM IN THE PARTS SECTION OF THE MANUAL:

If the unit is ordered with a filter/lubricator, install a ¼ NPT air fitting into the left port (filter side) and attach a 1/2” ID, 100 psi. incoming air line to the fitting.

a) Fill the lubricator bowl approximately ¾ full by removing the fill plug screw on top of the lubricator and pouring the oil into the fill port. Use only a quality ISO VG-32 type hydraulic or spindle oil. **Never use Marvel Mystery Oil, synthetic air tool oil, or similar products.** Do not permit the oil level to be lower than the end of the siphon tube in the lubricator bowl.

b) With the air motor running, slowly adjust the lubricator so 1-3 drops of oil are dispensed per minute through the tube on top of the lubricator dome sight. Clockwise turns decrease the flow and counter-clockwise turns increase the flow. SMC brand lubricators use the dome sight as the flow adjuster and Janatics brand lubricators use a separate flow valve located behind the fill plug and dome sight. **NOTE:** It may be necessary to open the flow valve considerably before the oil starts to drip. Then slowly close the valve until the drip rate of 1-3 drops per minute is achieved.

8) SMC filters are equipped with an auto drain and will automatically remove water from the filter bowl. Janatics brand filters use a manual push button drain and MUST be periodically checked. Remove any water from the filter bowl by pressing the drain button located at the bottom of the filter assembly.

9) **Always wear safety glasses and use proper safety precautions when operating this unit. Gloves are not recommended when operating this machine.**
ADJUSTING THE ARM ROTATION
ON THE CVA

THE SPRING CAN BE PLACED ON EITHER SIDE OF THE UNIT — DEPENDING ON OPERATOR PREFERENCE. IN ORDER TO USE THE SPRING ON THE OPPOSITE SIDE, THE ARM STOPS MUST BE SWITCHED SO THAT THE SPRING HOLES ALWAYS REMAIN POINTING TO THE INSIDES.

LOosen COLLARS AND ROTATE ARM STOPS TO THE DESIRED LOCATION
Counterbalance Adjustments

To adjust the counterbalance of the arm, turn the adjuster screw located between the top plates and rear plates (CVA’s will only have one adjuster and FAV’s will have two). This will move the dowel pin up or down in the plate slot.

1) For lightweight tools and accessories, decrease cylinder pressure by moving the dowel pin towards the top of the slot.

2) For heavy tools and accessories, increase cylinder pressure by moving the dowel pin towards the bottom of the slot.

NOTE: The ideal counterbalance will hold the tool just above the workpiece when not being used. Once the operator releases the tool the arm should lift up slightly and remain in place for the next operation.
CVA-30 - FRONT CYLINDER REPLACEMENT

F1. Adjust front cylinder turning socket head screw on the adjuster until the pin of the adjuster reaches the lowest position in the slot of the top plates.

F2. Hold the front arm securely. Remove the arm screws on the front plates so that the front arm is free and access to the front cylinder can be made.

F3. Once the screws are removed, slowly guide the front arm up to the fully extended position as indicated on the diagram. This removes all the tension from the cylinder.
   **CAUTION:** *Care must be exercised when taking the arm apart!*

F4. Remove the stripper bolt attaching the cylinder to the arm. Do not lose the (2) spacers that keep the cylinder centered in the arm.

F5. Unscrew the tube end, by **hand**, from the end fitting attached to the adjuster.

F6. Remove the end fitting from the tube end of the new cylinder. Use **care not to damage or scratch** the cylinder rod. Dents or scratches on the cylinder rod will cause the nitrogen gas to leak, leading to the need for another cylinder.

F7. Using both hands, screw the tube end of the new cylinder into the end fitting attached to the adjuster. It is only necessary to get the cylinder hand tight - do not over tighten.

F8. Replace the stripper bolt and the (2) spacers, attaching the cylinder to the arm.

F9. Reassemble the front arm and plates with the front arm screw. Be certain that all fasteners are secured with **loctite 242** (blue, removable).

REV 01/03/05
Move adjuster to the bottom of the slot before disconnecting the cylinder.
FAV-14-30
CYLINDER REPLACEMENT INSTRUCTIONS
(Refer to the Cylinder Replacement Diagram)

Replacement pressure cylinders installed by the customer have a 30 day limited warranty from the date of purchase. When replacing one of the pressure cylinders, make sure not to scratch, mar, or nick the shaft on either the old cylinder being replaced or the new cylinder being installed. All warranty cylinders must be returned to Midwest Specialties for evaluation.

NOTE: The warranty is void if the cylinder to be evaluated shows signs of scratches or nicks on the cylinder shaft or body.

REAR CYLINDER REPLACEMENT

R1. Turn the socket head cap screw on the bottom adjuster until the dowel pin reaches the bottom of the slot on the rear plate (counter clockwise direction).

R2. Raise the two front arms to the fully extended position.

R3. While supporting the front arms, remove the rear arm screws on the top plates, as indicated in the diagram, so that the rear arm is free and access to the rear cylinder can be made.

CAUTION: Carefully lower and place the front portion of the FlexArm on the work surface after the rear arm screws have been removed. Care must be exercised when taking the arm apart!

R4. Remove the shoulder bolt attaching the cylinder to the arm. Note that there is a spacer on either side of the cylinder tube “end fitting” to center the cylinder in the arm slot. Do not lose these spacers!

R5. Unscrew the old cylinder from the “end fitting” attached to the rod end of the cylinder. Leave the old cylinder “end fitting” and adjuster in between the plates, you will reuse them. CAUTION: You will have to wrap a towel or rubber matting around the cylinder rod to remove it and also to tighten the new cylinder. Dents or scratches on the cylinder rod will cause the nitrogen gas to leak, leading to the need for another cylinder and voiding any warranty.

R6. Remove the “end fitting” from the rod end of the new cylinder. Use care not to damage or scratch the cylinder rod.

R7. Screw the new cylinder into the “end fitting” attached to the bottom adjuster. Replace the shoulder bolt and put one spacer on each side of the “end fitting” on the tube end of the cylinder. FAILURE TO USE THE SPACERS MAY CAUSE PREMATURE CYLINDER WEAR AND POSSIBLE CYLINDER FAILURE.

R8. Reassemble the rear arm and plates with the rear arm screws. Be certain that all fasteners are secured with loctite 242.
CAUTION!!

Exercise extreme care when front arm screws are removed from both front plates. Tension still exists even when the adjuster has been taken to the lowest level, and can cause the arm to spring out without warning!

Extended position of front arm

Front cylinder adjuster: turn socket head screw counter-clockwise until dowel pin is at bottom of slot.

Rear arm screw location

F5 R7

Rear cylinder adjuster: turn socket head screw counter-clockwise until dowel pin is at bottom of slot.

F1 R4

Front arm shoulder bolt

F2 F9

Front arm screw location

F3 F4

Extended position of front arm

R6

Remove rear cylinder from this threaded end fitting

Cylinder rod
Cylinder tube

Remove front cylinder from this threaded end fitting

R6

F6

F1

NOTE: These pins must be located at the lowest position in the slot prior to removing either cylinder!

REAR CYLINDER ADJUSTER: FOR THE FLEXARM ASSEMBLY (ONLY) UNIT IS LOCATED AT THE BOTTOM OF THE UNIT. IT OPERATES AS INDICATED ABOVE.
FRONT CYLINDER REPLACEMENT

F1. Turn the socket head cap screw on the top adjuster until the dowel pin reaches the lowest point in the slot (counter clockwise direction)

F2/F3 Hold the front arm securely. Remove the arm screws on the front plates so that the front arm is free and can be slowly extended to access the cylinder. CAUTION: Once the screws are removed, the arm will want to kick upward! Guide the arm upward to the full extension and the pressure should be off the cylinder.

F4. Remove the shoulder bolt attaching the cylinder to the arm. Note that there are two spacers on either side of the cylinder “end fitting” to hold the cylinder in place. Do not lose these spacers!

F5. Unscrew the old cylinder tube end, by hand, from the “end fitting” attached to the cylinder adjuster (see cylinder replacement diagram). Leave the old cylinder “end fitting” and the adjuster between the plates, you will reuse them.

F6. Remove the “end fitting” from the tube end of the new cylinder. Use care not to damage or scratch the cylinder rod. Dents or scratches on the cylinder rod will cause the nitrogen gas to leak, leading to the need for another cylinder.

F7. Screw the tube end of the new cylinder, by hand, into the “end fitting” attached to the adjuster. It is only necessary to get the cylinder hand tight - do not over tighten.

F8. Replace the shoulder bolt and put one spacer on each side of the “end fitting” on the rod end of the cylinder. FAILURE TO USE THE SPACERS MAY CAUSE PREMATURE CYLINDER WEAR AND POSSIBLE CYLINDER FAILURE.

F9. Reassemble the front arm and plates with the front arm screws. Be certain that all fasteners are secured with loctite 242.
MAINTENANCE

Monthly lubrication is adequate. Do not allow the rear mount to become contaminated by dirt or foreign materials. If contamination occurs, clean the bore of the rear mount and the shaft of the rear post thoroughly. Lubricate the post through the grease fitting located on the rear mount.

Periodically check/tighten all fasteners and hardware.

TROUBLESHOOTING

1) The arm does not balance nor adjust to support the tool weight:
   a) Replace worn cylinder
   b) The unit was counterbalanced for a specific weight when purchased; when changing tools, it may be necessary to change cylinders to accommodate the new tool weight. Contact factory service for proper replacement cylinder information.

2) The arm movement is too stiff:
   a) Check fasteners and hardware; they cannot be overtightened.
   b) Adjust the arm stop; it should turn freely. (See Figure 1)
   c) Dirt or foreign material may have built up in the arm pivot points; use an air gun to blow all foreign materials out of these locations.
   d) Check counterbalance adjustment.
Midwest Specialties/FlexArm will only warranty Filter/Lubricators that utilize an ISO Viscosity Grade 32 type hydraulic oil, comparable hydraulic, light, non detergent oil or ISO 32 Spindle oil. (EP oils are acceptable as long as they are ISO VG-32). Do not use synthetic oils.

The Filter/Lubricator will perform satisfactorily using compatible misting type, petroleum based oils, with a viscosity range of 100 to 200 SUS at 100 degrees Fahrenheit and a minimum aniline point of 200 degrees Fahrenheit. Do not use oils with adhesives, compounded oils containing solvents, graphite, detergents or anti-wear additives.

**Harmful Compressor Oils & Other Materials:**

**Compressor Oils:**
- Cellulube No. 150 & 220
- Haskel No. 568-023
- Houghton & Co. Oil No. 1120, 1130 & 1055
- Houtosafe 1000
- Krano Oil
- Keystone Penetrating Oil, No. 2 & 500
- Phrano
- Pydraul AC
- Sears Regular Motor Oil
- Sinclair Oil "Lily White"
- Skydrol
- Tenneco Anderol No. 495 & 500

**Harmful Substances:**
- Atlas Perma-Guard
- Crylex #5 Cement
- Garlock 98403 (polyurethane)
- Kano Kroil
- Loctite 271, 290, 601
- Minnesota Rubber 366Y
- Nylock VC-3
- Permabond 910
- Prestone
- Stillman SR 269-75 (polyurethane)
- Tannergas
- Vibra-Tite
- Buna-N
- Eastman 910
- Keystone penetrating oil No. 2
- Loctite Teflon sealant
- National Compound N11
- Parco 1306 Neoprene
- Petron PD287
- Stauffer Chemical Fyrquel 150
- Stillman SR 513-70 (neoprene)
- Telar
- Titon
- Zerex

Because all substances harmful to polycarbonate plastic cannot be listed, consult a Mobay Chemical or General Electric office for further information.

Midwest Specialties has the following oil available in one gallon capacity:
**EP Hydraulic Oil 32** (light), 135-165 SUS®100 degrees Fahrenheit. The part number is EP-32.

Revision 12/15/2005
CYLINDER REPLACEMENT PARTS

The cylinder Part Number for your unit is screen-printed in white or is printed on a paper label on the black barrel of the cylinder. The cylinder number is prefixed by "C-16" and is followed by 5 digits. When ordering replacement cylinders, please provide the complete "C-16" number taken from the cylinder on your unit.

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<thead>
<tr>
<th>Part No:</th>
<th>Description:</th>
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<tr>
<td>420001</td>
<td>FILTER BOWL KIT (INCLUDES POLY BOWL, METAL GUARD, O RING, AND AUTO DRAIN)</td>
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<tr>
<td>420002</td>
<td>FILTER ELEMENT (5 MICRON)</td>
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<td>420003</td>
<td>O-RING FOR BOWL (FOR FILTER OR LUBRICATOR SIDE)</td>
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<tr>
<td>420004</td>
<td>MOUNTING BRACKET &amp; FRONT CLAMP (WITH 2 O-RINGS, 2 SCREWS)</td>
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<td>420005</td>
<td>O-RING FOR MOUNTING BRACKET (2 REQ.)</td>
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<td>420007</td>
<td>LUBRICATOR BOWL KIT (INCLUDES BOWL, GUARD &amp; O-RING)</td>
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<tr>
<td>420008</td>
<td>DOME SIGHT</td>
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<tr>
<td>420009</td>
<td>FILL PLUG</td>
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<tr>
<td>420000</td>
<td>FILTER ASSEMBLY (COMPLETE HALF)</td>
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<tr>
<td>420006</td>
<td>LUBRICATOR ASSEMBLY (COMPLETE HALF)</td>
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**MISCELLANEOUS ITEMS**

| LB-2000   | TAP LUBRICANT, 1 GALLON                                                     |
| EP-32     | HYDRAULIC OIL, 1 GALLON (AIR MOTOR)                                        |
| 0391      | FILTER/LUBRICATOR (COMPLETE ASSEMBLY WITH HOSE FITTING)                     |
| 0390      | FILTER/LUB WITH GAUGE (COMPLETE ASM WITH HOSE FITTING)                      |
SMC FILTER/LUBRICATOR

- Mounting Bracket
- Dome Sight/Flow Adjuster
- Fill Plug
- Air Inlet
- Filter
- Output to Air Motor
- Lubricator
- Siphon Tube
- Bowl
- Water Drain
CVA PARTS DIAGRAM

REAR PLATE (#6)
REAR MOUNT (#5)
WITH KNURLED POST
TOP ADJUSTER (#7)
FRONT ARM (#8)
FRONT PLATE (#10)
MOTOR MOUNT ASSEMBLY (#11)
ANGLE MOUNT (#3)
CENTER ARM (#9)
POST ASSEMBLY (#1)

ANGLE MOUNT BEARING
#4 – (4 TOTAL)

BUMPER COLLAR
#2 – (2 TOTAL)

ANGLE MOUNT (#3)
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<td>0130M</td>
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<td>04300</td>
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<td>07225</td>
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<td>Right Hand Rear Plate</td>
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<tr>
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<td>07220</td>
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<td>07</td>
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<td>13300B</td>
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<td>Top Adjuster Assembly</td>
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<td>01875</td>
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<td>09</td>
<td>0350M</td>
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<td>Cylinder Spacer</td>
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<tr>
<td>09</td>
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<td>Arm Pin (2 per arm)</td>
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<td>0371M</td>
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<td>1/4-20 Lock Nut</td>
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<td>0370M</td>
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<td>Arm Screw with Loctite patch</td>
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<tr>
<td>10</td>
<td>07210</td>
<td>1</td>
<td>Assembler Right hand Front plate</td>
<td></td>
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<tr>
<td>10</td>
<td>07215</td>
<td>1</td>
<td>Assembler Left hand Front plate</td>
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<tr>
<td>11</td>
<td>360381</td>
<td>1</td>
<td>2 piece V-Block motor mount</td>
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<tr>
<td>0128M</td>
<td>1</td>
<td>Spring (only) for Bumper Collar</td>
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Rev.12/16/13  TOTAL
FAV ASSEMBLER PARTS DIAGRAM

TOP ADJUSTER ASSY. (#10)
(BETWEEN THE TOP PLATES)

TOP PLATE (#7)

BUMPER ARM (#2)

CENTER FRONT ARM (#3)

REAR ARM (#4)

FRONT ARM (#1)

FRONT PLATE (#5)

REAR MOUNT (#11)

MOTOR MOUNT ASSY. (#8)

STOP COLLAR (#13)

ARM BUMPER (#14)

REAR PLATE (#6)

ASSEMBLY POST (#12)

BOTTOM ADJUSTER ASSY. (#9)
(BETWEEN THE REAR PLATES)

LEFT SIDE VIEW
<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART #</th>
<th>QTY USED</th>
<th>DESCRIPTION</th>
<th>PRICE EACH</th>
<th>QTY</th>
<th>EXT.</th>
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<td>1</td>
<td>01870</td>
<td>1</td>
<td>14” Front Arm (with bushings &amp; stainless pins)</td>
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<td>2</td>
<td>01875B</td>
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<td>14” Bumper Arm (with bushings, pins &amp; bumper)</td>
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<td>3</td>
<td>01875</td>
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<td>14” Center Arm (with bushings &amp; stainless pins)</td>
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<td>01880</td>
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<td>14” Rear Arm (with bushings &amp; stainless pins)</td>
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<td>5</td>
<td>07215</td>
<td>1</td>
<td>Front Plate, Left hand side</td>
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<td>6</td>
<td>07210</td>
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<td>Front Plate, Right hand side</td>
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<td>7</td>
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<td>Rear Plate, Left hand side</td>
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<td>8</td>
<td>07225</td>
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<td>Rear Plate, Right hand side</td>
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<td>9</td>
<td>06150</td>
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<td>Top Plate, Left hand side</td>
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<td>06100</td>
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<td>Top Plate, Right hand side</td>
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<td>11</td>
<td>03200</td>
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<td>Rear Mount (with 7/8” diameter hole)</td>
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<tr>
<td>12</td>
<td>04400A</td>
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<td>Post Assembly (7/8” diam. rod + base)</td>
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<td>13</td>
<td>0073M</td>
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<td>Stop Collar for 7/8” diameter rod</td>
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<td>14</td>
<td>0131M</td>
<td>2</td>
<td>Dowel Pin, 5/16&quot; x 2</td>
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<td></td>
<td>0351M</td>
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<td>Dowel Pin, 5/16&quot; x 5/8</td>
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<td></td>
<td>0352M</td>
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<td>Cylinder Screw</td>
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<tr>
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<td>0350M</td>
<td>4</td>
<td>Cylinder Spacer</td>
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<td>0374M</td>
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<td>Rear Mount screw, 1/4-20 x 2-1/2</td>
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<td>15</td>
<td>14700</td>
<td>8</td>
<td>Arm Pin with 1/4-20 thread (2 used per arm)</td>
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<tr>
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<td>0150M</td>
<td>16</td>
<td>Arm Bushing (4 used per arm)</td>
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<td>16</td>
<td>0571M</td>
<td>12</td>
<td>1/4-20 Lock Nut</td>
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<td>0370M</td>
<td>16</td>
<td>Arm Screw with Loctite patch</td>
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<td>0378M</td>
<td>1</td>
<td>Bumper (only) for Arm</td>
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Rev. 12/17/13

TOTAL