INSTRUCTION BULLETIN

& MAINTENANCE MANUAL

FOR CTD MODELS

CDM300R & CDM60

CTD MODEL NO: _____

CTD SERIAL NO: _____

MANUFACTURE DATE: _____

DISTRIBUTOR PURCHASED THROUGH:

(IF ANY) _____

CTD MACHINES
2382 East 48th Street
Vernon, CA 90058
Tele (213) 689-4455 • FAX (213) 689-1255
World Wide Web: **http://www.ctdsaw.com**
e-mail: **ctdsaw@ctdsaw.com**

Machine Requirements:

MODEL NO:_____ SERIAL NO:_____

Cutting Capacities

Model CDM300R

90° Cutting:

2-1/2" (63mm) high x 7" (178mm) wide

4" (101mm) high x 4" (101mm) wide

45° Cutting:

3-1/4" (82mm) high x 5" (127mm) wide

3-1/2" (89mm) high x 3-1/2' (89mm) wide

90° Front to Back 45° Compound:

1-1/2" (38mm) high x 5-1/2" (140mm) wide

1" (25mm) high x 7" (178mm) wide

CDM60, 16" Blade Capacity

90° Cutting:

4" (102mm) high x 10-1/2" (267mm) wide

45° Cutting:

4" (102mm) high x 7-1/4" (184mm) wide

90° Front to Back 45° Compound:

2-5/8" (67mm) high x 10" (254mm) wide

Dimensions shown are set for cutting capacities with cylinder set to mitre and compound mitre. Wider material up to 2-1/2"x 8-1/2"at 90° & 2-1/2"x 5-1/2" at 45° mitre can be achieved by readjusting the cylinder for maximum cutting depth. Consult factory for details.

Pneumatic Requirements: 2 CFM per 10 strokes at 75 PSI (.086 cubic meters at 5.4 kg/cm2).

Dust Collection Requirements: 800 CFM at each 2" outlet for DM200R; 1000 CFM at each 4" outlet for Models CDM300R and DM400; 1100 CFM at each 4" or 5" outlet for Model CDM60.

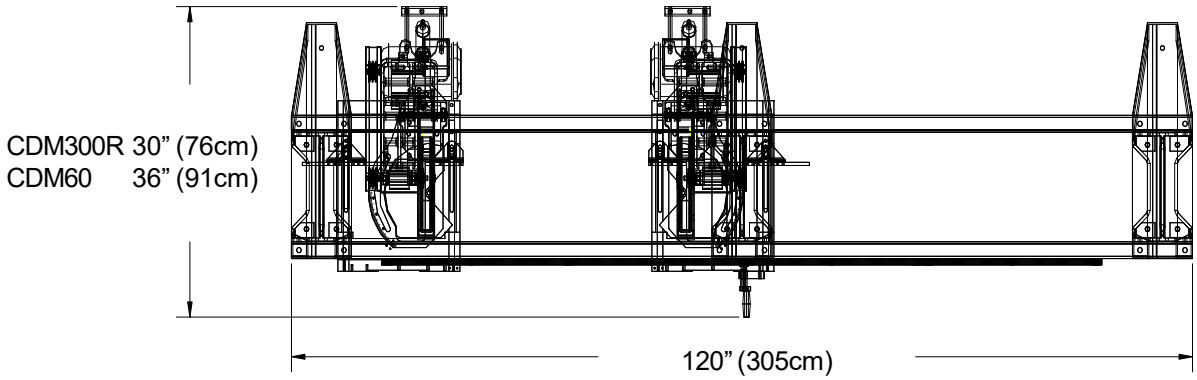
Model No.	Motor Size	Required Amperage	Breaker Needed**
CDM300R	2 H.P. 1 Phase, 230 Volt	12.5 amps each motor	40 amp
CDM300R	2 H.P. 3 Phase, 230 Volt	5.4 amps each motor	20 amp
CDM300R	2 H.P. 3 Phase, 460 Volt	2.7 amps each motor	15 amp
CDM300R	3 H.P. 3 Phase, 230 Volt	7.4 amps each motor	30 amp
CDM300R	3 H.P. 3 Phase, 460 Volt	3.7 amps each motor	20 amp
CDM60	3 H.P. 3 Phase, 230 Volt	8.2 amps each motor	30 amp
CDM60	3 H.P. 3 Phase, 460 Volt	4.1 amps each motor	20 amp
CDM60	5 H.P. 3 Phase, 230 Volt	13.2 amps each motor	40 amp
CDM60	5 H.P. 3 Phase, 460 Volt	6.6 amps each motor	20 amp

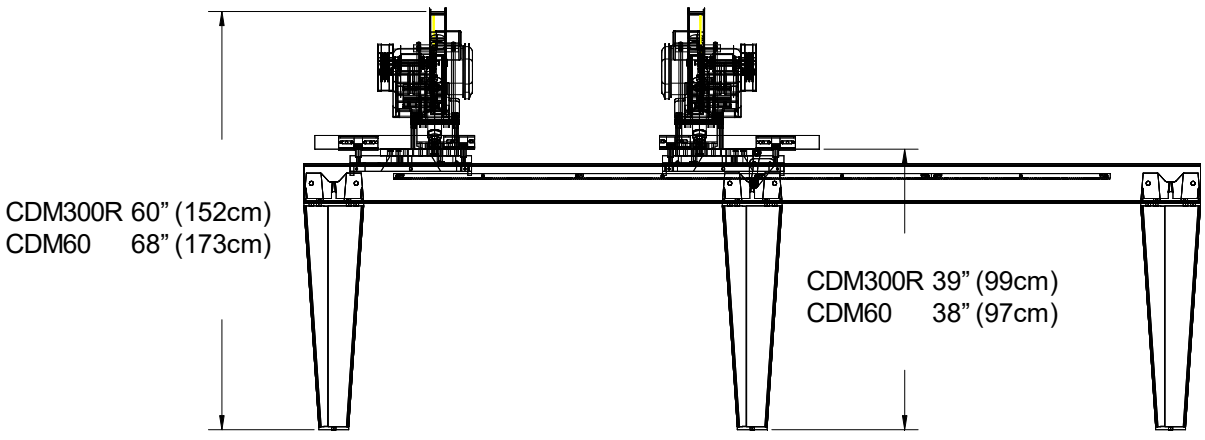
**Breaker needed if both motors on the same circuit breaker

Cutting Tool Requirements: Heavy, rigid plate blades.

12" blades: .100 to .110 plate
16" blades: .120 to .130 plate
20" blades: .150 to .160 plate

Space Requirements
For Models CDM300R & CDM60





Note: The floor stand must be shimmed, leveled and bolted to the floor to eliminate vibration. Use holes provided in support legs for this purpose.

Installation and Set Up:

The CTD saw you have purchased is designed to cut wood, aluminum, plastic and steel, with of course the proper blades and conditions. For the material you are cutting, please refer to the cutting instructions for each type. The machine must be leveled and framed in or bolted to the floor. See "Alignment of Saw "on page 5.

The CDM300R uses NEMA 56 frame 3 H.P., 3450 RPM, 60 Hertz TEFC Motors. CTD uses a speed-up drive so that the blade will run approximately 11,000 SFPM on a 12" blade.

The CDM60 uses NEMA 182T Frame 3 H.P., or NEMA 184T Frame 5 H.P., 1725 PRM, 60 Hertz TEFC Motors. CTD uses a speed up drive so that the blade will run at aproximately 12,000 SFPM.

IMPORTANT: Before operating the saw, please be sure to read the "**SAFETY INSTRUCTIONS TO THE OPERATOR"** (see Page No. 7).

Blade Installation: (for **CDM300R**)

Before setting blades on spindle, always shut off or disconnect air supply. The CDM300R uses a lower rotating blade guard. With **Motor OFF** and **Power Disconnected**, rotate Lower Blade Guard up into main blade guard. Slide link puller off screw and bushing through large hole in slot. Loosen and remove four machine nuts on Blade Guard Cover and remove entire Blade Guard Cover Assembly. The entire Blade Guard Cover Assembly, consisting of Bearing Housing, Lower Blade Guard and Link Puller with Pawl will come off as one piece, exposing spindle nut and flange. After blade has been placed on spindle and tightened (see Blade Install below), replace Blade Guard Cover Assembly with Housing and Link Puller by reversing the sequence.

For **CDM60**, open blade guard door, exposing spindle assembly. Loosen wing nut on bottom blade guard strap and swing down. Push saw arm down slightly so that blade will come off spindle easier .

To install or remove blade:

1. Hold blade in hand with a rag covering sharp tips, or lower blade into a piece of wood so it will not rotate. Push down with wrench on spindle nut. Remove spindle nut and outer flange.
2. Place blade on spindle with tips pointing *down*. Make sure slinger (inner flange) and blade surface are ***CLEAN*** before putting blade on spindle. This is a critical surface and is ground within .0005 flatness. Any debris or dust will wear this surface. Wipe both surfaces (blade and slinger) with a clean rag.
   A. The blade must ***ALWAYS*** rotate to the rear of the machine on the underside of the blade
      Always check rotation before cutting a piece of material.
3. Replace outer flange and nut as before and tighten (refer to Diagram "A"). Pull up with your wrench. Do not over tighten. Snugging the blade is all that is necessary. Replace Blade Guard parts as before or close door to cover the blade.

If blades were purchased from CTD, your machine has been set with your blades. If a chip breaker is included on your machine, it has been cut with the blades purchased from CTD. If not, blade diameters and widths vary and your chip breaker has not been cut. Cut chip breaker using your blades **VERY SLOWLY** the first cut through.
Note: Also make sure blades do not contact top base in the down position. Adjust downstop if necessary.

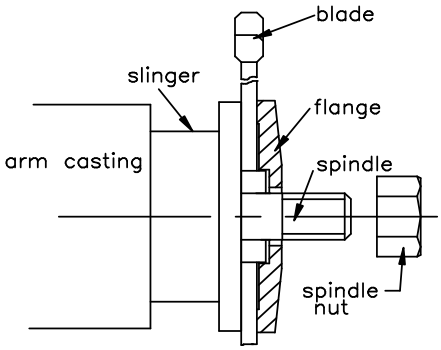
Blade Guard:

CDM300R: The blade and belt drive are enclosed. When the saw arms are lowered, the lower blade guard rotates up into the main blade guard. The blade continues through the work as the lower blade guard rotates up, via linkage arm. ***Cut only material that fits into the cutting capacity of the machine. Damage to the blade guard will result if too large material is attempted to be cut.***

CDM60: The blade guard is fixed. When the saw arms are lowered, the blade exits the lower part of the main blade guard. The lower blade guard strap covering slot remains in place.

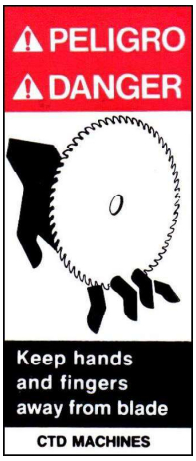
Always keep the blade guard guide as close as possible to the material for maximum protection to the operator.

Diagram "A"



These machines are general purpose in their design, therefore the ***user*** *should attach any additional guarding to the blade guard or table base if the cutting application causes* ***unsafe blade exposure.***

This label is attached to the blade guard. ***Never put hand or fingers near or under the moving blade****.Use a piece of wood to remove short pieces from saw*



Alignment of the Saw:

1. The Floor Stand Assembly and base of double mitre saws must be leveled lengthwise, and front to back. The front and rear tubes must be parallel, in good alignment, and not twisted. Bolt down holes are provided in the support legs of the floor stand for this purpose.
2. In the operation of the double end mitre saws, it is very important that long work be supported in the center to avoid springing or vibration of the work as it is being cut. If the work is allowed to "sag", inaccurate cuts will be made. This problem is eliminated by the use of the Center Work Support accessory (item CWS), which may be purchased along with the machine.
3. The fences on both heads must be in good alignment with each other. This is easily accomplished as the fences are keyed, and will maintain their relationship to the centerline of the machine. A straight edge should be used for setting the fences (see Diagram "C" for each model machine).
4. The outside fences must be set close to the blades so that the scrap piece that drops does not bind between the blade and fences. *ALWAYS use outside fence* as this acts as a back support for the scrap piece. If you remove the fence, the scrap piece will be unsupported and can be thrown into the blade causing damage to it and possibly to the operator.

Diagram "B" CDM300R

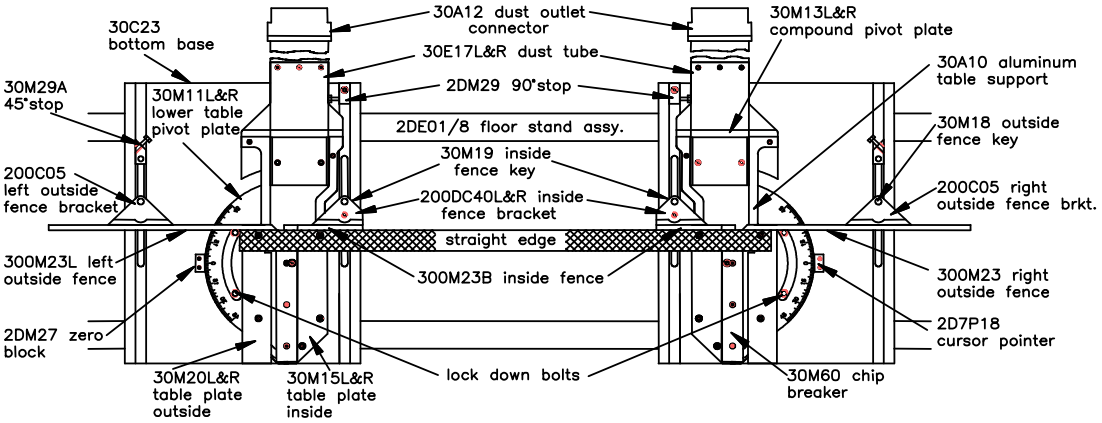
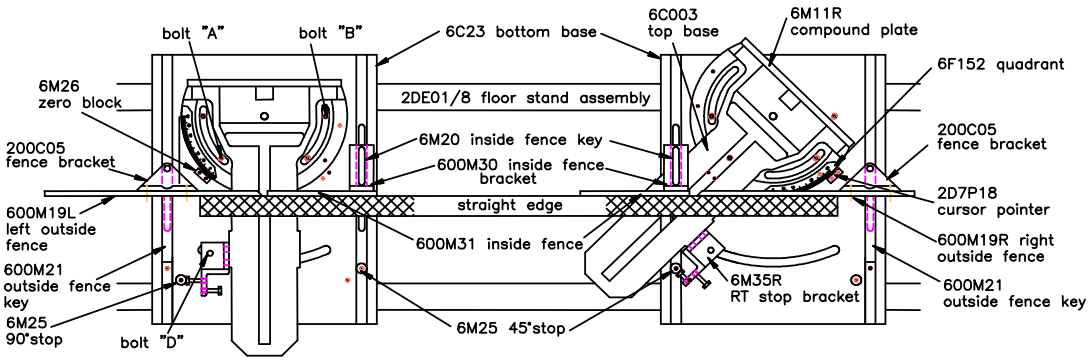


Diagram "B" CDM60



Electrical:

The **CDM300** uses two NEMA 56 Frame, 3 H.P. 3 Phase, 3450 RPM, 60 Hertz TEFC Motors.
The **CDM60** uses two NEMA 182T Frame, 3 H.P. 3 Phase, or two NEMA 184T Frame, 5 H.P. 3 Phase , 1725 RPM, 60 Hertz TEFC Motors.

CTD uses a speed up so that the blades run at approximately 12,000 SFPM. Electrical installation should be performed by a qualified and certified electrician. It is highly recommended that a lock-out or disconnect switch be located close to the machine between your main electrical panel and the machine. This disconnect switch is used to shut off power to the machine and should be used whenever the blades are changed, or at anytime the machine is serviced and the blades are exposed.

A Magnetic Starter for each motor is supplied. This starter protects the motor from overheating and will not allow the motor to restart itself after power outages or undervoltage situations.

Electrical Installation of Power to Starter by a Qualified Electrician:
All wiring from the motors to the starter has been completed and tested at the factory several times.The voltage has been clearly tagged. *DO NOT CONNECT ANY VOLTAGE THAT IS **DIFFERENT** THAN THE TAGGED VOLTAGE, AS THIS MAY CAUSE SEVERE DAMAGE AND DANGER.* Consult the factory if any changes are needed.

Bring power lines to the top of each Magnetic Starter. Use dust-proof connectors if available.

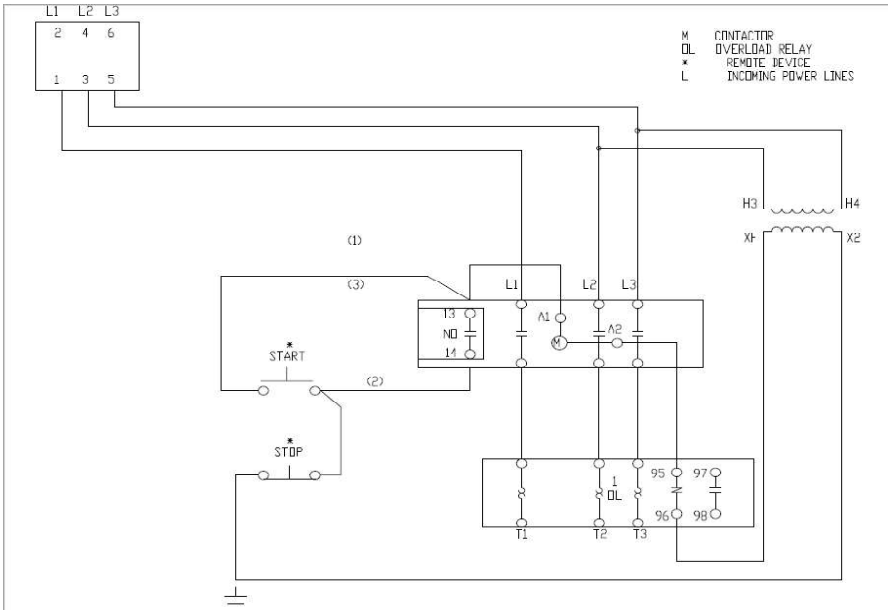
Single Phase Motor Replacement:
Connect leads to L1 (line 1) and L2 for single phase motors. (See Wiring Diagram for Single Phase Motors on Page No. 7.) Green ground wire must be grounded to enclosure. If using type "SO" wire and plug, use a romex connector through starter box and a grounded plug. *Be sure to check rotation*. The blade must rotate down and to the rear on the underside of the blade (see Diagram "B" on Page No. 5).

Three Phase Motor Replacement:
Connect incoming power line leads to L1 (line 1), L2 and L3. (See Wiring Diagram for Three Phase Motors on Page No. 7.) Green ground wire must be grounded to enclosure. *Be sure to check rotation* as polarities may be different. The blade must rotate down and to the rear on the underside of the blade. If a change in rotation is necessary, reverse any two of the incoming power wires. *Example: If the blades are running backwards and incoming wires are connected White L1, Black L2, Red L3, switch the Black wire with the Red so that Black is connected to L3 and Red is connected to L2. This will change the motor to rotate properly.*

MOTOR LOAD AMPERES

Motor	Model	Frame	208 Volt	230 Volt	460 Volt
3 H.P. 3 Phase	CDM300R	56Z	7.8 amps	7.4 amps	3.7 amps
3 H.P. 3 Phase	CDM60	182T	8.5 amps	8.2 amps	4.1 amps
5 H.P. 3 Phase	CDM60 (optional)	184T	15 amps	13.2 amps	6.6 amps

Wiring Diagram for Magnetic Starter



Safety Instructions to the Operator:

1. *KNOW YOUR CTD SAW.* Read this instruction manual carefully. Learn the operation, application, and limitations, as well as the specific potential hazards peculiar to this machine.
2. Avoid accidental starting. Make sure switch is **OFF** before plugging in power cord. A Magnetic Starter is provided to give the operator added protection. (OSHA required by user.)
3. *Always* use a plug equipped with a ground.
4. *Always* keep blade guard in place. Do not wire-up or chain-up, so that blade is exposed.
5. Be sure all unnecessary tools are removed from machine before turning on power.
6. Use safety goggles. Also use a face or dust mask if operation is dusty.
7. Support work. To maintain control of work at all times, it is necessary that material be level with cutting surface.
8. Wear proper apparel. Do not wear loose clothing or jewelry. Do not wear a tie or gloves. These items can get caught in the moving parts of the machine.
9. Do not over-reach. Keep your proper footing and balance at all times.
10. Maintain your machine in top condition. Use proper blades. Clean machine weekly for proper maintenance.
11. Keep work area clean. Cluttered areas, benches and slippery floors invite accidents.
12. Avoid dangerous environments. Keep work area well illuminated.
13. Wear ear protection if exposed to long periods of very noisy shop operations.
14. Keep visitors away. All visitors should be kept a safe distance from work area.
15. Do not force the machine. The saw will do a better job and be safer to operate at the speed for which it was designed. Forcing the saw can be very hazardous to the operator.
16. Use recommended accessories. Use of other accessories may be hazardous. Use this instruction manual or consult CTD for the proper accessories available.
17. Do not drown the blade using a steady stream of coolant when cutting non-ferrous materials. Only spray the work to cool it.
18. Be sure to use the proper blade for the particular material to be cut.
19. Disconnect power cord before adjusting, servicing, and before changing belts, or for installing accessories.
20. Safety is a combination of operator *COMMON SENSE* and *ALERTNESS* at all times when the machine is being used.
21. ***WARNING!!!*** *DO NOT ALLOW FAMILIARITY (GAINED FROM FREQUENT USE OF YOUR SAW) TO DULL YOUR AWARENESS!! ALWAYS REMEMBER THAT A CARELESS FRACTION OF A SECOND IS SUFFICIENT TO INFLICT SEVERE INJURY!!*

How to Operate a Double End Trim Saw:

Before operating the machine, please read the "Safety Instructions to the Operator" on Page No. 7. Other important information and features need to be learned before operating the machine.

Rotation:

The blade must rotate to the rear of the machine on the underside of the blade (see Diagram "B" on Page No. 5).

Blade Guard:

Model CDM300R**:** The blade and belt drive are enclosed. When the saw arms are lowered, the lower blade guard rotates up into the main blade guard. The blade continues through the work as the lower blade guard rotates up via the linkage arm.

Model CDM60**:** The blade guard is fixed. When the saw arms are lowered, the blade exits the lower part of the main blade guard. The lower blade guard strap (covering slot) remains in place.

These machines are general purpose in their design. Therefore, the USER should attach any additional guarding to the blade guard or table base if the cutting application causes unsafe blade exposure.

Positioning the Work and Alignment of Fences:

Fences should be set so that the centerline of the work is either to the front, or on the centerline of the blade (see Diagram "B"). Fences must be adjusted so that short pieces cannot be trapped between the blade and the fences. Fences must be in line with each other—front to back . If fences are set 5/8' in front of the centerline, then when changing mitre angle, the length dimension at 45 and 90 degrees will stay the same. No adjustment to measuring scale will be necessary. However, any other angles require slight adjustment of the scale. **Note:** The scrap drop off piece needs to be backed up by the rear outside fence. If the trimmed cut-off material is not supported by the rear outside fence, the cut-off piece can catch on the blade with the possibility of firing the scrap piece into the blade. *This will cause damage to the blade, the blade guard, and has the potential for harming the operator.* **Always back up the cut-off trim piece with the outside fence supplied.**

Measuring Scale and Pointer for Length:

The length measuring scale (used to determine length of cut between two saw heads) is located on top of precision gear rack. The measurement rule and bar must be reset if the fences are moved or the blades are changed. If a small adjustment is needed, this can be accomplished by adjusting the pointer located on the right saw head carriage or base. The measurement rule and bar can be reset by loosening screws that hold it in place on top of gear rack. Move the bar with tape, left or right as necessary, to correct length dimension between the two blades.

To Move Saw Head Base:

1. Loosen hand knob located in front of saw head base.
2. Rotate crank handle until pointer registers desired dimension. *Always move saw head base in one direction* to eliminate any backlash between gear rack and pinion.
3. Tighten hand knob. This automatically squares up saw head base to the front rail or tube.

Digital Length Measurement System:

The length of cut is determined the same way as explained on Page No. 8. The length measurement is now displayed in thousanths of an inch, (i.e. 1/16", 1/32", or metric dimensions) by pressing the mode button on the digital display. Since the right saw head base is usually the movable saw head, the digital scale will read to the negative number. When setting the length between the two saw heads;

1. Manually use a scale or cut a piece of wood to determine the exact length between blades.
2. Hold the negative button down until the correct length dimension appears. (Negative only if right saw head base is movable.)
3. The scale is now accurately set for length dimension for the angle and fence position chosen. If fences are moved front to back, or if angle changes (unless fences set on the centerline), then the display will need to be reset.

Mitre Angle Adjustment:

To change angle on all machines, locate lock down bolts in Diagram "B" on Page No. 5 for particular machine purchased—Models CDM300R & CDM60

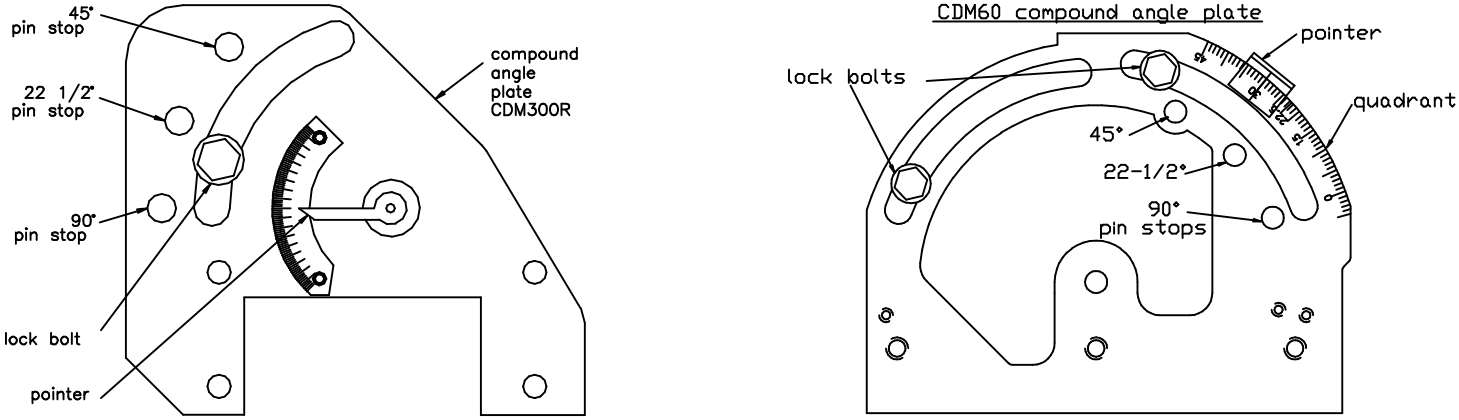
1. Loosen lock down bolts on each saw head with a socket wrench (3/4" for Model CDM300R or 9/16" for Model CDM60).
2. Manually rotate Top Base to desired degree setting, aligning angle mark and pointer. 45° & 90° stops are provided.
3. Tighten lock down bolts.

Saws are designed to mitre toward each other as shown in Diagram "B". If you have purchased a machine with angular adjustment in the opposite direction, it is necessary to remove lock down bolts and reposition in additional tapped holes provided. Also, the inside fences may have to be removed or repostioned and a Center Work Support (item CWS) added. Please consult factory for this special modification.

Compounding Saw Head: For Models CDM300R and CDM60.

1. Locate compound lock down bolts on each saw head (see Diagram "C" on Page No. 10) and loosen, using 3/4" box or socket wrench, or 3/8" Allen wrench (CDM60 only).
2. Remove dowel pin from 90° position located in pivot bracket.
3. Manually rotate saw head to desired compound angle degree setting by aligning pointer on degree quadrant. There are positive compound angle stops at 90° vertical, 22-1/2° and 45° compound.
4. Tighten compound angle lock bolts.

Diagram "C"



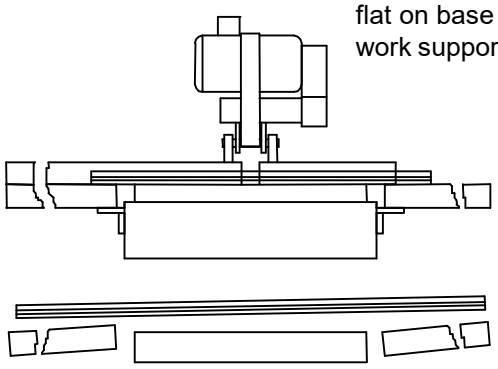
Cutting:
A double end trim saw operates by making two cuts at the same time on both ends of a piece of material. The material is positioned against the rear inside fences, making sure any scrap (off each end, outside the two blades) is located against outside fences. If scrap piece is not backed by the outside fence, it is possible this part will catch on the blade, causing damage to the blade. The material to be cut ***must*** lay flat on the table base, or the blades may bind in the material. *This can damage the blade or throw the cut piece out of the saw, possibly harming the operator*. The material is held in place with two Vertical Inside Air Clamps which are actuated by a Foot Valve. The saw heads are then activated downward by a Two-Hand Anti-Tie Down, Maintained Contact Control. See "AIR SYSTEM" on Page No. 13 for additional details.

Cutting Speed:
The blade is rotating at approximately 3700 RPM for Model CDM300R. The Model CDM60 blade rotates at approximately 2900 RPM. When moving the blade through the material, the blade must ***NEVER*** be allowed to dwell in the work. If fine finishes are required;
1. Use a sharp blade.
2. Use a *CONSTANT*, *EVEN PRESSURE* when cutting through the material.

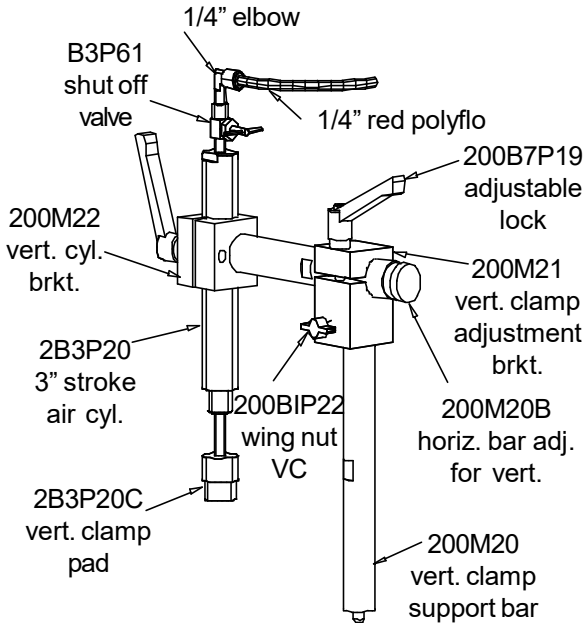
Clamping and Work Slippage:
The work must *NEVER* be allowed to move or vibrate as it is being cut, or inconsistent cuts will result. Two inside Vertical Clamps, which hold material down against the table base are provided as a standard feature on all double end trim saws. For odd shapes and profiles, additional clamping or fixturing may be necessary. Horizontal Clamps that push the material back against fence, can be provided as an optional accessory. The Horizontal Clamps mount to the Center Supports that hold the Vertical Clamps for the CDM300R and CDM 60. The Horizontal Clamps are adjustable front to back on the Center Supports for different widths of material. The clamps are actuated prior to the saw head by depressing the Foot Valve. An Anti-Tie Down, Two-Hand Control drives down the saw heads. Check your material for squareness using a 90° square. Material that is out of square will move when it is cut, causing irregular mitres. (See "IRREGULAR MITRES" on Page No. 17.) Additional tooling may be neeeded. Consult factory for more information.

Cutting the Material:
The material to be cut (both the incoming pieces and the cut pieces) must lay flat on the table base, or the blade may bind the material. ***THIS CAN DAMAGE THE BLADE OR THROW THE CUT PIECE OUT OF THE SAW, POSSIBLY HARMING THE OPERATOR*** (see Diagram "C" on Page No. 11).

Diagram "C"

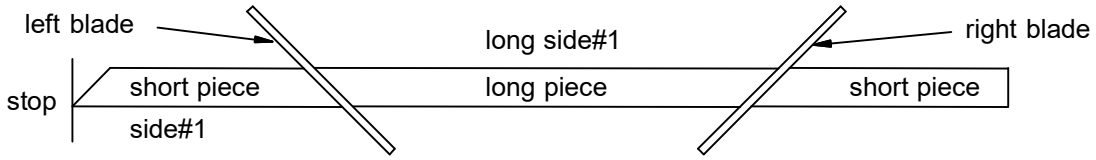


Vertical Clamp Assy.



Double Cutting Material for Two Pieces in One Pass on Symmetrical material only:
If your material is ***symmetrical*** on both sides and edges when looking at the end, then double cutting as shown below would be an option. By placing a stop outside the left blade, two pieces can be cut simultaneously, one between the two saws and one between the left saw head and stop. Double cutting is not possible on material that is moulded or profiled on the top of the moulding.

Diagram "D"



Material must be symmetrical top and bottom,
so sides will join properly.

Removing Material From the Blade:
If the machine is stalled while cutting, immediately shut saw off and disconnect power. ***NEVER*** *attempt to free the blade while the motor is still running*. If a piece is bound on the blade, do not attempt to raise the blade out of the material. Instead, tap the piece down on both sides of the blade with light pressure until the piece has freed the blade.

Cutting Wood:
While wood is generally soft and simpler to cut than aluminum, it requires that the material be held in place as the blades pass through the material. CTD suggests using a Carbide Blade with an Alternate Top Bevel (AT) for lighter wood sections and picture frame mouldings. This type of blade gives the finest of finishes. No *ONE* blade will cut all material perfectly. High lacquers or mica mouldings require a special modified blade for best results. Consult factory. *Never use a* ***wood*** *blade to cut* ***aluminum***, as it will chip and fracture the carbide tips of the blade.

Cutting Plastic:
Plastic can be cut as easily as wood on all double end trim saws. However, because of its elastic properties, the material can deflect as the blades pass through. CTD offers Horizontal and Vertical Clamps for this application. Additional tooling may be required. Special carbide blades are available for cutting plastics.

Cutting Aluminum:
As with cutting any material, it is important that aluminum be clamped properly. Precision blades are required for accurate cutting. CTD suggests and uses a Triple Chip Grind on all our non-ferrous Carbide Blades. When cutting aluminum, or other non-ferrous materials, it is essential that the blades be lubricated with a saw blade Lubrication System or other blade lubricating system for the finest finish. See "Saw Blade Lubrication" on next page for more details.

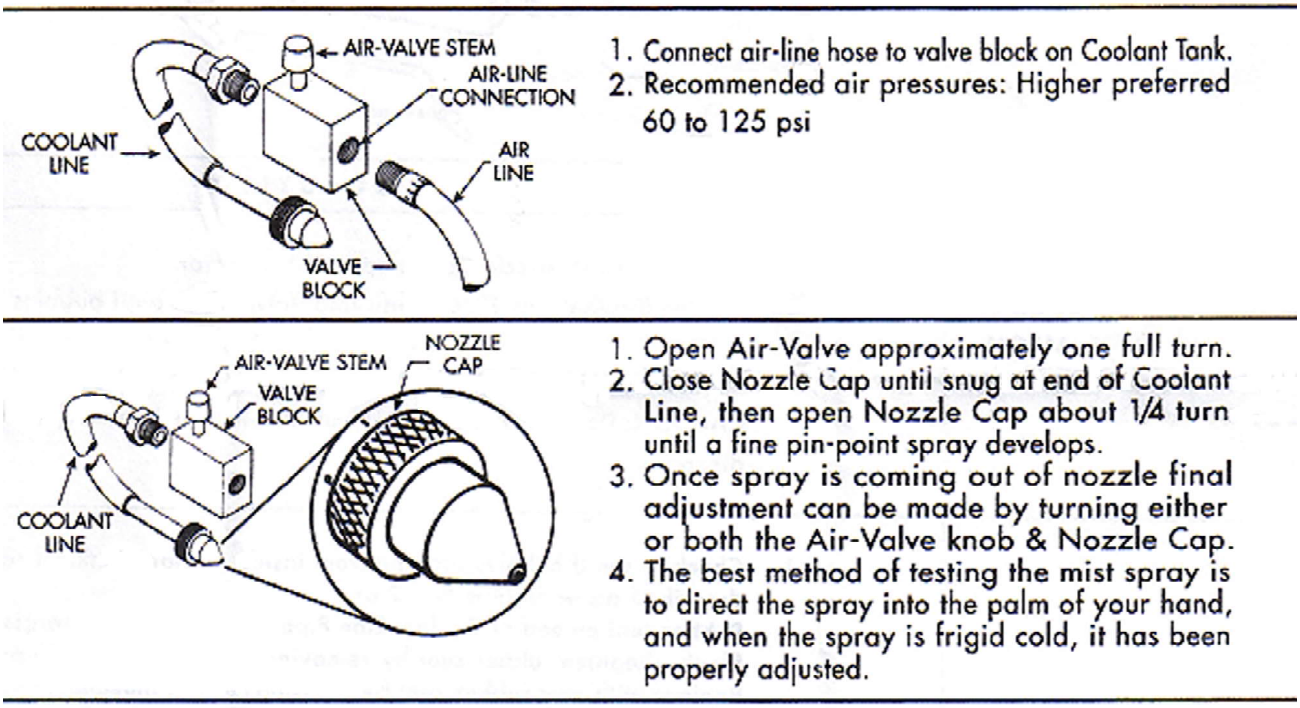
Combination Blades:
Any combination blade is basically an aluminum cutting blade. Significant blade life in-between sharpenings will be lost if a blade is used for cutting both aluminum and wood. The amount of production for either wood or aluminum should be the determining factor in the assessment of the particular blade type to be used. Please consult the factory.

CTD Bio Lubrication System:
The CTD biodegradable lubrication system operates by pulse spraying a minute amount of biodegradable lubricant directly on to the saw teeth of the blade in time-measured increments. The majority of the lubricant then dissipates with the heat of the cutting action. Chips coming off the blade are hot and dry, and are more easily collected. (See specific instructions included with system.)

Angular Adjustment in Opposite direction for CTD Models DM200R or DM400:
1. Remove 90 degree stop, p/n 2DM29 from keyway by removing bolt, lifting away and setting aside.
2. Move Vertical Clamp Assembly on inside fence bracket to center work support by: (see diagram on top of page 11 of the instruction Bulletin)
    a) Loosen wing nut, p/n 200B1P22
    b) Lift vertical clamp adjustment bracket, p/n 200M21 from vertical clamp support bar, p/n 200M20
    c) Loosen thread on vertical clamp support bar, p/n 200M20 and
    d) Move 200M20 to a threaded hole in center work support and tighten
    e) Place vertical clamp adjustment bracket, p/n 200M21, with assembly back on bar, p/n 200M20 and tighten wing nut.
3. Remove inside fence and inside bracket assembly with key from inside keyway.
4. Move lock down bolt with tab washer (below table surface) from rear hole to front hole.
5. Rotate Top Base Assembly, with Sawhead Assembly in the opposite direction, aligning etched quadrant on base and the desired angle with the secondary zero block and pointer.
6. Attach longer inside fence supplied to the center work support fence Bracket, with the fasteners provided, to create a new inside fence support for the material to be cut.
7. Align and adjust fences front to back and side to side with outside fences Using a long straight edge.
    Make sure fences do not contact blade.
8. Readjust vertical clamp assembly as necessary.

See Diagram on page 11

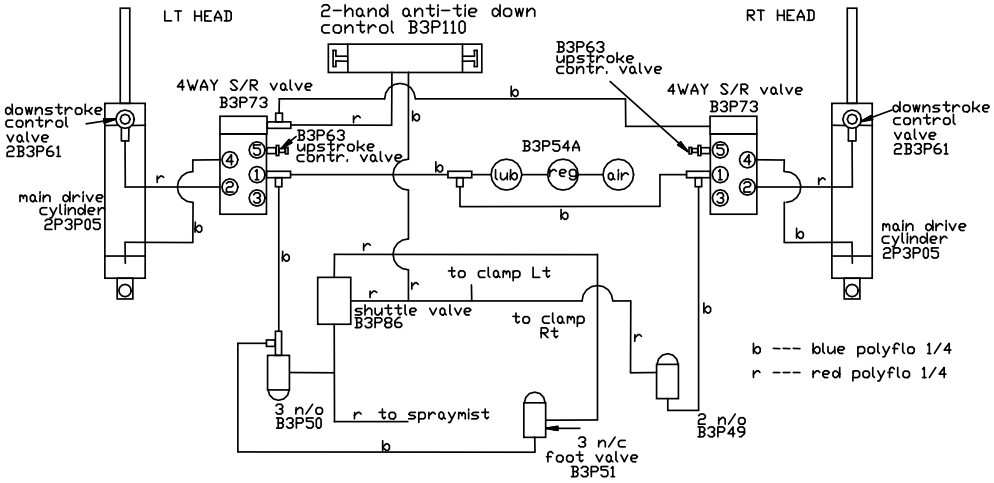
Sawblade Lubrication System:
The Sawblade Lubrication System is used when cutting aluminum or other non-ferrous materials. This system normally uses a Water Soluble Oil mixture of *10 parts water to one part oil*. The system operates by syphoning the lubrication up the line to the spray nozzle. Any air leak will cause inconsistent fluid flow to the spray nozzle. ***BE SURE*** your fluid is free from chips and other debris. A fluid container supplied with the machine contains a One-Way Check Valve, Part No. B3P96 at the end of the clear fluid line. This check valve helps to hold the lubrication in the line. However, after a couple of minutes, the lubrication or oil will back-flow into the container. Priming of the system may be necessary if the machine has been standing without use. The system may be shut off by closing the toggle valve next to the vacuum pump. The fluid must be clean or the Vacuum Pump will clog.



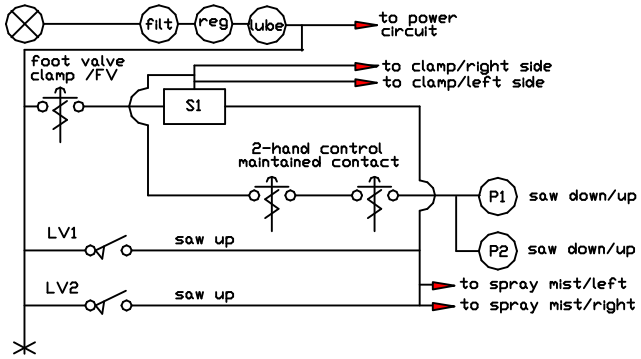
Air Pneumatic System for Double End Trim Saws:

The air pneumatic system on all CTD double end trim saws is simple to use and understand, and easy to operate. The main components of the air system are shown in the Air Circuit Piping Diagram on the following page. The system operates using a Two-Hand Anti-Tie Down Control for safety. Included with the Air Pneumatic System are the main drive Cylinders and Valves, an Air Filter/Regulator/Lubricator, and two Vertical Pneumatic Clamps. The Vertical Clamps must be actuated prior to the activation of the saw heads via a Foot Valve, P/N B3P53E, which in turn energizes the Two-Hand Control, P/N B3P110. The two hand buttons must be depressed at the same time for the saw heads to travel downward. The system operates by depressing the Foot Valve, P/N B3P53E, then clamps move in place. This gives a signal to the Shuttle Valve, P/N B3P86 to allow air to pass to the Two Hand Anti-Tie Down Control, P/N B3P110. By depressing both palm buttons simultaneously (at the same time), a signal is given to the main 4-Way Control Valve, P/N B3P73 to change direction—allowing air to pass to the main drive Cylinder, P/N 2B3P05. Drive Cylinder for CDM60 is P/N B3P306. The Cylinder pushes the saw head down. The speed of descent is controlled by the Speed Control Valve, P/N 2B3P61 (for CDM300R) located on the Cylinder. The Speed Control Valve for CDM60 is P/N B3P60. By releasing the Two-Hand palm buttons, air is shut off to the main 4-Way Valves. The valves shift direction and the main drive cylinders reverse.

Air Circuit Piping Diagram



Air Schematic



**When Spray Mist or Biolube is included on the machine add Check Valve, P/N B3P65

aaaWhen Independent Operation is included on the machine, add 3-Way Normally Closed Valve, P/N B3P51 for Foot Valve; P/N B3P110, 2-Hand Control; (2) P/N B3P86 Shuttle Valves; and change LV2 to P/N B3P50. (2) Shut Off Valves, P/N B3P61 are also included

Parts for Air Pneumatic System

Model/Part No.		Quantity	Description
CDM300R	CDM60		
B3P110	B3P110	1	2-Hand Anti Tie Down Control Assembly
2B3P05	B3P306	2	Air Cylinder (drive for saw head)
B3P61	B3P60	2	Flow Control Valve (speed of saw down)
B3P73	B3P73	2	4-Way Spring Return Valve (main control valve)
B3P50	B3P50	1	3-Way Normally Open (N/O) Valve (controls accessory items SM and VC)
B3P86	B3P86	1	Shuttle Valve
B3P63	B3P63	2	Upstroke Valve (speed of saw up)
2B7S15	157P73	2	Rubber Bumper
B3P154	B3P154	1	FR Unit with Auto Drain
30F06	6F004R/L	2	Motor Mount Plate
200M80	6M80	2	Cylinder Support Studs
30F45	6M16	2	Cylinder Clevis Rear/or mount
200M84	4BF101	2	Auto Valve Bracket
N/A	6M82	2	Power Feed Cylinder Support Bar
300M44	15M75	2	Cross Bar Cylinder (Hydrocheck for DM400)
B3P51	B3P51	1	3-Way Normally Closed (N/C) Foot Valve
B3P49	B3P49	1	2-Way Normally Open Valve
N/A	15M26	1	Cylinder Clevis, Rod
N/A	N/A	1	Power Feed Brace
300M46(opt.)		1	Hydrocheck Mount Bracket for Cylinder

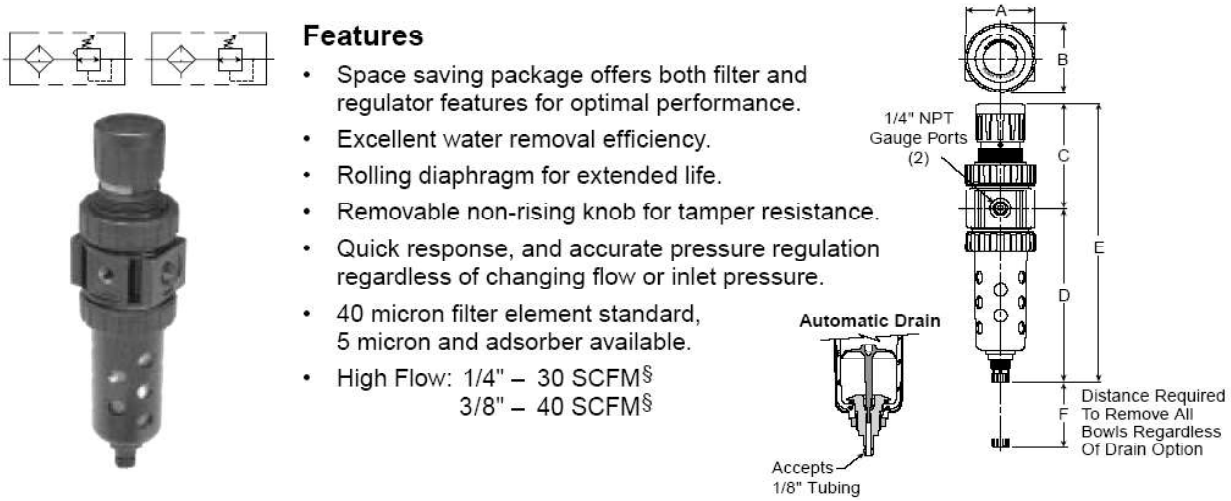
See Pneumatic Clamp parts on Page No. 12.

Air Supply:
The air supply must be turned off and all electrics disconnected before making adjustments on the power feed. A working pressure of 75 PSI (pounds per square inch at 5.4 kg/cm2) is required. An industrial-type compressor of at least 3 CFM (cubic feet per minute) is recommended. An additional 3 CFM is required for Spray Mists. A conveniently located valve should be supplied by the user to shut off the air line. **Arms should be raised or lowered *by hand* when setting up machine.** The machine must use clean, filtered air. The speed of descent of the saw head will vary if the air pressure varies. An Air Filter/Regulator is essential.

FR:
An Air Filter/Regulator is installed ahead of the air inlet to the machine. This system helps prevent foreign material from entering the system. It also provides lubrication in the air supply which helps prevent valves and cylinders from sticking. The FR is comprised of two different components.

1. The **Air Filter Bowl** is located on the left side and is provided with an automatic drain. This collects and then releases foreign matter and condensation collected by the air filter.
2. The **Pressure Regulator**, which is located on top of the air filter, controls the amount of air pressure allowed into the system. An operating pressure of 75 PSI @ 5.4 kg/cm2 is required. (This is set at the factory.)

Air Filter/Regulator



Trouble Shooting the Pneumatic System for Downfeed of Saw Head:
If the Air Feed no longer has smooth action, check the Downstroke Control Valve, P/N 2B3P61 or P/N B3P60. If there is no speed control, replace with Part No. 2B3P61 or P/N B3P60. If air is leaking from the bottom of the cylinder, replace Cylinder with P/N 2B3P05 (for CDM300R); P/N B3P306 (for CDM60).

4-Way Valve:
The 4-Way Valve is the main control, five port valve located on the Air Feed Unit. If the saw is sticking in the up or down position, the spool located in the valve probably is not shifting from side to side as necessary. This condition is caused by unclean air passing through the system. The internal parts become gummed up, and the air pressure can no longer shift the spool. A broken spring in the valve is another common cause. A 4-Way Valve Repair Kit, P/N B3P76 is available for the valve.

Air Hold Down Clamps for the Material:
Both Horizontal or Vertical Air Clamps are available. Vertical Clamps are provided standard on the machine. These clamps pneumatically hold the material in place when the saw blades are cutting the material. The clamps are controlled by a 3-Way Valve mounted on the bottom of the Power Feed Unit. When the machine is in the rest position, the Upstroke Stud contacts the 3-Way Valve, LV1 & LV2 (2-Way Valve). As soon as the Foot Valve is tripped, the clamps move into position. A manual shut-off for the clamps is provided should you not want to use the clamps for a particular moulding.

Foot Valve:
The Foot Valve, P/N B3P53E actuates the clamps into position. Once the Foot Valve is depressed, the Two-Hand Anti-Tie Down Control is energized and ready to activate. As soon as the Two-Hand Control buttons are depressed, your foot can be removed from the Foot Valve. The clamp pressure will be maintained by Limit Valve #1 & #2, P/N B3P50 & P/N B3P49.

Speed Control of Blade Movement:
The downstroke speed of the blade is controlled by the Speed Control Valve, P/N 2B3P61 or P/N B3P60, located in the lower port of the main drive Cylinder, P/N 2B3P05 or P/N B3P306. Adjust as required for best finish. The Upstroke Control Valve, P/N B3P63, is located in port No. 5 of the main control Valve, P/N B3P73. Simply loosen nut on machine screw (10-32 thread) and adjust ***IN*** to slow down, or ***OUT*** to speed up.

Preventative Maintenance:

The CTD Double End Trim Saws are relatively easy machines to operate and maintain. Following is a weekly check list of General Maintenance items. The best preventative maintenance advise is to *CLEAN THE MACHINE DAILY*, especially around the pivot points on the machine.

Lubrication and Adjustments of Bearings:
NO LUBRICATION OR ADJUSTMENTS ARE REQUIRED. All CTD cut-off saws are assembled using sealed, prelubricated ball bearings. The spindle and pivot assembly are constructed using preloaded belleville springs. These springs eliminate the need for adjustments of bearings and also greatly increase the life of the bearings. All air cylinders are "lube for life".

General Maintenance Weekly Check List:
Always disconnect electrical power and air supply.
1. Keep machine clean—especially around pivot bracket and pivot bearings.
2. Blow off and clean around the cylinder.
3. Check Air Filter Bowl for water and condensation build up.
4. Remove any scrap pieces and dust build up from inside floor stand.
5. Check monthly;
   A. For excessive belt wear.
   B. Make sure motor pulley set screws are tight.

Repair and Service:

Always use CTD factory authorized replacement parts and consult factory before making any repairs or adjustments which may be unclear.

Fence Alignment and 45° Angle Adjustment of Blades:

All machines are preset at the factory for perfect 90° and 45° mitre cuts. If any adjustments are necessary:

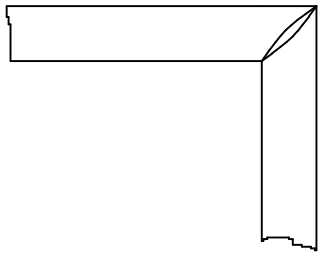
1. Check alignment of fences—left to right, as shown in Diagram "B" on Page No. 5. Use a two foot steel scale or quality precision straight edge and lay flat on table base. Butt edge against inside fence and outside fence. Touch the outside corner of the straight edge. If one side of the straight edge pulls away from the fence, then the outside fence is not in alignment with the inside fence.
2. Loosen 3/8-16 lock nut on both fence brackets. Clean all surfaces of dirt or dust, and re-assemble as before.
3. Re-align inside fence to outside fence with your straight edge. Once you are sure both fences are in alignment, you now have a reference point to check your 45° mitre.

If adjustments of the 45° mitre settings are necessary, you will need a precision draftsman's triangle. Check the 45° mitre by placing the triangle against the inside fence and the plate of the blade, below or in between the gullets or teeth of a Carbide Blade. Touch the triangle against the steel plate of the blade—not against the tips. If an adjustment is necessary:

A. Loosen the lock nut on the adjusting screw (3/8-16 Hex Cap Screw), that locks through the 45° Stop Key, P/N 2DM29.
B. Adjust 3/8-16 screw until blade plate aligns perfectly with precision triangle. Now, tighten the screw and nut. It is not necessary to move the 45° stop key.

Irregular Mitres:

Irregular mitre cuts are almost always caused by out-of-square material. Check your material with a 90° square and a straight edge. Material that has a high spot on the bottom will move, or roll forward as it is being cut (even with pneumatic hold down clamps), thereby causing the blade to cut more on the inside of the moulding than the outside. Another cause of irregular mitre cuts is too thin a blade plate thickness. Blade plate thickness should be .100 to .110 on 12" blades. Blades will find the easiest avenue to cut through material, and sometimes the blade plate will distort when cutting heavier sections. The drawing is an example of a cut when blade plate is too thin for the material being cut.



Other Repairs:

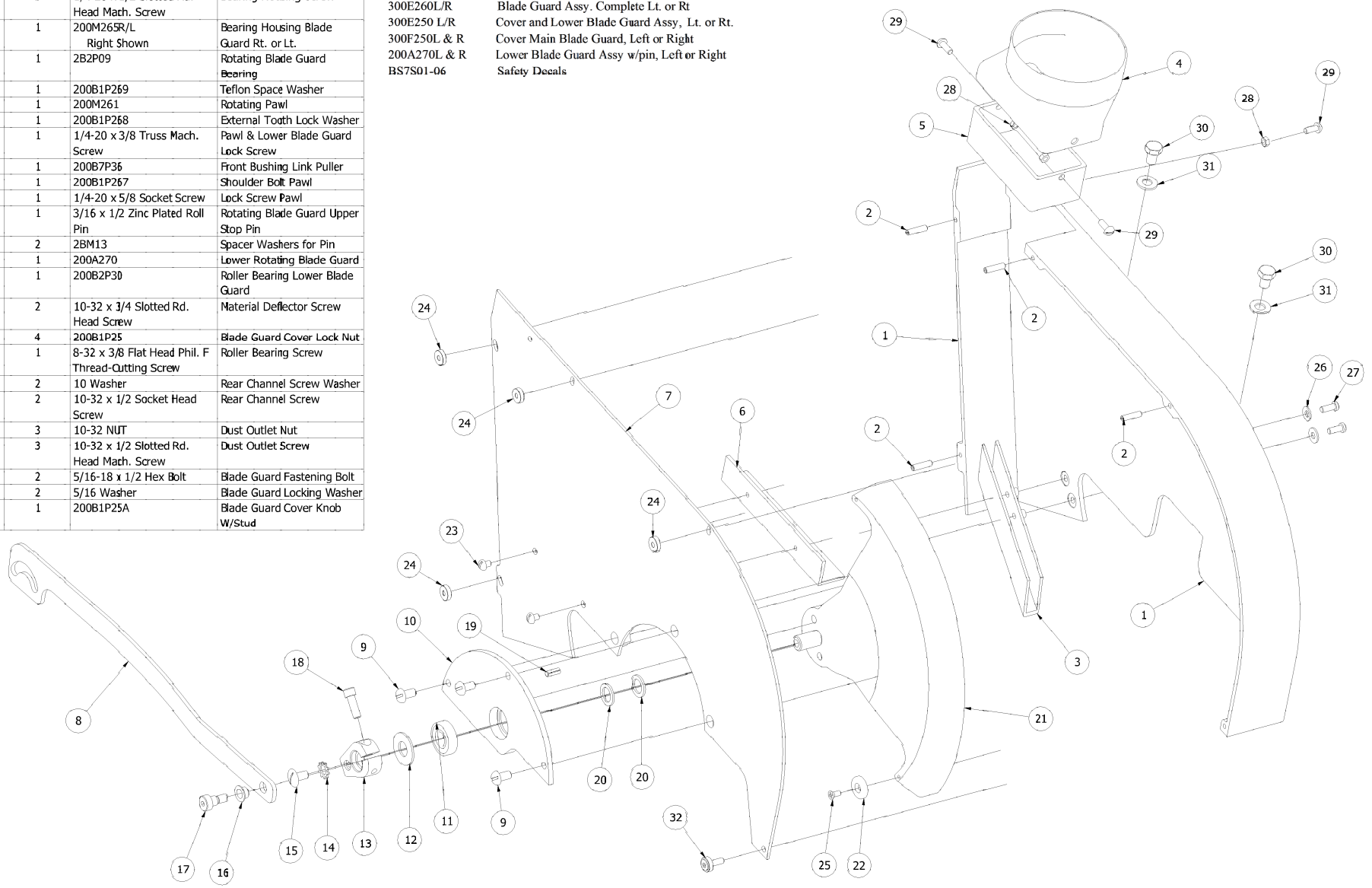
See specific sections within the manual for additional information on repairs and maintenance.

CDM300 Left Blade Guard
Exploded View

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	300A26L/R	Main Blade Guard Casting, Lt. or Rt.
2	4	10-32 x 3/4 Set Screw	Blade Guard Cover Locating Studs
3	1	300M36L/R	Rear Blade Guard Channel Lt. or Rt.
4	1	30A12	Dust Outlet 4"
5	1	30M35	Dust Tube Connector
6	1	300M26	B.G. Mat. Deflector Angle
7	1	300F250L/R	Cover Main Blade Guard Lt. or Rt.
8	1	300M32	Blade Guard Link/Puller
9	3	1/4-20 x 1/2 Slotted Rd. Head Mach. Screw	Bearing Housing Screw
10	1	200M265R/L Right Shown	Bearing Housing Blade Guard Rt. or Lt.
11	1	2B2P09	Rotating Blade Guard Bearing
12	1	200B1P269	Teflon Space Washer
13	1	200M261	Rotating Pawl
14	1	200B1P268	External Tooth Lock Washer
15	1	1/4-20 x 3/8 Truss Mach. Screw	Pawl & Lower Blade Guard Lock Screw
16	1	200B7P36	Front Bushing Link Puller
17	1	200B1P267	Shoulder Bolt Pawl
18	1	1/4-20 x 5/8 Socket Screw	Lock Screw Pawl
19	1	3/16 x 1/2 Zinc Plated Roll Pin	Rotating Blade Guard Upper Stop Pin
20	2	2BM13	Spacer Washers for Pin
21	1	200A270	Lower Rotating Blade Guard
22	1	200B2P30	Roller Bearing Lower Blade Guard
23	2	10-32 x 3/4 Slotted Rd. Head Screw	Material Deflector Screw
24	4	200B1P25	Blade Guard Cover Lock Nut
25	1	8-32 x 3/8 Flat Head Phil. F Thread-Cutting Screw	Roller Bearing Screw
26	2	10 Washer	Rear Channel Screw Washer
27	2	10-32 x 1/2 Socket Head Screw	Rear Channel Screw
28	3	10-32 NUT	Dust Outlet Nut
29	3	10-32 x 1/2 Slotted Rd. Head Mach. Screw	Dust Outlet Screw
30	2	5/16-18 x 1/2 Hex Bolt	Blade Guard Fastening Bolt
31	2	5/16 Washer	Blade Guard Locking Washer
32	1	200B1P25A	Blade Guard Cover Knob W/Stud

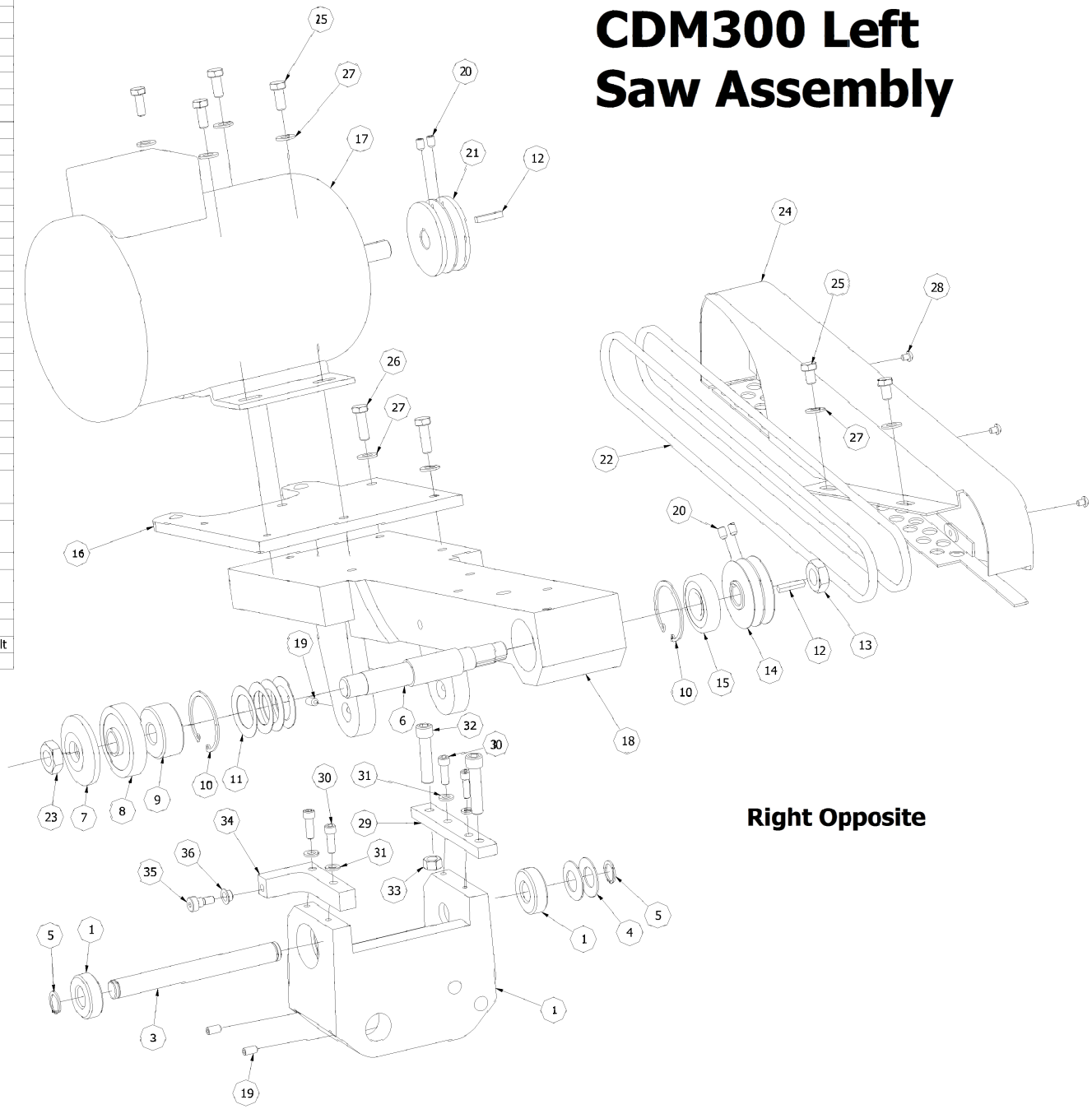
Additional Parts:

300E260L/R	Blade Guard Assy. Complete Lt. or Rt
300E250 L/R	Cover and Lower Blade Guard Assy, Lt. or Rt.
300F250L & R	Cover Main Blade Guard, Left or Right
200A270L & R	Lower Blade Guard Assy w/pin, Left or Right
BS7S01-06	Safety Decals

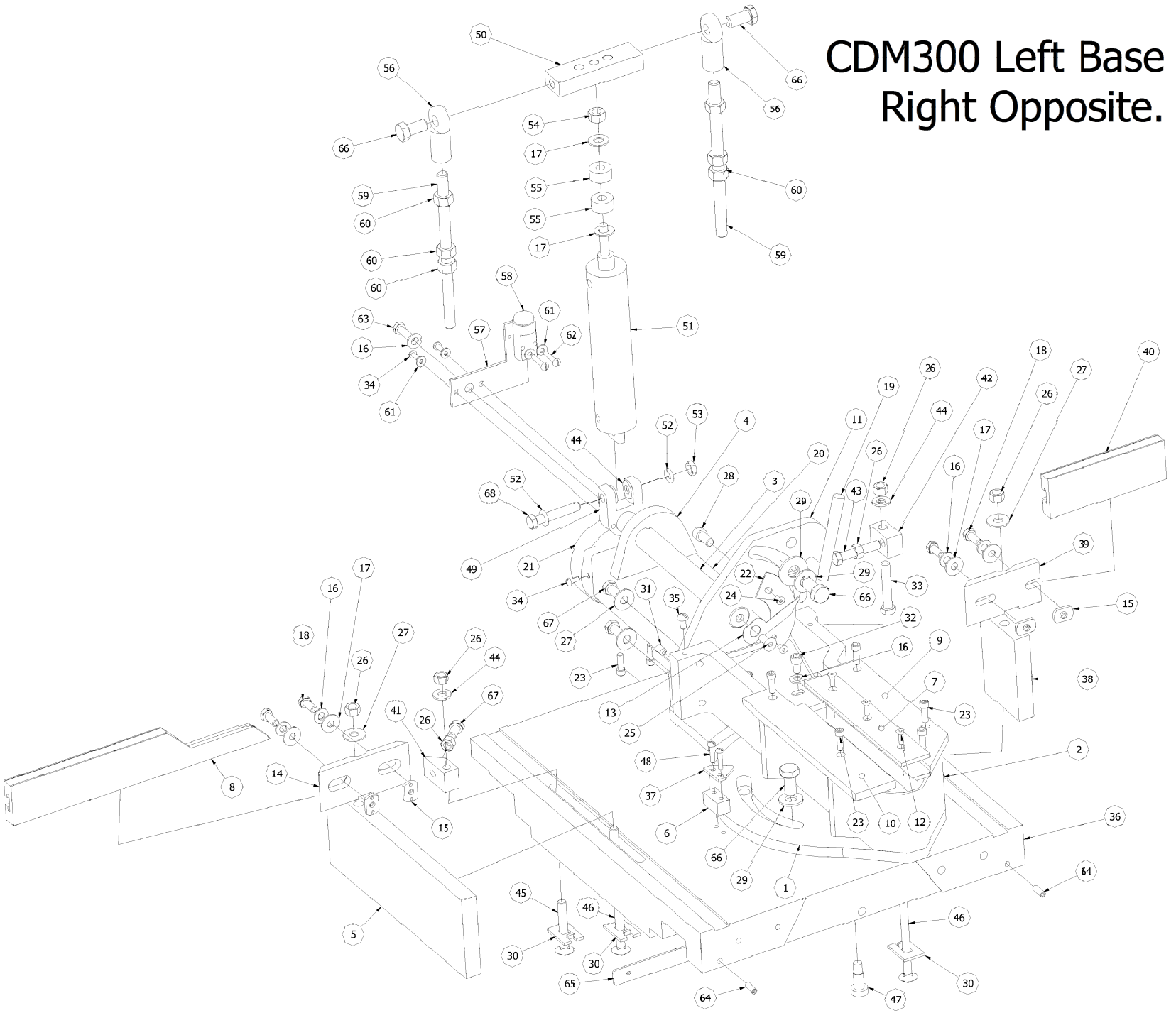


CDM300 Left Saw Assembly

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	2B2P05	Pivot Bearing
2	1	30C02L/R	Pivot Bracket, Lt or Rt.
3	1	3BM08	Pivot Shaft
4	2	3B2P10	Pivot Belleville Spring
5	2	3B2P11	Pivot Snap Ring
6	1	30BM02L/R	300S Spindle, Lt. or Rt.
7	1	30BM03	300S Flange
8	1	30BM04	300S Slinger
9	1	30B2P05	Spindle Inside Bearing
10	2	9B2P06	Snap Ring
11	4	9B2P05	Belleville Spring
12	2	2BM23	Pulley Key
13	1	151P16R/L	Pulley Jam Nut, Rt. or Lt.
14	1	30B4P23	Spindle Pulley
15	1	9B2P04	Spindle Outside Bearing
16	1	30F06	Motor Mount Plate
17	1	2B6S08	3 H.P. 3 Phase Motor
18	1	30C01L/R	Arm Casting, Lt. or Rt.
19	4	1/4-20 x 1/2 Set Screw	Arm/Pivot Lock
20	4	1/4-20 x 3/8 Set Screw	Motor/Spindle Pulley Lock
21	1	2B4P24	Motor Pulley
22	2	30B4P25	3VX425 Drive Belts
23	1	30B1P37L/R	Spindle Nut, Lt. or Rt.
24	1	30F29L/R	Belt Guard, Lt or Rt.
25	6	5/16-18 x 3/4 Hex Bolt	Motor Mount Bolt
26	2	5/16-18 x 1 Hex Bolt	Motor Mount Plate Bolt
27	8	5/16 Washer	5/16 Washer
28	3	10-32 x 1/4 Slotted Rd. Head Mach. Screw	Belt Guard Screw
29	1	30M38	Up/Down Stop Bar
30	4	1/4-20 x 3/4 Socket Head Screw	1/4-20 x 3/4 Socket Head Screw
31	4	1/4 Washer	1/4 Washer
32	2	3/8-16 x 2 Socket Head Screw	Up/Down Stop Screw
33	1	3/8-16 Hex Nut	3/8-16 Hex Nut
34	1	300M31	Blade Guard Link Support
35	1	200B1P267	5/16-20 x 1/4 Shoulder Bolt
36	1	200B7P36	Rear Bushing Link Puller



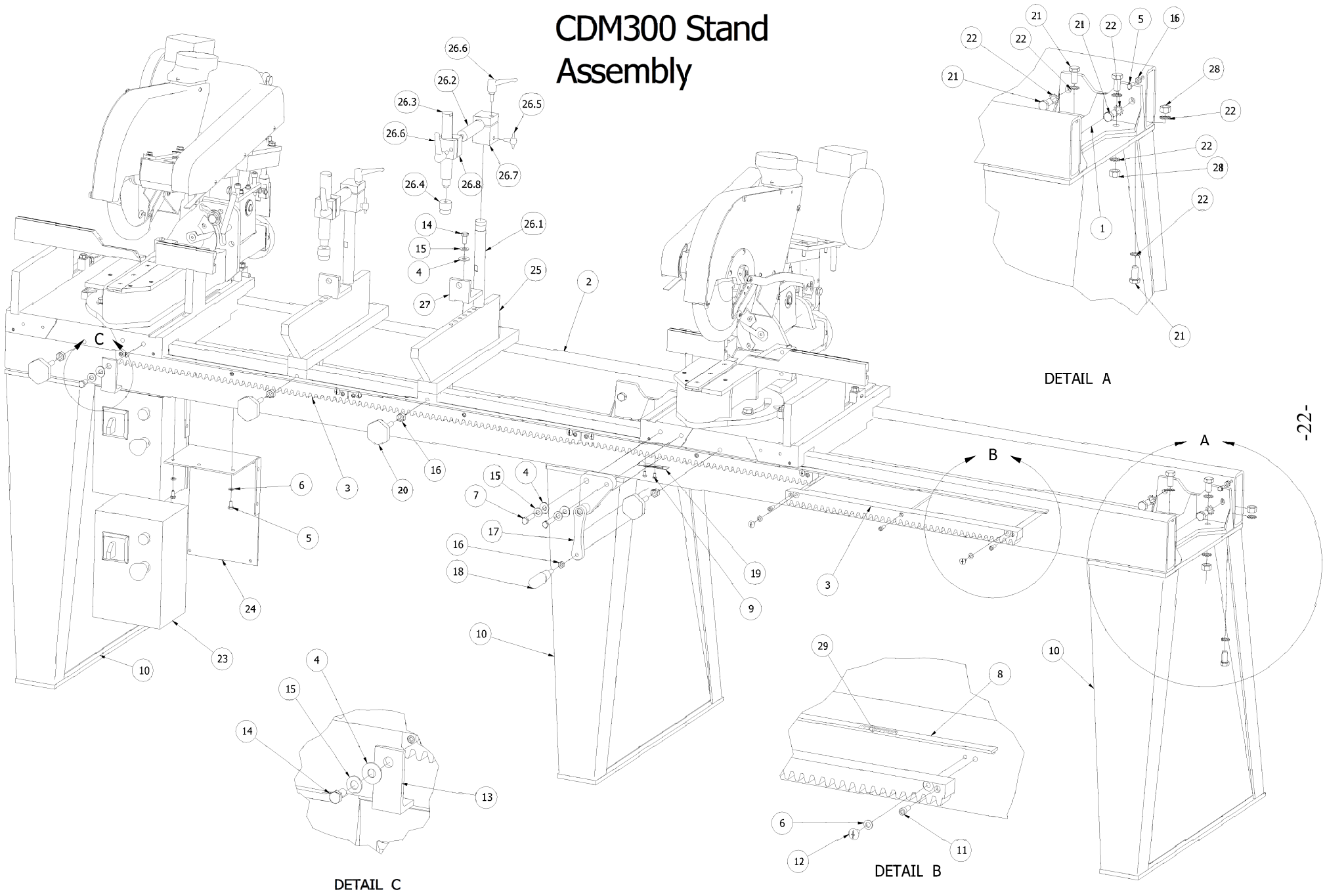
CDM300 Left Base Assy.
Right Opposite.



CDM300 Left Base Assy. Parts List

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	30M11L/R	Lower Table Pivot Plate, Lt. or Rt.
2	1	30A10	Aluminum Table Support
3	1	30M14	Compound Pivot Rod
4	1	30M16	Compound Pivot Rod Support
5	1	30M18	Outside Fence Key
6	1	30M27	300S Zero Block
7	1	30M60	Chip Breaker
8	1	300M23L	Outside Fence, Lt.
9	1	30M15L/R	Table Top, Inside. Lt. or Rt.
10	1	30M20L/R	Table Top, Outside. Lt. or Rt.
11	1	30M13L/R	Compound Plate, Lt. or Rt.
12	3	10-32 x 3/4 Flat Head Screw	Chip Breaker Screw
13	1	3CF11	Compound Pointer
14	1	200C05	Outside Fence Bracket
15	4	B1P51618	5/16-18 Tee Nut
16	7	5/16 SAE Washer	5/16 SAE Washer
17	6	5/16 USS Washer	5/16 USS Washer
18	4	5/16-18 x 3/4 Hex Bolt	Fence Locking Bolt
19	1	30M34	Compound Pin
20	1	30E17L/R	Dust Tube Assy, Lt. or Rt.
21	1	30A12	Dust Outlet, 4"
22	1	3C7S17	Compound Degree Quadrant
23	8	1/4-20 x 3/4 Socket Head Screw	Top Table Fastening Screw
24	2	10-32 x 3/16 Flat Head Screw	Compound Quadrant Fastening Screw
25	1	5/16-24 x 1/4 Flat Head Screw	Compound Pointer Fastening Screw
26	6	3/8-16 Hex Nut	3/8-16 Hex Nut
27	6	3/8 USS Washer	3/8 USS Washer
28	1	3/8-16 x 3/4 Socket Head Screw	Compound Plate Fastening Screw
29	2	1/2 USS Washer	1/2 USS Washer
30	4	BF19	Tab Washer
31	2	5/16-18 x 1/2 Cone Point Set Screw	Adjusting Set Screw
32	2	5/16-18 x 1/2 Socket Head Screw	Dust Tube Base Fastening Screw
33	1	3/8-16 x 2 Hex Bolt	90º Stop Block Locking Bolt
34	2	10-32 x 1/2 Slotted Rd. Head Mach. Screw	Valve Bracket Locking Screw
35	1	1/4-20 x 1/2 Slotted Rd. Head Mach. Screw	Compound Pin Chain Fastening Screw
36	1	30C23L/R	CDM300 Iron Cast Base, Lt. or Rt.
37	1	2D7P18	Clear Cursor Pointer
38	1	30M19	300S Inside Fence Key
39	1	200DC40L/R	Inside Fence Bracket, Lt. or Rt.
40	1	300M23B	Inside Fence
41	1	30M29A	45º Stop
42	1	2DM29	90º Stop Key
43	1	3/8-16 x 2 Hex Bolt	90º Stop Bolt
44	2	3/8 SAE Washer	3/8 SAE Washer
45	1	3/8-16 x 2.25 Carriage Bolt	45º Stop Locking Bolt
46	2	3/8-16 x 5 Carriage Bolt	Fence Key Locking Bolt
47	1	3/8-16 x 3/4 Shoulder Bolt	Top Base Pivot Bolt
48	2	10-32 x 7/8 Slotted Rd. Head Mach. Screw	Zero Block Pointer Locking Screw
49	1	30F45	Cylinder Bottom Clevis
50	1	200M86A	Rotating Cross Bar Air Feed
51	1	2B3P05	Air Cylinder
52	2	3/8 Split Washer	3/8 Split Washer
53	1	3/8-16 Jam Nut	3/8-16 Jam Nut
54	1	7/16-20 Jam Nut	Cylinder Shaft Locking Nut
55	2	2B7S15	Rubber Bumper
56	2	200B2P80	Rotating Rod Ends Air Feed
57	1	300F45	Valve Bracket
58	1	B3P50	3-Way N/O Valve
59	2	200M81	1/2-20 Cylinder Support Rods
60	6	1/2-20 Hex Nut	1/2-20 Hex Nut
61	4	#10 Washer	#10 Washer
62	2	10-32 x 1 Slotted Rd. Head Mach. Screw	Air Valve Locking Screw
63	1	5/16-18 x 1 Hex Bolt	Cylinder Clevis Locking Screw
64	2	1/4-20 x 3/4 x 1/2 Dog Point Set Screw	Set Screw Base Gib
65	1	2DM16	Phenolic Gib
66	4	1/2-13 x 1 Hex Bolt	1/2-13 x 1 Hex Bolt
67	5	3/8-16 x 1 Hex Bolt	3/8-16 x 1 Hex Bolt
68	1	3/8-16 x 2.25 Hex Bolt	Cylinder Locking Bolt

CDM300 Stand Assembly



DETAIL A

DETAIL C

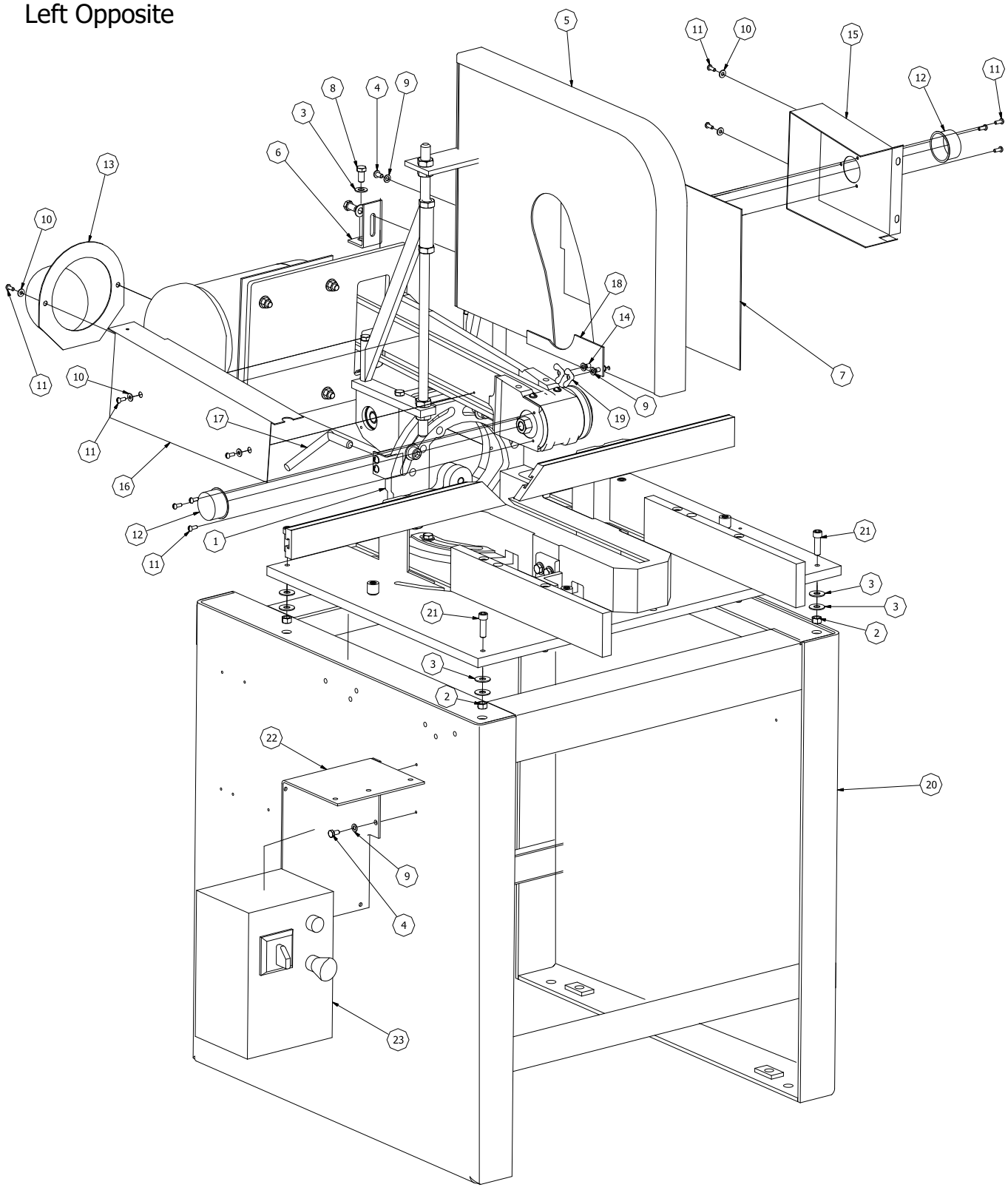
DETAIL B

CDM300 Stand Assembly Parts List

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	3	2DC02	Leg Spacer
2	2	2DM04/8'	Tube 8' Centers
3	2	2DM4P06M	Machined Rack
4	5	3/8 USS Washer	3/8 USS Washer
5	5	1/4-20 x 1/2 Hex Screw	Mag. Starter Bracket Screw
6	12	1/4 Washer	1/4 Washer
7	2	3/8-16 x 1.5 Hex Bolt	Crank Locking Bolt
8	1	2DM10	Base For Tape
9	2	10-32 x 3/8 Slotted Round Head Mach. Screw	Length Pointer Locking Screw
10	3	2DF03	DM200 Leg
11	12	1/4-20 x 1.5 Socket Head Screw	Rack Locking Screw
12	8	1/4-20 x 1/2 Slotted Truss Head Mach. Screw	Tape Locking Screw
13	1	2DM09	Bottom Base Lock
14	3	3/8-16 x 3/4 Hex Bolt	3/8-16 x 3/4 Hex Bolt
15	5	3/8 SAE Washer	3/8 SAE Washer
16	6	3/8-16 Hex Nut	3/8-16 Hex Nut
17	1	2DE07	Crank Assy
18	1	2D7P10	Crank Handle
19	1	2DF15	Length Pointer
20	4	2D4P13	Locking Hand Knob
21	36	1/2-13 x 1 Hex Bolt	1/2-13 x 1 Hex Bolt
22	60	1/2 Tooth Washer	1/2 Tooth Washer
23	2	B5P2H3Q230V/CH	2HP3Q230V Mag. Starter #11
24	2	BF96	Magnetic Starter Bracket
25	2	30M39	Center Work Support
26	2	Verical Clamp Assy	Vertical Clamp Assy
26.1	1	200M20	N.S. V/C Support Bar
26.2	1	200M20B	N.S. Horizontal Bar VC Support
26.3	1	2B3P20	3" Stroke Clamp Cylinder
26.4	1	2B3P20C	Vertical Clamp Pad Assy
26.5	1	200B1P22	5/16-18 VC3 Wing Stud
26.6	2	200B7P20	5/16-18 x 3/4 Adj. Handle
26.7	1	200M21	V/C Adj. Bracket
26.8	1	200M22	Vertical/Horizontal Cylinder Bracket
27	2	6M29A	CWS Fence Angle
28	24	1/2-13 Hex Nut	1/2-13 Hex Nut
29	1	2D7SL	Meassuring Tape

CM60/CDM60 Blade Guard Exploded View

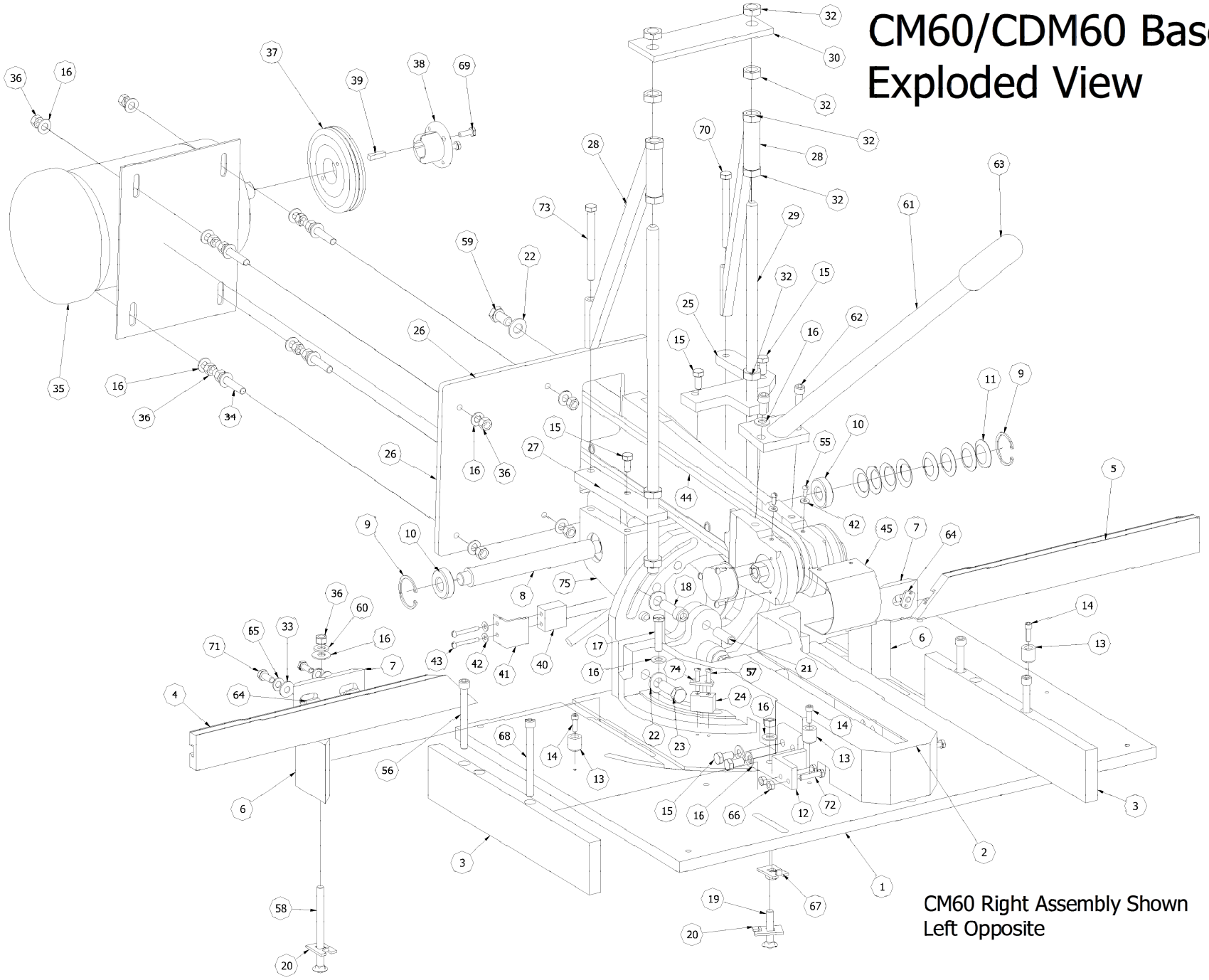
CM60 Right Assy. Shown
Left Opposite



CM60/CDM60 Blade Guard Parts List

Parts List					
ITEM	QTY	PART NUMBER	DESCRIPTION	CM60	CDM60
1	1	6M11R/L	Compound Angle Plate, Rt or Lt.	X	X
2	4	3/8-16 Hex Nut	3/8-16 Hex Nut	X	
3	10	3/8 USS Washer	3/8 USS Washer	X	X
4	3	1/4-20 x 1/2 Hex Bolt	Mag. Starter Bracket Locking Bolt	X	
5	1	6E09R/L	Blade Guard Assy. Rt or Lt.	X	X
6	1	6F41	Blade Guard Aligmnt. Angle	X	X
7	1	6F05R/L	Blade Guard Door, Rt or Lt.	X	X
8	1	3/8-16 x 1 Hex Bolt	Blade Guard Angle Locking Bolt	X	X
9	5	1/4 USS Washer	1/4 USS Washer	X	X
10	6	#10 Washer	#10 Washer	X	X
11	12	10-32 x 1/2 Slotted Rd. Head Mach. Screw	10-32 x 1/2 Slotted Rd. Head Mach. Screw	X	X
12	2	6D7P08	Motor & Spindle Shaft Cover	X	X
13	1	6F45	5" Rear Dust Outlet	X	X
14	2	1/4-20 x 3/4 Pem Stud	Blade Guard Strap Locking Stud	X	X
15	1	60F12R/L	Rear Belt Guard, Rt or Lt.	X	X
16	1	60F15R/L	Front Belt Guard, Rt or Lt.	X	X
17	1	6F24	Compound Pin	X	X
18	1	6F07B	Bottom Blade Guard Strap	X	X
19	2	1/4-20 Wing Nut	1/4-20 Wing Nut	X	X
20	1	41F06	Floor Stand	X	
21	4	3/8-16 x 1.25 Socket Head Screw	Base Locking Screw	X	
22	1	BF96	Magnetic Starter Bracket	X	X
23	1	B5P3h3Q230V/DM/CH	3HP3Ph 208/230V Mag. Starter	X	X

CM60/CDM60 Base Exploded View



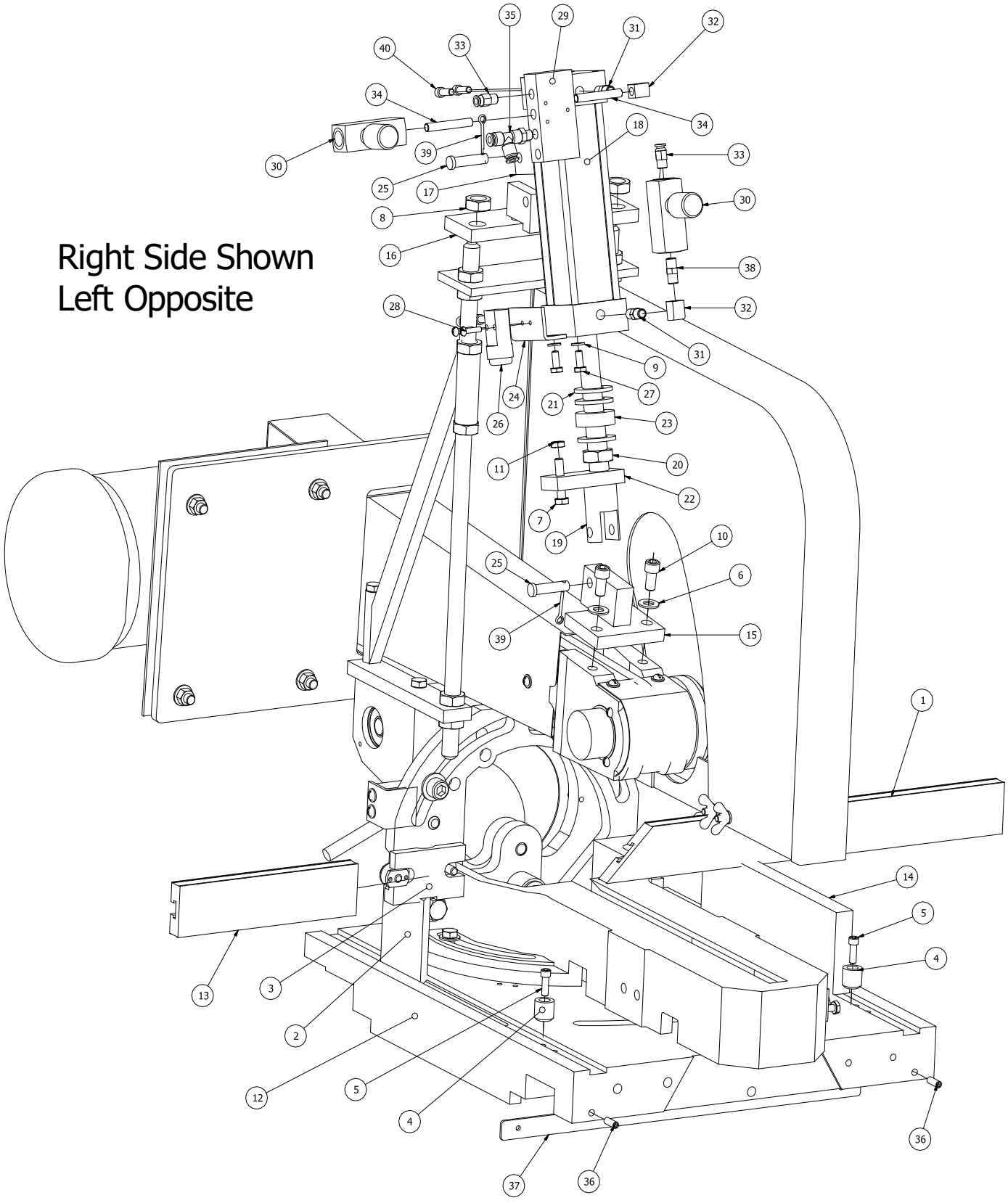
CM60 Right Assembly Shown
Left Opposite

CM60/CDM60 Base Parts List

Parts List					
ITEM	QTY	PART NUMBER	DESCRIPTION	CM60	CDM60
1	1	60F01	Base Plate	X	
2	1	6C003	Top Base	X	X
3	2	600M25	Material Support Key	X	
4	1	600M19L	Outside Fence, Lt.	X	X
5	1	600M19R	Outside Fence, Rt.	X	X
6	2	600M20	Inside Fence Key	X	X
7	2	200C05	Fence Bracket	X	X
8	1	6M14	Pivot Shaft	X	X
9	2	2B2P06	Snap Ring	X	X
10	2	2B2P05	Pivot Bearing	X	X
11	8	2B2P07	Belleville Spring	X	X
12	1	6M35L/R	Stop Bracket Top Base, Lt. or Rt.	X	X
13	3	6M25	45º Stop	X	X
14	3	1/4-20 x 1 Socket Head Screw	Stop Locking Bolt	X	X
15	5	3/8-16 x 1 Hex Bolt	3/8-16 x 1 Hex Bolt	X	X
16	28	3/8 USS Washer	3/8 USS Washer	X	X
17	2	3/8-16 x 1.75 Hex Bolt	Miter Base Locking Bolt	X	X
18	2	1/2-13 x 1.5 Socket Head Screw	Compound Locking Bolt	X	X
19	2	3/8-16 x 1.75 Carriage Bolt	Stop Bracket Locking Bolt	X	X
20	4	BF19	Tab Washer	X	X
21	1	1/2 x 1.5 Dowel Pin	Compound Pin	X	X
22	6	1/2 Washer	1/2 Washer	X	X
23	3	1/2-13 x 1.5 Hex Bolt	1/2-13 x 1.5 Hex Bolt	X	X
24	2	2DM27	Zero Block	X	X
25	1	6M21A	Brace Base Plate	X	X
26	1	60F04R/L	Motor Mount Plate, Rt. or Lt.	X	X
27	1	6M21B	Brace Support Bar	X	X
28	1	6M21-O	Rear Brace Outside	X	X
29	2	6M80	Guide Support Rod	X	X
30	1	6F09B	Blade Guard Top Cross Bar	X	X
31	1	6F41	Blade Guard Adj. Angle	X	X
32	12	5/8-11 Jam Nut	Brace Locking Nut	X	X
33	4	5/16 USS Washer	5/16 USS Washer	X	X
34	4	30M51	Motor Locking Stud	X	X
35	1	9B6S11	3HP, 3PH Motor	X	X
36	16	3/8-16 Hex Nut	3/8-16 Hex Nut	X	X
37	1	B4P2H3V47	2H3V4.75 Pulley	X	X
38	1	B4PH118	1/8 Bushing	X	X
39	1	1/4 x 1/4 x 1.5 Key	Motor Shaft Key	X	X
40	1	6M49	Compound Pointer Block	X	X
41	1	6M49A	Compound Pointer Angle	X	X
42	4	#10 Washer	#10 Washer	X	X
43	2	10-32 x 1.5 Slotted Rd. Head Mach. Screw	Compound Pointer Angle Locking Screw	X	X
44	2	4B4P3V600	3V600 Belt	X	X
45	1	6F03	Arm Pulley Cover	X	X
55	2	10-32 x 1/2 Slotted Rd. Head Mach Screw	Pulley Cover Locking Screw	X	X
56	2	3/8-16 x 3.5 Socket Head Screw	Support Key Locking Screw	X	
57	4	10-32 x 1.25 Slotted Rd. Head Mach Screw	Zero Block Locking Screw		X
58	2	3/8-16 x 4.5 Carriage Bolt	Fence Key Locking Bolt	X	X
59	3	1/2-13 x 1 Hex Bolt	Motor Mount Plate Locking Bolt	X	X
60	2	3/8 SAE Washer	3/8 SAE Washer	X	X
61	1	6M50	Handle	X	
62	2	3/8-16 x 3/4 Socket Screw	Handle Locking Screw	X	
63	1	4B7P11	Handle Grip	X	
64	4	B1P51618	5/16-18 Tee Nut	X	X
65	4	5/16 SAE Washer	5/16 SAE Washer	X	X
66	4	1/4-20 Hex Nut	1/4-20 Hex Nut	X	X
67	2	BF19B	Tab Washer W/Nut	X	X
68	2	3/8-16 x 4 Socket Screw	Key Locking Screw	X	X
69	3	1/4-20 x 3/4 Hex Bolt	Pulley Locking Bolt	X	X
70	2	3/8-16 x 4 Hex Bolt	Brace Locking Bolt	X	X
71	4	5/16-18 x 3/4 Hex Bolt	Fence Locking Bolt	X	X
72	1	1/4-20 x 1.25 Hex Bolt	1/4-20 x 1.25 Hex Bolt	X	X
73	1	6M21-I	Rear Brace Inside	X	X
74	1	2D7P18	Clear Cursor	X	X
75	1	6C002R/L	Pivot Bracket, Rt. or Lt.	X	x

CDM60 Exploded View

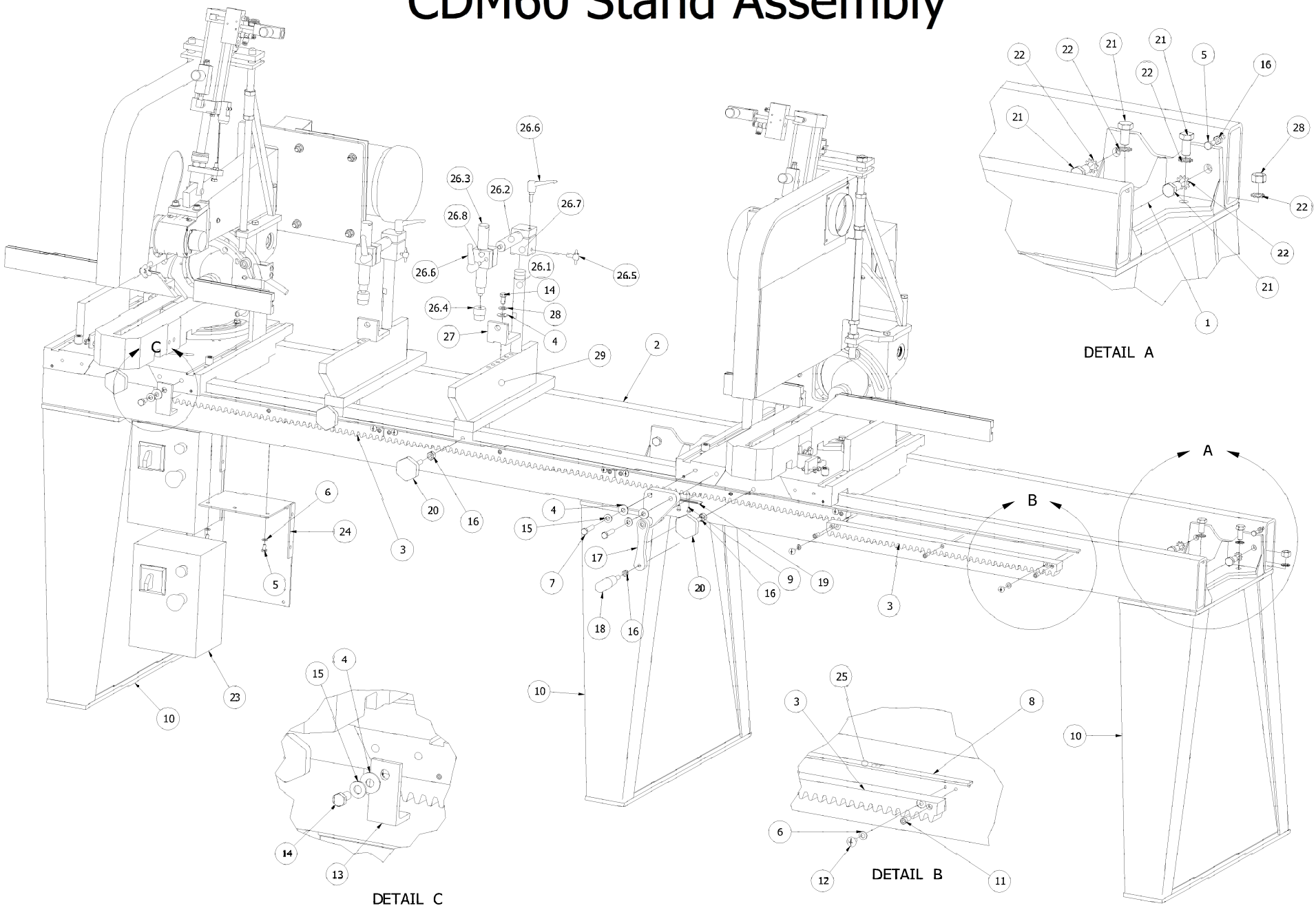
Right Side Shown
Left Opposite



CDM60 Exploded View Parts List

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	600M19R/L	Outside Fence, Rt or Lt.
2	1	600M20	Inside Fence Key
3	1	600M30	Inside Fence Bracket
4	2	6M25	90 & 45 Deg Stop
5	2	1/4-20 x 1 Socket Head Screw	Stop Locking Screw
6	2	3/8 SAE Washer	3/8 SAE Washer
7	1	1/4-20 x 1.5 Hex Screw	Valve Adj. Screw
8	2	5/8-11 Jam Nut	Cylinder Support Bracket Locking Nut
9	2	1/4 USS Washer	1/4 USS Washer
10	2	3/8-16 x 3/4 Socket Head Screw	Clevis Tang Locking Screw
11	1	1/4-20 Hex Nut	Adj. Screw Lock Nut
12	1	6C23	Bottom Base
13	1	600M31	Inside Fence
14	1	600M21	Outside Fence Key
15	1	6M17	Clevis Tang
16	1	6M82	Cylinder Support Bracket
17	1	6M16	Cylinder Mount
18	1	B3P306	300 x 6" Air Cylinder
19	1	15M26	Rod Clevis
20	1	3/4 Jam Nut	Rod Clevis Lock Nut
21	3	3/4 Washer	3/4 Washer
22	1	15M75	Cross Bar
23	1	157P73	Rubber Bumper
24	1	4BF101	Valve Bracket
25	2	3/8 x 1.5" Clevis Pin	3/8 x 1.5" Clevis Pin
26	1	B3P50	3 Way N/O Valve
27	2	1/4-28 x 5/8 Hex Bolt	Valve Bracket Locking Bolt
28	2	10-32 x 3/4 Slotted Rd. Head Mach. Screw	Valve Locking Screw
29	1	B3P73	4/W Spring Return Valve
30	2	B3P60	Upstroke and Downstroke Flow Control Valve
31	2	1/4" x 1/8" NPT Fitting	1/4" x 1/8" NPT Fitting
32	2	90º Street Elbow	90º Street Elbow
33	2	1/4 x 1/8" NPT Male Connector	1/4 x 1/8" NPT Male Connector
34	2	1/8 x 2.5" Nipple	1/8 x 2.5 Nipple
35	1	1/4 x 1/8" NPT Male Run Tee	1/4 x 1/8" NPT Male Run Tee
36	2	1/4-20 x 3/4 Set Screw	Gib Locking Screw
37	1	2DM16	Gib
38	1	1/8" NPT Nipple	1/8" NPT Nipple
39	2	Cotter Pin	Cotter Pin
40	4	1/4-20 x 3/4 Socket Head Screw	Cylinder Mount Locking Screw

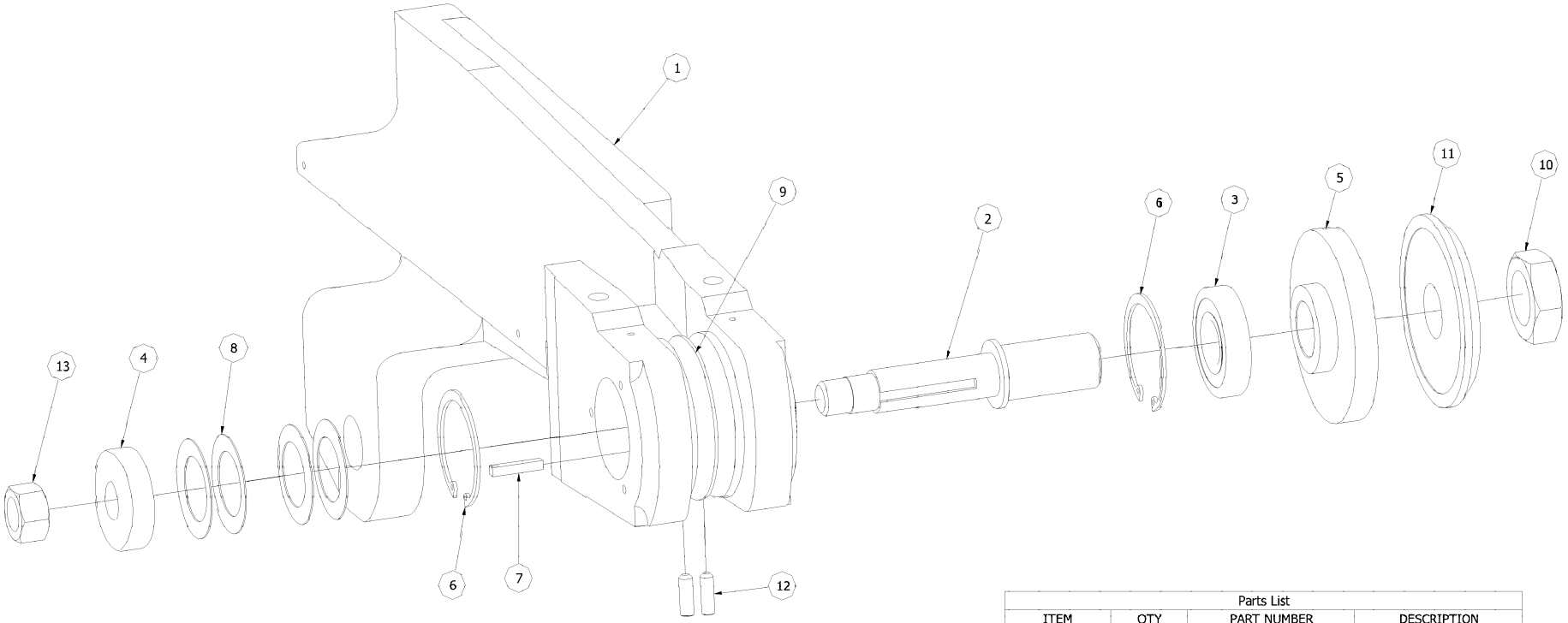
CDM60 Stand Assembly



CDM60 Stand Assembly Parts List

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	3	2DC02	Leg Spacer
2	2	2DM04/8'	Tube 8' Centers
3	4	2DM4P06M	Machined Rack
4	5	3/8 USS Washer	3/8 USS Washer
5	5	1/4-20 x 1/2 Hex Screw	1/4-20 x 1/2 Hex Screw
6	12	1/4 Washer	1/4 Washer
7	2	3/8-16 x 1.5 Hex Bolt	Crank Locking Bolt
8	1	2DM10	Base For Tape
9	2	10-32 x 3/8 Slotted Round Head Mach. Screw	Length Pointer Locking Screw
10	3	2DF03	Leg
11	12	1/4-20 x 1.5 Socket Head Screw	Rack Locking Screw
12	8	1/4-20 x 1/2 Slotted Truss Head Mach. Screw	Tape Locking Screw
13	1	2DM09	Bottom Base Lock
14	3	3/8-16 x 3/4 Hex Bolt	3/8-16 x 3/4 Hex Bolt
15	5	3/8 SAE Washer	3/8 SAE Washer
16	6	3/8-16 Hex Nut	3/8-16 Hex Nut
17	1	6DE07	Crank Assembly
18	1	2D7P10	Crank Handle
19	1	2DF15	Length Pointer
20	4	2D4P13	Locking Hand Knob
21	36	1/2-13 x 1 Hex Bolt	1/2-13 x 1 Hex Bolt
22	60	1/2 Tooth Washer	1/2 Tooth Washer
23	2	B5P3h3Q230V/DM/CH	3HP3Ph 208/230V Mag. Starter
24	2	BF96	Magnetic Starter Bracket
25	1	2D7SL	Meassuring Tape
26	2	Vertical Clamp Assembly	Vertical Clamp Assembly
26.1	1	200M20	N.S. V/C Support Bar
26.2	1	200M20B	N.S. Horizontal Bar VC Support
26.3	1	2B3P20	3" Stroke Clamp Cylinder
26.4	1	2B3P20C	Vertical Clamp Pad Assy
26.5	1	200B1P22	5/16-18 VC3 Wing Stud
26.6	1	200B7P20	5/16-18 3/4 Adj. Handle
26.7	1	200M21	V/C Adj. Bracket
26.8	1	200M22	Vertical/Horizontal Cylinder Bracket
27	2	6M29A	CWS Fence Angle
28	24	1/2-13 Hex Nut	1/2-13 Hex Nut
29	2	6M29H	Center Work Support

CDM60 & CM60 Right Spindle Assembly



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	6C001R	Arm, Rt.
2	1	90M01R	Spindle, Rt.
3	1	9B2P04	Bearing, Slinger Side
4	1	9B2P03	Bearing, Jam Nut Side
5	1	60M03	Slinger
6	2	9B2P06	Snap Ring
7	1	2BM23	Pulley Key
8	4	9B2P05	Belleville Spring
9	1	2B4P27	Spindle Pulley
10	1	9B1P44R	Spindle Nut, Rt.
11	1	90M03	Flange
12	2	1/4-20 x 3/4 Set Screw	Pulley Set Screw
13	1	151P16L	Jam Nut, Lt.

CDM300R Spindle Assemblies and Bearing Installation Instructions:

Refer to Spindle and Pivot diagrams on the following page.

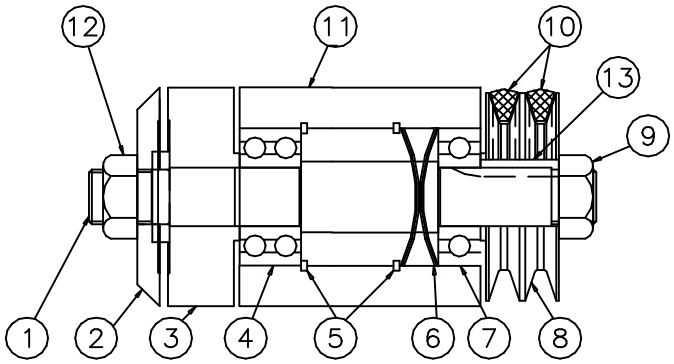
It is suggested that replacement spindle assemblies be purchased from CTD before disassembling. Old spindles can be returned for bearing replacement and slinger refacing for a nominal fee. The CDM300R spindle assemblies provide for a "slip-fit" between the outer races of the bearing and the housing or arm casting, and a "press-fit" between the inner race and the spindle. Great care must be taken with ball bearings or the life of the bearings will be reduced. To remove the spindle assembly;

A. Loosen motor and remove belts.
B. Remove Spindle Pulley Nut #9 by holding pulley. ***Never*** hold slinger or spindle nut to loosen or tighten pulley nut. Face of slinger can be damaged, and spindle nut can damage spindle thread. Loosen set screws in pulley.
C. Remove Pulley #8, Pulley Key #13, and Spindle Spacer #7. Place Pulley Nut #9 back onto spindle to protect threads.
D. With a soft hammer or rubber mallet, gently drive spindle towards blade side. Take care to protect pivot bearings by holding arm casting on blade side to overcome effects of hammer blows.
E. Remove Pulley Nut #9, again.
F. Spindle Assembly, consisting of Spindle #1, Slinger #3, and Blade Bearing #4 will come out of housing. Outside bearing will slip out of housing. If a replacement spindle assembly was purchased, go to item "L".
G. If bearing on the blade side must be replaced, an arbor press must be used to disassemble the bearing and the slinger from the spindle. *Great care must be used in disassembling*, or the spindle will be scored or stripped by the slinger. Before pressing apart, scribe a line on the face of the spindle and the slinger so that they will be re-assembled in exactly the same position in relation to each other. Use an arbor press or pulley puller.
H. Press off slinger and bearing from spindle.
I. Press new bearing on to spindle, making sure spindle is square to the bore.
J. Replace slinger, as above, making sure scored lines match.
K. The face of the slinger must be checked to make sure the face (next to the blade) is running true. If it is not running true, it should be refaced. Slinger should indicate <.001. To reface;
    1. Partially assemble pulley bearing on spindle.
    2. Hold outer races of both bearings gently in a vise.
    3. Use the side of a surface grinder wheel to dress the face of the slinger by rotating spindle in bearing slowly against the direction of the grinding wheel.
L. Clean bearing hole and slip new spindle assembly into arm casting up to snap ring. From the opposite side of the arm, make sure that Belleville Springs #6 are assembled in housing as shown in sketch.
M. To re-assemble spindle assembly, slide Outside Bearing #4 onto the spindle as far as it will go, being careful that bearing goes into housing square.
N. Slide pulley onto shaft with pulley key.
O. Hold pulley to replace pulley jam nut. For CDM300R, hold pulley with special clamp wrench or strap wrench (consult factory). Replace jam nut on spindle threads, and slowly tighten pulley jam nut. This will push bearing onto shaft. Tighten thoroughly.
P. Since motor was moved, the centerline of the motor shaft and spindle must be parallel. Both pulleys must be in line or belts will not wear evenly. This should be checked by placing a straight edge across both pulley grooves. Tighten motor.
Q. Belt tension is of *critical* importance. To obtain proper tension, press down on top of belts with a moderate amount of pressure. Belts should deflect approximately 1/4".
R. Tighten set screw in both pulleys. To check assembly after tightenting belts, apply pressure in the direction of the blade on the pulley nut. A slight spring pressure should be felt. If spindle does not spring back, the belts may be too tight.

CDM300R SPINDLE ASSEMBLY

No.	Description	Part No.
1	Spindle, Right Hand (Left Thread)	30BM02R
	Spindle, Left Hand (Right Thread)	30BM02L
2	Flange	30BM03
3	Slinger	30BM04
4	Inside Bearing	30B2P05
5	Snap Ring (2 required)	9B2P06
6	Belleville Spring (4 required)	9B2P05
7	Outside Bearing	9B2P04
8	Spindle Pulley	30B4P23
9	Pulley Jam Nut, Right	151P16R
	Pulley Jam Nut, Left	151P16L
10	3VX425 Drive Belt (2 required)	30B4P25
11	CDM300 Arm, Right	30C01R
	CDM300 Arm, Left	30C01L
12	Spindle Nut, Right	30B1P36R
	Spindle Nut, Left	30B1P37L
13	Pulley Key	2BM23
*	Spindle Assembly	30BE21L/R

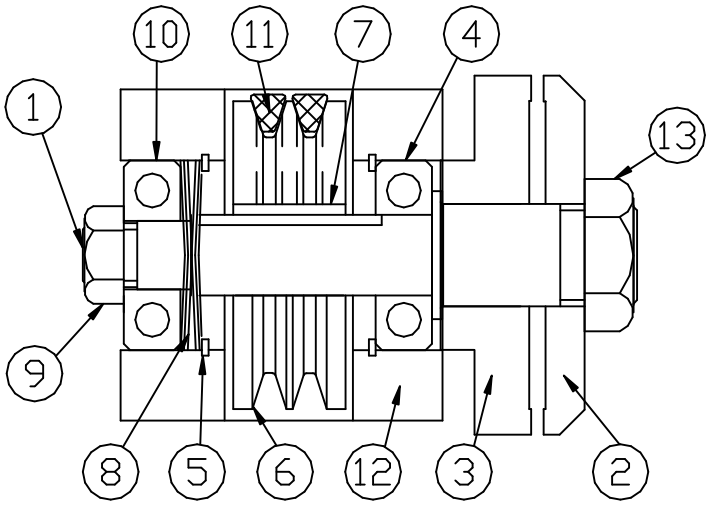
Consists of 1,2,3,4,5,6,7,9, & 12



CDM60 SPINDLE ASSEMBLY

No.	Description	Part No.
1	Spindle	90M01
2	Flange	90M03
3	Slinger	60M03
4	Bearing, Slinger side	9B2P04
5	Snap Ring (2 required)	9B2P06
6	Spindle Pulley	2B4P27
7	Pulley Key	2BM23
8	Belleville Spring (4 req.)	9B2P05
9	Jam Nut	151P16L/R
10	Bearing, Jam Nut side	9B2P03
11	3VX600 Drive Belt	4B4P3V600
12	Arm Casting	6C001
13	Spindle Nut L or R	9B1P44L/R
*	Spindle Assembly L or R	6E12L or R

Consists of #1,2,3,4,5,8,9,10 & 13



CDM60 Spindle Assembly and Bearing Installation Instructions:

Refer to spindle diagram on following page.

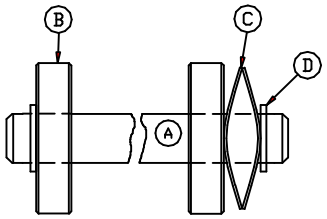
It is suggested that replacement spindle assemblies be purchased from CTD before disassembling. Old spindles can be returned for bearing replacement and slinger refacing for a nominal fee. The CDM60 spindle assembly provides for a "slip-fit" between the outer races of the bearing and the housing or arm casting, and a "press-fit" between the inner race and the spindle. Great care must be taken with ball bearings or the life of the bearings will be reduced. To remove the spindle assembly;

1. Remove belt guard and loosen motor.
2. Remove Pulley Nut #9 by holding spindle pulley, or by holding the slinger with special clamp wrench or strap wrench (consult factory). Loosen jam nut on spindle to the end of threads, but leave jam nut on spindle.
3. Loosen set screws in pulley.
4. With jam nut on end of spindle thread (to protect threads), gently tap jam nut *towards slinger side* using a *lead* or *rubber* mallet. The spindle assembly will begin to move out of the spindle housing. Remove jam nut when assembly is almost out. Spindle Assembly, consisting of Spindle #1, Slinger #3, and Bearing #4 will come out of housing. Pulley #7 will slide out of housing when spindle assembly is removed. Bearing on jam nut side will slide out of housing.
5. Replace bearings or belts as necessary. If you purchased spindle assembly replacement, go to No. 10.
6. Bearing on blade side is press fit on spindle. If bearing on the blade side must be replaced, an arbor press must be used to disassemble the bearing and the slinger from the spindle. ***Great care must be used in disassembling*****,** or the spindle will be scored or stripped by the slinger. Before pressing apart, scribe a line on the face of the spindle and the slinger, so that they will be re-assembled in exactly the same position in relation to each other.
7. Press off slinger and bearing from spindle.
8. Press new bearing onto spindle, making sure spindle is square to the bore.
9. Replace slinger, as above, making sure score lines match.
10. Bearing on jam nut side will slide out of housing. To re-install spindle in spindle housing, take Spindle #1 (with Slinger #3 and Bearing #4) and slowly insert into housing.
11. Place Pulley #7 and Pulley Key #8 in center of housing with key in broached keyway. Belts must be around pulley and through housing.
12. From jam nut side of housing, place Belleville Springs #9 into housing. Be careful they are inserted correctly as shown in diagram.
13. Now, place bearing in housing and on spindle, being careful that bearing goes into housing square.
14. Replace pulley jam nut on spindle threads. Holding spindle pulley, or slinger with special clamp wrench or strap wrench, slowly tighten jam nut. This will cause bearing to slowly push into housing. Tighten thoroughly.
15. Tighten set screws in pulley.
16. The face of Slinger #3 must be checked to make sure the face (next to the blade) is running true. If it is not running true, it should be refaced. To reface, use the side of a surface grinder wheel. Dress the face of the slinger by rotating spindle in bearings slowly against the direction of the surface grinding wheel.
17. Place belts around motor pulley and tighten.
18. Check alignment of motor and spindle pulley with a straight edge.

CDM300R PIVOT SHAFT ASSEMBLY

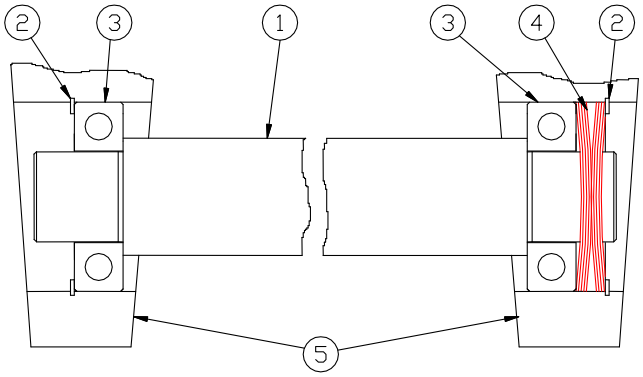
Assemble preload springs back-to-back as shown.

No.	Description	Part No.
A.	Pivot Shaft	3BM08
B.	Pivot Bearing (2 required)	2B2P05
C.	Pivot Belleville Spring, (2 required)	3B2P10
D.	Pivot Snap Ring (2 required)	3B2P11



PIVOT SHAFT ASSEMBLY FOR MODEL CDM60

No.	Description	Part No.
1	Pivot Shaft	6M14
2	Snap Ring (2 required)	2B2P06
3	Bearing (2 required)	2B2P05
4	Belleville Spring (8 required)	2B2P07
5	CDM60 Pivot Bracket	6C002



Motor Warranty:

Motors which fail during the warranty period of one (1) year must be returned to an authorized Baldor Service Representative for examination to determine whether the failure was caused by defective manufacturing. In the event a replacement is required before factory examination, a motor will be sold at the list price. If the factory authorizes replacement, CTD will credit customer's account for the replacement cost. All motors are shipped FOB CTD, Los Angeles, CA plant.

Guarantee:

CTD warrants that their cut-off machines and accessories are free from defect of material, workmanship, and title, and are of the kind of quality indicated and described in applicable specifications. The foregoing warranty is exclusive and in lieu of all other warranties, whether written or oral. CTD's obligation under the foregoing warranty is limited to the repair or replacement (at CTD's option) of the part which is defective in materials or workmanship for a period of one (1) year from the date of shipment to the original purchaser of the equipment. CTD's liability to the purchaser, whether for warranties, negligence, or otherwise, shall not in any way include consequential damages, or costs of removing or reinstalling the products. All parts and machines are shipped FOB CTD, Los Angeles, CA plant.

CTD MACHINES

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