KALAMAZOO®

# Metal Cutting Saws

## Maintenance and Repair Manual

CA-350, CS-350, FA-350 and FS-350 Series Saws

Manual P/N KTS-04
Revised June, 1992

THIS OPERATING MANUAL SHOULD BE READ BY EVERYONE EXPECTED TO OPERATE OR SUPERVISE THE OPERATION OF THIS MACHINE. SPECIAL ATTENTION SHOULD BE FOCUSED ON THE PAGES CONCERNING SAFETY.

For your convenience when ordering parts,
please fill in the following information
when you receive your new KALAMAZOO saw.

MODEL _____

SERIAL NO. _____

KALAMAZOO has been committed to continuous product improvement since 1867. In keeping with this commitment, we reserve the right to change the information in this manual without notice. Every attempt has been made to insure the accuracy of this manual. Even so, KALAMAZOO assumes no responsibility for errors or omissions, nor is any liability assumed for damages resulting from the use of the information contained in this manual.

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# MAINTENANCE AND REPAIR MANUAL
# TABLE OF CONTENTS

## SECTION 1 - PREVENTATIVE MAINTENANCE



## SECTION 2 - TROUBLESHOOTING GUIDE



## SECTION 3 - ILLUSTRATED PARTS DRAWINGS:GENERAL

MAINTENANCE AND REPAIR MANUAL
TABLE OF CONTENTS
(continued)

SECTION 4 - ILLUSTRATED PARTS DRAWINGS:CA-350/FA-350 SAWS



SECTION 5 - ILLUSTRATED PARTS DRAWINGS:CS-350/FS-350 SAWS



SECTION 6 - REPLACEMENT INSTRUCTIONS



SECTION 7 - PNEUMATIC SYSTEM

MAINTENANCE AND REPAIR MANUAL
TABLE OF CONTENTS
(continued)

SECTION 8 - ELECTRICAL SYSTEM

# LUBRICATION POINTS
# CIRCULAR SAWS

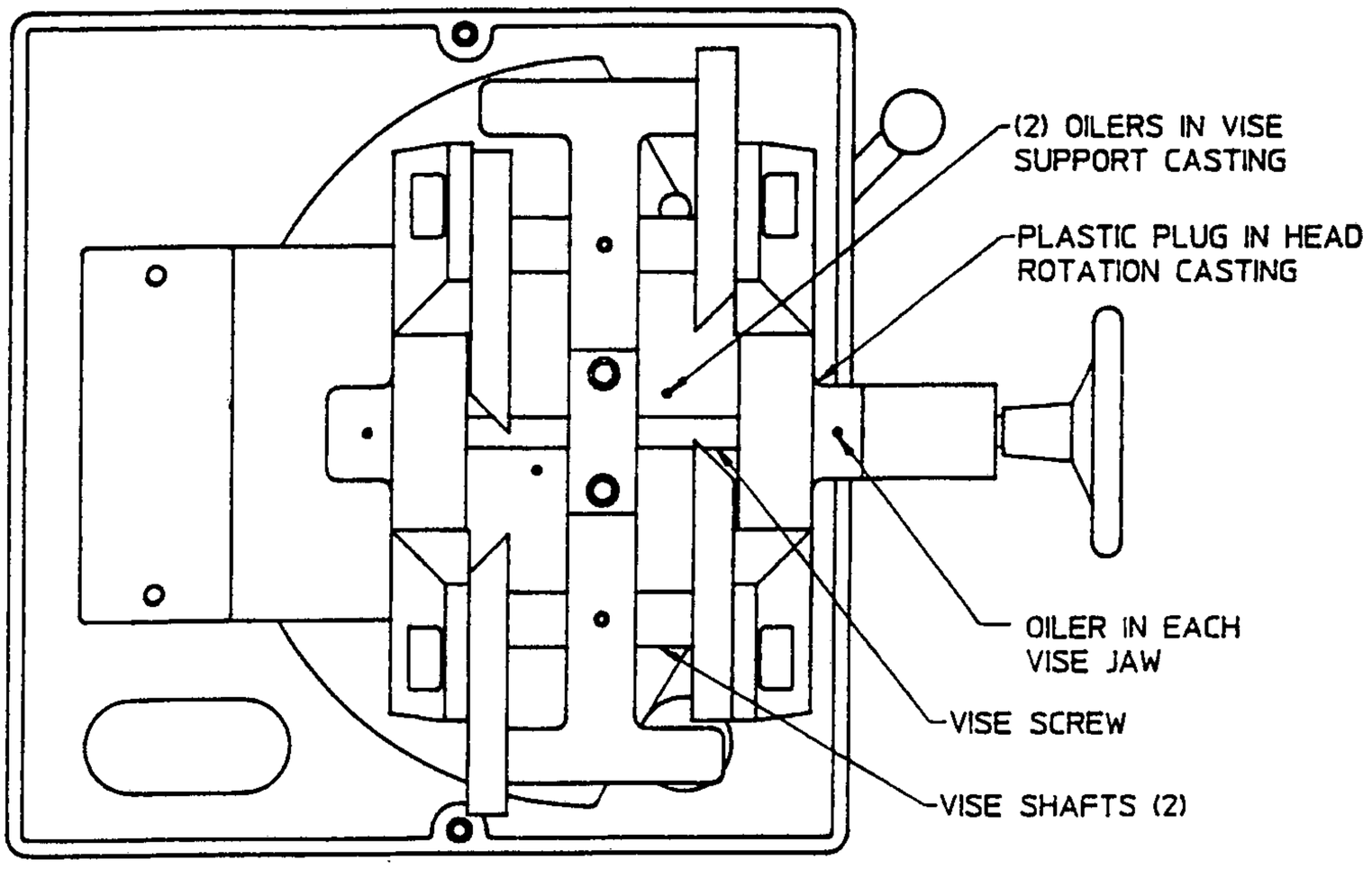



figure 1.1

DAILY:

* Check the filters on the incoming air. Drain as needed.

* Clean any chips off the machined surfaces of the saw base and OIL as needed to help head rotation.

* Make sure all chips are out of the vise area before starting a cut. Chips may prevent proper clamping of the vise and create an unsafe condition.

* Pull out the plastic plug in the front of the Head Rotation casting and squirt oil into the hole to prevent rusting of the saw bed.

* Pump oil into both of the flush oiler fittings on the base of the vise support casting. This will help keep the vise pivot shaft from rusting and binding.

* Oil the round vise ways to help the vise slide in and out. Also oil the vise screw threads.

* On automatic saws, pump oil into the two flush oilers on the carriage vise as well as onto the carriage vise shafts and screw threads.

* Make sure any vise screw threads are free of chips.

* Clean and oil the barfeed carriage shafts on automatic saws.

## GEARBOX LUBRICATION

The gearbox oil in CS-350 and FS-350 saws should be drained at the end of two weeks operation, and the gearbox flushed with a light flushing oil. If it is filtered, the drained oil may be re-used; otherwise use new oil. After this first change, the oil should be changed every six months or 2500 operating hours, whichever comes first. Under severe conditions, such as rapidly changing temperatures, damp, or dirty atmospheres, it may be necessary to change the oil every one to three months.

DO NOT allow the gearbox oil to become contaminated with water or dirt. This will contribute to the build-up of sludge in the oil, which will greatly reduce the life of the gearbox.

## OILS AND LUBRICANTS

* GEARBOX (CS-350/FS-350 saws): Mobilgear #634 or SHC 634 (5 qts req'd)

* AIR/HYDRAULIC RESERVOIRS: Mobil 'Velocite #10' or equal (107 SUS @ 100°F)

  Head Feed: approx. 1 qt. for both

  Carriage Feed: approx. _ qts. for both

* PNEUMATIC LUBRICATOR (saws with power vise): Mobil 'Velocite #10' (5 ounces)

* OIL: 20W motor oil (as required for lubricating shafts, etc)

# AIR/OIL RESERVOIRS

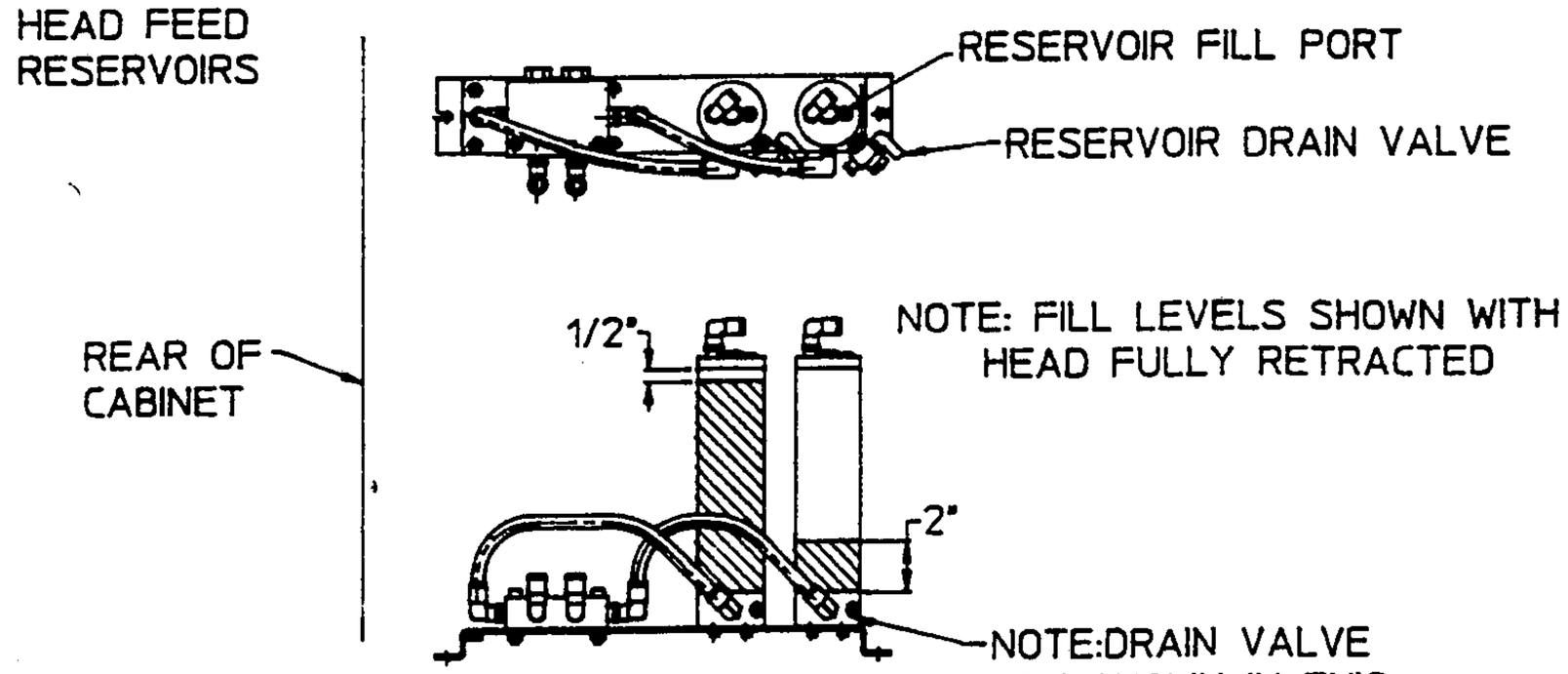



figure 1.2

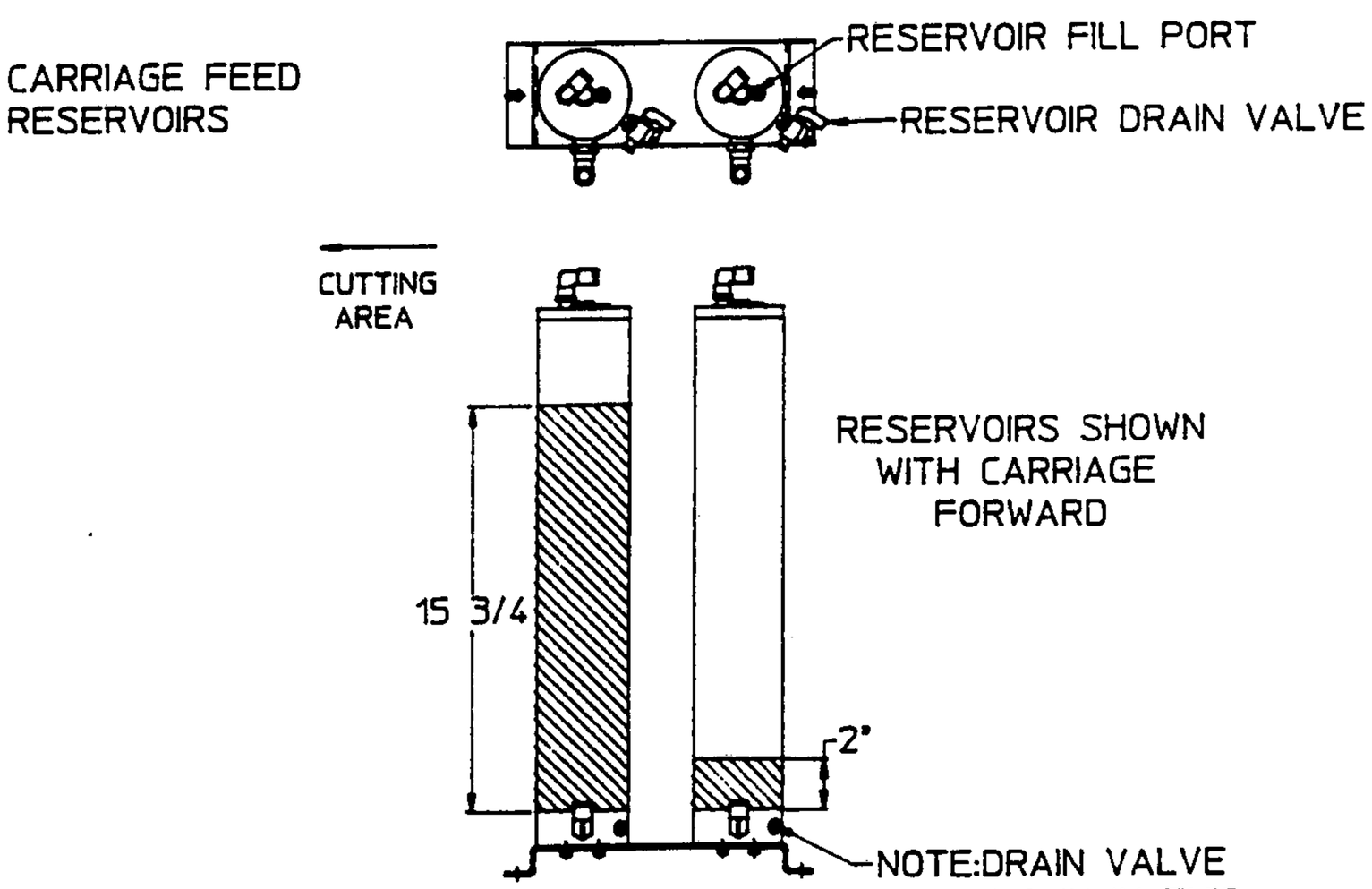



figure 1.3

To refill the reservoirs, remove the plugs shown in the top of the reservoirs, and refill to the levels shown. Be sure to tighten the plugs when replacing them. If you are filling the reservoirs with the saw head down, the fill heights should be opposite of what is shown. The reservoirs are filled with Mobil 'Velocite 10' oil, which is available from your local Mobil distributor.

Under normal conditions, there should be no need to drain and flush the reservoirs. If it should become necessary, remove the screws that mount the reservoir subassembly to the base so that the unit can be raised. Remove the drain plugs, and drain as needed.

## ELECTRICAL MOTOR MAINTENANCE

LUBRICATION: Most electric motors are greased with a polyurea grease. Examples of this type of grease include Shell 'Dolium R', Chevron 'SRI #2', and Texaco 'Premium RB'. These greases are NOT compatible with lithium-based greases, and should not be mixed.

LUBRICATION INTERVALS:

5000 hours of operation/year (two shifts/day): every 5 years

Continuous Normal Duty: every 2 years

Seasonal Service: (Motor is idle 6 mos.): grease before each season's use

Continuous High Temperature, Dirty, or Damp Conditions: every 6 months

LUBRICATION PROCEDURE: Overgreasing the bearings can cause premature bearing failure. Clean the tip of the grease fitting and apply 1 or 2 full strokes from a grease gun.

CAUTION: Keep the grease clean. Lubricate the motor at standstill. DO NOT mix petroleum greases with silicone greases.

CHANGING DRIVE BELTS
CA-350/FA-350 SAWS

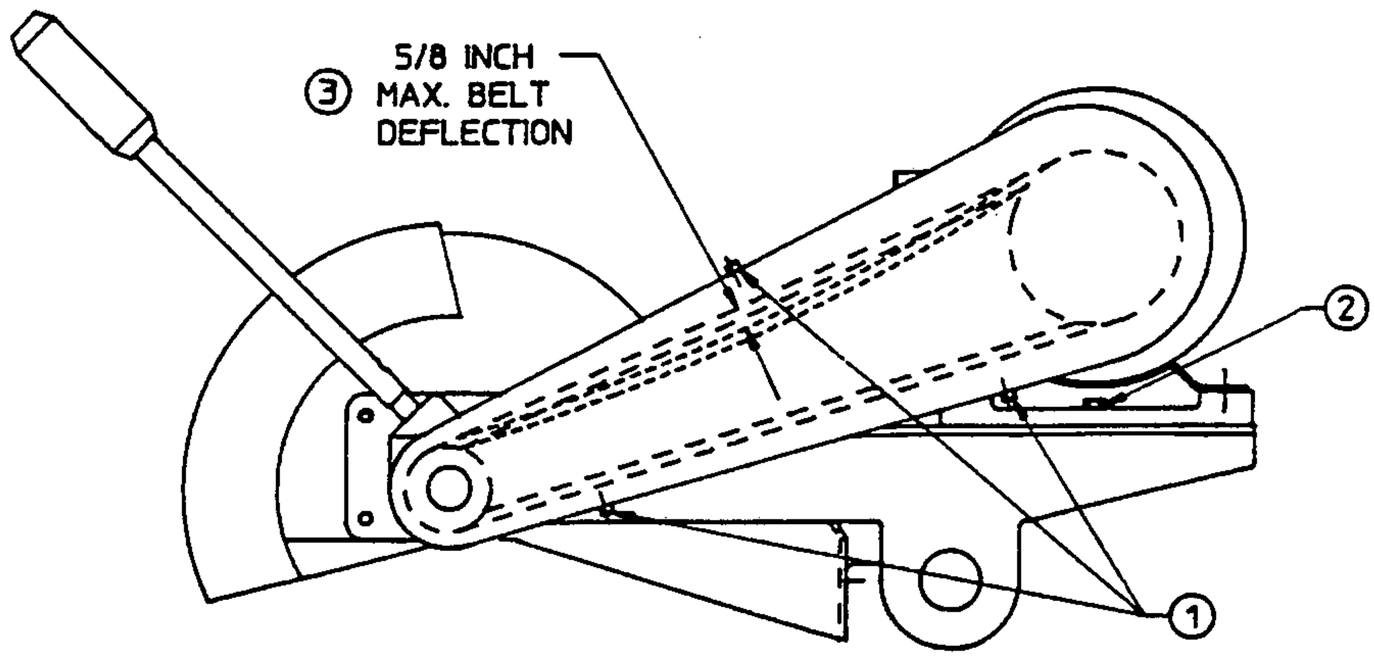



figure 1.4

1. Remove the three screws to the Belt Cover and remove it.

2. Loosen the two motor plate bolts (see illustration) and slide the motor towards the blade until the belts can be removed.

3. The belts are retensioned by pushing the motor away from the blade until a slight thumb pressure on the center of the belts produces a 5/8" deflection and then tightening the motor plate bolts.

# Maintenance & Trouble-Shooting Guide

## Seven Warning Signs of Short V-Belt Life (Causes and Suggested Corrections)

| | | | | | | |
|---|---|---|---|---|---|---|
| **1 Rapid V-Belt Wear** | Rubbing Belt Guard • Check guard clearance | Worn Sheave Grooves • Check groove sidewalls | Sheave Diameter Too Small • Redesign drive or use Cog-Belt | Overloaded Drive • Redesign drive or use Cog-Belt | Mismatched Belts • Replace with matched set | V-Belt Slipping • Increase tension or use Cog-Belt |
| | Improper V-Belt Installation, Belts Pried over Sheaves • Replace belts, do not pry belts over sheaves | Belts Improperly Stored or in Storage too Long • Use new set of V-Belts | Replacing one Belt in Multiple Drive • Replace Complete set of V-Belts | Improperly Designed Drive • Consult local distributor | Oil or Heat Condition • Use Cog-Belt | Sheave Misalignment • Correct alignment |
| **2 V-Belts turned Over In Sheave Groove** | Broken Cords in V-Belt, Belts Pried over Sheaves • Replace belts, do not pry belts over sheaves | Overloaded Drive • Redesign drive or use Cog-Belt | Impulse Loads • Use Vee-Band | Foreign Material in Grooves • Improve Belt Shield | | |
| **3 V-Belt Slippage** | Insufficient Tension • Increase tension | Overloaded Drive • Redesign drive or use Cog-Belt | Sheave Worn, Belts Bottoming in Groove, Shiny sheave groove bottom • Replace Sheave | Oily Drive (Leaking Bearings) • Correct unnecessary oil or grease condition | Oily Drive Conditions • (Where oil condition cannot be eliminated) Use Cog-Belt | |
| **4 V-Belt Squeal** | Overloaded Drive • Redesign drive or use Cog-Belt | Insufficient Arc of Contact • Increase center distance or use Cog-Belt | Insufficient Tension • Increase tension use gauge | Belts Bottoming in Grooves • Replace sheave and/or belts | | |
| **5 Checked or Cracked V-Belts** | Belt Slippage Causing Heat • Increase belt tension or use Cog-Belt | Excessive Heat (Ambient) • Provide adequate ventilation or use Cog-Belt | Sheaves Too Small • Redesign drive use Cog-Belt | Backside Idler • Use Cog-Belt | | |
| **6 Hot Bearings** | Drive Over-Tensioned • Check sheaves for wear-check tension | Belt Slippage (causing heat) • Increase tension check sheaves | Sheaves Too Far Away From Bearing • Move sheaves closer to bearing | Sheaves Too Small • Check NEMA Min. Diameters | Poor Bearing Condition • Check design & maintenance | |
| **7 Repeated V-Belt Fracture** | Shock Loads • Check Design Use Cog-Belt | Improper V-Belt Installation, Belts Pried Over Sheaves • Replace belts, do not pry belts over sheaves | Misplaced Slack • Keep slack on one side when installing | Foreign Object in Groove • Improve Belt Shield | | |

# COOLANT SYSTEM MAINTENANCE

## SPRAY MIST UNITS

CLEANING: Cleaning the reservoir occaisionally will keep the mist unit working properly. The unit can be cleaned as follows:

1. Shut off the air supply to the saw.

2. Separate the cover and the reservoir by removing the screws on both sides of the unit.

3. Wash the reservoir with warm soapy water. This solution can be run through the system to clean the lines and nozzles. Remove the pickup tube assembly by sliding the locking tab and pulling the assembly from the pump. Clean the filter screen with a solvent and blow air through the tube to clean it out.

4. Re-assemble the unit.

NOZZLE REPLACEMENT (CA-350, CA-350PV, FA-350, and FA-350PV saws):

1. Remove the old or damaged nozzle by loosening the knurled nut at the end of the tubing.

2. Slide the black and yellow tubing from the end of the nozzle.

3. Take the new nozzle and slip the yellow tubing onto the shorter brass tube.

4. Slide the black tubing over the nozzle body and lock it in place by retightening the knurled nut over the black tubing.

NOZZLE TIP REPLACEMENT (FA-350SA and FA-350A saws):

1. Bend the nozzle sharply to snap the tip from the segmented casing.

2. Pull the tube from the barb inside the nozzle tip. DO NOT allow the tube to slip back into the casing.

3. Take the new tip and push the tube completely over the barb.

4. Snap the tip onto the casing.

## COOLANT PUMP MAINTENANCE
## (Flood Coolant Systems)

CAUTION: DISCONNECT THE POWER BEFORE ATTEMPTING TO SERVICE OR REPLACE ANY COMPONENT!

1. This unit is self-lubricating. Oiling is not required.

2. Periodic cleaning of the pump parts will prolong the life and efficiency of the pump. Refer to the drawing below for the assembly and disassembly of the pumping head.

3. Lightly clean any corrosion or debris which may clog the impeller. Use a brush and penetrating oil and lightly scrape. NOTE: Do not allow sediment to build up to within 2" of the pump.

4. Turn the impeller by hand to make sure it is free. Turn on the power to see if the impeller will turn. If it does, replace the front, and the pump should operate as good as new.

## PUMP TROUBLESHOOTING

1. Should the pump fail to operate, check the following:

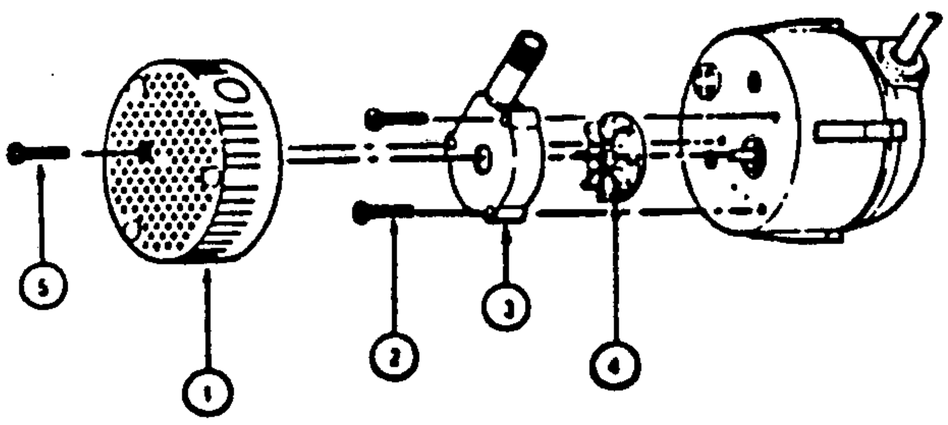
    a) Power supply and connections
    b) Is the pump below the coolant level in the tank?
    c) Is air trapped in the pump head?
    d) Is there sediment build-up over the pump inlet?

2. An Air lock or bubble will prevent the pump from pumping. Trapped air can usually be removed by:

    a) Turning the pump off and re-starting
    b) Make sure the discharge line is sloping upward to prevent the formation of air pockets.

3. If for any reason these operations do not restore the pump to full service, call your dealer or service technician.

4. Do not, in any case, open the sealed part of the pump or remove the screws. this will void your warranty.




**REPLACEMENT PARTS LIST**

| ITEM NO. | DESCRIPTION |
|---|---|
| 1 | Screen |
| 2 | Screws 8-18 × 1" |
| 3 | Volute |
| 4 | Impeller Assembly |
| 5 | Screw 8-32 × 1-3/16" |

## GEARBOX MAINTENANCE
## CS-350/FS-350 SAWS

NOTE: Before performing any maintenance on the gearbox, turn the disconnect switch to the "OFF" position and lock it out for safety.

1. The gearbox oil level should be checked weekly and the recommended oil added as needed to maintain the proper level.

2. Oil changes should be done as indicated in the section on gearbox lubrication (page 1.2).

3. Keep the gearbox casting clean to allow maximum heat dissipation.

4. Check the mounting bolts for tightness after the first three months of use and annually thereafter.

## BARFEED MAINTENANCE

LUBRICATION: Pump oil into the two oilers on the carriage vise and on the vise shafts and screw. Make sure the vise screw is free of chips. Clean and oil the barfeed ways regularly.

LIMIT SWITCHES: The Carriage Forward and Carriage Retracted limit switches can be adjusted by loosening the socket head screws on either side of the switch and sliding the switch and base as needed. The switches should be adjusted so that the switch just 'makes' as the carriage makes contact with the stop at either end of its travel.

The Carriage Out-of-Stock switch can be adjusted by loosening the screw in the switch arm. The arm should be set so that more than 3/16" to 1/4" of vise movement causes the switch to open (Input #200 on the programmable controller goes off)

The Barfeed Cover switch is adjusted in the same manner as the Out-of-Stock limit switch. It should be set so that the Barfeed Cover must be fully closed for the saw to operate.

## VACUUM MAINTENANCE

NOTE: Before doing any maintenance or service, be sure that the vacuum unit is is disconnected from the power source to prevent accidental starting.

CAST ALUMINUM AND SHEET METAL FITTINGS:

The cast aluminum blower impeller, as well as all sheet metal fittings are maintenance free and should not require any maintenance during the life of the unit. In a very dirty environment the blower impeller should be cleaned with a wire brush to prevent a build-up that could unbalance the blower. After cleaning the impeller, inspect for possible cracks or excessive wear, which can cause an imbalance.

MOTOR MAINTENANCE:

1. REMOVING DUST AND DIRT: Blow off the motor with low pressure air to remove dust or dirt. Air pressure above 50 PSI should not be used as high pressure may damage insulation and blow dirt under loosened tape. The operator performing this maintenance should always wear eye protection. Dust can cause excessive insulation temperatures.

2. LUBRICATION: Under normal conditions ball bearing motors will operate for five years without re-lubrication. Under continuous operation at higher temperatures (above 104°F ambient), or in dusty atmospheres, re-lubricate after one year. To re-lubricate the motor bearings, dis-assemble the motor and housings. The bearings are located in the end shields of the motor. Re-pack each bearing and fill the cavity in the back of the bearings 1/3 full with 'Alvania Grease #2' (Shell Oil Co.)

## TROUBLE SHOOTING CHART

| SYMPTOM | POSSIBLE CAUSE(S) | CORRECTION |
|---|---|---|
| Unit will not operate | 1. Improper electrical connection. | 1. Turn the power off. Make sure the unit is wired per the electrical diagram. |
| | 2. Loose blower wheel. | 2. Disconnect the power. Turn the haed assembly over and spin the wheel by hand. Re-position and tighten the set screws as needed. |
| Low suction or flow rate | 1. Incorrect Rotation | 1. Turn the unit off and watch the motor cooling wheel rotation as it stops. Re-wire the motor if necessary. |

TROUBLE SHOOTING CHART
(continued)

| SYMPTOM | POSSIBLE CAUSE(S) | CORRECTION |
|---|---|---|
| Low suction or flow rate | 2. Suction hose too long | 2. Place the unit closer to the saw and shorten the hose. |
| | 3. Filter Plugged | 3. See below |

FILTER CLEANING:

If the air flow to the collector is reduced to the point that the pickup is marginal, the filter should be cleaned. The frequency of cleaning will depend on the size and type of material being picked up. Small and/or very fine chips may need cleaning more often.

Air flow and pickup will be retarded if the collection barrel is allowed to become too full. The level of dust/chips in the barrel should not be allowed to come closer than 12" from the bottom of the wire basket holder. Empty the barrel regularly. Check to see if chips have built up on the outside of the wire basket holder; brush these off with a brush. Do not use air; this may drive chips into the filter element. DO NOT use a wire brush; this may damage the filter element.

If the air flow is stii reduced after emptying the barrel and cleaning the wire basket, the filter element should be cleaned. Remove the wire basket from the underside of the lid, take out both pieces of the filter element, clean them, and re-assemble the unit.

Remove the wire basket by removing the four bolts holding it to the bottom of the lid. Remove the two pieces of filter from the wire basket holder. Place the filters in warm soapy water and gently swirl the filters so as to dislodge any chips. Be careful not to distort the filter shapes. Rinse the filters in clean water and air dry. Lightly oil them with a lightweight motor oil.

Re-assemble the filters and wire basket to the lid. Be sure there is a good seal between the lid and the wire basket.

If cleaning the filter does not restore the air flow, it may be necessary to replace the filter elements. Contact your dealer or the factory for the new elements (Part No. CS-9011).

# SPARE PARTS LIST
# CA-350/FA-350 SAWS

Drive Belt (2 Req'd): CS-3468

Standard Vise Wear Plate (4 Total): CS-2470

Indicator Lamp Bulbs: CS-5031

Power Fuses (1-3FU): Bussman Type KTK-R
(FA-350 saws) Gould Type ATMR
Littlefuse Type KLK_R

208V or 230V saws use 30A fuses; 460V saws use 12A

NOTE: Some early saws used Bussman type FNQ fuses.

Control Circuit Fuses (FA-350 saws):

4FU (Transformer): Bussman FNM 2 1/2
Gould TRM 2 1/2
Littlefuse FLM 2 1/2

5FU (Coolant Pump): Bussman FNM 1 1/4
(if equipped) Gould TRM 1 1/4
Littlefuse FLM 1 1/4

6FU (Worklight): Bussman AGC 3/10
(if equipped) Gould GGC 3/10
Littlefuse 3AG 3/10

8FU (Programmable controller): Bussman AGC 2
(FA-350A) Gould GGC 2
Littlefuse 3AG 2

9FU (Programmable Counter): Bussman AGC 3/10
(FA-350A) Gould GGC 3/10
Littlefuse 3AG 3/10

230V Motor Brake Fuses (If equipped): Bussman FWH-35
(Also work for 208V) Gould A25X35-4
Littlefuse KLB-35
(NOTE: 2 req'd)

460V Motor Brake Fuses (If equipped): Bussman FWH-15
Gould A50P15-1
Littlefuse KLB-15
(NOTE: 2 req'd)

Vise Screw Brush (2 Req'd): CS-2467

# SPARE PARTS LIST
# CS-350/FS-350 SAWS

Blade Brush: SP-47

Standard Vise Wear Plate (4 Total): CS-2470-S

Indicator Lamp Bulbs: CS-5031

Power Fuses (1-3FU): Bussman Type KTK-R
Gould Type ATMR
Littlefuse Type KLK-R

208V or 230V saws use 30A fuses; 460V saws use 12A

NOTE: Some early saws used Bussman type FNQ fuses.

Coolant Pump Fuse (CS-350 saws): Bussman FNM 1 1/4

Control Circuit Fuses (FS-350 saws):

4FU (Transformer): Bussman FNM 2 1/2
Gould TRM 2 1/2
Littlefuse FLM 2 1/2

5FU (Coolant Pump): Bussman FNM 1 1/4
Gould TRM 1 1/4
Littlefuse FLM 1 1/4

6FU (Worklight): Bussman AGC 3/10
(if equipped) Gould GGC 3/10
Littlefuse 3AG 3/10

8FU (Programmable controller): Bussman AGC 2
(FS-350A) Gould GGC 2
Littlefuse 3AG 2

9FU (Programmable Counter): Bussman AGC 3/10
(FS-350A) Gould GGC 3/10
Littlefuse 3AG 3/10

Gearbox Oil (5 qts/change): Mobilgear #634 or SHC 634

Vise Screw Brush (2 Req'd): CS-2467

SPARE PARTS LIST
CA-350/FA-350 SAWS
CS-350/FS-350 SAWS

## CYLINDER SEAL KITS

| CYLINDER P/N | | SEAL KIT P/N |
|---|---|---|
| CS-2316 | (Saw Vise Cylinder) | CS-2316-PRK |
| CS-4014 | (Head Lift Cylinder) Hydroline Cylinders | CS-4014-PRK |
| | Parker Cylinders | CS-4014P-PRK |
| CS-4014-1 | Numatics Cylinders | CS-4014-1-PRK |
| CS-4015 | (Carriage Feed Cylinder- 3 1/4" bore: handwheel is on side of barfeed) | CS-4016-PRK |
| CS-4016 | (Carriage Vise Cylinder- Hydroline) | CS-4016-PRK |
| CS-4016-1 | (Carriage Vise Cylinder- Parker) | CS-4016-1-PRK |
| CS-4016-2 | (Carriage Vise Cylinder- Numatics) | CS-4016-2-PRK |
| CS-4034 | (Carriage Feed Cylinder- Parker) 2 1/2" bore: handwheel is at end of barfeed | CS-4014P-PRK |
| CS-4034-1 | (Carriage Feed Cylinder- Numatics) | CS-4014-1-PRK |

# NOTES

# TROUBLESHOOTING GUIDE - GENERAL

1. MACHINE WILL NOT START

   a) Check the main and control fuses.
   b) Check your in-house wiring.
   c) Check that the incoming voltage matches the saw wiring.
   d) Check the motor brake fuses (if equipped).
   e) Overload relay tripped-fix cause and reset.

2. MOTOR WILL NOT START AND IS BLOWING FUSES

   a) Check for a short in the supply wiring.
   b) Check for a short in the motor windings or leads.
   c) Check for proper fuses or circuit breakers.

3. WORKLIGHT WILL NOT LIGHT (if equipped)

   a) Check the fuse inside the electrical enclosure (6FU).
   b) Check the bulb.

4. BLADE STRIPS TEETH

   a) Too many teeth, causing each tooth to overload.
   b) Blade too coarse.
   c) Head feed pressure too high.
   d) Blade speed too slow.
   e) Rectangular pieces should be cut on the shortest side.
   f) Vise clamping pressure too low.
   g) Head feed speed too high.
   h) Wrong blade for the job.

5. CROOKED CUTS

   a) Feed pressure too high.
   b) Wrong blade for the application.
   c) The blade grind may be worn on one side.
   d) Head feed speed too fast.
   e) Workpiece not squarely clamped in vise.
   f) The adjusting collar may be loose in the head support, allowing the head to shift on the pivot bar.

6. COOLANT WILL NOT FLOW

   a) Check the coolant level in the tank.
   b) Check the pump for blockage-clean if necessary (Refer to the maintenance sheets on the coolant pumps or spray mist units for details.
   c) Check for line blockage.
   d) Check the coolant pump fuse (5FU-flood coolant units)
   e) Make sure the flow valves are open (spray mist units)
   f) Make sure the coolant switch is on (if equipped)

## TROUBLESHOOTING: M & PV SAWS

7. BLADE WILL NOT START

   a) Overload relay tripped - fix cause and reset.
   b) Safety switch in the handle not making contact (F-series saws only).

8. VISE WILL NOT CLAMP (PV saws)

   a) Air valve not releasing as the head is lowered.
   b) Make sure the air supply is on and thr pressure regulator is set properly.

## TROUBLESHOOTING: SEMI-AUTOMATIC SAWS

9. CYCLE LIGHT WILL NOT LIGHT

   a) Check the light bulb.
   b) Make sure the Head Up limit switch is tripped.
   c) Blade brake is still energized (if equipped)

10. CYCLE WILL NOT START

   a) Blade brake is still energized (if equipped)
   b) Timer 2TR is still energized to stop the last cycle.
   c) The Head Down limit switch is still tripped.

11. HEAD WILL NOT FEED

   a) The Head Down limit switch is still tripped.
   b) The Feed Speed valve is closed.
   c) The Feed Pressure is too low for the application.
   d) Make sure the air supply is on.
   e) The Head Raise solenoid is still energized.

12. HEAD WILL NOT RAISE

   a) The Head Down limit switch is not tripped.
   b) The Head Feed solenoid is still energized.
   c) The Head Up limit switch is still tripped.
   d) Make sure the air supply is on.
   e) Air pressure too low.

13. VISE WILL NOT CLAMP

   a) Solenoid valve is not energizing.
   b) Make sure the air supply is on.
   c) Air pressure too low.
   d) Check lines and fittings for leaks.
   e) Check seals for tears.

## TROUBLESHOOTING: SEMI-AUTOMATIC SAWS (continued)

14. VISE WILL NOT RELEASE

a) Solenoid valve is not releasing.
b) Timer 2TR is not energizing to stop the cycle.
c) The Head Up limit switch is not tripped.

## TROUBLESHOOTING: AUTOMATIC SAWS

15. CYCLE WILL NOT START

a) Make sure the 'Operation' switch is in the 'Auto' position.
b) The cycle will not start if the blade brake is on
c) Make sure the Head Up limit switch is tripped.
d) Make sure there is stock in the barfeed and that the carriage vise is set to within 3/32 to 1/8" of the stock to keep the Out of Stock limit switch tripped.
e) The barfeed cover must be closed.
f) The batch counter cannot read '0'

16. HEAD WILL NOT FEED

a) The Head Down limit switch is still tripped.
b) The Feed Speed valve is closed.
c) The Feed Pressure is too low for the application.
d) Make sure the air supply is on.
e) The Head Raise solenoid is still energized.
f) The blade brake is still energized (if equipped).
g) The Carriage Forward limit switch is not tripped.
h) The Batch Counter has reached its preset value.
i) The Stroke Counter has not reached its preset.

17. HEAD WILL NOT RAISE

a) The Head Down limit switch is not tripped.
b) The Head Up limit switch is not releasing.
c) The Head Feed solenoid is still energized.
d) Make sure the air supply is on.
e) The air pressure is too low.

18. SAW VISE WILL NOT CLAMP

a) The Carriage Forward limit switch is not tripped
b) The blade brake is still energized (if equipped).
c) The Saw Vise Clamp solenoid is not energized.
d) Make sure the air supply is on.
e) The clamping pressure is too low.
f) Check lines and fittings for leaks.
g) Check seals for tears.

19. SAW VISE WILL NOT OPEN

a) The Saw Vise Clamp solenoid is still energized.
b) The Head Up limit switch is not tripped.
c) The Carriage Retracted limit switch was not tripped before feeding the stock.
d) The saw did not finish making the cut (The Head Down limit switch was not tripped).
e) The saw vise was manually clamped tight (No room for the cylinder to extend or retract).

20. CARRIAGE WILL NOT RETRACT

a) The Carriage Forward limit switch is not tripped
b) The blade brake is still energized
c) The Carriage Vise Clamp solenoid is energized.
d) Make sure the air supply is on.
e) The air pressure is too low.
f) The saw head is not feeding at the start of a cycle.
g) The Carriage Retracted limit switch is tripped.
h) The Stroke Counter has reached its preset value.
i) The Carriage Feed solenoid is still energized.
j) The Carriage Retract solenoid is not energized.

21. CARRIAGE WILL NOT FEED

a) The Carriage Forward limit switch is tripped
b) The Saw Vise Clamp solenoid is energized.
c) Make sure the air supply is on.
d) The air pressure is too low.
e) The Carriage Retract solenoid is energized.
f) The Head Up limit switch is not tripped.

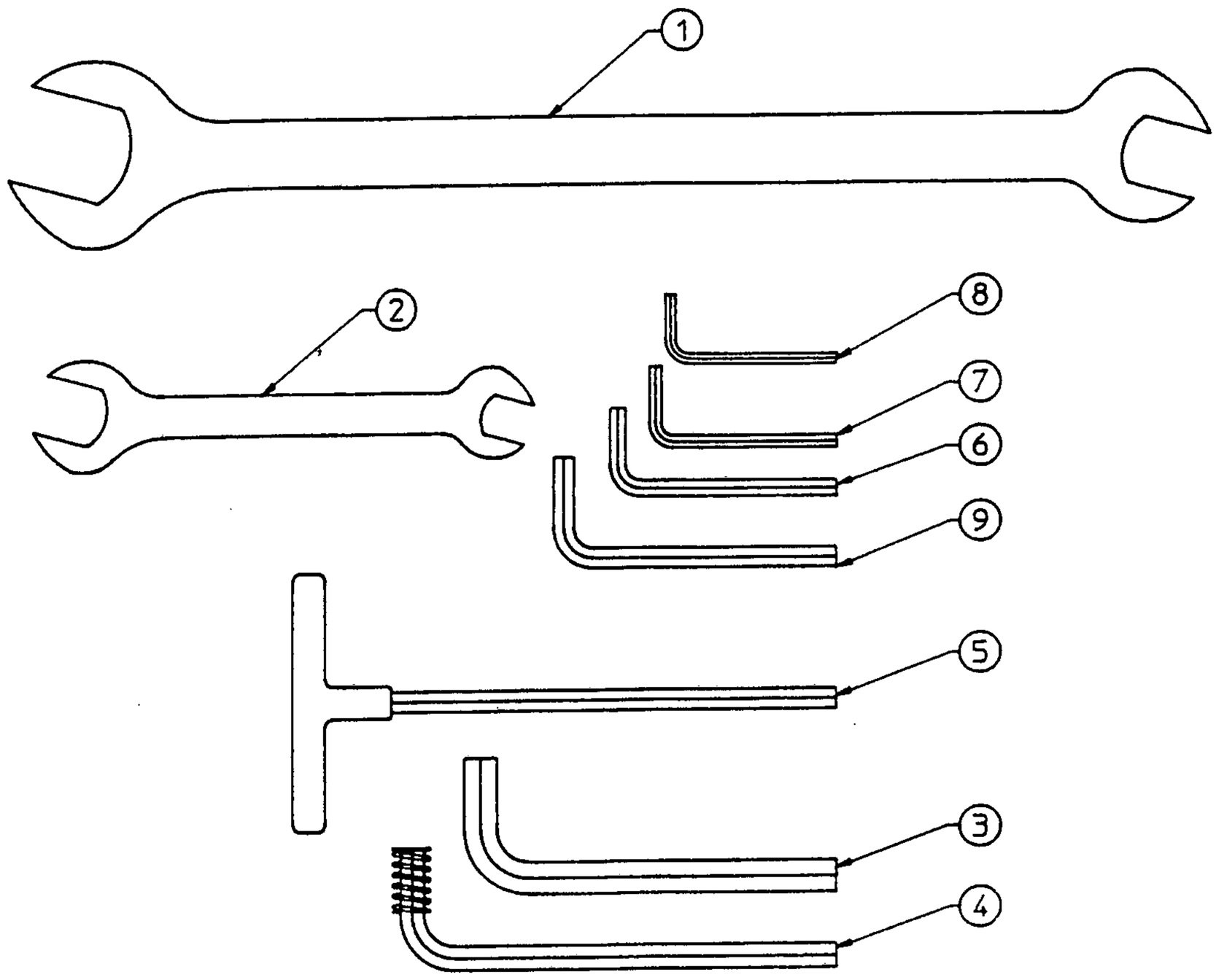
22. CARRIAGE VISE WILL NOT CLAMP

a) The Head Up limit switch is not tripped.
b) The Carriage Retract solenoid is energized.
c) The saw did not finish making the cut (The Head Down limit switch was not tripped).
d) The Carriage Retracted limit switch is not tripped
e) Make sure the air supply is on.
f) The air pressure is too low.

23. CARRIAGE VISE WILL NOT OPEN

a) The Carriage Vise Clamp solenoid is not releasing
b) The Saw Vise Clamp solenoid is not energized.
c) The Carriage Retract solenoid is still energized.
d) The Carriage Vise is manually clamped tight (No room for the cylinder to extend or retract).

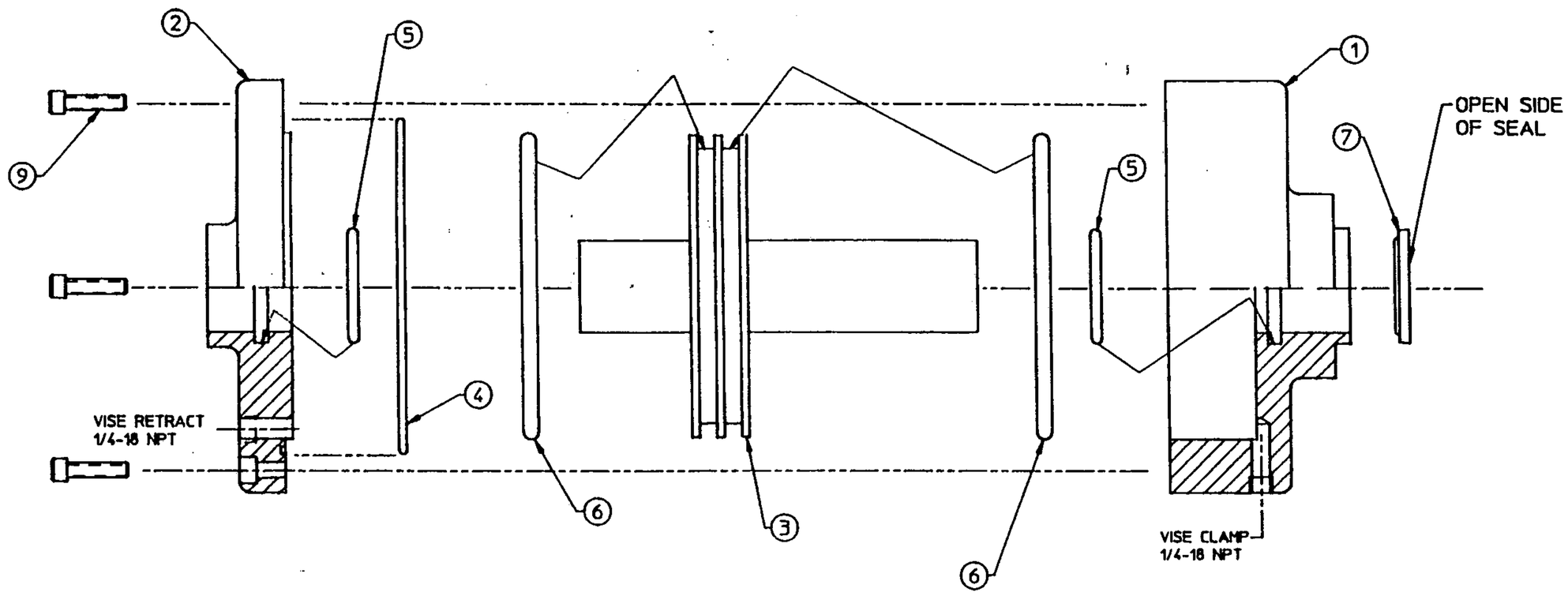
# TOOL KIT
# CIRCULAR SAWS




| | | |
|---|---|---|
| 1 | CS-1503 | 1 1/2 x 1 5/8 OPEN END WRENCH |
| 2 | CS-1504 | 5/8 x 3/4 OPEN END WRENCH |
| 3 | CS-1505 | 1/2" HEX KEY |
| 4 | CS-1506 | 3/8" HEX KEY W/SPRING |
| 5 | CS-1507 | 3/8" HEX KEY TEE WRENCH |
| 6 | CS-1508 | 1/4" HEX KEY |
| 7 | CS-1509 | 3/16" HEX KEY |
| 8 | CS-1510 | 5/32" HEX KEY |
| 9 | CS-1511 | 5/16" HEX KEY |

| CS-1500<br>FS SERIES<br>AUTO/SEMI-AUTO | CS-1500-1<br>FA SERIES<br>AUTO/SEMI-AUTO | CS-1500-2<br>FS/CS SERIES<br>PV/MANUAL | CS-1500-3<br>FA/CA SERIES<br>PV/MANUAL |
|---|---|---|---|
| CS-1504 | CS-1503 | CS-1507 | CS-1503 |
| CS-1505 | CS-1504 | | CS-1506 |
| CS-1511 | CS-1505 | | |
| CS-1507 | CS-1506 | | |
| CS-1508 | CS-1508 | | |
| CS-1509 | CS-1509 | | |
| CS-1510 | CS-1510 | | |
| | CS-1511 | | |

# VISE CYLINDER ASSEMBLY
## CIRCULAR SAWS



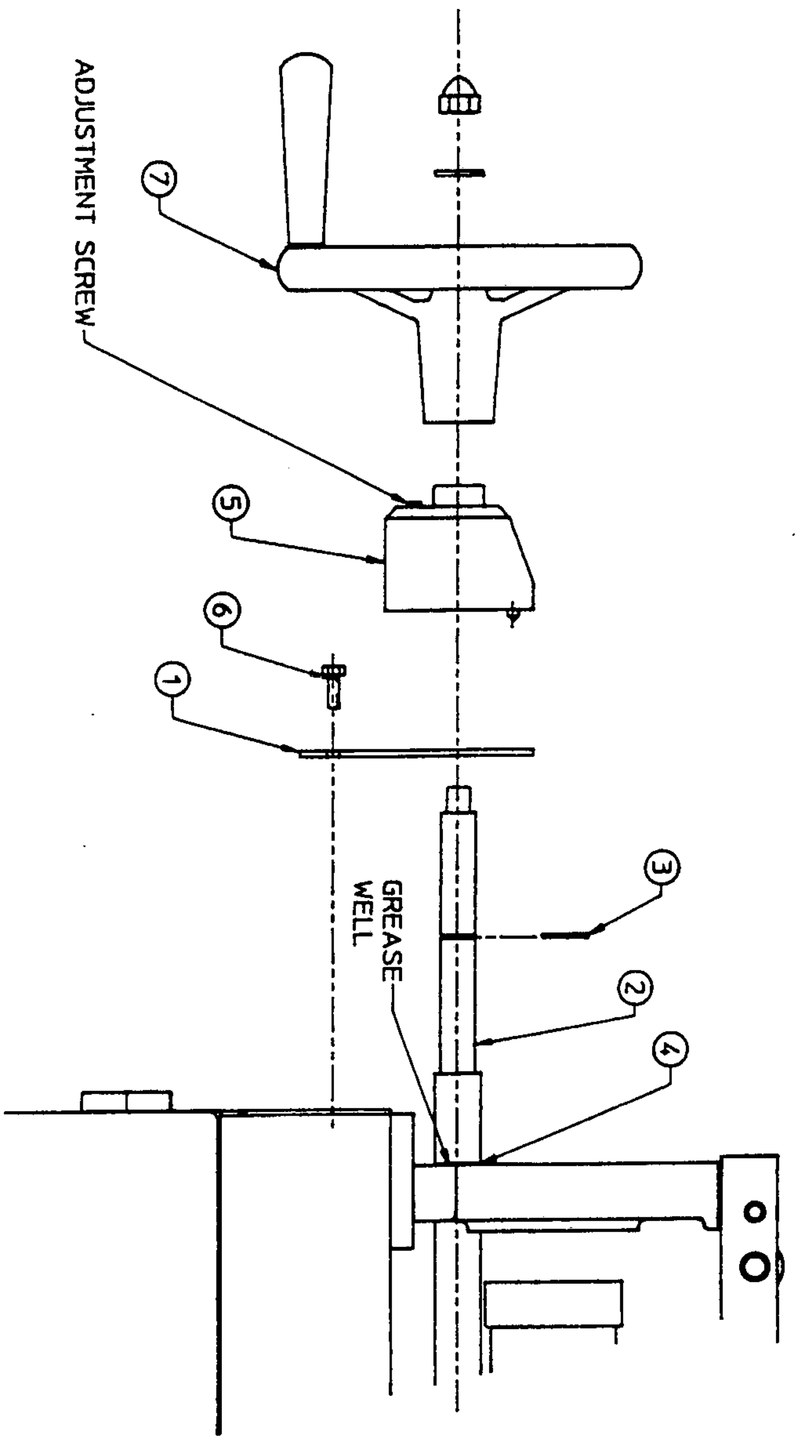

| | | |
|---|---|---|
| 1 | CS-2310 | VISE CYLINDER BODY |
| 2 | CS-2311 | VISE CYLINDER CAP |
| 3 | CS-2312 | VISE CYLINDER PISTON (INCLUDES ROD) |
| 4 | CS-2313 | O-RING: PARKER #2-160 N674-70 |
| 5 | CS-2314 | O-RING: PARKER #2-325 N674-70 |
| 6 | CS-2315 | O-RING: PARKER #2-426 N674-70 |
| 7 | CS-2315A | ROD WIPER: PARKER #8600-0150-4181 |
| 8 | | |
| 9 | | 1/4-20 x 1 SHCS (6) |

CS-2316-PRK COMPLETE SEAL KIT: INCLUDES ITEMS 4, 5, 6, AND 7

CS-2316 COMPLETE CYLINDER ASSEMBLY

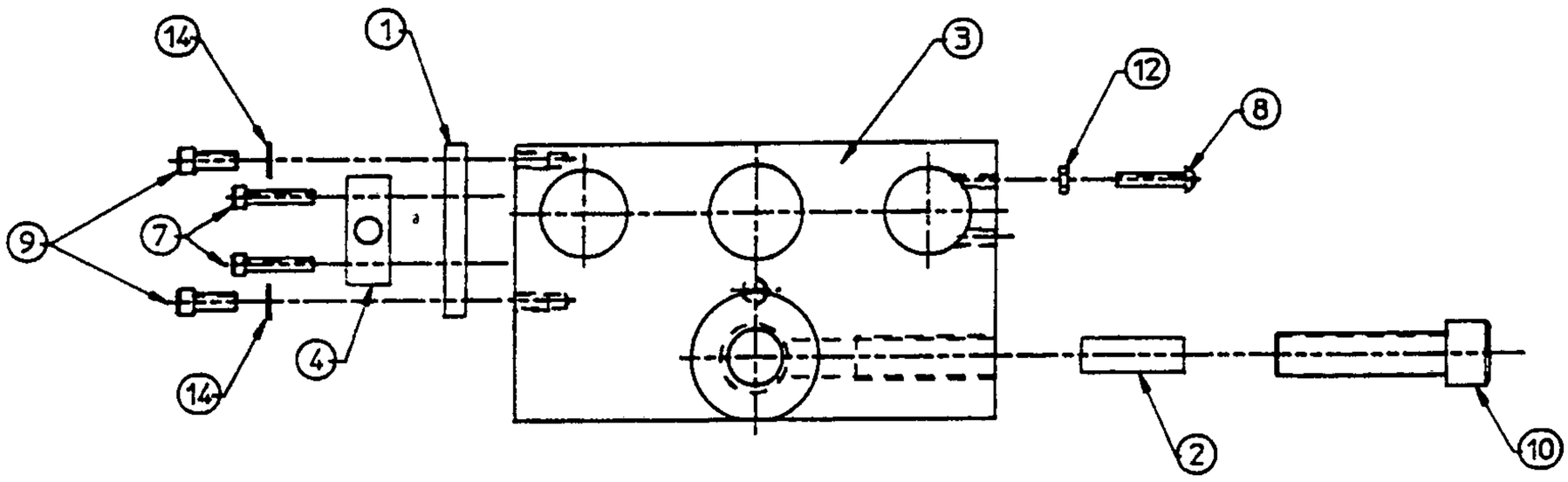
NOTE: CYLINDERS BUILT BEFORE MAY, 1991 HAVE 1/8-27 NPT PORTS

# LENGTH COUNTER PARTS
# CIRCULAR SAWS



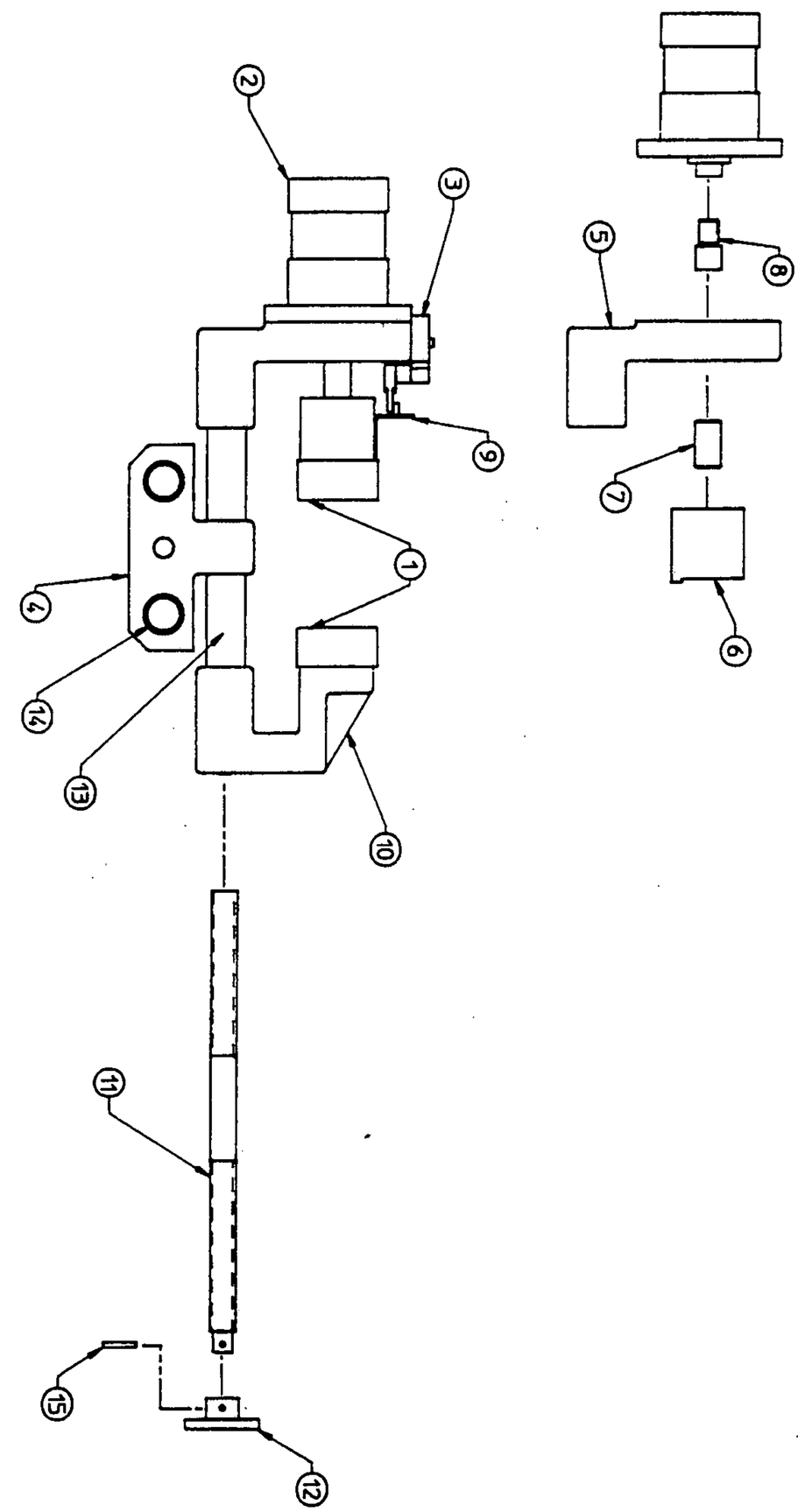

| | | |
|---|---|---|
| 1 | CS-6805 | LENGTH COUNTER BRACKET |
| 2 | CS-6810 | BACKSTOP SCREW |
| 3 | CS-6811 | SNAP RING: TRUARC #5160-75 |
| 4 | CS-6812 | SNAP RING: TRUARC #5160-98 |
| 5 | CS-6815 | COUNTER: SIKO #0502-000-20-CCW-.750 |
| 6 | | 1/4-20UNCx3/4 SELF TAPPING HEX HEAD SCREW (2) |
| 7 | CS-6440 | BACKSTOP HANDWHEEL |

# BACKSTOP ASSEMBLY
# CIRCULAR SAWS



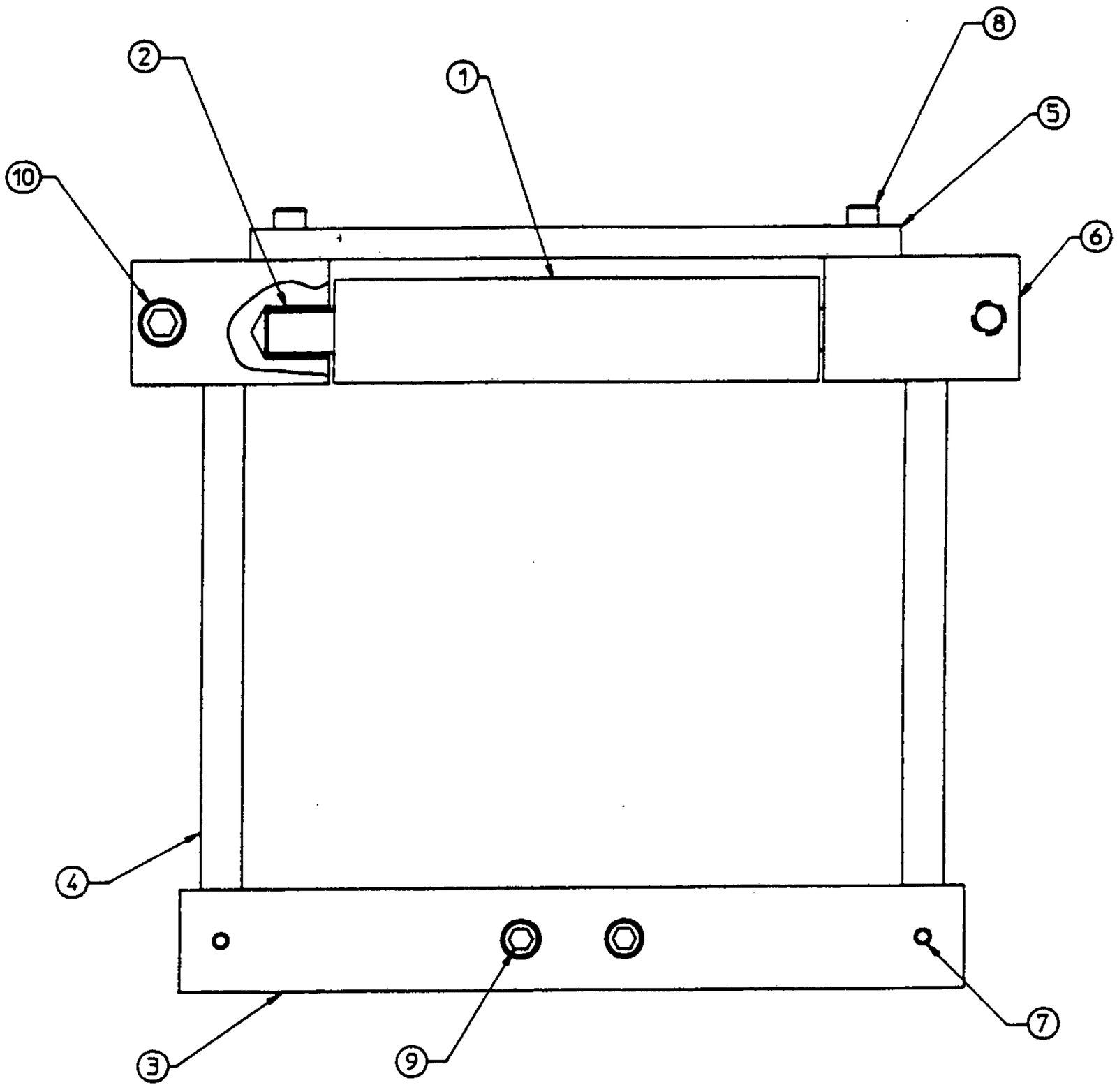

| | | |
|---|---|---|
| 1 | CS-3530 | SWITCH MOUNTING PLATE |
| 2 | CS-6432 | INSERT |
| 3 | CS-6400-1 | BACKSTOP |
| 4 | V20-6105 | LIMIT SWITCH: OMRON #D4C-1631 |
| 5 | | |
| 6 | | |
| 7 | | #10-24x7/8 SOCKET HEAD CAP SCREW (2) |
| 8 | | #10-24x1 ROUND HEAD MACHINE SCREW (BRASS)(2) |
| 9 | | 1/4-20 x 3/4 SOCKET HEAD CAP SCREW (2) |
| 10 | | 5/8-11x2 1/2 SOCKET HEAD CAP SCREW |
| 11 | | |
| 12 | | #10-24 BRASS HEX NUT (2) |
| 13 | | |
| 14 | | 1/4 FLAT WASHER (MODIFIED) (2) |

# BARFEED CARRIAGE
# CIRCULAR SAWS



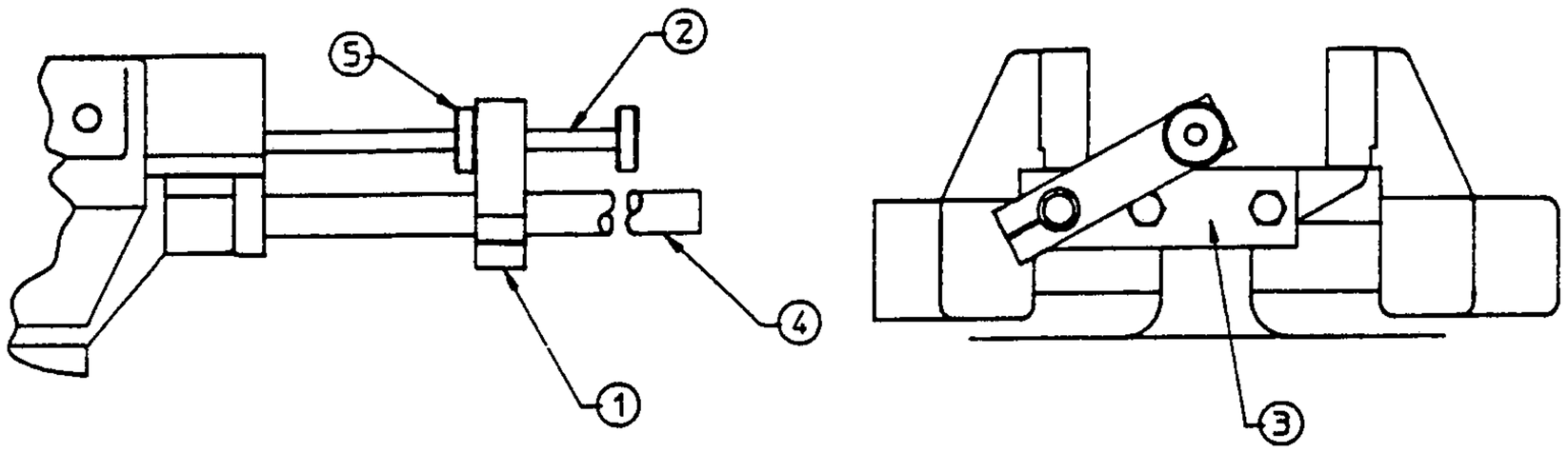

| | | |
|---|---|---|
| 1 | CS-6252 | VISE WEAR PLATE (2) (FA-350A ONLY) |
| | CS-6252-S | VISE WEAR PLATE (2) (FS-350A ONLY) |
| 2 | CS-4016 | CARRIAGE VISE CYLINDER |
| 3 | CS-5046 | LIMIT SWITCH |
| 4 | CS-6100-1 | BARFEED CARRIAGE |
| 5 | CS-6200-1 | CARRIAGE VISE REAR JAW |
| 6 | CS-6210 | MOVING VISE BLOCK |
| 7 | CS-6215 | VISE BLOCK GUIDE PIN (2) |
| 8 | CS-6220 | VISE CYLINDER EXTENSION |
| 9 | CS-6230 | OUT OF STOCK TRIGGER |
| 10 | CS-6250-1 | CARRIAGE VISE FRONT JAW |
| 11 | CS-6255 | CARRIAGE VISE SCREW |
| 12 | CS-6260 | BARFEED HANDWHEEL |
| 13 | CS-6270-1 | VISE SHAFT (2) |
| 14 | V21-3234 | BRONZE BEARING (4) |
| 15 | | 3/16 x 1 1/4 ROLL PIN |

# BARFEED CARRIAGE
# OVERHEAD ROLLER
# CIRCULAR SAWS



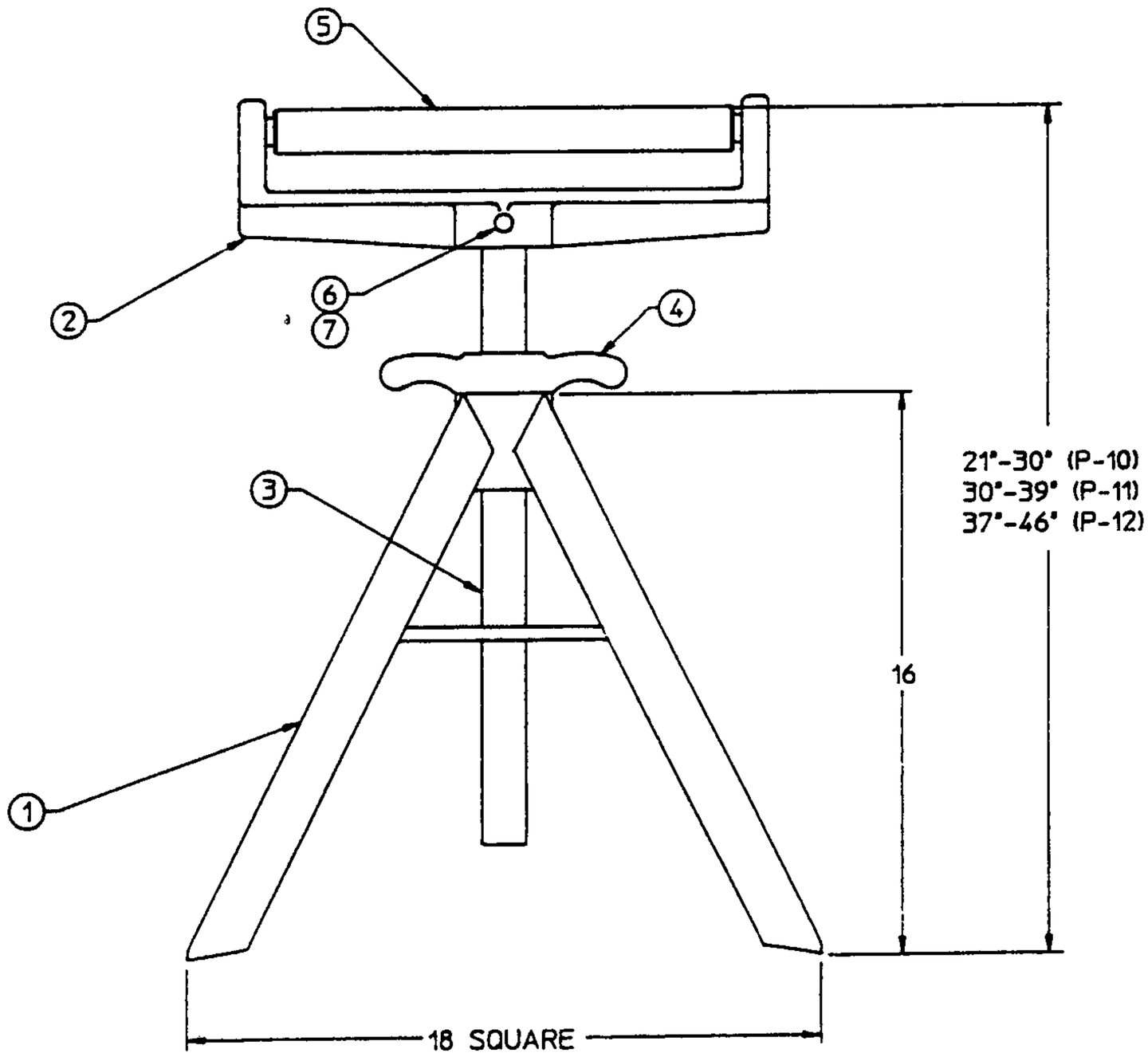

| | | |
|---|---|---|
| 1 | CS-6335 | BARFEED ROLLER |
| 2 | CS-6340 | BRONZE BEARING: BOSTON #P50-6 (2) |
| 3 | CS-6550 | OVERHEAD ROLLER SUPPORT PLATE |
| 4 | CS-6555 | OVERHEAD ROLLER GUIDE (2) |
| 5 | CS-6556 | OVERHEAD ROLLER TOP PLATE |
| 6 | CS-6558 | OVERHEAD ROLLER SUPPORT BLOCK (2) |
| 7 | | 1/8 x 1 1/4 ROLL PIN (2) |
| 8 | | 1/4-20 x 1/2 SHCS (4) |
| 9 | | 5/16-18 x 2 1/4 SHCS (2) |
| 10 | | 3/8-16 x 1 1/4 SHCS (2) |

# STOCK STOP ASSEMBLY
# CIRCULAR SAWS

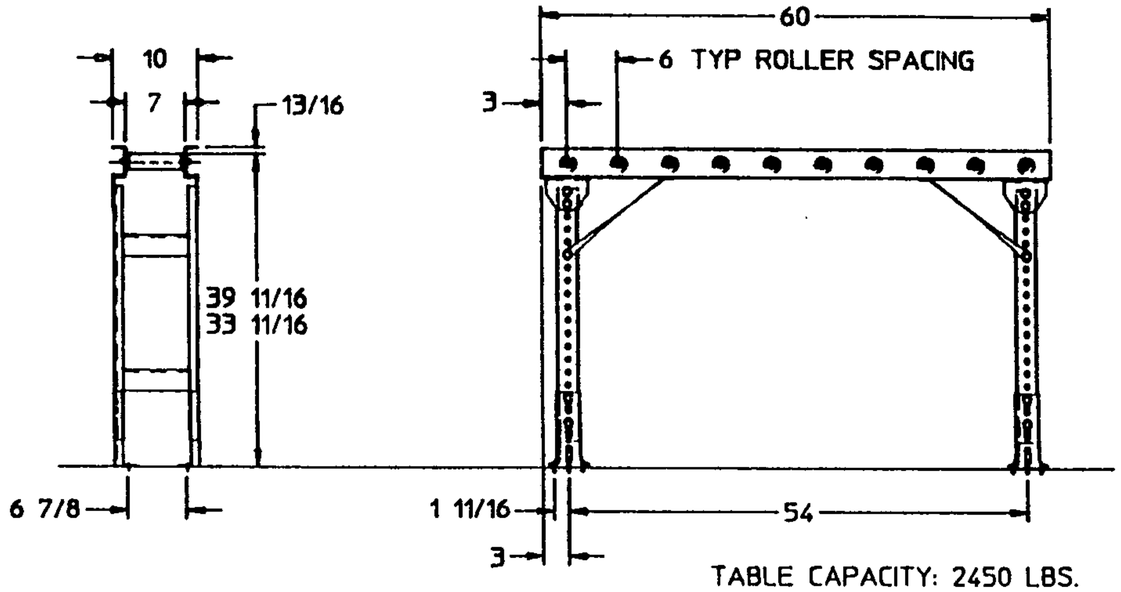



| | | |
|---|---|---|
| | CS-7000 | COMPLETE ASSEMBLY |
| 1 | CS-7010 | STOP BLOCK |
| 2 | CS-7015 | STOP ROD ASSY. |
| 3 | CS-7030 | STOP SUPPORT |
| 4 | CS-7040 | STOP SHAFT |
| 5 | AB-18115 | ADJUSTING KNOB |

# "P" SERIES STOCK STANDS

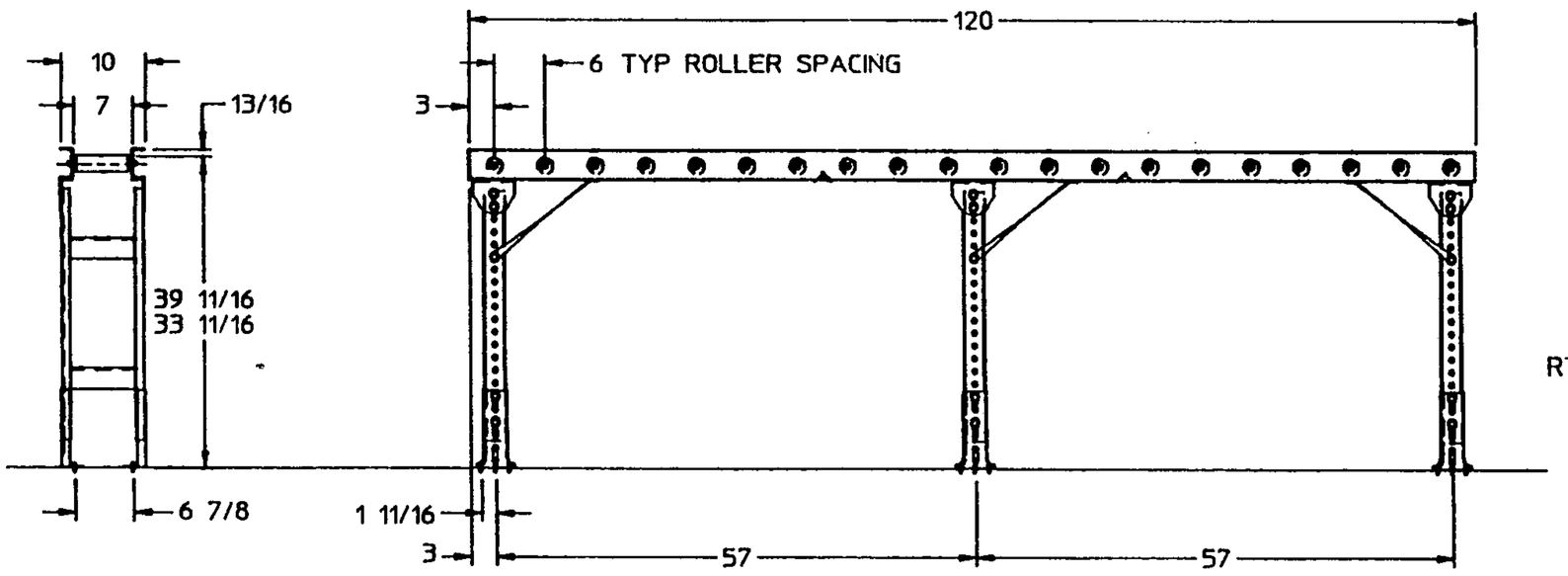



| | | |
|---|---|---|
| 1 | P-1001 | STOCK STAND BASE |
| 2 | P-2 | STOCK STAND YOKE |
| 3 | P-103 | STOCK STAND NUT |
| 4 | P-104 | STOCK STAND SCREW: 21°-30° STANDS |
| | P-114 | STOCK STAND SCREW: 30°-39° STANDS |
| | P-124 | STOCK STAND SCREW: 37°-46° STANDS |
| 5 | P-5 | STOCK STAND ROLLER |
| 6 | | 1/2 x 3 STEEL CLEVIS PIN |
| 7 | | 1/8 x 1 COTTER PIN |




RT-0507

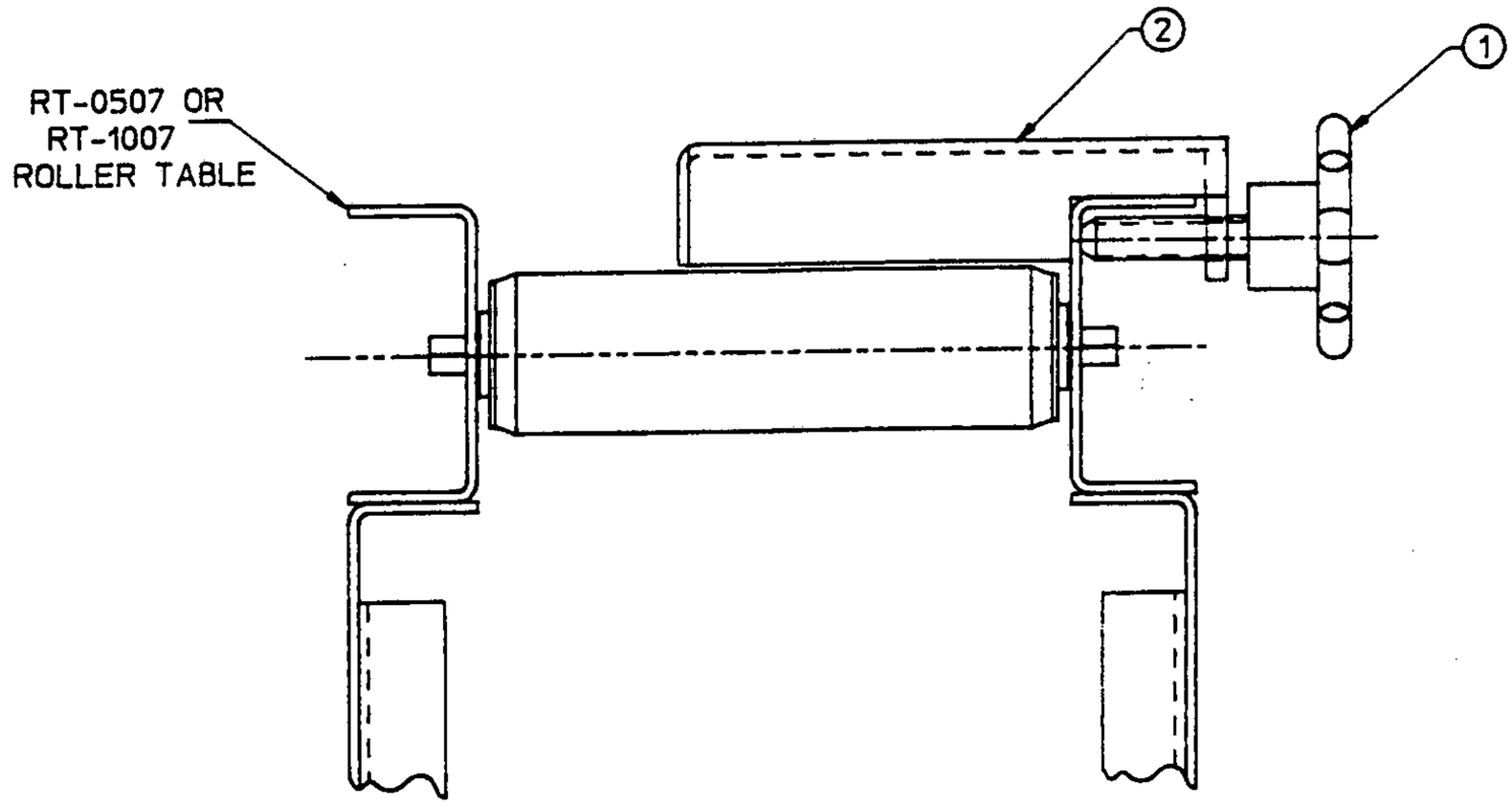
TABLE CAPACITY: 2450 LBS.




RT-1007

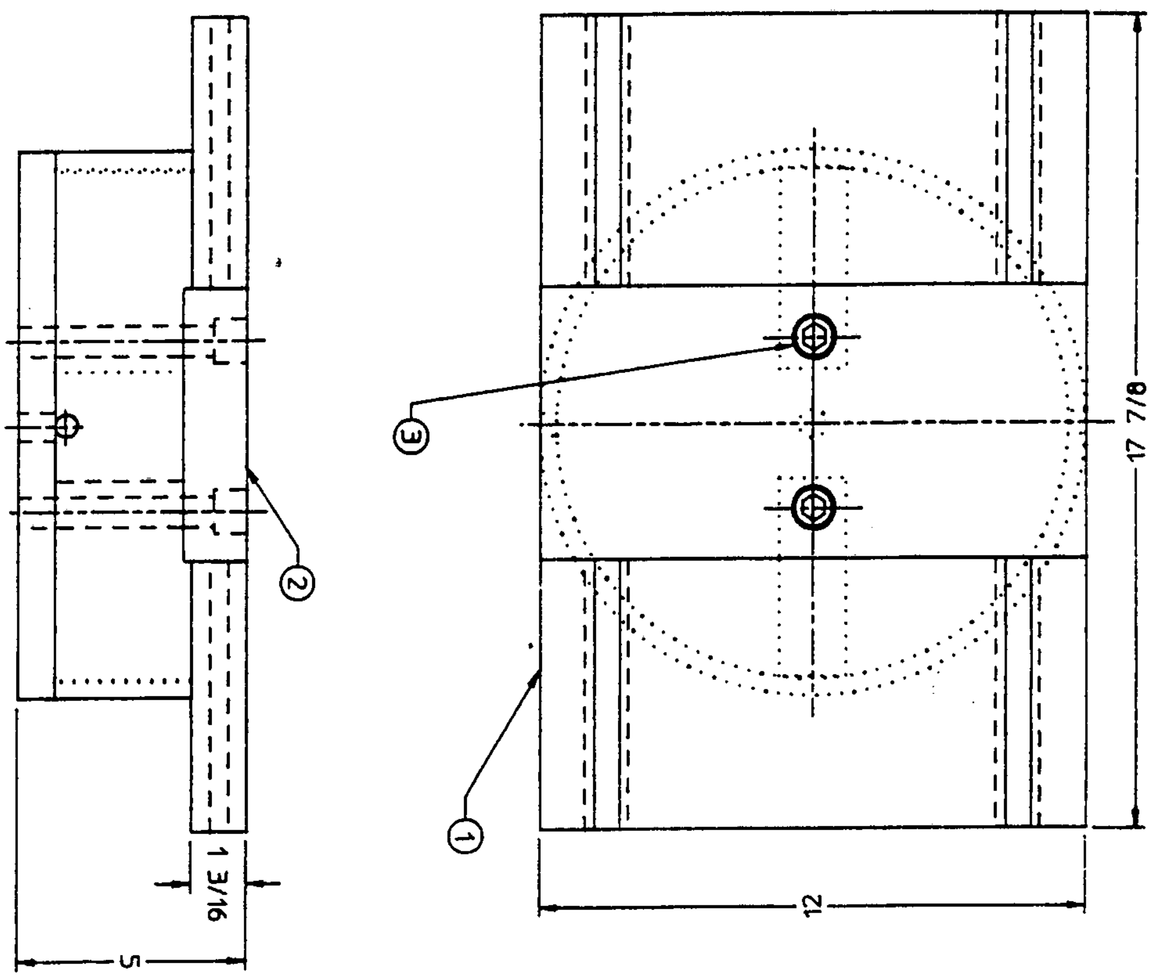
TABLE CAPACITY: 4900 LBS.

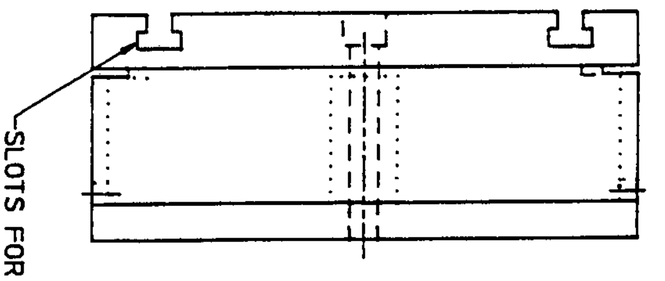
# ROLLER TABLE
# STOCK STOP
# RTS–07




| | | |
|---|---|---|
| 1 | 8C-1915 | TIGHTENER KNOB |
| 2 | RTS-071 | STOCK STOP WELDMENT |

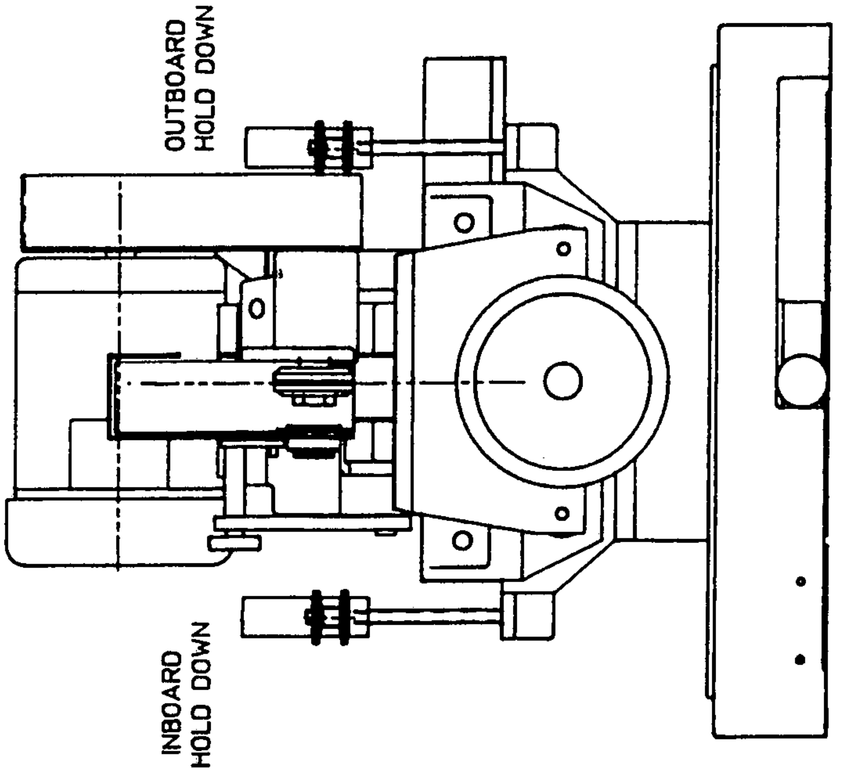
# FIXTURE MOUNTING TABLE
# CIRCULAR SAWS

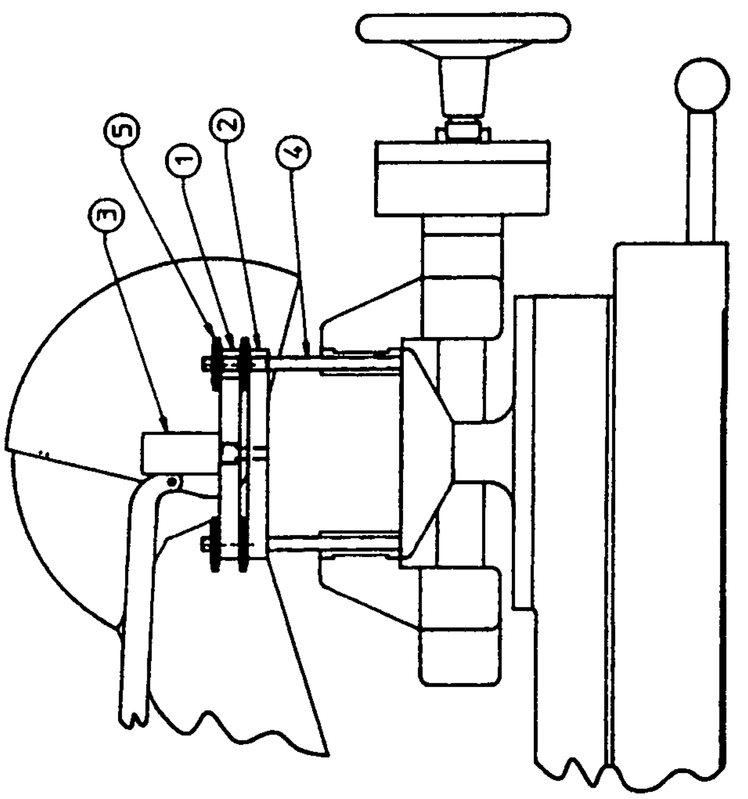



| | | |
|---|---|---|
| 1 | CS-7610 | WORKTABLE WELDMENT |
| 2 | CS-7615 | WORKTABLE CENTER PLATE |
| 3 | | 5/8-11 x 5 1/2 SHCS (2) |

# OVERHEAD CLAMP
# CIRCULAR SAWS



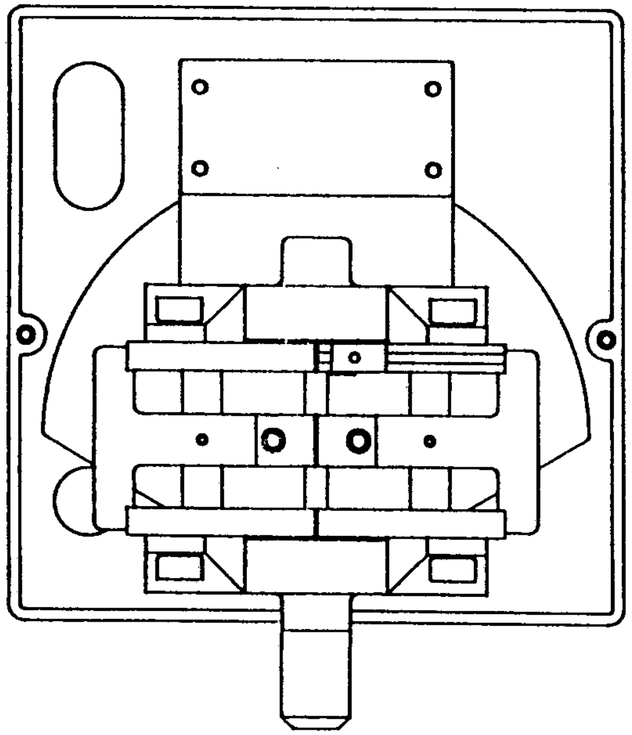




CS-7500 COMPLETE ASSEMBLY

| | | |
|---|---|---|
| 1 | CS-7505 | CYLINDER MOUNT |
| 2 | CS-7510 | CLAMP BAR |
| 3 | CS-7515-1 | CYLINDER: HUMPHREY #5-D-1/2 |
| 4 | CS-7520 | GUIDE RODS (2) |
| 5 | CS-7525 | ADJUSTING NUT (4) |

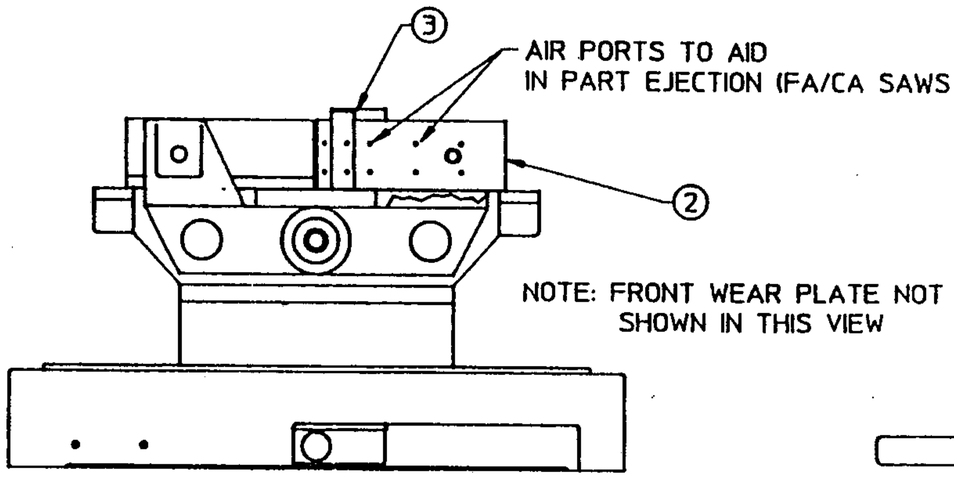
NOTE: SAWS BEFORE S/N 241 USE THE CS-7515
CYLINDER INSTEAD OF A CS-7515 5 CYLINDER

# SHORT LENGTH STOCK STOP OPTION

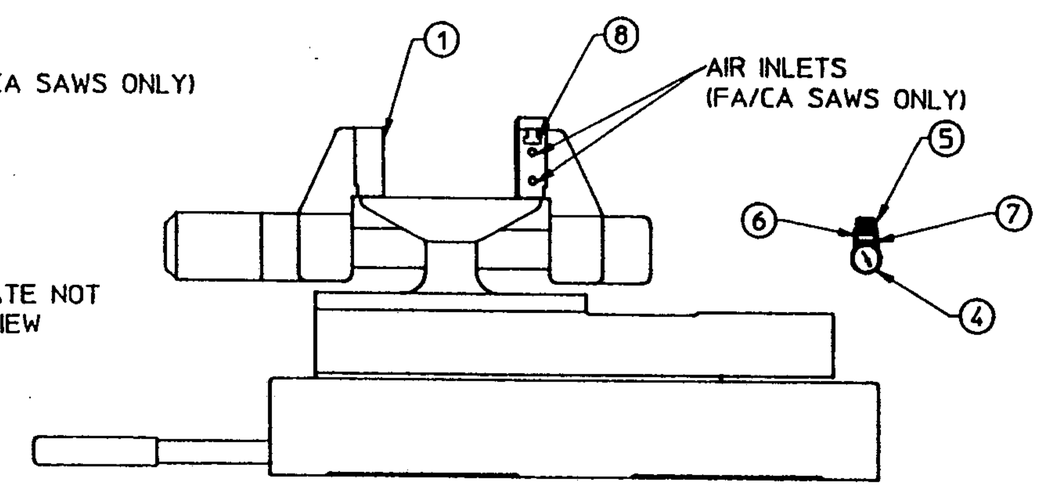


| | | |
|---|---|---|
| 1 | CS-7401 | 90 DEG. WEAR PLATE (FA/CA SAWS ONLY) (3) |
| | CS-7401-S | 90 DEG. WEAR PLATE (FS/CS SAWS ONLY) (3) |
| 2 | CS-7402 | STOCK STOP WEAR PLATE (FA/CA SAWS ONLY) |
| | CS-7402-S | STOCK STOP WEAR PLATE (FS/CS SAWS ONLY) |
| 3 | CS-7403 | STOCK STOP WELDMENT |
| 4 | V20-7117A | PRESSURE GAUGE: PARKER #P77413 (FA/CA SAWS ONLY) |
| 5 | V20-7117B | PRESSURE REGULATOR: PARKER #14R113F (FA/CA SAWS ONLY) |
| 6 | | MOUNTING BRACKET: PARKER #PS417B (FA/CA SAWS ONLY) |
| 7 | V20-7118 | MOUNTING NUT: PARKER #P78652 (FA/CA SAWS ONLY) |
| 8 | V20-9032B | "T" NUT: REID #TN-2 |

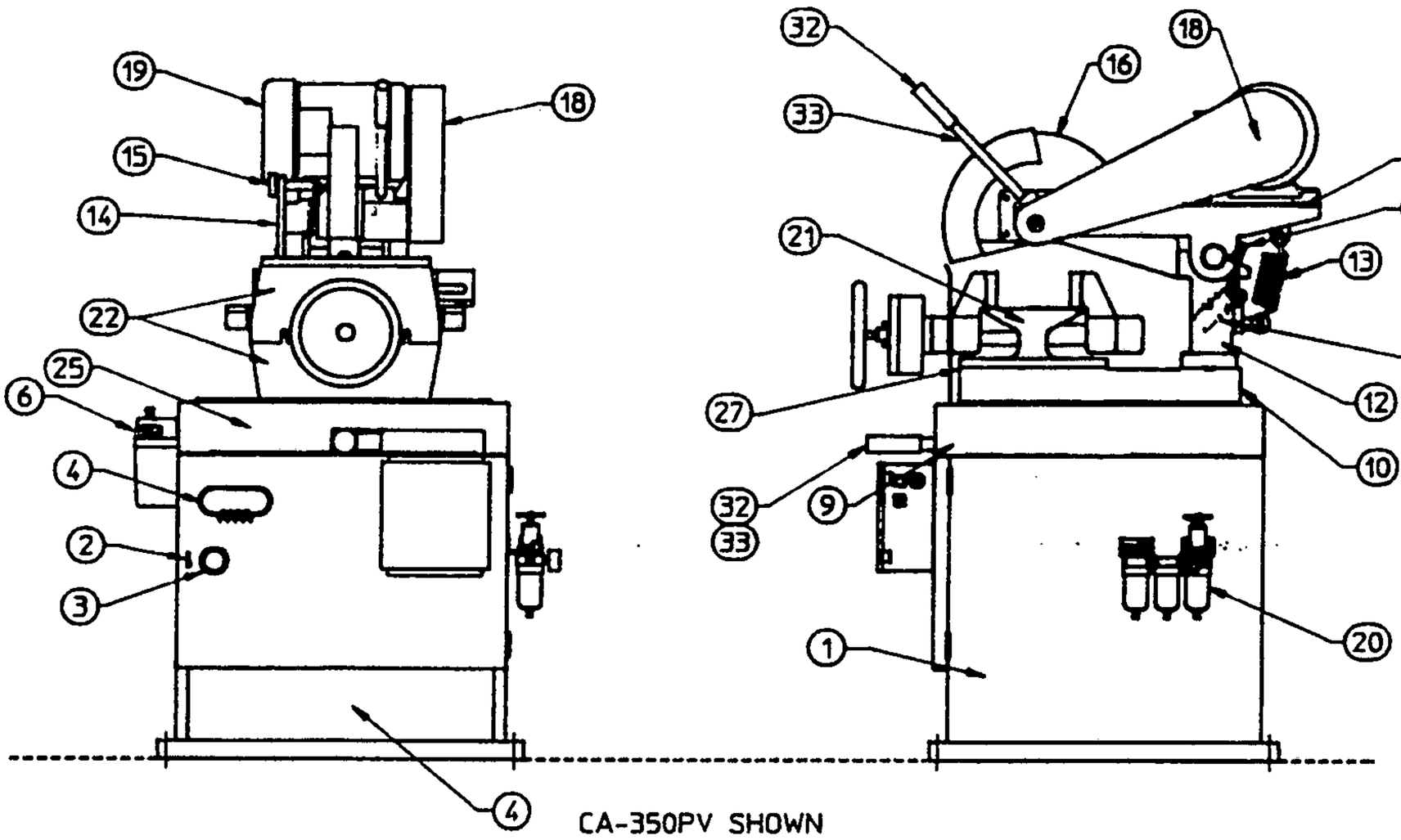
STOCK STOP SLIDES IN T-SLOT TO ANY LENGTH DESIRED




NOTE: FRONT WEAR PLATE NOT SHOWN IN THIS VIEW



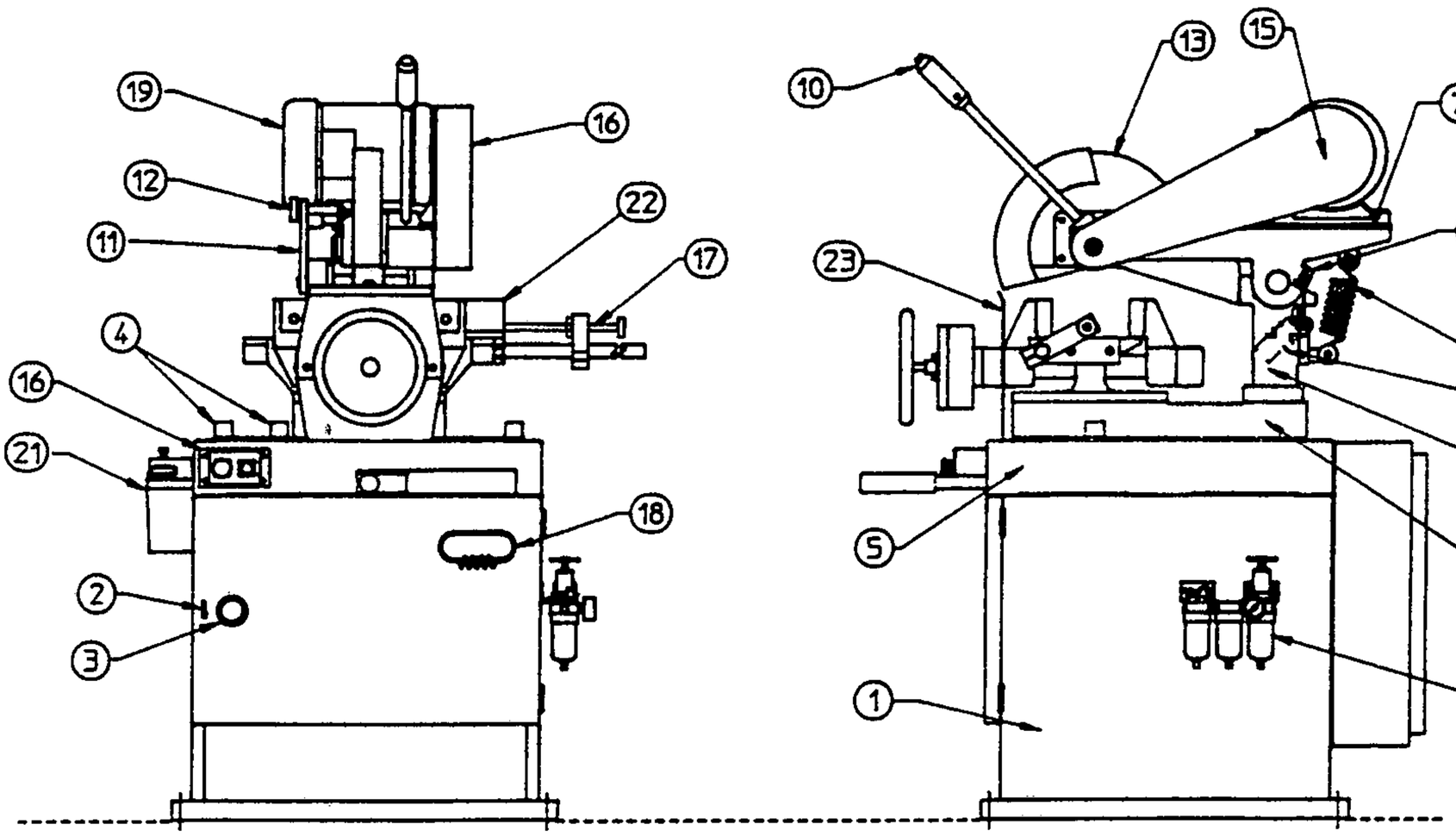
# BASE COMPONENTS
# CA-350/CA-350PV




CA-350PV SHOWN

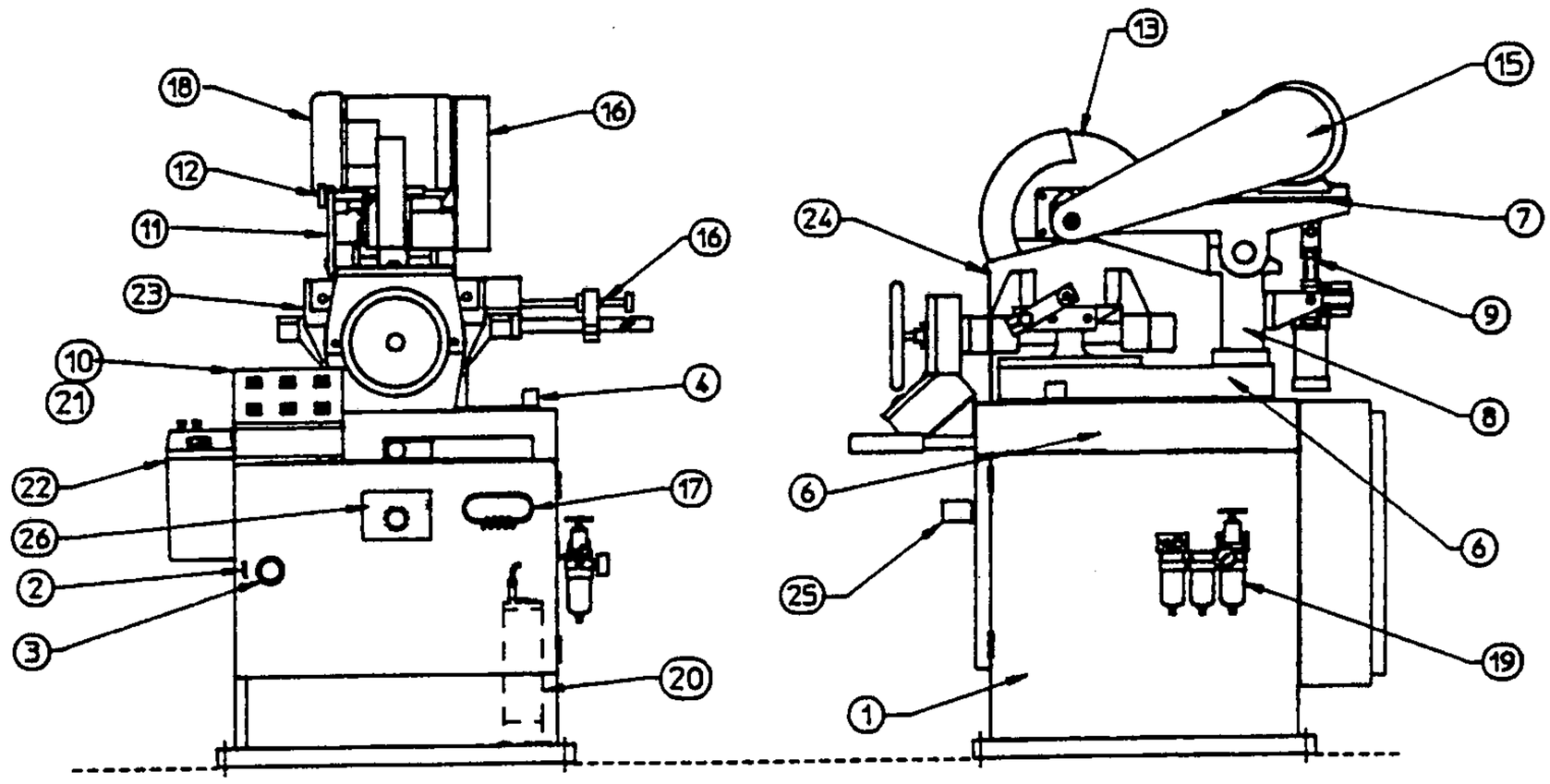
| | | |
|---|---|---|
| 1 | CS-1000 | BASE CABINET |
| 2 | CS-1205 | DOOR LATCH SPRING |
| 3 | CS-1208 | DOOR GROMMET |
| 4 | 8C-212 | 'KALAMAZOO' LOGO |
| 5 | 9A-5040 | MOTOR SWITCH ASSEMBLY (SEE PAGE 8.25) |
| 6 | V20-7300 | SPRAY MIST UNIT- 1 QT. RESERVOIR |
| 7 | CS-2227 | PLASTIC GRIP (CA-350/CA-350PV) |
| 8 | CS-2225 | ARM |
| 9 | CS-2100 | SAW BED |
| 10 | CS-2200 | HEAD ROTATION CASTING |
| 11 | | HEAD ASSEMBLY (SEE FIG. 4.6) |
| 12 | CS-3200 | HEAD FRAME SUPPORT |
| 13 | CS-3582 | HEAD RETURN SPRING |
| 14 | CS-3800 | RETRACTOR BRACKET ASSEMBLY |
| 15 | CS-3810 | RETRACTOR SHAFT ASSEMBLY |
| 16 | CS-3900 | BLADE GUARD ASSEMBLY |
| 17 | | |
| 18 | CS-3910 | BELT GUARD ASSEMBLY |
| 19 | V20-2202 | 3 HP MOTOR, 1750 RPM, 184 FRAME |
| 20 | CS-4013 | FILTER/REGULATOR/LUBRICATOR (PV MODELS) |
| 21 | | VISE ASSEMBLY (SEE FIG. 4.5) |
| 22 | CS-2500 | SPLASH GUARD - MANUAL VISE (2) |
| | CS-2510 | SPLASH GUARD - POWERED VISE (2) |
| 23 | CS-5054-1 | LIMIT SWITCH TRIGGER (CA-350PV) |
| 24 | CS-4020-1 | VISE CLAMP AIR VALVE (CA-350PV) |

# BASE COMPONENTS
# FA-350/FA-350PV



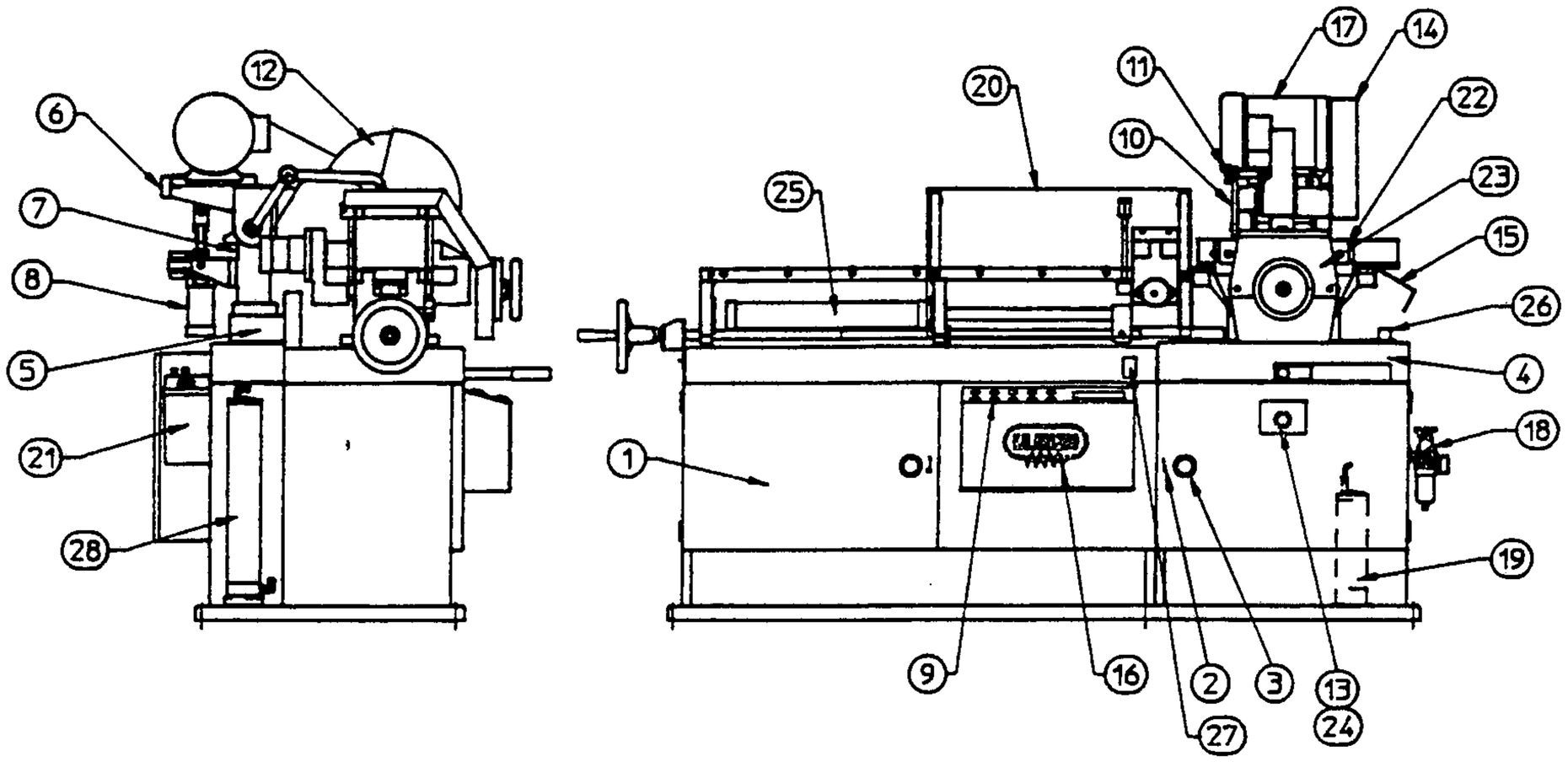

| | | |
|---|---|---|
| 1 | CS-1000 | BASE CABINET |
| 2 | CS-1205 | DOOR LATCH SPRING |
| 3 | CS-1208 | DOOR GROMMET (3) |
| 4 | CS-2710 | ANGLE STOP BLOCK (3) |
| 5 | CS-2100 | SAW BED |
| 6 | CS-2200 | HEAD ROTATION CASTING |
| 7 | | HEAD ASSEMBLY (SEE FIG. 4.6) |
| 8 | CS-3200 | HEAD FRAME SUPPORT |
| 9 | CS-3582 | HEAD RETURN SPRING |
| 10 | CS-3600 | HANDLE SWITCH ASSEMBLY |
| 11 | CS-3800 | RETRACTOR BRACKET ASSEMBLY |
| 12 | CS-3810 | RETRACTOR SHAFT ASSEMBLY |
| 13 | CS-3900 | BLADE GUARD ASSEMBLY |
| 14 | | |
| 15 | CS-3910 | BELT GUARD ASSEMBLY |
| 16 | CS-5000 | SWITCH PANEL ASSEMBLY (SEE FIG. 8.3) |
| 17 | CS-7000 | STOCK STOP ASSEMBLY (SEE FIG. 3.8) |
| 18 | 8C-212 | "KALAMAZOO" LOGO |
| 19 | V20-2202 | 3HP MOTOR, 1750 RPM, 184 FRAME |
| 20 | CS-4013 | FILTER/REGULATOR/LUBRICATOR ASS'Y |
| 21 | V20-7300 | SPRAY MIST UNIT (1 QT RESERVOIR) |
| 22 | CS-PV | VISE ASSEMBLY (SEE FIG. 4.5) |
| 23 | CS-2510 | SPLASH GUARD - POWERED VISE (2) |
| 24 | CS-5054-1 | LIMIT SWITCH TRIGGER |
| 25 | CS-4020-1 | AIR VALVE |

# BASE COMPONENTS
# FA–350SA



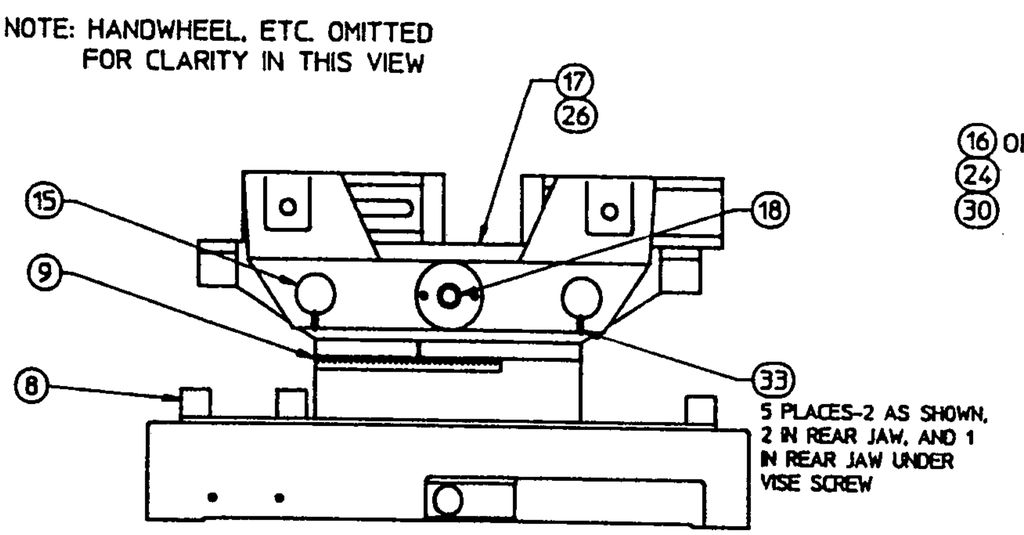

| | | |
|---|---|---|
| 1 | CS-1000 | BASE CABINET |
| 2 | CS-1205 | DOOR LATCH SPRING |
| 3 | CS-1208 | DOOR GROMMET (3) |
| 4 | CS-2710 | ANGLE STOP BLOCK (3) |
| 5 | CS-2100 | SAW BED |
| 6 | CS-2200 | HEAD ROTATION CASTING |
| 7 | | HEAD ASSEMBLY (SEE FIG. 4.6) |
| 8 | CS-3200 | HEAD FRAME SUPPORT |
| 9 | | HEAD LIFT ASSEMBLY (SEE FIG. 4.9) |
| 10 | CS-5080 | CONTROL CONSOLE ASS'Y (SEE FIG. 8.5) |
| 11 | CS-3800 | RETRACTOR BRACKET ASSEMBLY |
| 12 | CS-3810 | RETRACTOR SHAFT ASSEMBLY |
| 13 | CS-3900 | BLADE GUARD ASSEMBLY |
| 14 | | |
| 15 | CS-3910 | BELT GUARD ASSEMBLY |
| 16 | CS-7000 | STOCK STOP ASSEMBLY (OPTION-SEE FIG. 3.8) |
| 17 | 8C-212 | 'KALAMAZOO' LOGO |
| 18 | V20-2202 | 3HP MOTOR, 1750 RPM, 184 FRAME |
| 19 | CS-4013 | FILTER/REGULATOR/LUBRICATOR ASSEMBLY |
| 20 | CS-4003-1 | AIR/OIR RESERVOIR ASS'Y (SEE FIG. 7.1) |
| 21 | CS-5081 | CONTROL CONSOLE BRACKET |
| 22 | CS-9062 | SPRAY MIST UNIT-1 GAL RESERVOIR |
| 23 | CS-PV | VISE ASSEMBLY (SEE FIG. 4.5) |
| 24 | CS-2510 | SPLASH GUARD - POWERED VISE (2) |
| 25 | CS-4017-1 | FEED SPEED VALVE |
| 26 | CS-4042 | FEED SPEED OVERLAY |

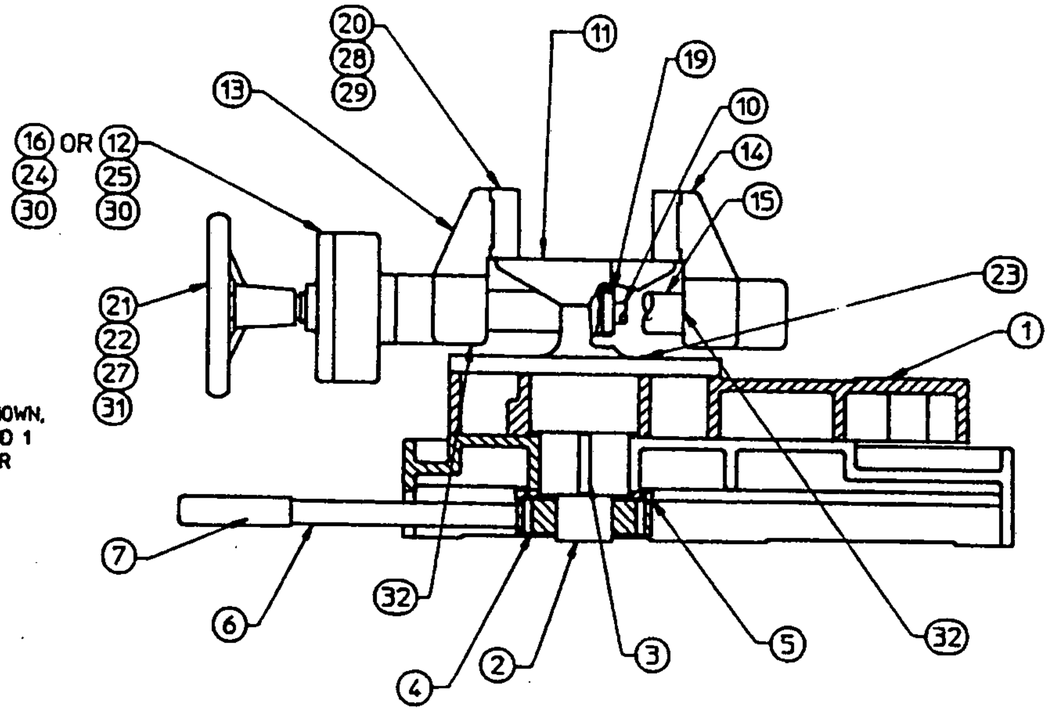
# BASE COMPONENTS
# FA–350A




| | | |
|---|---|---|
| 1 | CS-6700 | BASE CABINET |
| 2 | CS-1205 | DOOR LATCH SPRING (2) |
| 3 | CS-1208 | DOOR GROMMET (4) |
| 4 | CS-2100 | SAW BED |
| 5 | CS-2200 | HEAD ROTATION CASTING |
| 6 | | HEAD ASSEMBLY (SEE FIG. 4.6) |
| 7 | CS-3200 | HEAD FRAME SUPPORT |
| 8 | | POWERED HEAD LIFT PARTS (SEE FIG. 4.9) |
| 9 | CS-5002-1 | CONTROL CONSOLE ASS'Y (SEE FIG. 8.6) |
| 10 | CS-3800 | RETRACTOR BRACKET ASSEMBLY |
| 11 | CS-3810 | RETRACTOR SHAFT ASSEMBLY |
| 12 | CS-3900 | BLADE GUARD ASSEMBLY |
| 13 | CS-4042 | FEED SPEED OVERLAY |
| 14 | CS-3910 | BELT GUARD ASSY. |
| 15 | CS-7045 | DISCHARGE SLIDE |
| 16 | H-15301 | 'KALAMAZOO' LOGO |
| 17 | V20-2202 | 3HP MOTOR, 1750 RPM, 184 FRAME |
| 18 | CS-4013 | FILTER/REGULATOR/LUBRICATOR ASSEMBLY |
| 19 | CS-4003-1 | HEAD LIFT AIR/OIR RESERVOIR ASS'Y (SEE FIG. 7.1) |
| 20 | CS-6770 | BARFEED CARRIAGE COVER |
| 21 | CS-9062 | SPRAY MIST UNIT-1 GAL RESERVOIR |
| 22 | $CS-PV | VISE ASSEMBLY (SEE FIG. 4.5) |
| 23 | CS-2510 | SPLASH GUARD - POWERED VISE (2) |
| 24 | CS-4017-1 | FEED SPEED VALVE |
| 25 | CS-6000 | BARFEED ASSY. (SEE FIG. 3.3) |
| 26 | CS-2710 | ANGLE STOP BLOCK (2) |
| 27 | CS-5046 | LIMIT SWITCH |
| 28 | CS-4060 | CARRIAGE FEED AIR/OIR RESERVOIR ASS'Y (SEE FIG. 7.2) |

# VISE ASSEMBLY
# CA-350/FA-350 SAWS



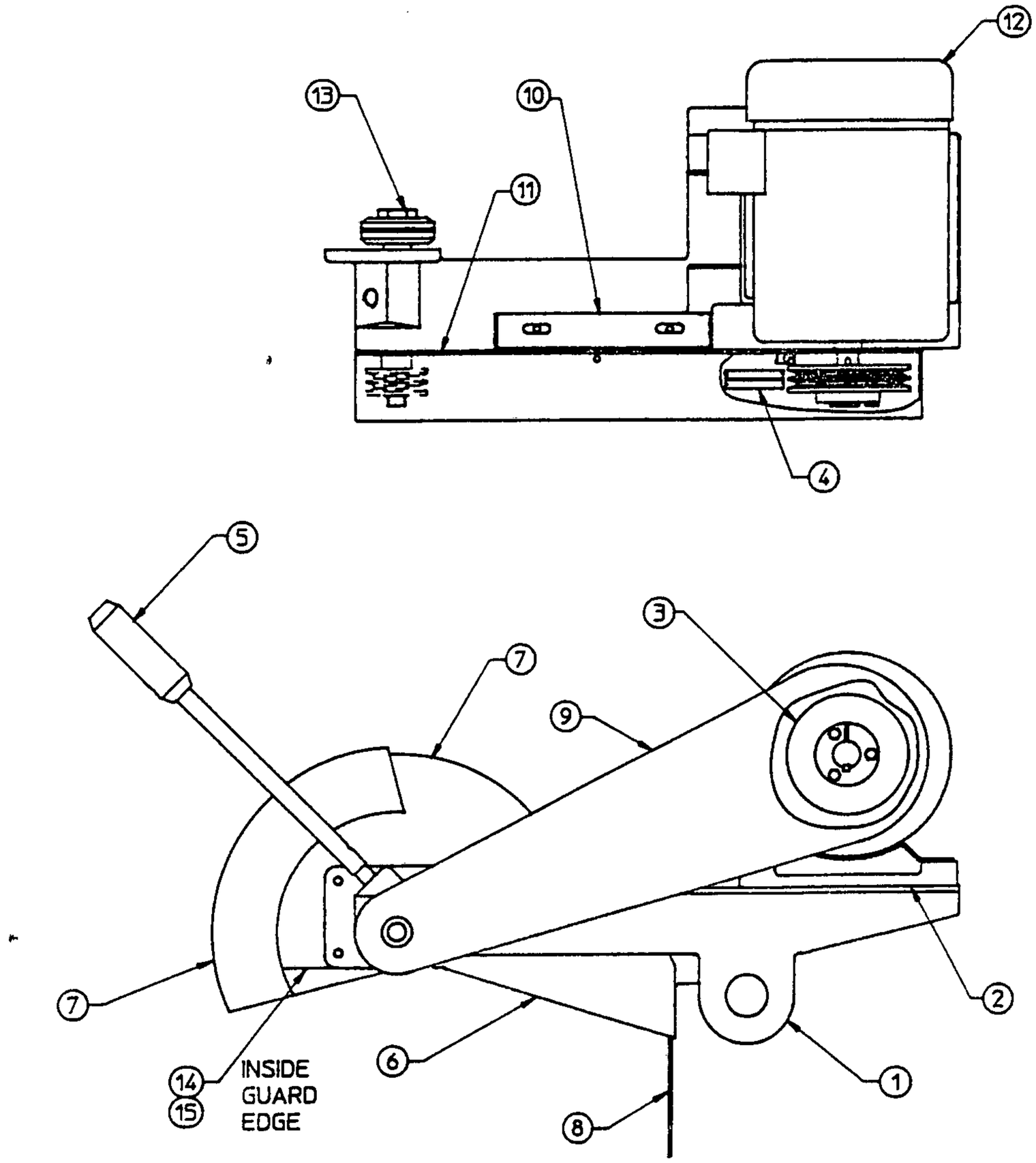




| | | |
|---|---|---|
| 1 | CS-2200 | HEAD ROTATION CASTING |
| 2 | CS-2210 | VISE PIVOT SHAFT |
| 3 | CS-2211 | PIVOT SHAFT KEY |
| 4 | CS-2215 | SHAFT LOCK BASE |
| 5 | CS-2220 | SHAFT LOCK PLATE |
| 6 | CS-2225 | SHAFT LOCK ARM |
| 7 | CS-2227 | PLASTIC GRIP |
| 8 | CS-2710 | ANGLE STOP BLOCK (3) |
| 9 | CS-2205 | ANGLE SCALE |
| 10 | CS-8301 | SCREW COVER (2) |
| 11 | CS-2300 | VISE SUPPORT CASTING |
| 12 | CS-2316 | VISE CYLINDER ASSY (MACHINES W/ POWER VISE) |
| 13 | CS-2320 | FRONT VISE JAW |
| 14 | CS-2325 | REAR VISE JAW |
| 15 | CS-2328 | VISE SHAFT (2) |
| 16 | CS-2330 | FRONT VISE JAW ADAPTER (MACHINES W/ MANUAL VISE) |
| 17 | CS-2450 | VISE SCREW RETAINER |
| 18 | CS-2460 | VISE SCREW ASSEMBLY |
| 19 | CS-2468 | VISE SCREW COLLAR |
| 20 | CS-2470 | WEAR PLATE (4) - ALUMINUM |
| 21 | 9A-11502 | VISE HANDWHEEL |
| 22 | 9A-11504 | HANDWHEEL NUT |
| 23 | H-40331B | FLUSH OILER (2) |
| 24 | CS-8302 | BUSHING |
| 25 | CS-8303 | BUSHING |
| 26 | | 5/8-11 x 4 1/2 SHCS (2) |
| 27 | | 1/2 FLATWASHER |
| 28 | | 5/8-11 x 2 SHCS (4) |
| 29 | | 5/8-11 SQUARE NUT (4) |
| 30 | | 1/4-20 x 3 1/2 SHCS (2) |
| 31 | S-113 | KEY |
| 32 | CS-2467 | VISE SCREW BRUSH (2) |
| 33 | CS-2322 | DRAG SCREW (5) |
| 34 | | 1/4-20 x 1 1/4 SHSS |



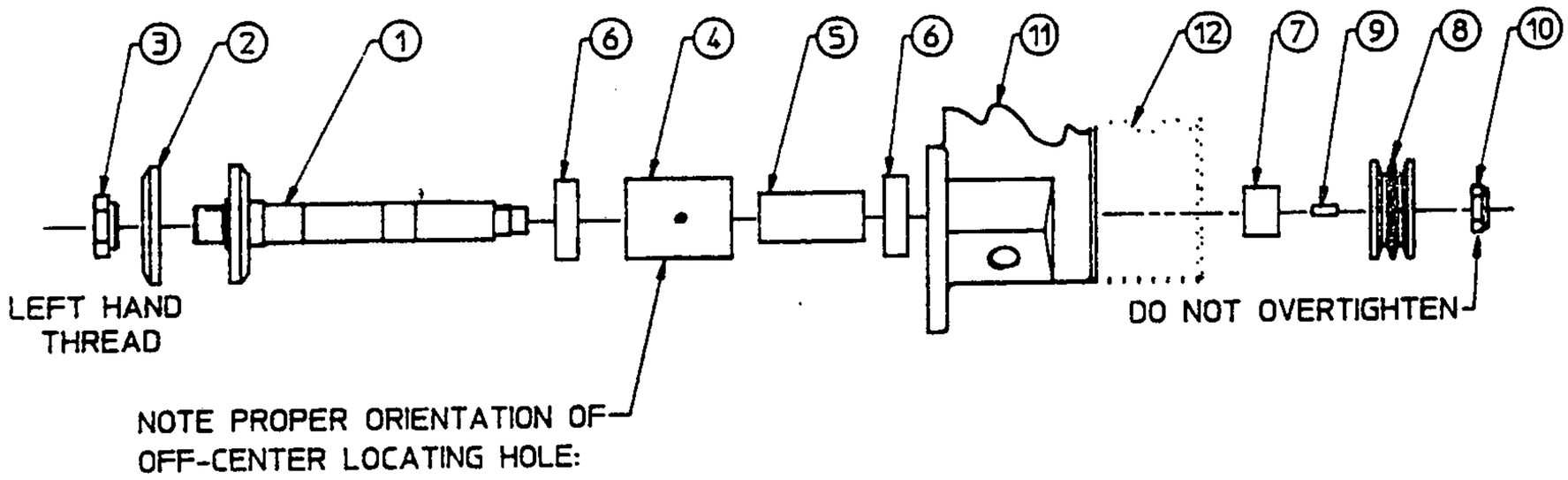
REVISED 6/5/92

# HEAD COMPONENTS
# FA–350 SAWS



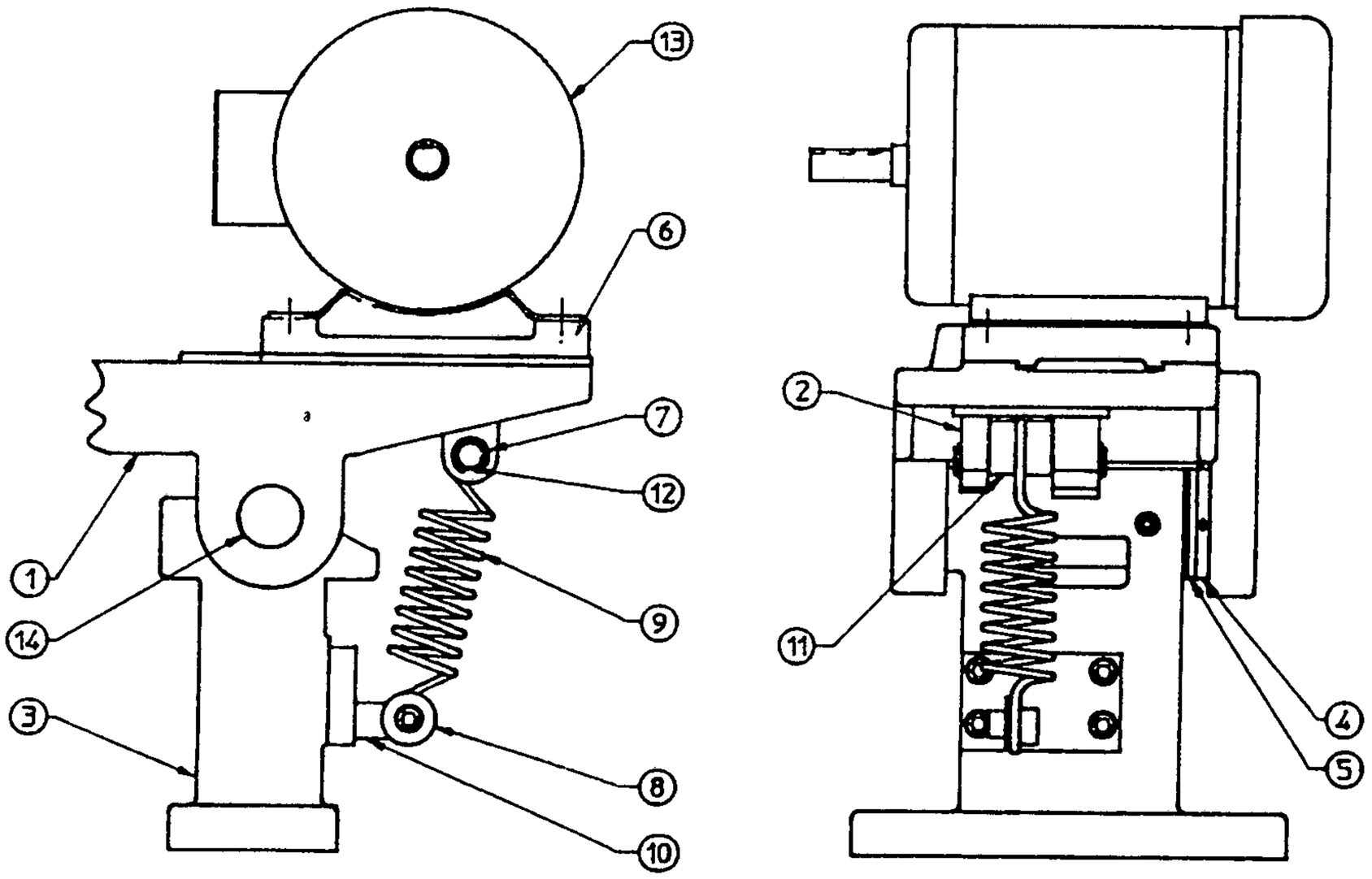

| | | |
|---|---|---|
| 1 | CS-3100 | HEAD FRAME ASSEMBLY |
| 2 | CS-3300 | MOTOR MOUNTING PLATE |
| 3 | CS-3465 | DRIVE PULLEY |
| 4 | CS-3468 | DRIVE BELT: DAYCO #3VX500 (2) |
| 5 | CS-3600 | BLADE SWITCH HANDLE ASSEMBLY (FA-350/FA-350PV ONLY) |
| | CS-2225 | SHAFT LOCK ARM (CA-350/CA-350PV) |
| | CS-2227 | PLASTIC GRIP (CA-350/CA-350PV) |
| 6 | CS-3830 | LOWER BLADE GUARD |
| 7 | CS-3900 | BLADE GUARD ASSEMBLY |
| 8 | CS-3849 | DEFLECTOR FLAP |
| 9 | CS-3910 | BELT GUARD |
| 10 | CS-3920 | BELT GUARD SUPPORT |
| 11 | CS-3930 | BELT GUARD BACK PLATE |
| 12 | V20-2202 | 3 HP MOTOR: BALDOR #M3611 |
| 13 | | SPINDLE ASSEMBLY - SEE FIG 4.7 |
| 14 | CS-3857 | AIR BAFFLE |
| 15 | CS-3857A | AIR BAFFLE BLADE (PLASTIC) |

# SPINDLE ASSY
# FA-350 SAWS



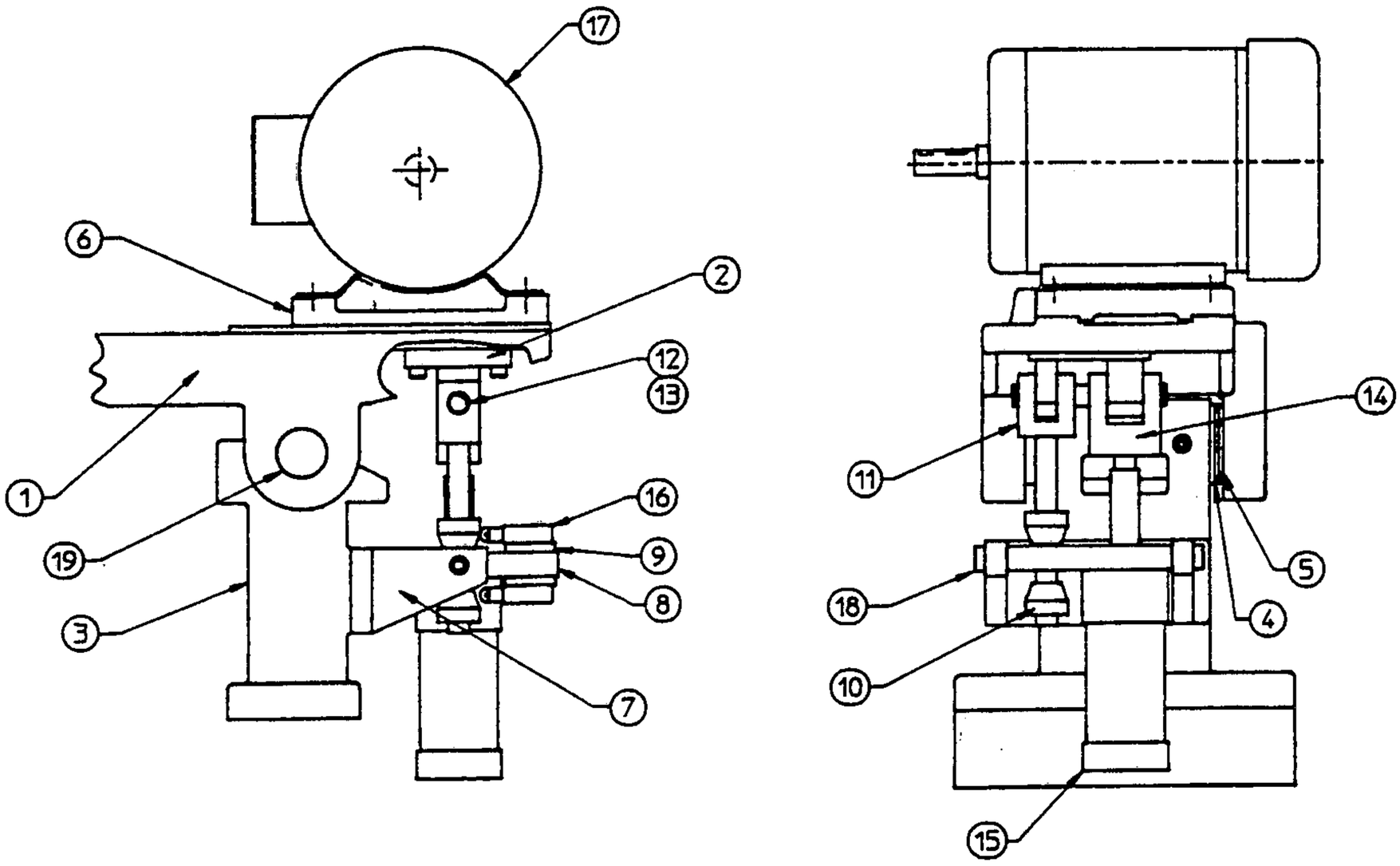

| | | |
|---|---|---|
| | CS-3401 | BLADE SPINDLE SUB-ASSEMBLY<br>(INCLUDES ITEMS 1, 4, 5, AND 6) |
| 1 | CS-3400 | BLADE SPINDLE |
| 2 | CS-3410 | SPINDLE WASHER |
| 3 | CS-3420 | SPINDLE NUT (NOTE: LEFT HAND THREAD) |
| 4 | CS-3430 | OUTER BEARING SPACER |
| 5 | CS-3440 | INNER BEARING SPACER |
| 6 | CS-3445 | BEARING: SKF #62052RS (2) |
| 7 | CS-3450 | PULLEY SPACER |
| 8 | CS-3460 | DRIVEN PULLEY |
| 9 | V20-2142 | KEY: 1/4 SQUARE x 7/8 LONG |
| 10 | | 7/8-9 LOCK NUT |
| 11 | CS-3100 | HEAD FRAME CASTING (REF) |
| 12 | CS-3910 | BELT GUARD (REF) |

# MANUAL HEAD LIFT
# FA–350M



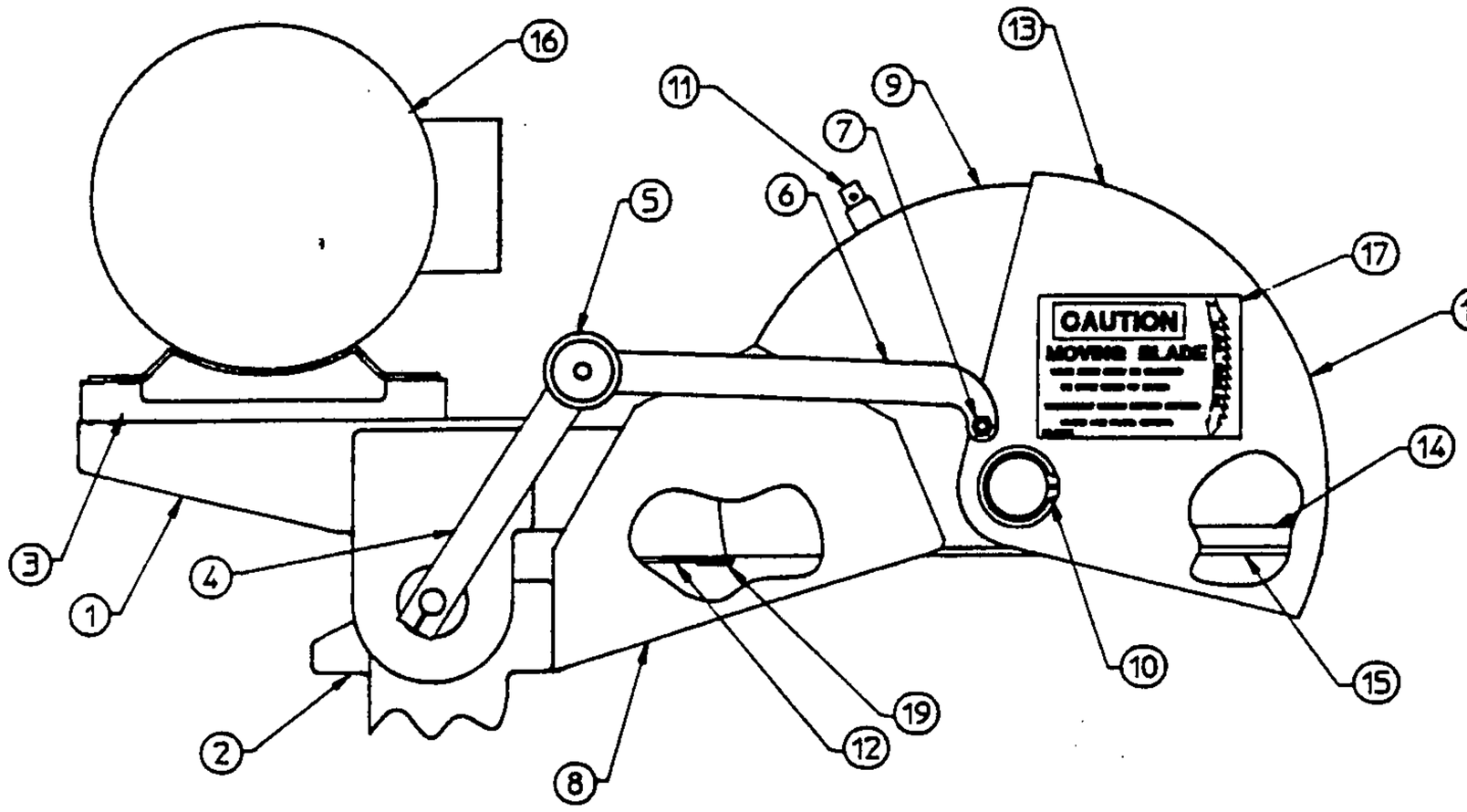

| | | |
|---|---|---|
| 1 | CS-3100 | HEAD FRAME CASTING |
| 2 | CS-3150 | CLEVIS BRACKET |
| 3 | CS-3200 | HEAD SUPPORT CASTING |
| 4 | CS-3260 | ADJUSTING RING COLLAR |
| 5 | CS-3265 | ADJUSTING RING NUT |
| 6 | CS-3300 | MOTOR MOUNTING PLATE |
| 7 | CS-3575 | SNAP RING: TRUARC #X-5133-74 |
| 8 | CS-3585 | SPRING ROLLER |
| 9 | CS-3582 | SPRING: ASSOCIATED #E1500-148-4500M |
| 10 | CS-3590 | ROLLER BRACKET ASSEMBLY |
| 11 | CS-3596 | SPRING SLEEVE |
| 12 | CS-3598 | SPRING PIN |
| 13 | V20-2202 | 3 HP MOTOR |
| 14 | CS-3250 | HEAD PIVOT SHAFT |

# POWERED HEAD LIFT
# FA–350



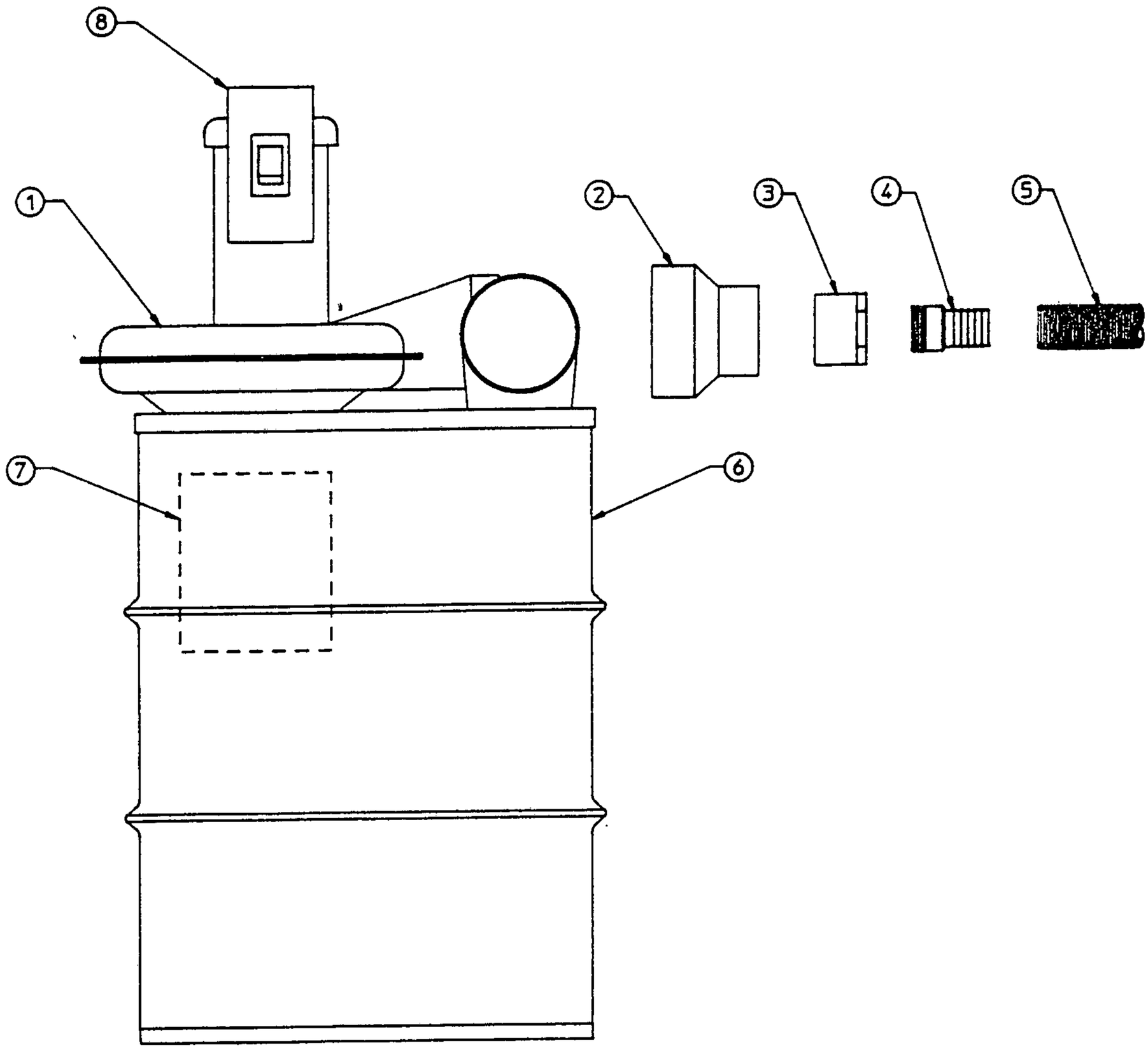

| | | |
|---|---|---|
| 1 | CS-3100 | HEAD FRAME CASTING |
| 2 | CS-3150 | CLEVIS BRACKET |
| 3 | CS-3200 | HEAD SUPPORT CASTING |
| 4 | CS-3260 | ADJUSTING RING COLLAR |
| 5 | CS-3265 | ADJUSTING RING NUT |
| 6 | CS-3300 | MOTOR MOUNTING PLATE |
| 7 | CS-3510 | CYLINDER MOUNTING BRACKET |
| 8 | CS-3520 | CYLINDER MOUNT |
| 9 | CS-3530 | SWITCH MOUNTING PLATE (2) |
| 10 | CS-3550 | STOP COLLAR (2) |
| 11 | CS-3560 | STOP ROD CLEVIS ASSEMBLY |
| 12 | CS-3570 | CLEVIS PIN |
| 13 | CS-3575 | SNAP RING: TRUARC #X-5133-74 |
| 14 | CS-3580 | CYLINDER CLEVIS: PARKER #50942 |
| 15 | CS-4014 | CYLINDER: 2 1/2" BORE x 3 3/4" STROKE |
| 16 | CS-5057 | LIMIT SWITCH: OMRON #D4C-1603 |
| 17 | V20-2202 | 3 HP MOTOR: 1750 RPM, 184 FRAME |
| 18 | | 5/8 x 1 SOCKET HEAD SHOULDER SCREW |
| 19 | CS-3250 | HEAD PIVOT SHAFT |

# BLADE GUARD PARTS
# FA–350



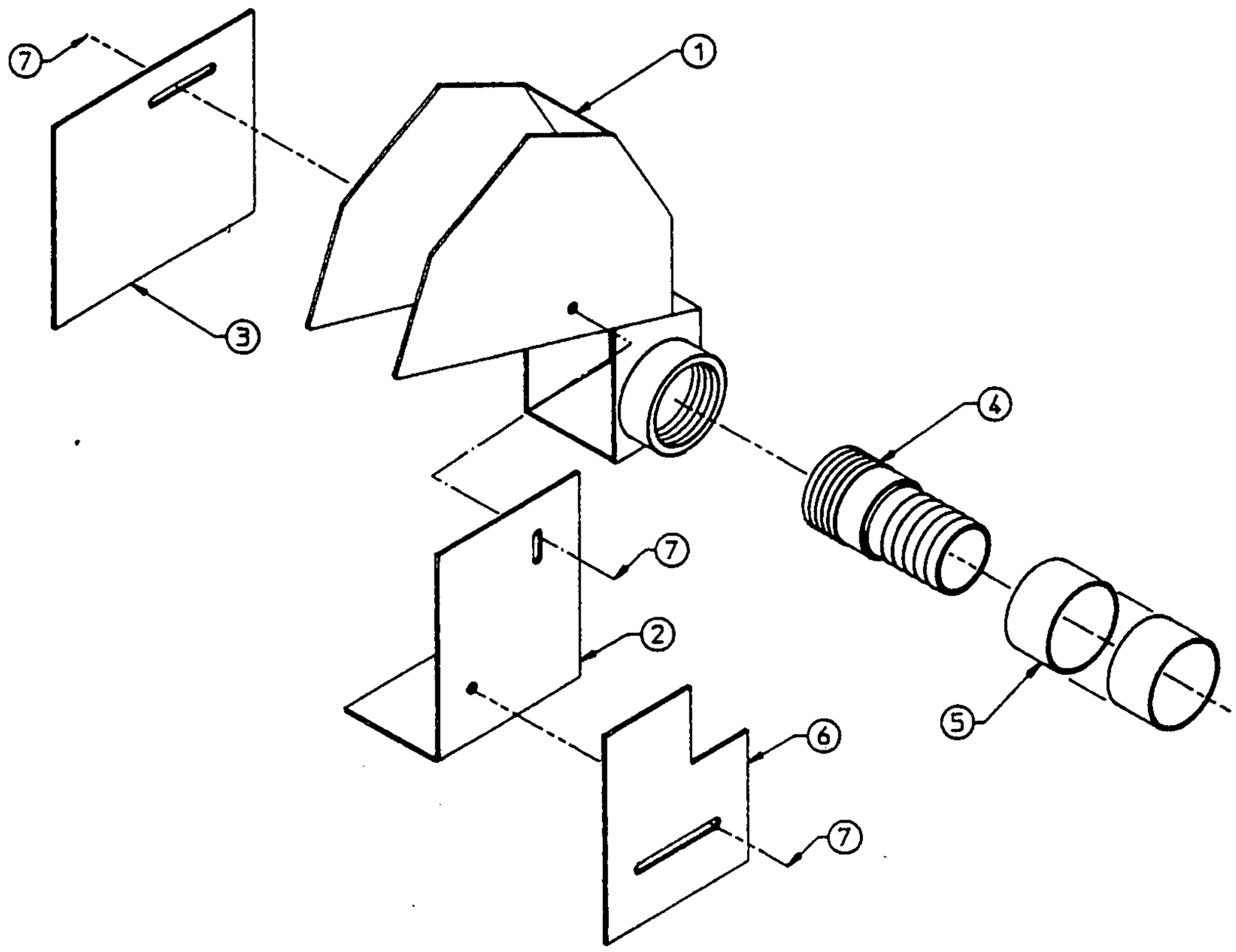

| | | |
|---|---|---|
| 1 | CS-3100 | HEAD FRAME CASTING (REF) |
| 2 | CS-3200 | HEAD SUPPORT CASTING (REF) |
| 3 | CS-3300 | MOTOR MOUNTING PLATE (REF) |
| 4 | CS-3800 | RETRACTOR BRACKET ASSY |
| 5 | CS-3810 | RETRACTOR SHAFT |
| 6 | CS-3820 | RETRACTOR ARM |
| 7 | CS-3825 | 1/4-20 ELASTIC STOP NUT |
| 8 | CS-3830 | LOWER BLADE GUARD |
| 9 | | |
| 10 | CS-3847 | SNAP RING: TRUARC #5100-150 |
| 11 | CS-3848 | COOLANT ADAPTER |
| 12 | CS-3849 | FLAP |
| 13 | CS-3900 | BLADE GUARD ASSEMBLY |
| 14 | CS-3857 | AIR BAFFLE (METAL) |
| 15 | CS-3857A | AIR BAFFLE BLADE (PLASTIC) |
| 16 | V20-2202 | 3 HP MOTOR: 1750 RPM, 184 FRAME (REF) |
| 17 | CS-8222 | BLADE CAUTION DECAL |
| 18 | CS-3839 | WARNING DECAL |
| 19 | CS-3849A | FLAP BRACKET |

# CHIP COLLECTOR PARTS
# CA–350/FA–350 SAWS



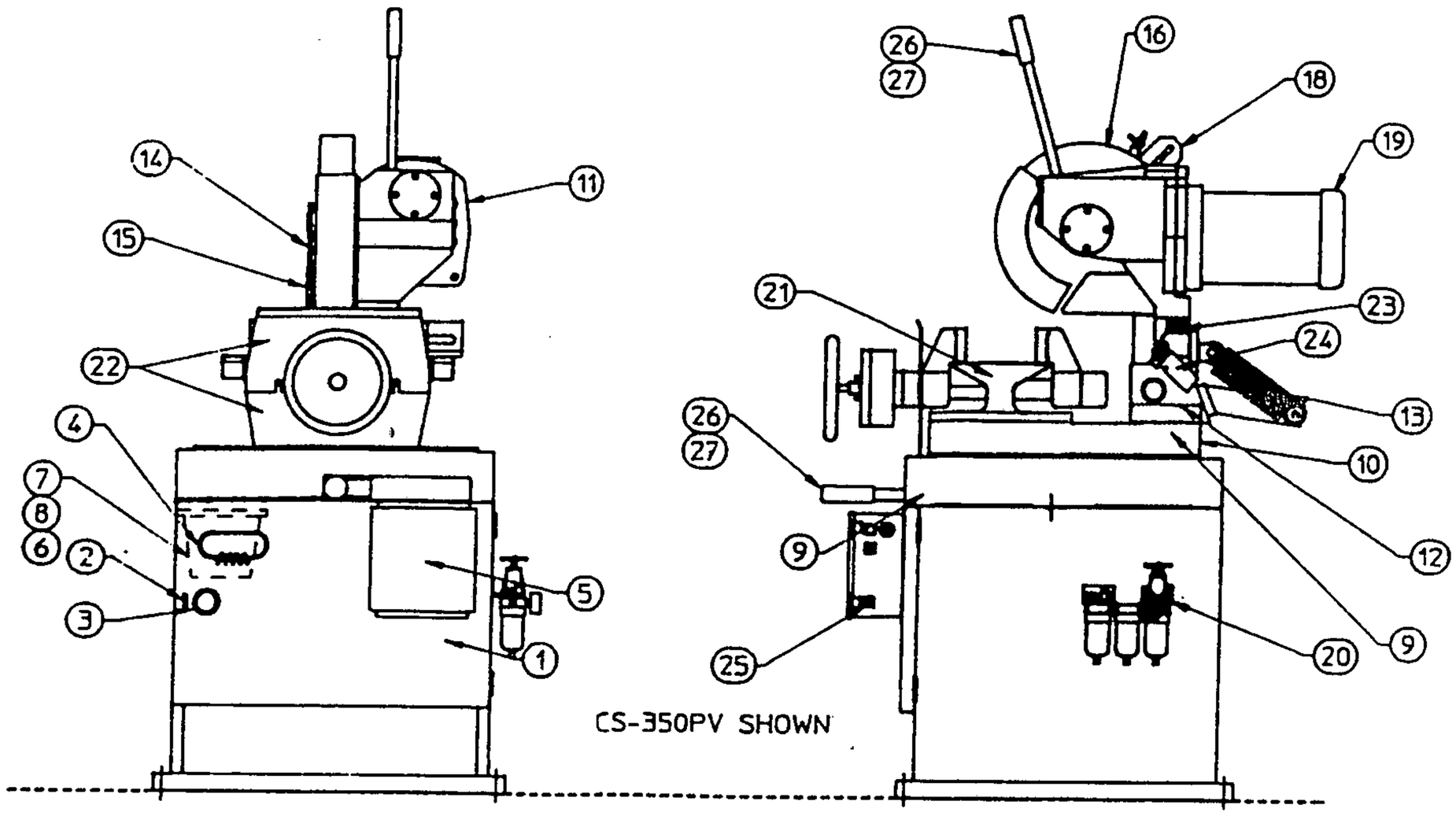

| | | |
|---|---|---|
| 1 | CS-9005 | CHIP COLLECTOR: CINCINNATI #300S |
| 2 | CS-9006 | REDUCER: 6" x 4" |
| 3 | CS-9007 | BUSHING: 4" x 2" |
| 4 | CS-9008 | HOSE NIPPLE: 2"NPT x 2" HOSE |
| 5 | CS-9009 | VACUUM HOSE: 2"ID x 6' LONG |
| 6 | CS-9010 | 55 GAL BARREL |
| 7 | CS-9011 | REPLACEMENT FILTER ELEMENT |
| 8 | 9A-220B | MOTOR SWITCH: 230V/3PH |
| | 9A-220C | MOTOR SWITCH: 460V |
| | 9A-220E | MOTOR SWITCH: 208V |

# CHIP COLLECTOR GUARDS
# FA–350




| | | |
|---|---|---|
| 1 | CS-9002 | CHIP COLLECTOR |
| 2 | CS-9003 | RH SIDE COVER |
| 3 | CS-9004 | LH SIDE COVER |
| 4 | CS-9008 | HOSE NIPPLE: 2"NPT x 2" HOSE |
| 5 | CS-9009 | VACUUM HOSE: 2" ID x 6' LONG |
| 6 | CS-9003A | RH SIDE COVER EXTENSION |
| 7 | | 1/4-20 x 1/2 SHCS (3-NOT SHOWN) |

# BASE COMPONENTS
# CS-350/CS-350PV

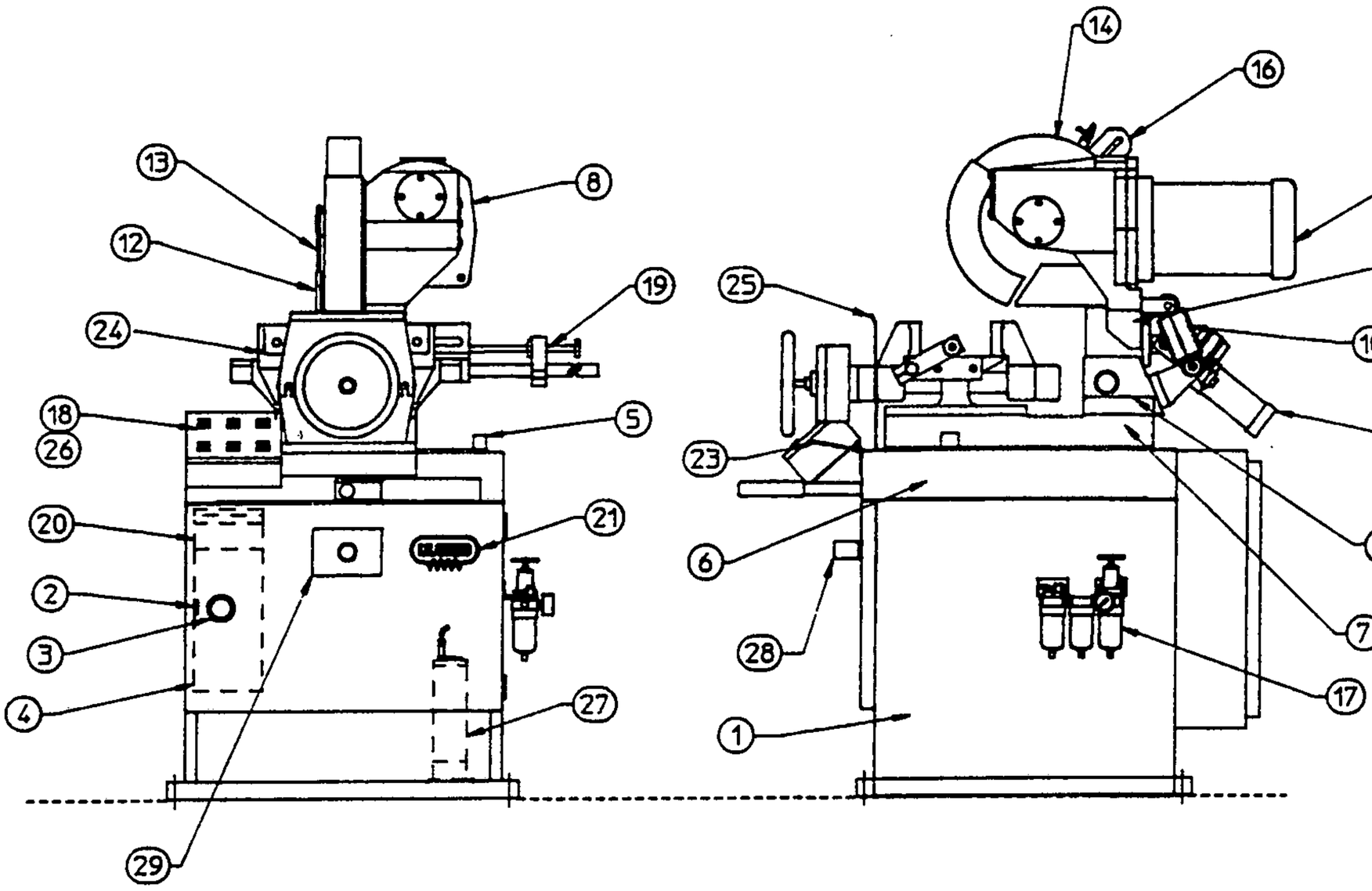



CS-350PV SHOWN

| | | |
|---|---|---|
| 1 | CS-1000 | BASE CABINET |
| 2 | CS-1205 | DOOR LATCH SPRING |
| 3 | CS-1208 | DOOR GROMMET (3) |
| 4 | 8C-212 | 'KALAMAZOO' LOGO |
| 5 | 9A-5040 | BLADE MOTOR SWITCH |
| 6 | CS-1705B | COOLANT TANK SHELF |
| 7 | CS-1730 | COOLANT TANK |
| 8 | CS-1735 | SPLASH GUARD (AROUND COOLANT TANK) |
| 9 | CS-2100 | SAW BED |
| 10 | CS-2200 | HEAD ROTATION CASTING |
| 11 | | HEAD ASSEMBLY (SEE FIGS. 5.11 AND 5.12) |
| 12 | CS-3210 | HEAD FRAME SUPPORT |
| 13 | CS-8201 | HEAD RETURN SPRING (2) |
| 14 | CS-3820 | RETRACTOR ARM |
| 15 | CS-3822 | RETRACTOR EXTENSION |
| 16 | CS-3905 | BLADE GUARD ASSEMBLY |
| 17 | | |
| 18 | CS-8400-A | BLADE BRUSH ASSEMBLY (SEE FIG. 5.8) |
| 19 | CS-8205A | 3/1.5 HP MOTOR, 208/230V |
| | CS-8205B | 3/1.5 HP MOTOR, 460V |
| 20 | CS-4013 | FILTER/REGULATOR/LUBRICATOR (PV MODELS) |
| 21 | | VISE ASSEMBLY (SEE FIG. 5.5) |
| 22 | CS-2500 | SPLASH GUARD - MANUAL VISE (2) |
| | CS-2510 | SPLASH GUARD - POWERED VISE (2) |
| 23 | CS-5054-1 | LIMIT SWITCH TRIGGER |
| 24 | CS-4020-1 | VISE CLAMP AIR VALVE |
| 25 | CS-5064-1 | MOTOR SPEED SWITCH (COMPLETE) |
| | CS-5064-1A | SPEED SWITCH OVERLAY |
| | CS-5064-1B | SPEED SWITCH OPERATOR |
| | CS-5064-1C | SPEED SWITCH CONTACT BLOCK |
| 26 | CS-2227 | PLASTIC GRIP |
| 27 | CS-2225 | ARM |

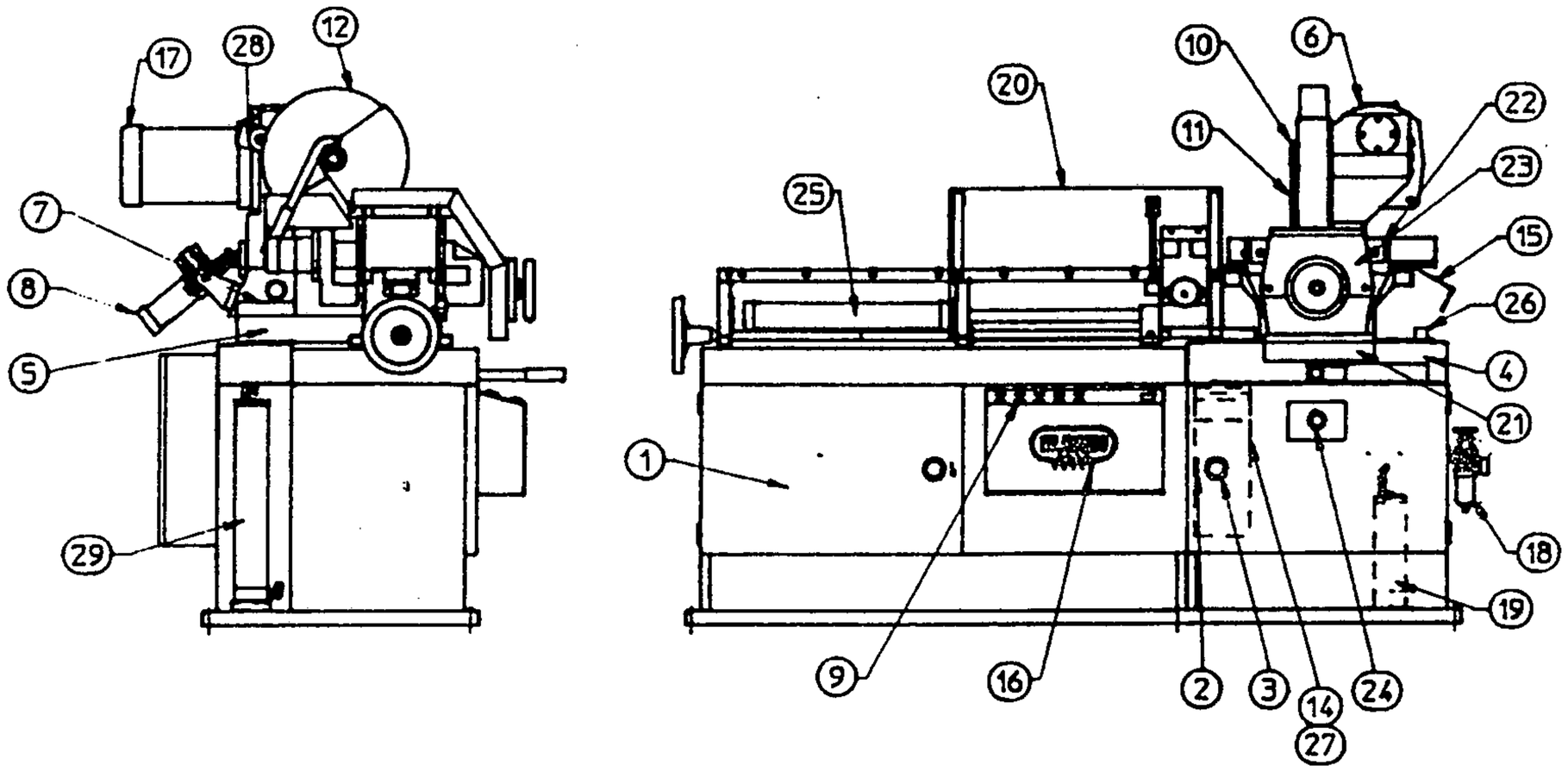
REVISED 6/5/92

# BASE COMPONENTS
# FS–350SA



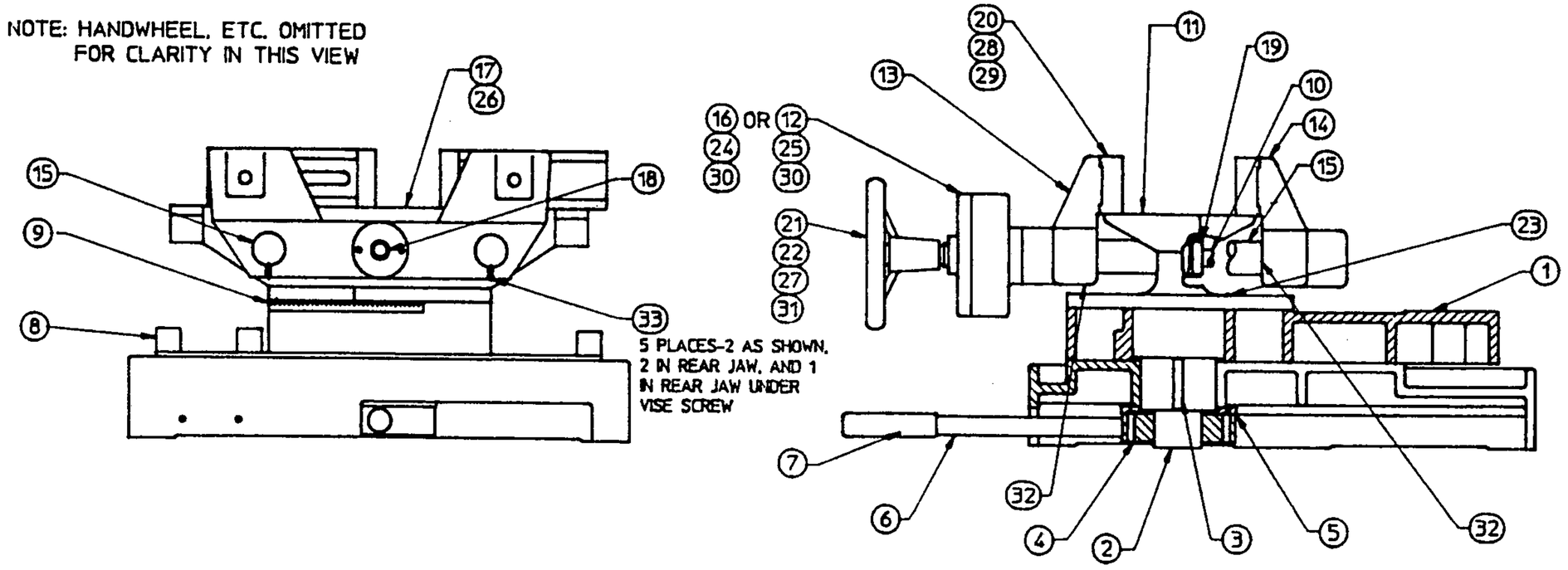

| | | |
|---|---|---|
| 1 | CS-1000 | BASE CABINET |
| 2 | CS-1205 | DOOR LATCH SPRING |
| 3 | CS-1208 | DOOR GROMMET (3) |
| 4 | CS-1300S | COOLANT TANK ASSEMBLY (SEE FIG. 5.6) |
| 5 | CS-2710 | ANGLE STOP BLOCK (3) |
| 6 | CS-2100 | SAW BED |
| 7 | CS-2200 | HEAD ROTATION CASTING |
| 8 | | HEAD ASSEMBLY (SEE FIG. 5.11 AND 5.12) |
| 9 | CS-3210 | HEAD FRAME SUPPORT |
| 10 | CS-8201 | HEAD RETURN SPRING |
| 11 | | HEAD LIFT ASSY. (SEE FIG. 5.10) |
| 12 | CS-3822 | RETRACTOR EXTENSION |
| 13 | CS-3820 | RETRACTOR ARM |
| 14 | CS-8159 | BLADE GUARD ASSEMBLY |
| 15 | | |
| 16 | CS-8400-A | BLADE BRUSH ASSEMBLY (SEE FIG. 5.8) |
| 17 | CS-4013 | FILTER/REGULATOR/LUBRICATOR ASSY. |
| 18 | CS-5080 | CONTROL CONSOLE ASSEMBLY (SEE FIG. 8.5) |
| 19 | CS-7000 | STOCK STOP ASSEMBLY (OPTION:SEE FIG. 3.8) |
| 20 | C-16 | CHIP PAN |
| 21 | 8C-212 | 'KALAMAZOO' LOGO |
| 22 | CS-8205A | 3/1.5 HP MOTOR, 1750/825 RPM, 208/230V |
| | CS-8205B | 3/1.5 HP MOTOR, 1750/825 RPM, 460V |
| 23 | CS-2517 | DRIP GUARD |
| 24 | CS-PVS | VISE ASSEMBLY (SEE FIG. 5.5) |
| 25 | CS-2510 | SPLASH GUARD - POWER VISE (2) |
| 26 | CS-5081 | CONTROL CONSOLE BRACKET |
| 27 | CS-4003-1 | AIR/OIL RESERVIOR ASSY.(SEE FIG. 7.1) |
| 28 | CS-4017-1 | FEED SPEED VALVE |
| 29 | CS-4042 | FEED SPEED OVERLAY |

# BASE COMPONENTS
# FS–350A




| | | |
|---|---|---|
| 1 | CS-6700 | BASE CABINET |
| 2 | CS-1205 | DOOR LATCH SPRING (2) |
| 3 | CS-1208 | DOOR GROMMET (4) |
| 4 | CS-2100 | SAW BED |
| 5 | CS-2200 | HEAD ROTATION CASTING |
| 6 | | HEAD ASSEMBLY (SEE FIG. 5.11 AND 5.12) |
| 7 | CS-3210 | HEAD FRAME SUPPORT |
| 8 | | HEAD LIFT ASSEMBLY (SEE FIG. 5.10) |
| 9 | CS-5002-1 | CONTROL CONSOLE ASS'Y (SEE FIG. 8.6) |
| 10 | CS-3820 | RETRACTOR ARM |
| 11 | CS-3822 | RETRACTOR EXTENSION |
| 12 | CS-3905 | BLADE GUARD ASSEMBLY |
| 13 | | |
| 14 | C-16 | CHIP PAN |
| 15 | CS-7045 | DISCHARGE SLIDE |
| 16 | H-15301 | *KALAMAZOO* LOGO |
| 17 | CS-8205A | 3/1.5 HP MOTOR, 1750/825 RPM, 208/230V |
| | CS-8205B | 3/1.5 HP MOTOR, 1750/825 RPM, 460V |
| 18 | CS-4013-1 | FILTER/REGULATOR/LUBRICATOR ASSEMBLY |
| 19 | | HEAD AIR/OIR RESERVOIR ASS'Y (SEE FIG. 7.1) |
| 20 | CS-6770 | BARFEED CARRIAGE COVER |
| 21 | CS-2517 | DRIP GUARD |
| 22 | CS-PVS | VISE ASSEMBLY (SEE FIG. 5.5) |
| 23 | CS-2510 | SPLASH GUARD - POWERED VISE (2) |
| 24 | CS-4017-1 | FEED SPEED VALVE |
| 25 | CS-6000 | BARFEED ASSY. (SEE FIG. 3.3) |
| 26 | CS-2710 | ANGLE STOP BLOCK (2) |
| 27 | CS-1300S | COOLANT TANK ASSY. (SEE FIG. 5.6) |
| 28 | CS-8400A | BLADE BRUSH ASSY. (SEE FIG. 5.8) |
| 29 | CS-4060 | CARRIAGE AIR/OIR RESERVOIR ASS'Y (SEE FIG. 7.2) |

# BED & VISE ASSEMBLY
# CS-350/FS-350 SAWS

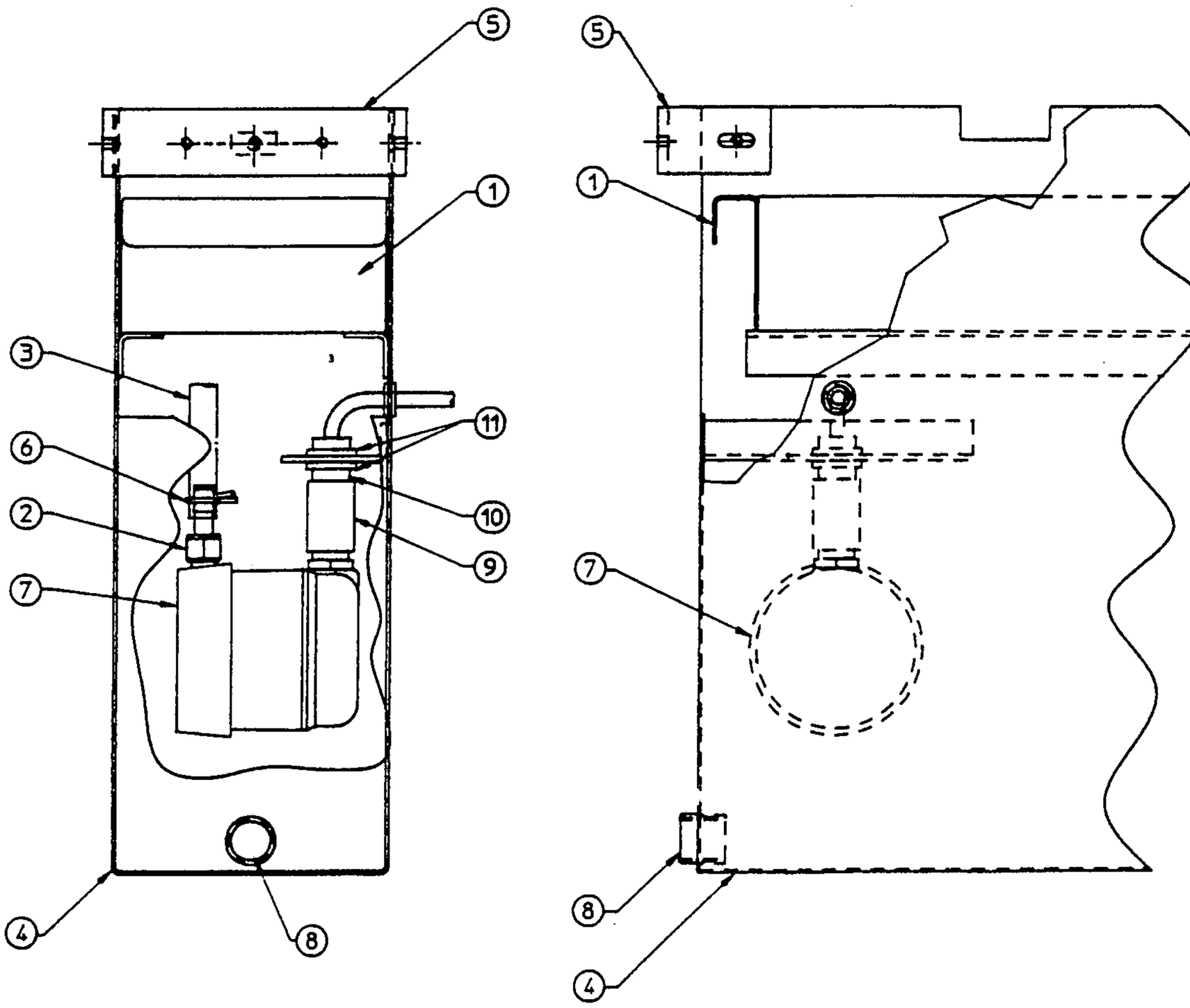



| | | |
|---|---|---|
| 1 | CS-2200 | HEAD ROTATION CASTING |
| 2 | CS-2210 | VISE PIVOT SHAFT |
| 3 | CS-2211 | PIVOT SHAFT KEY |
| 4 | CS-2215 | SHAFT LOCK BASE |
| 5 | CS-2220 | SHAFT LOCK PLATE |
| 6 | CS-2225 | SHAFT LOCK ARM |
| 7 | CS-2227 | PLASTIC GRIP |
| 8 | CS-2710 | ANGLE STOP BLOCK (3) |
| 9 | CS-2205 | ANGLE SCALE |
| 10 | CS-8301 | SCREW COVER (2) |
| 11 | CS-2300 | VISE SUPPORT CASTING |
| 12 | CS-2316 | VISE CYLINDER ASSY (MACHINES W/ POWER VISE) |
| 13 | CS-2320 | FRONT VISE JAW |
| 14 | CS-2325 | REAR VISE JAW |
| 15 | CS-2328 | VISE SHAFT (2) |
| 16 | CS-2330 | FRONT VISE JAW ADAPTER (MACHINES W/ MANUAL VISE) |
| 17 | CS-2450S | VISE SCREW RETAINER |
| 18 | CS-2460 | VISE SCREW ASSEMBLY |
| 19 | CS-2468 | VISE SCREW COLLAR |
| 20 | CS-2470S | WEAR PLATE (4) |
| 21 | 9A-11502 | VISE HANDWHEEL (POWER VISE) |
| | CS-8500 | VISE HANDLE (MANUAL VISE) |
| 22 | 9A-11504 | HANDWHEEL NUT |
| 23 | H-40331B | FLUSH OILER (2) |
| 24 | CS-8302 | BUSHING |
| 25 | CS-8303 | BUSHING |
| 26 | | 5/8-11 x 4 1/2 SHCS (2) |
| 27 | | 1/2 FLATWASHER |
| 28 | | 5/8-11 x 2 SHCS (4) |
| 29 | | 5/8-11 SQUARE NUT (4) |
| 30 | | 1/4-20 x 3 1/2 SHCS (2) |
| 31 | S-113 | KEY |
| 32 | CS-2467 | VISE SCREW BRUSH (2) |
| 33 | CS-2322 | DRAG SCREW (5) |
| 34 | | 1/4-20 x 1 1/4 SHSS |



REVISED 6/5/92

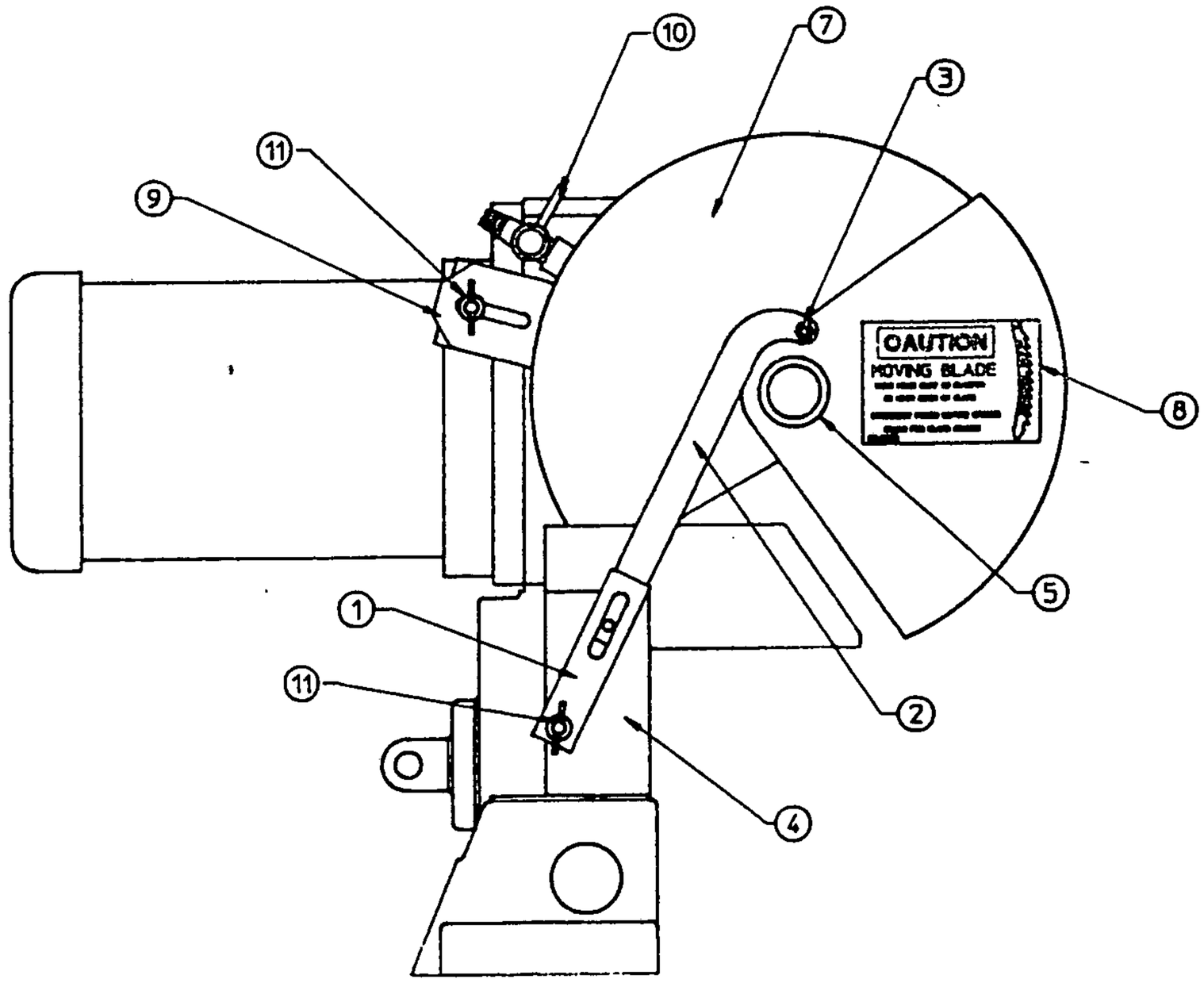
# COOLANT TANK ASSEMBLY
# CIRCULAR SAWS




| | | |
|---|---|---|
| 1 | C-16 | CHIP PAN |
| 2 | C-49 | 1/4 NPTF TO 3/8 HOSE FITTING |
| 3 | C-855 | 3/8 ID HOSE x 6' LONG |
| 4 | CS-1300 | COOLANT TANK |
| 5 | CS-1308 | COOLANT TANK SUPPORT |
| 6 | H3-3005 | 9/16 WIRE HOSE CLAMP (2) |
| 7 | JIC-431 | COOLANT PUMP: LITTLE GIANT #1-YS (W/OUT SWITCH) |
| 8 | | 1/2 NPT PLUG |
| 9 | | 1/2 NPT PIPE COUPLING |
| 10 | | 1/2 NPT x 1 1/2 NIPPLE |
| 11 | | 1/2" CONDUIT NUT (2) |

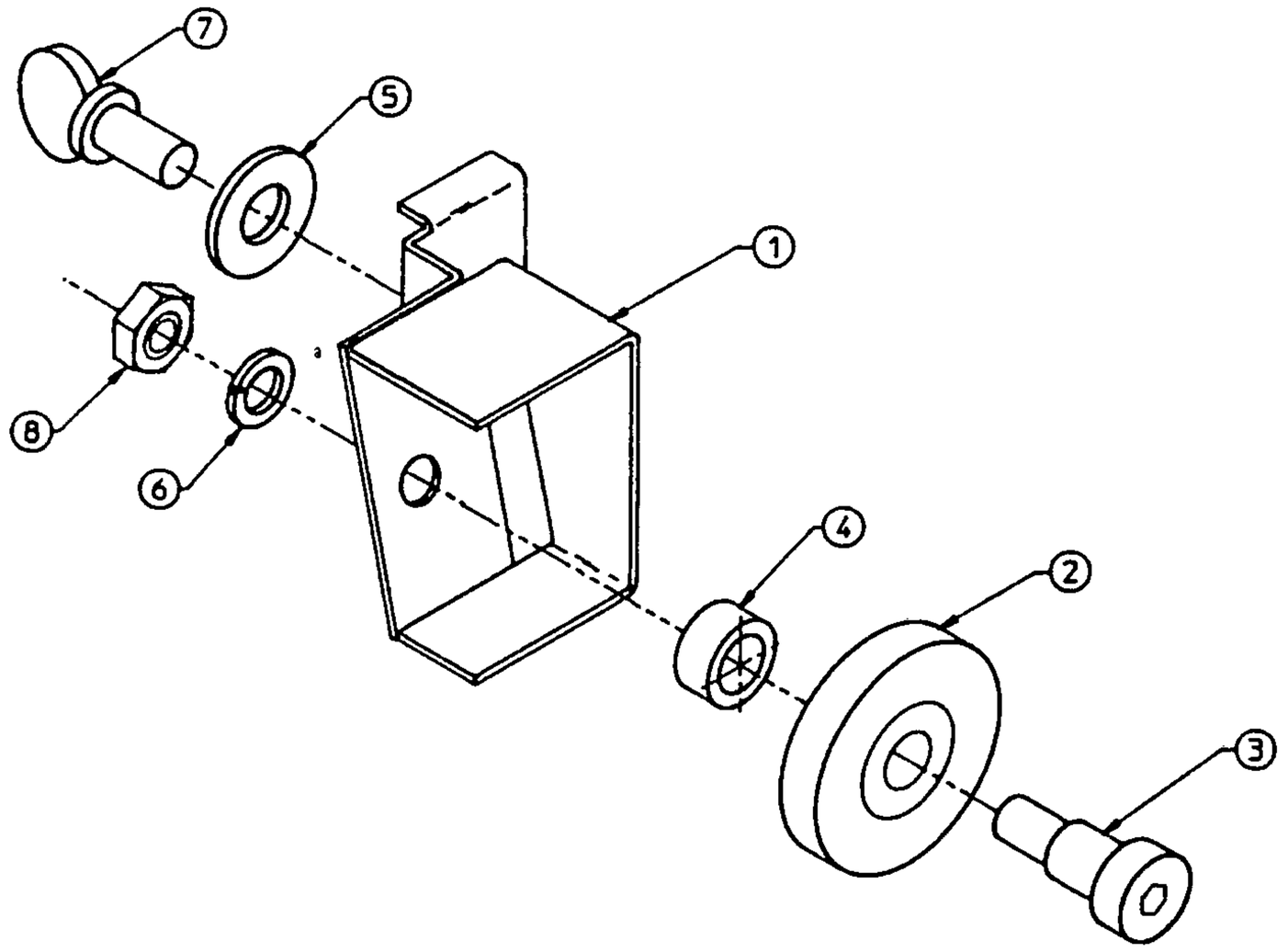
NOTE: UNITS WITH A FLUSHING HOSE USE
PUMP P/N H-106 IN PLACE OF P/N JIC-431

# BLADE GUARD PARTS
# CS–350/FS–350



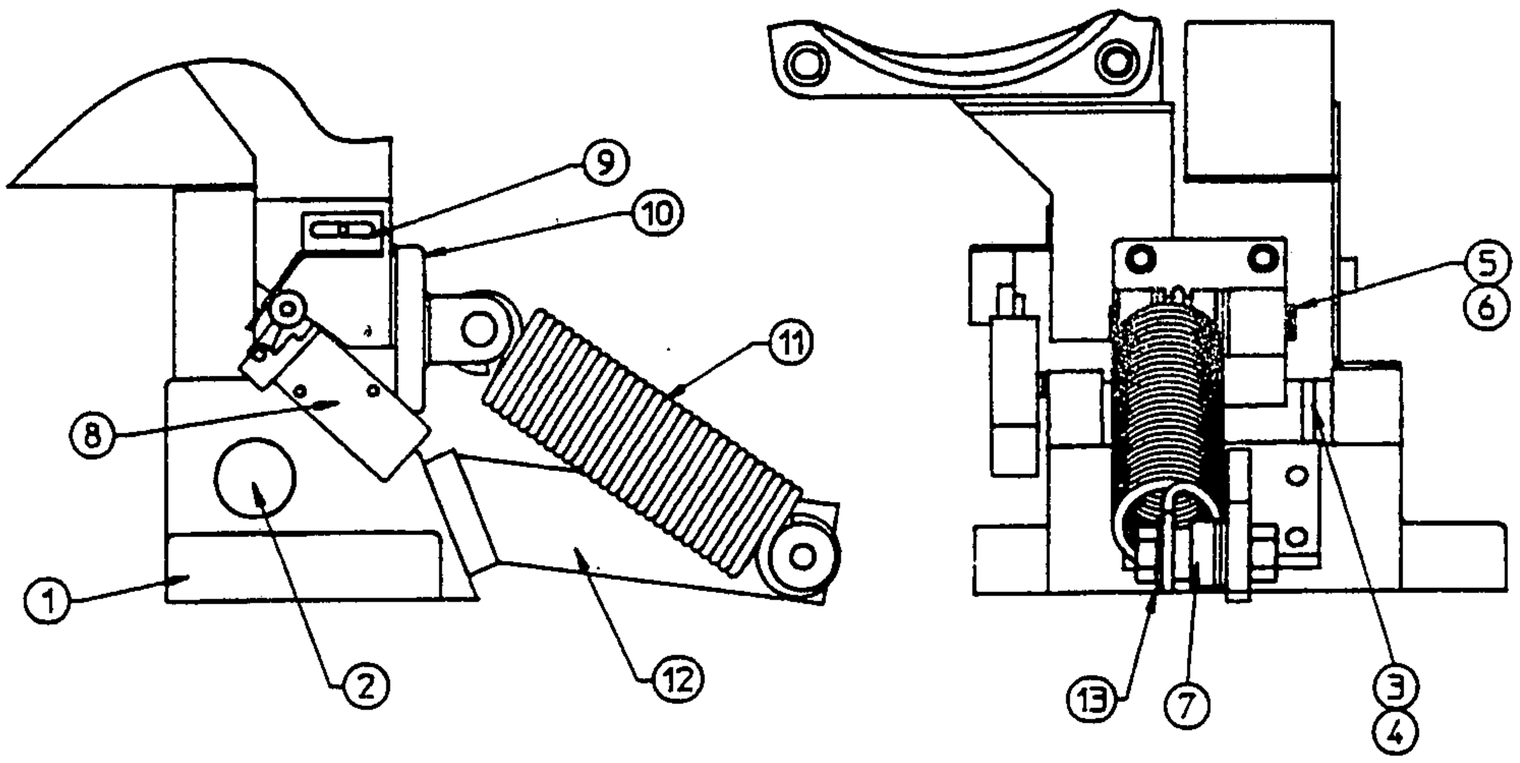

| | | |
|---|---|---|
| 1 | CS-3822 | RETRACTOR EXTENSION |
| 2 | CS-3820 | RETRACTOR ARM |
| 3 | CS-3825 | 1/4-20 ELASTIC STOP NUT |
| 4 | CS-8620 | LOWER BLADE GUARD |
| 5 | CS-3847 | SNAP RING: TRUARC #5100-0150 |
| 6 | | |
| 7 | CS-3905 | BLADE GUARD ASSEMBLY |
| 8 | CS-8222 | BLADE CAUTION DECAL |
| 9 | CS-8400-A | BLADE BRUSH ASSEMBLY (SEE FIG. 5.8) |
| 10 | C-12 | COOLANT VALVE |
| 11 | | 3/8-16 THUMB SCREW (2) |

# BLADE BRUSH ASSEMBLY
# CS–350/FS–350 SAWS



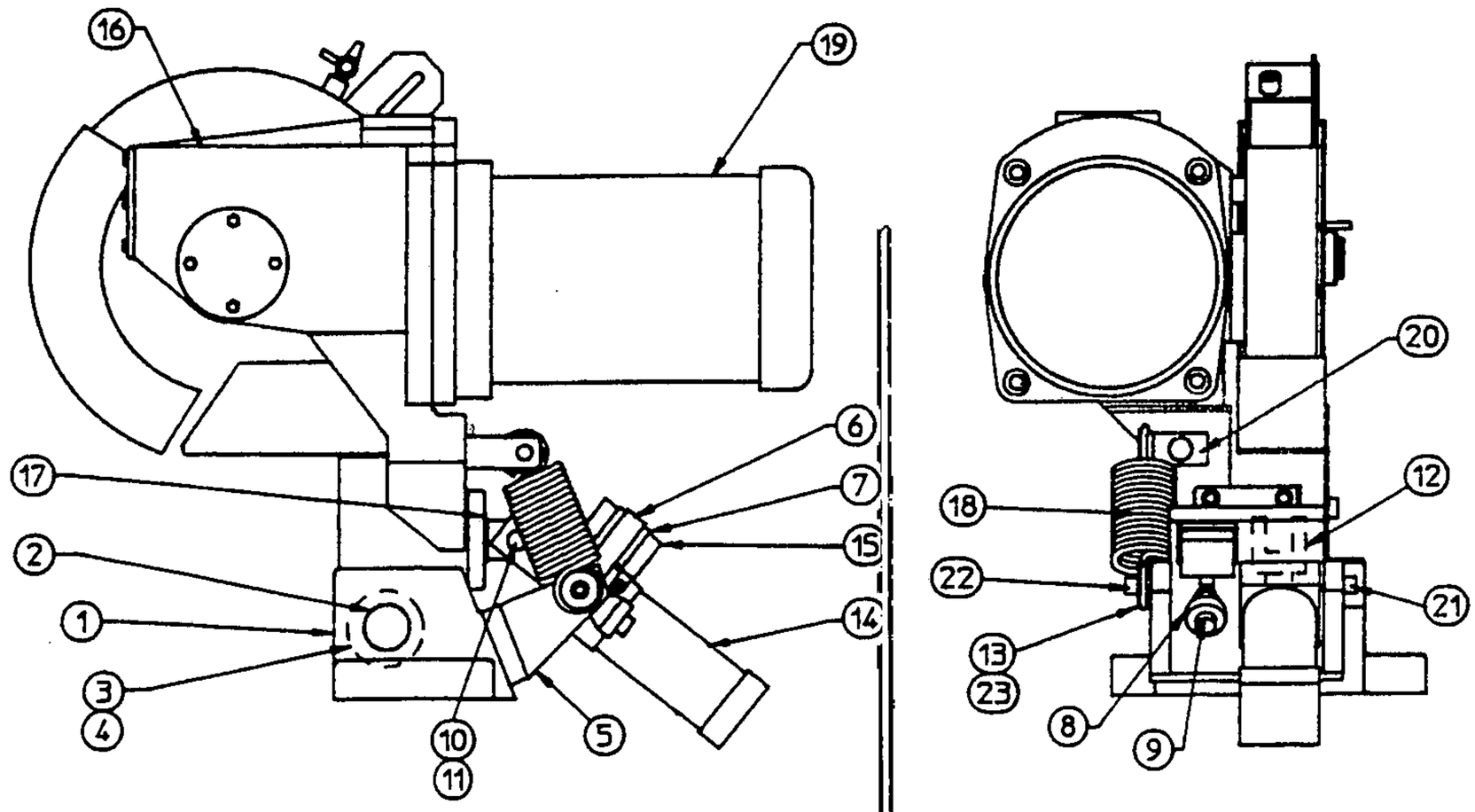

| | | |
|---|---|---|
| 1 | CS-8400 | BLADE BRUSH BRACKET |
| 2 | SP-47 | BLADE CLEANING BRUSH |
| 3 | 9A-273 | 1/2 DIA x 5/8 LG. SOCKET HEAD SHOULDER SCREW |
| 4 | 9A-272 | BLADE BRUSH SPACER |
| 5 | | 3/8 FLAT WASHER |
| 6 | | 3/8 LOCK WASHER |
| 7 | | 3/8-16UNC x 3/4 WINGHEAD SHOULDER THUMB SCREW |
| 8 | | 3/8-16 UNC HEX NUT |

# HEAD FRAME PARTS
# CS–350 / CS–350PV
# FS–350 / FS–350PV



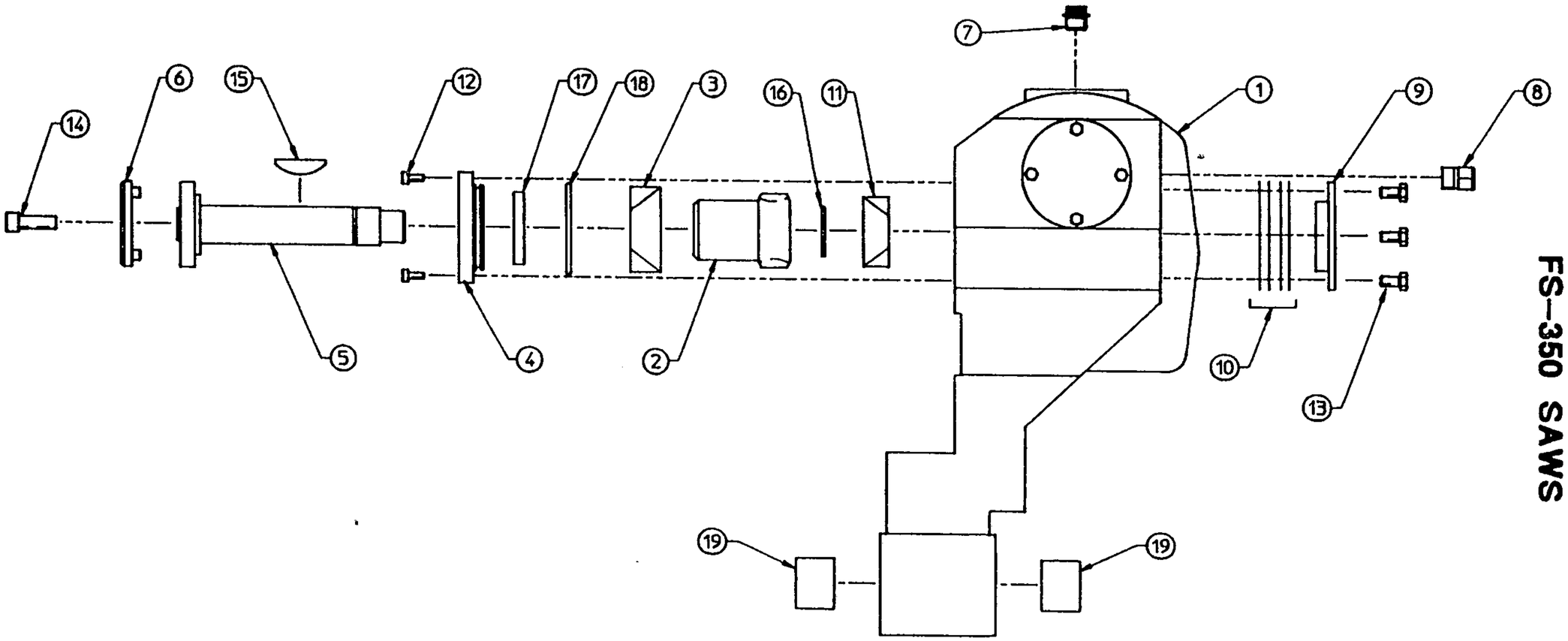

| | | |
|---|---|---|
| 1 | CS-3210 | HEAD SUPPORT CASTING |
| 2 | CS-8610 | PIVOT SHAFT |
| 3 | CS-3260 | ADJUSTING RING COLLAR |
| 4 | CS-3265 | ADJUSTING RING NUT |
| 5 | CS-3598 | SPRING PIN |
| 6 | CS-3575 | SNAP RING: TRUARC #X-5133-74 (2) |
| 7 | CS-3596 | SPRING SLEEVE (2) |
| 8 | CS-4020-1 | AIR VALVE (CS-350PV/FS-350PV ONLY) |
| 9 | CS-5054-1 | LIMIT SWITCH TRIGGER (CS-350PV/FS-350PV ONLY) |
| 10 | CS-3150 | CLEVIS BRACKET |
| 11 | CS-8201 | HEAD RETURN SPRING |
| 12 | CS-8202-1 | SPRING BRACKET |
| 13 | | 3/4 SAE FLAT WASHER (7) |

# POWERED HEAD PARTS
# FS-350SA/FS-350A



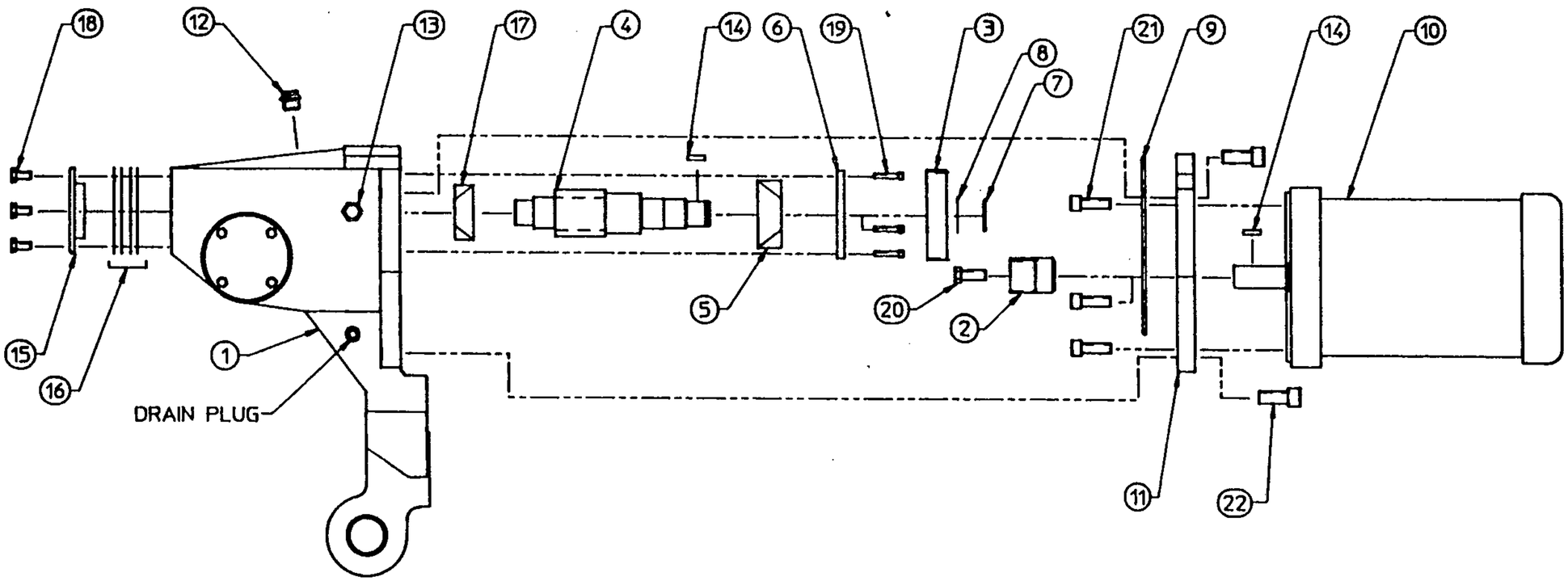

| | | |
|---|---|---|
| 1 | CS-3210 | HEAD SUPPORT CASTING |
| 2 | CS-8610 | PIVOT SHAFT |
| 3 | CS-3260 | ADJUSTING RING COLLAR |
| 4 | CS-3265 | ADJUSTING RING NUT |
| 5 | CS-3510 | CYLINDER MOUNT BRACKET |
| 6 | CS-3520 | CYLINDER MOUNT |
| 7 | CS-3530 | SWITCH MOUNTING PLATE (2) |
| 8 | CS-3550 | STOP COLLAR (2) |
| 9 | CS-3560 | STOP ROD CLEVIS ASSEMBLY |
| 10 | CS-3570 | CLEVIS PIN |
| 11 | CS-3575 | SNAP RING: TRUARC #X-5133-74 |
| 12 | CS-3580 | CYLINDER CLEVIS: PARKER #50942 |
| 13 | CS-8230 | SPRING ROLLER (2) |
| 14 | CS-4014 | CYLINDER: 2 1/2" BORE x 3 3/4" STROKE |
| 15 | CS-5057 | LIMIT SWITCH: OMRON #D4C-1603 (2) |
| 16 | CS-8100-1 | GEARBOX CASTING |
| 17 | CS-3150 | CLEVIS BRACKET |
| 18 | CS-8201 | HEAD RETURN SPRING |
| 19 | CS-8205A | MOTOR: 1.5/3 HP (208/230V) |
| | CS-8205B | MOTOR: 1.5/3 HP (460V) |
| 20 | CS-8203 | ASSIST SPRING BRACKET |
| 21 | X-143 | 5/8 x 1 SOCKET HEAD SHOULDER SCREW |
| 22 | | 5/8 x 1 1/2 SOCKET HEAD SHOULDER SCREW |
| 23 | | 5/8 SAE FLAT WASHER (2) |

# GEARBOX ASSEMBLY 1
## FS-350 SAWS




| | | |
|---|---|---|
| 1 | CS-8100 | GEARBOX CASTING |
| 2 | CS-8154 | WORM GEAR |
| 3 | CS-8156 | LARGE BEARING ASSEMBLY |
| 4 | CS-8158 | BEARING RETAINER |
| 5 | CS-8160 | SPINDLE SHAFT |
| 6 | CS-8165 | SPINDLE DRIVE PLATE |
| 7 | CS-8220 | OIL FILLER PLUG |
| 8 | CS-8221 | SIGHT LEVEL GAUGE |
| 9 | X-116 | BACK COVER |
| 10 | X-124 | BACK COVER SHIM |
| 11 | X-133 | SMALL BEARING ASSEMBLY |
| 12 | | 1/4-20 x 7/8 SHCS (4) |
| 13 | | 3/8-16 x 7/8 HHCS (4) |
| 14 | | 1/2-13 x 1 1/2 SHCS |
| 15 | | *TX WOODRUFF KEY (3/8 x 2 NOMINAL) |
| 16 | CS-8171 | RETAINING RING |
| 17 | CS-8172 | OIL SEAL |
| 18 | CS-8173 | O-RING |
| 19 | CS-8600 | BUSHING (2) |

## GEARBOX ASSEMBLY 2
## CS-350/FS-350 SAWS




| | | |
|---|---|---|
| 1 | CS-8100 | GEARBOX CASTING |
| 2 | CS-8150 | LOW SPEED DRIVE GEAR (20/40 RPM) |
| | CS-8152 | HIGH SPEED DRIVE GEAR (30/60 RPM) |
| 3 | CS-8151 | LOW SPEED DRIVEN GEAR (20/40 RPM) |
| | CS-8153 | HIGH SPEED DRIVEN GEAR (30/60 RPM) |
| 4 | CS-8155 | WORM SHAFT |
| 5 | CS-8156 | LARGE BEARING ASSEMBLY |
| 6 | CS-8157 | INTERNAL BEARING RETAINER |
| 7 | CS-8170 | RETAINING RING |
| 8 | | 1.25 x 1.75 ARBOR SHIM |
| 9 | CS-8174 | O-RING |
| 10 | CS-8205A | 3/1.5 HP 2 SPEED MOTOR-208/230V |
| | CS-8205B | 3/1.5 HP 2 SPEED MOTOR-460V |
| 11 | CS-8210 | MOTOR PLATE |
| 12 | CS-8220 | OIL FILLER PLUG |
| 13 | CS-8221 | SIGHT LEVEL GAUGE |
| 14 | V20-2142 | 1/4 x 7/8 KEY (2) |
| 15 | X-116 | BACK COVER |
| 16 | X-124 | BACK COVER SHIM |
| 17 | X-133 | SMALL BEARING ASSEMBLY |
| 18 | | 3/8-16 x 7/8 HHCS (4) |
| 19 | | 1/4-20 x 1 1/4 SHCS (4) |
| 20 | | 1/2-13 x 1 1/4 HHCS |
| 21 | | 1/2-13 x 1 1/2 SHCS (4) |
| 22 | | 5/8-11 x 1 1/2 SHCS (4) |

## SQUARING THE VISE
## CIRCULAR SAWS

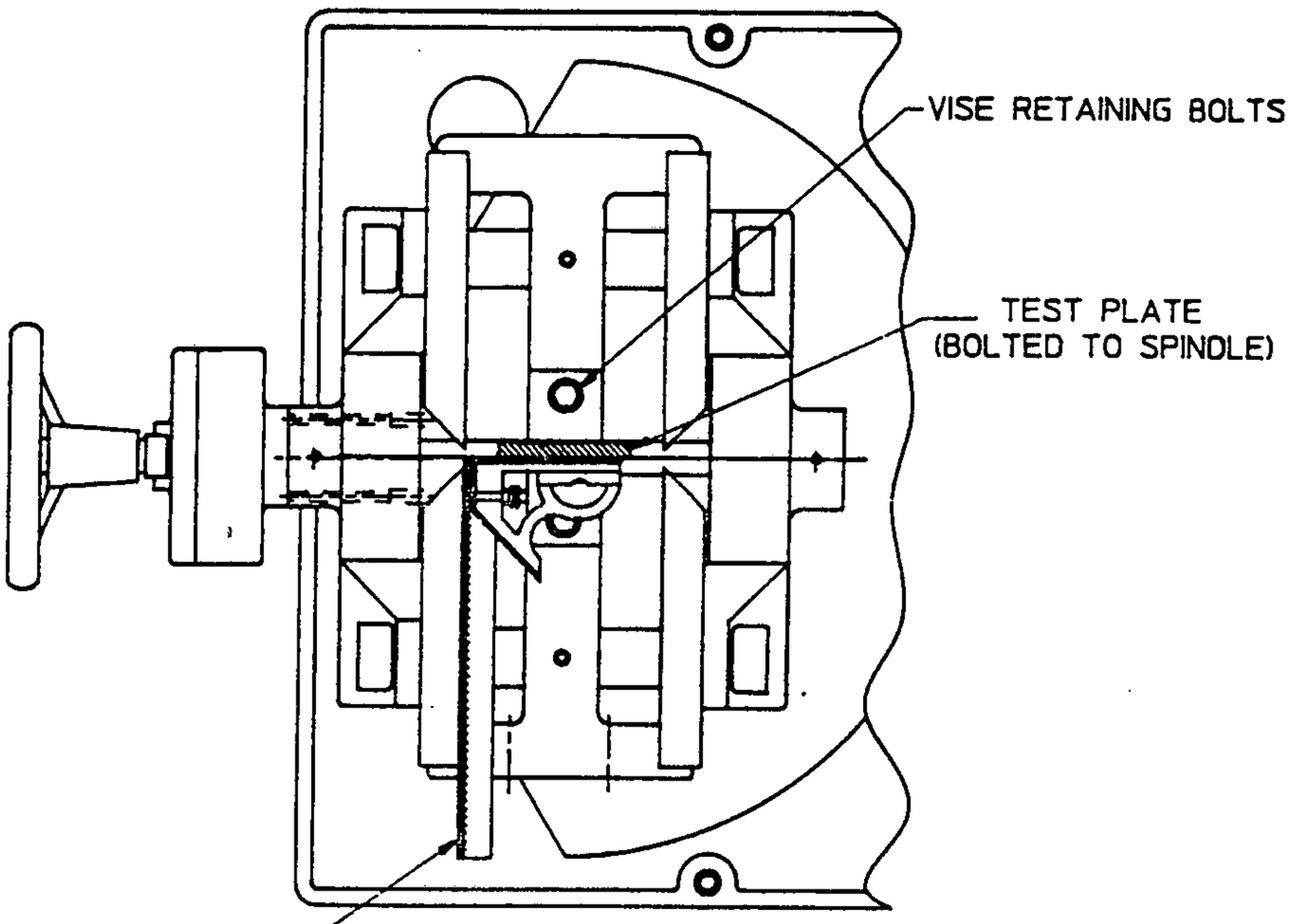


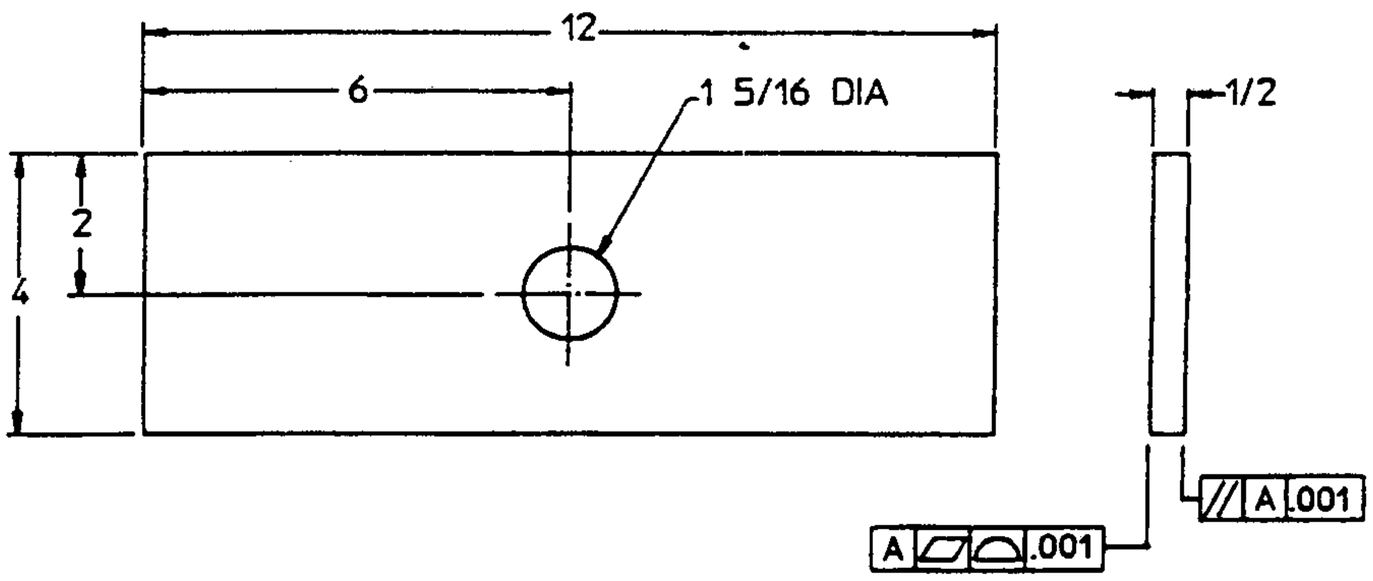

figure 6-1

1. Remove the saw blade and replace it with a plate similar to the one shown below. The critical dimensions for making this plate are those for the hole diameter and the flatness and parallelism.

2. The vise alignment may be adjusted by loosening the two vise retaining bolts. Once the vise jaws are square with the test plate as shown above, re-tighten the vise retaining bolts. Re-insert the rubber plugs over the retaining bolts to keep parts from 'catching' as stock feeds across the vise support.

figure 6-2

TEST PLATE (REPLACES BLADE)



# SAW VISE CYLINDER REPLACEMENT

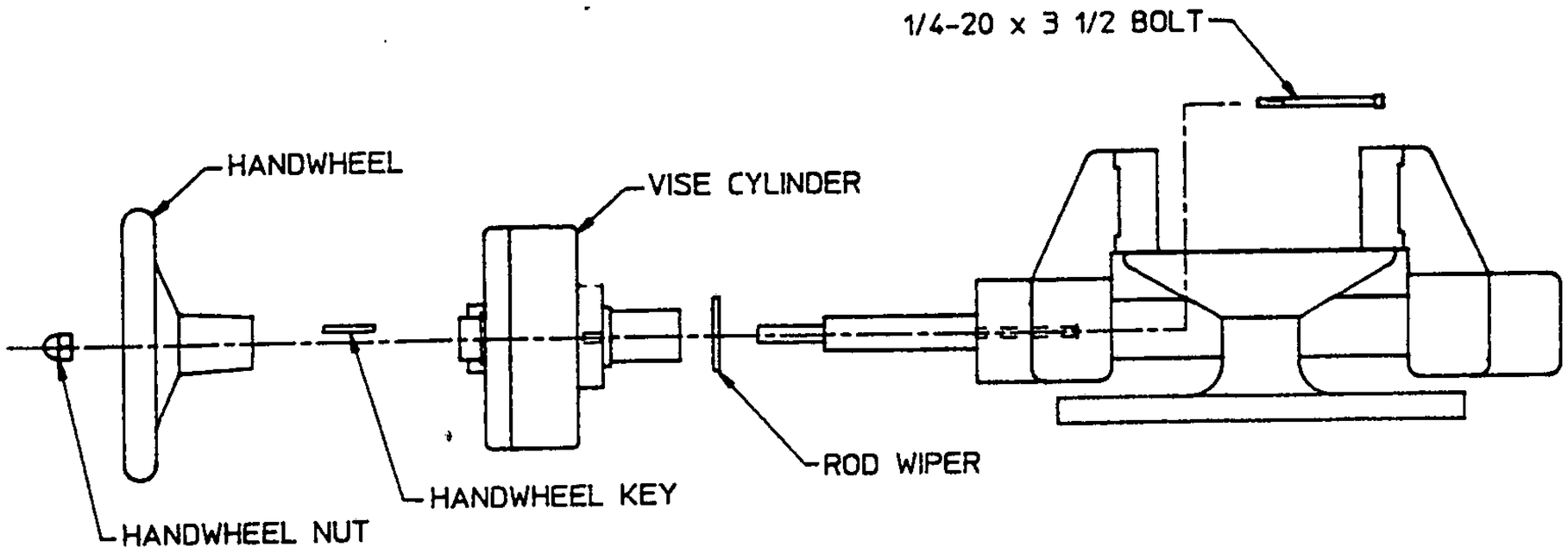



figure 6-3

TO REMOVE THE VISE CYLINDER:

1. Turn the electrical power off and remove the air supply to the saw.

2. Remove the handwheel nut, handwheel, key, and air lines from the vise.

3. Remove the 1/4-20 x 3 1/2" cap screws from inside the front vise jaw.

4. Rotate the vise cylinder counter-clockwise to unscrew the cylinder from the vise screw.

TO REPLACE THE VISE CYLINDER:

1. Make sure the cylinder rod is extending fully out of the front of the vise cylinder (port side).

2. Make sure the vise jaws are centered on the vise support.

3. Slide the rod wiper onto the cylinder rod as shown, up to the shoulder on the rod.

4. Screw the vise cylinder clockwise onto the vise screw until it makes contact with the vise jaw - make sure the ports are on the bottom of the cylinder.

5. Check to see that the vise jaws are still centered, and replace the 1/4-20 x 3 1/2 cap screws to connect the cylinder to the vise jaw.

6. Re-attach the air lines to the cylinder ports and turn the air supply back on. Check the vise operation to make sure the vise operates correctly. Reverse the lines if necessary.

7. If everything checks out correctly, remount the handwheel. The saw is again ready for operation.

# VISE SCREW RETAINER REPLACEMENT

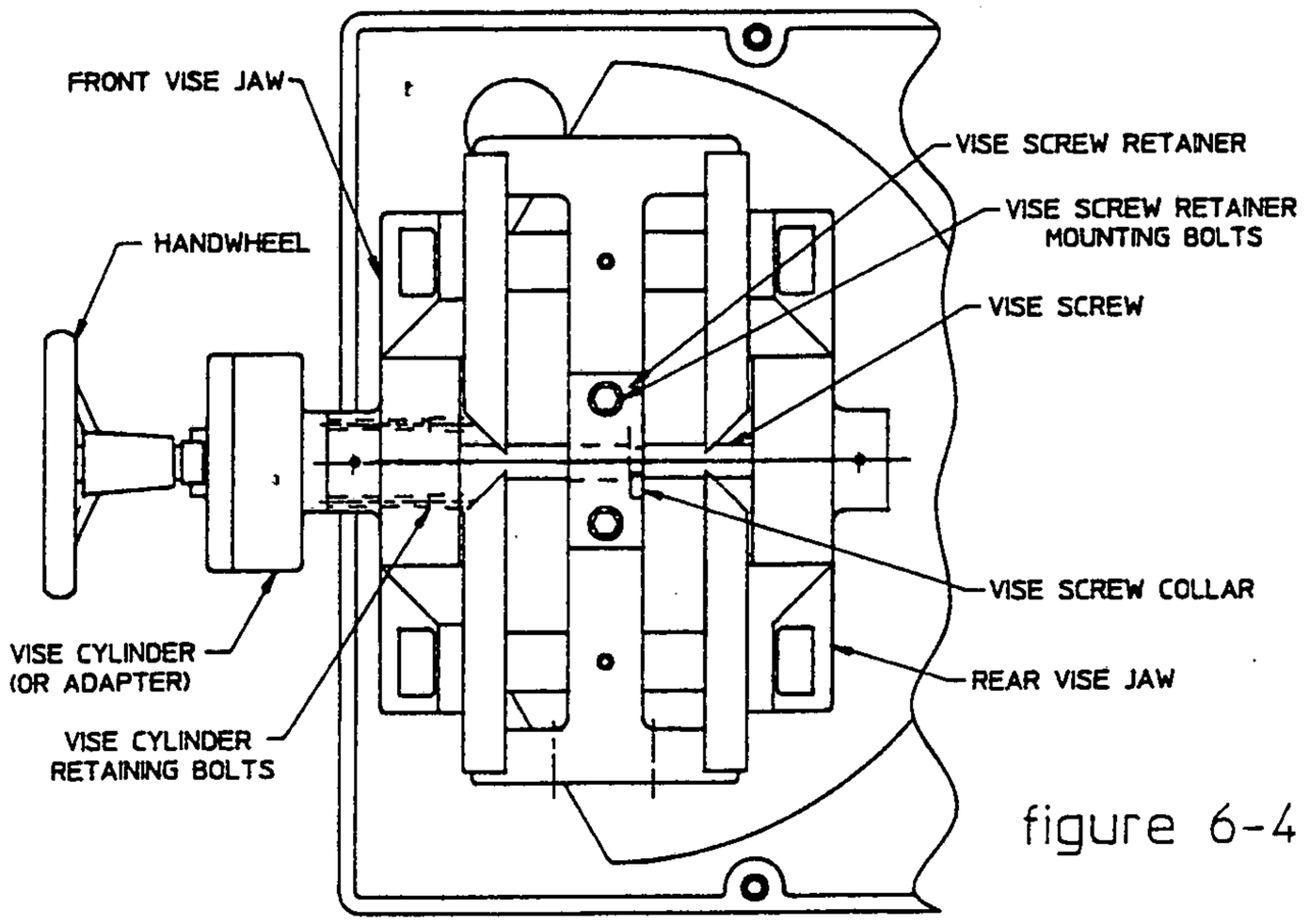



figure 6-4

1. Open the vise to allow access to the backside of the front vise jaw. Remove the two 1/4-20 x 3 1/2 cap screws that attach either the vise adapter (manual vise) or the vise cylinder (air vise) to the vise jaw.

2. Remove the handwheel and unscrew the vise adapter or vise cylinder (turn counter-clockwise).

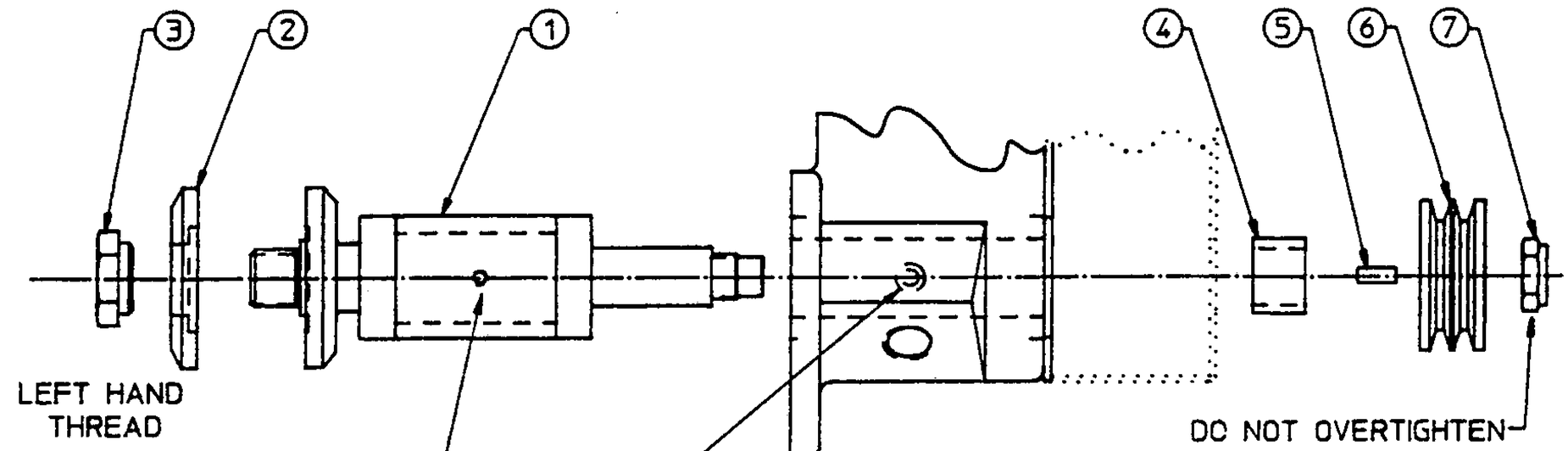
3. Loosen the socket head screw in the vise collar - it may be necessary to rotate the vise screw to align the screw with the relief in the retainer block.

4. Replace the handwheel and key. It should not be necessary to tighten the nut. Turn the handwheel counter clockwise until the rear vise jaw is off the screw. Pull the vise screw and front jaw off and set them aside.

5. Remove the two vise retaining bolts. Replace the retainer block, making sure that the top surface of the block is flush with the cutting surface of the vise support casting. Production variations may make it necessary to shim under the retaining block for proper alignment.

6. Reverse steps 1-4 to reassemble the vise. Check the vise alignment. If necessary, re-align the vise as shown in the section on 'Squaring the Vise' (page 6.1).

# SPINDLE REPLACEMENT
# FA–350 SAWS




| | | |
|---|---|---|
| 1 | CS-3401 | SPINDLE/BEARING SUB-ASSEMBLY |
| 2 | CS-3410 | SPINDLE WASHER |
| 3 | CS-3420 | SPINDLE NUT |
| 4 | CS-3450 | PULLEY SPACER |
| 5 | V20-2142 | KEY: 1/4 SQUARE x 7/8" LONG |
| 6 | CS-3460 | DRIVEN PULLEY |
| 7 | | 3/4-10 LOCK NUT |

figure 6.5

1. Disconnect power to the saw.

2. Remove the blade guards, belt guard, drive belts, driven pulley, and pulley spacer.

3. Remove the socket head cap screw located in the bottom of the head casting under the spindle.

4. Using a rubber mallet, drive the old spindle assembly out of the casting, toward the blade flange. The right side bearing may stay in place when the spindle comes out - if this happens, finish removing the spindle, then drive the bearing out toward the belt guard side of the casting. NOTE: the belt guard back plate may need to be removed for this step.

5. Slide the new spindle in from the blade side of the casting. DO NOT USE EXCESSIVE FORCE. Be careful to align the hole in the center bearing spacer with the hole in the bottom of the head casting. When the holes align, replace the cap screw in the casting.

6. Replace the parts removed in step 2. Bè careful to properly tighten the drive belts (see page 1.4 for details)

# CHANGING THE DRIVE MOTOR
# FS–350 SAWS

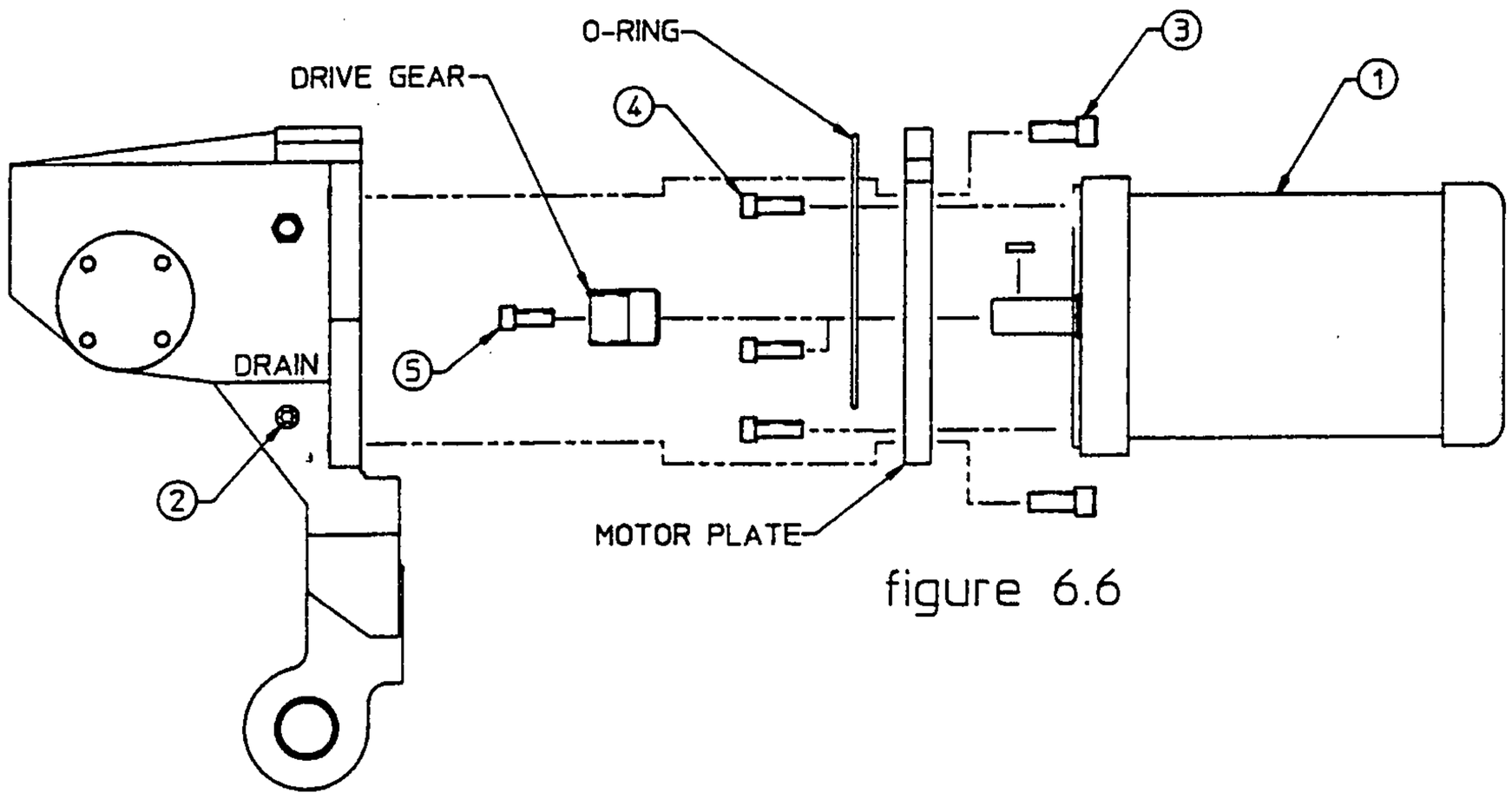



figure 6.6

1. Disconnect the power and open the wiring box on the side of the motor. Disconnect the wiring and remove the cable and fitting from the old motor.

2. Drain the gearbox by removing the drain plug on the right side of the casting. If it is not time to change the gearbox oil, it may be strained and reused. Refer to page 1.2 for the recommended change intervals.

3. Loosen the four bolts that hold the motor plate to the gearbox, and remove the motor/plate combination.

4. Separate the motor plate from the motor by removing the four bolts on the inside of the motor plate. It may be necessary to pry slightly to break the seal between the motor and plate.

5. Remove the bolt that holds the drive gear on the motor shaft and slide the gear off the shaft. Do not lose the key that may come off with the gear.

6. Reverse steps 1-5 to reassemble the saw.

NOTES:

a) Be sure to use removable 'Loctite' on the bolt that secures the drive gear to the motor shaft.

b) Scrape away the silicone sealer on the mating face of the motor and plate. Use fresh sealer at assembly to stop leaks.

c) Make sure the O-ring is securely in the groove on the motor plate face that mates to the gear box. If necessary, use a dab of grease to keep it in place.

d) Re-wire the motor according to the schematics included in section 8 of this manual.

# CHANGING BLADE SPEEDS
# FA–350 SAWS

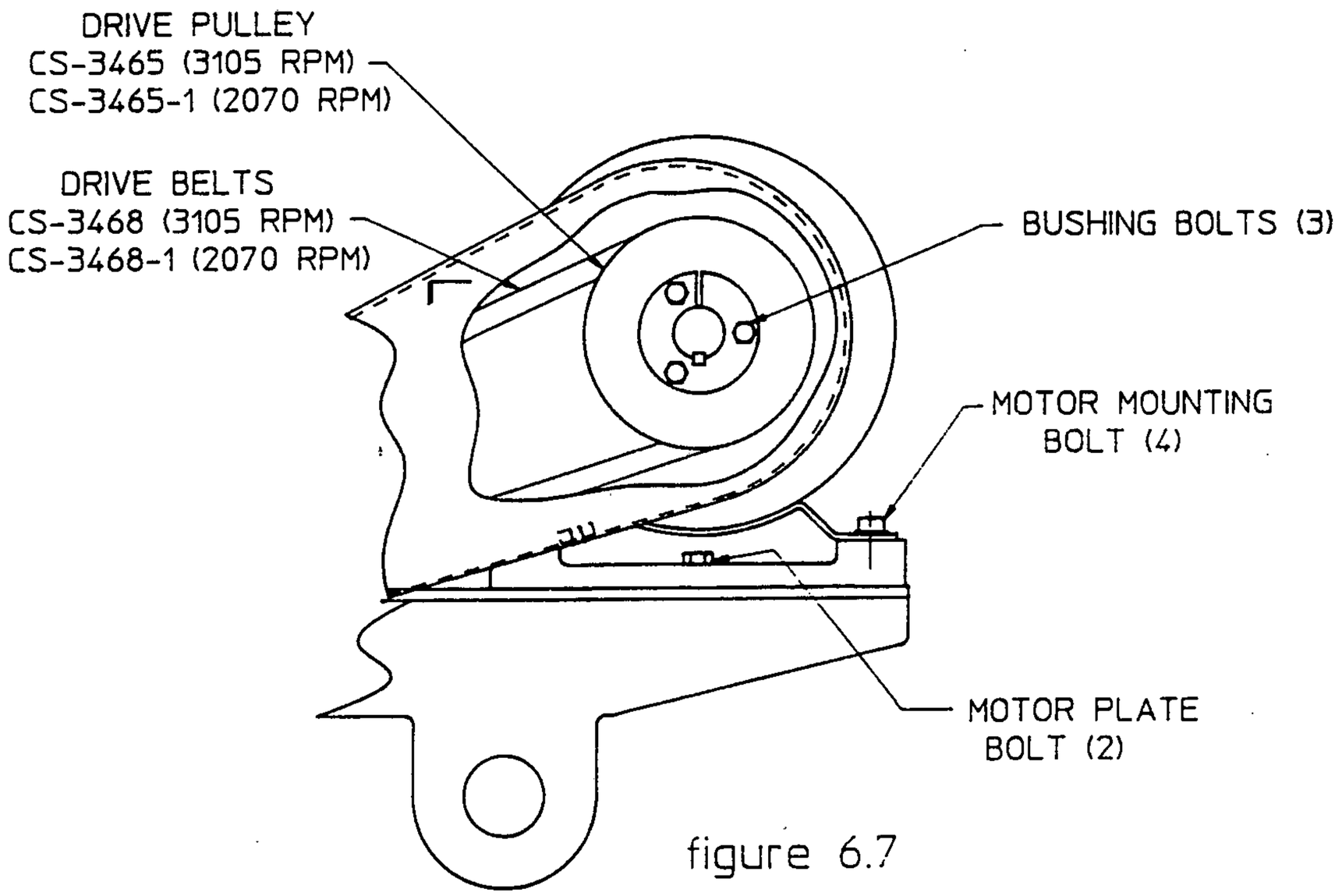



figure 6.7

1. Loosen the four motor mounting bolts and the two motor plate bolts.

2. Slide the motor towards the blade until the belts can be removed.

3. Remove the three bushing bolts from the drive pulley and slide the pulley off of the motor shaft.

4. Slide the new pulley on the motor shaft and tighten the bushing bolts.

5. Install the new drive belts.

6. The belts are retensioned by pushing the motor away from the blade until a slight thumb pressure on the center of the belts produces a 5/8" deflection and then tightening the motor plate bolts.

7. Re-tighten the motor mounting bolts.

# CHANGING THE DRIVE GEARS
# FS–350 SAWS

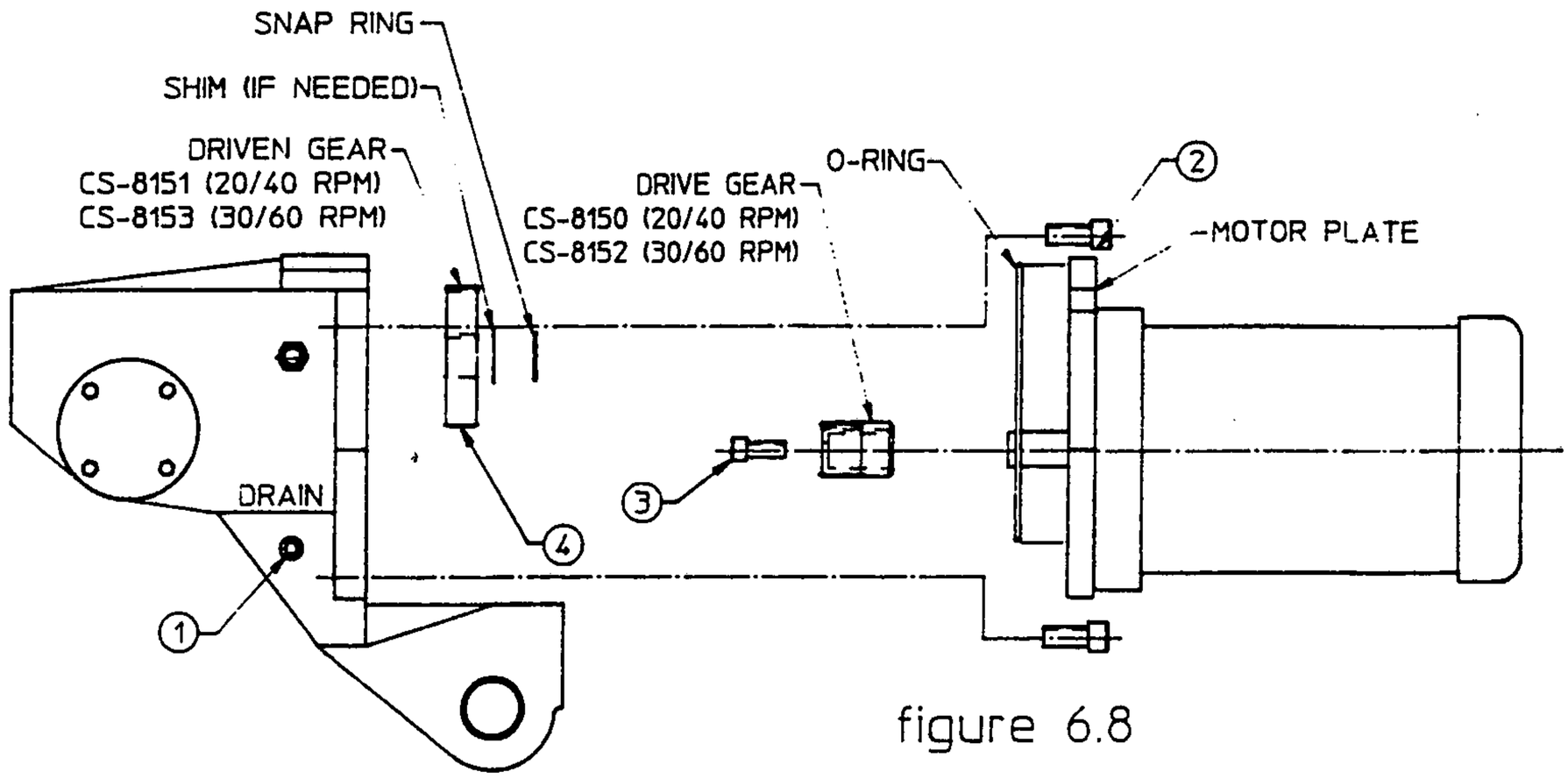



figure 6.8

1. Drain the gearbox by removing the plug on the right side of the casting. If it is not time to change the gearbox oil, it may be strained and reused. Refer to page 1.2 for the recommended oil change intervals.

2. Loosen the four bolts that hold the motor plate to the gearbox and separate the motor/plate from the gearbox.

3. Remove the bolt that holds the drive gear on the motor shaft and slide the gear off the shaft. Do not lose the key that may come off with the gear.

4. The driven gear is removed by removing the retaining ring from the worm shaft and sliding the gear off. Be careful not to lose the arbor space that may be used with the gear.

5. Reverse steps 2-5 to re-assemble the gear case. Only tighten the four bolts through the motor plate finger-tight with the motor/plate combination at the bottom of the mounting holes. Refill the gearbox with oil and start the motor on low speed. Using a prybar, pry up on the motor until gear noise is heard. Tap the motor down until the noise stops. Finish tightening the motor mounting bolts.

NOTES:

a) Be sure to use removable 'Loctite' on the bolt that secures the drive gear to the motor shaft.

b) Make sure the O-ring is securely in the groove on the motor plate face that mates to the gearbox. If necessary, use a dab of grease to keep it in place.

# PARTS COUNTER CHANGING
# AUTOMATIC SAWS

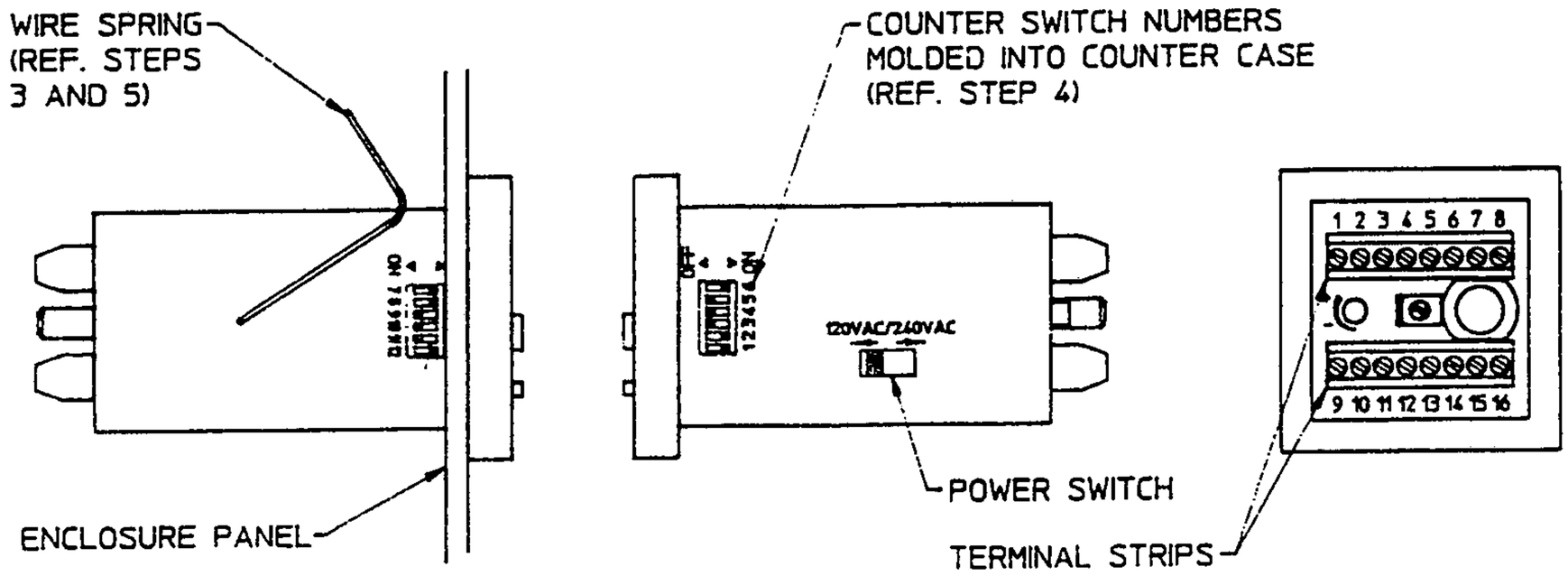



figure 6.9

1. Loosen the screws to open the counter enclosure.

2. Remove the wiring from the terminal strips. Note the position of the wires in the strip.

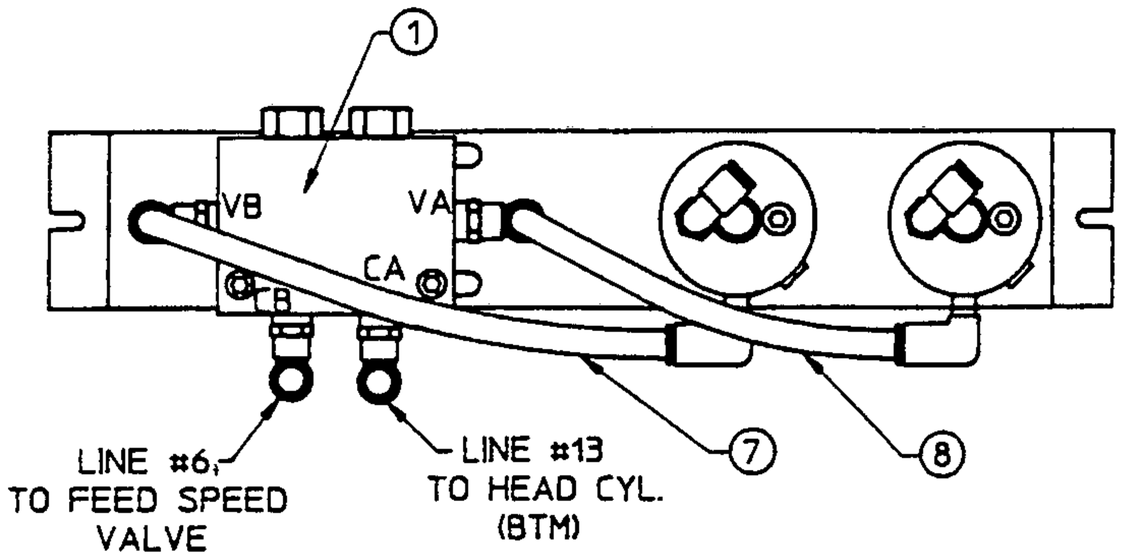
3. The counter is held against the panel by a wire spring. Release the spring by pushing up on the spring on each side of the counter. Pull the spring ends out of the counter to allow the counter to pass through the panel.

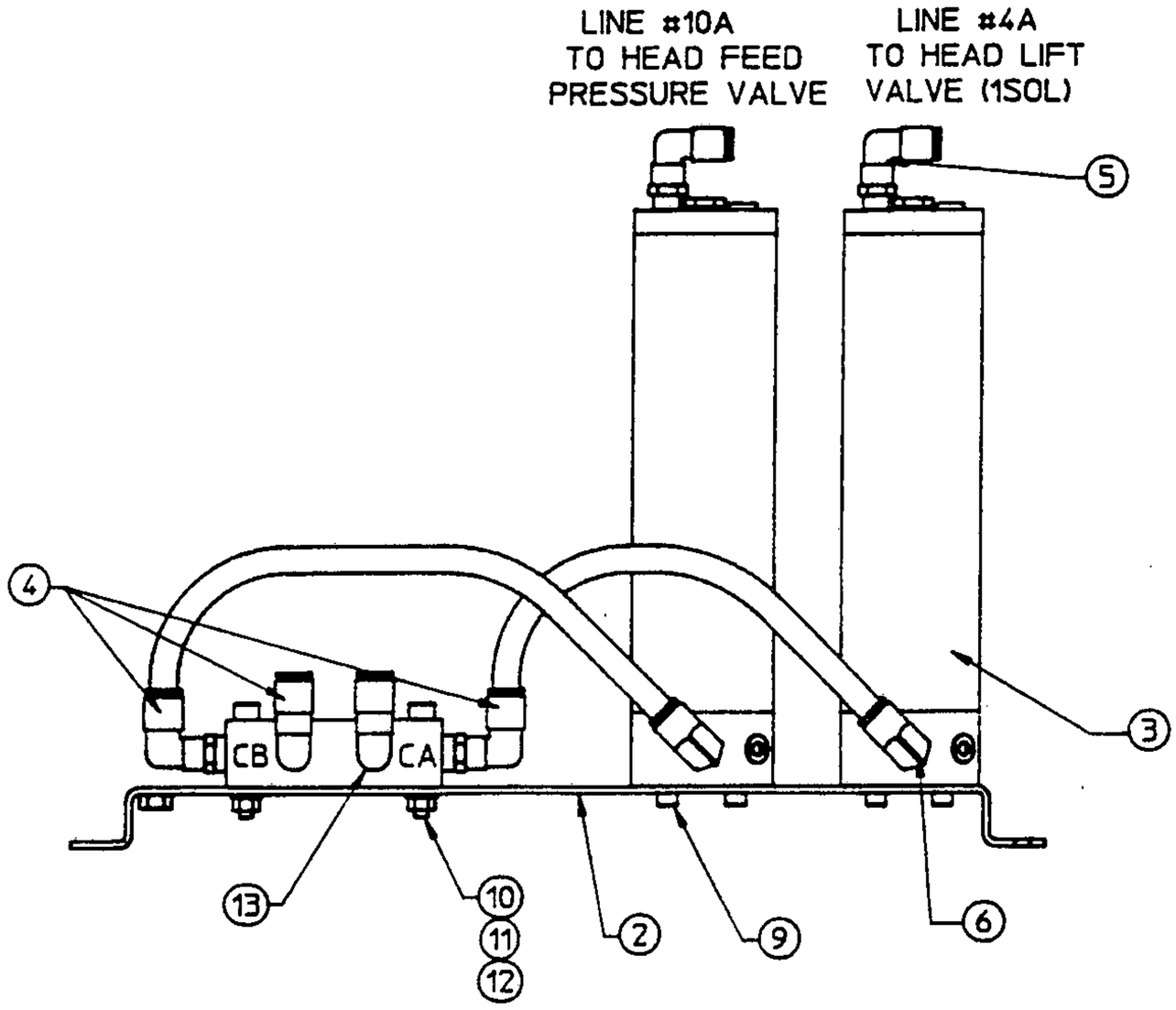
4. Set the switches on the sides of the counter (shown above). The switch numbers are molded into the counter case. Switches 1, 2, 9, 10, and 11 should be set 'on'-all others should be set 'off'. Set the power switch for 115V operation.

5. Remove the spring from the new counter and insert the counter through the panel opening. Re-install the spring in the counter and flip the spring against the panel, pushing it down to tension the counter against the panel.

6. Re-connect the wiring (ref. page 8.13), close the panel, and tighten the screws.

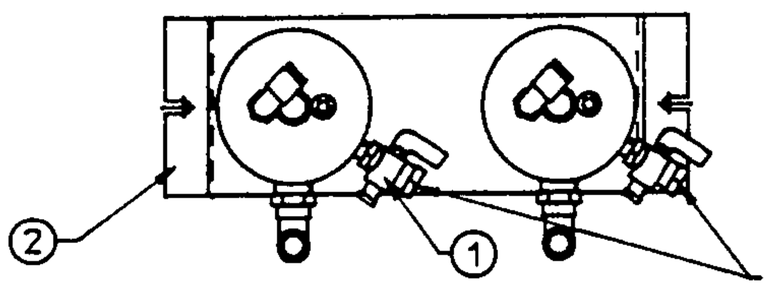
# HEAD FEED
# RESERVOIR ASSEMBLY
# CIRCULAR SAWS




| | | |
|---|---|---|
| 1 | CS-4043 | DOUBLE P.O. CHECK VALVE: SUN #CKCC-XAN-YEB |
| 2 | V20-7114-1 | VALVE MOUNTING PLATE |
| 3 | V20-7115 | AIR/OIL RESERVOIR: LUBE DEVICES #A/OR 1030-2 (2) |
| 4 | V20-8019 | 3/8 NPT x 1/2 HOSE ELBOW: ALKON #AQ69-PS-8x6 (3) |
| 5 | V20-8028 | 1/4 NPT x 3/8 HOSE ELBOW: ALKON #AQ69-PS-6x4 (2) |
| 6 | V20-8029 | 1/4 NPT x 1/2 HOSE ELBOW: ALKON #AQ69-PS-8x4 (2) |
| 7 | | 1/2 PLASTIC TUBE x 12" LG (REF #5) |
| 8 | | 1/2 PLASTIC TUBE x 12" LG (REF #12) |
| 9 | | 1/4-20 x 3/4 SHCS (4) |
| 10 | | 5/16-18 x 1 3/4 SHCS (2) |
| 11 | | 5/16-18 HEX NUT (2) |
| 12 | | 5/16 FLAT WASHER (2) |
| 13 | V20-8019 | 3/8 NPT x 1/2 HOSE ELBOW: ALKON #AQ69-PS-8x6 (FA-350 SAWS) |
| | V20-8032 | 3/8 NPT x 1/4 HOSE ELBOW: ALKON #AQ69-PS-4x6 (FS-350 SAWS) |

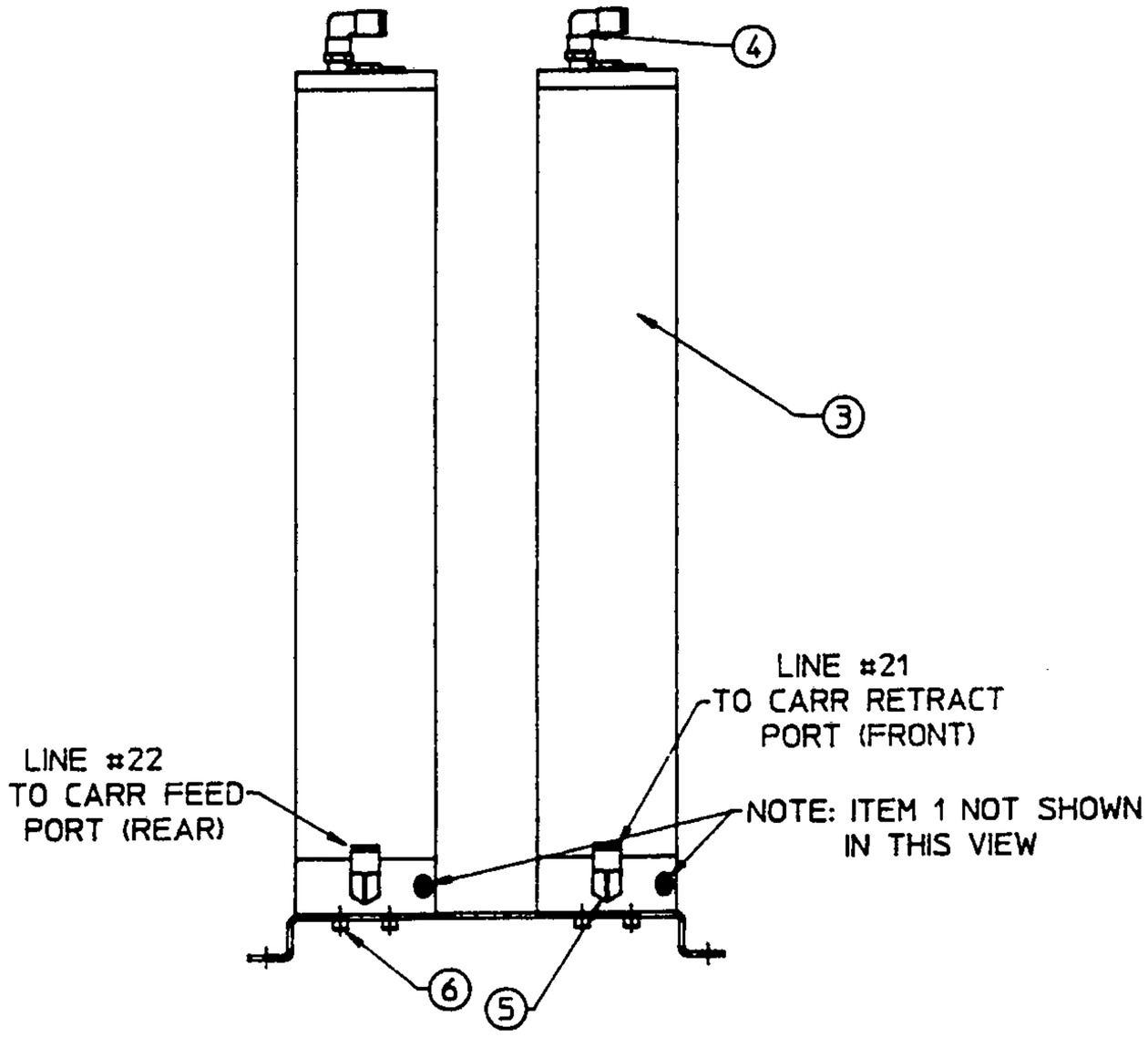
# CARRIAGE FEED
# RESERVOIR SUB-ASSEMBLY




NOTE: THE PLUG REMOVED FROM THE BOTTLE IS USED TO PLUG THE VALVE

LINE #20
TO CARR FEED
VALVE (7SOL)

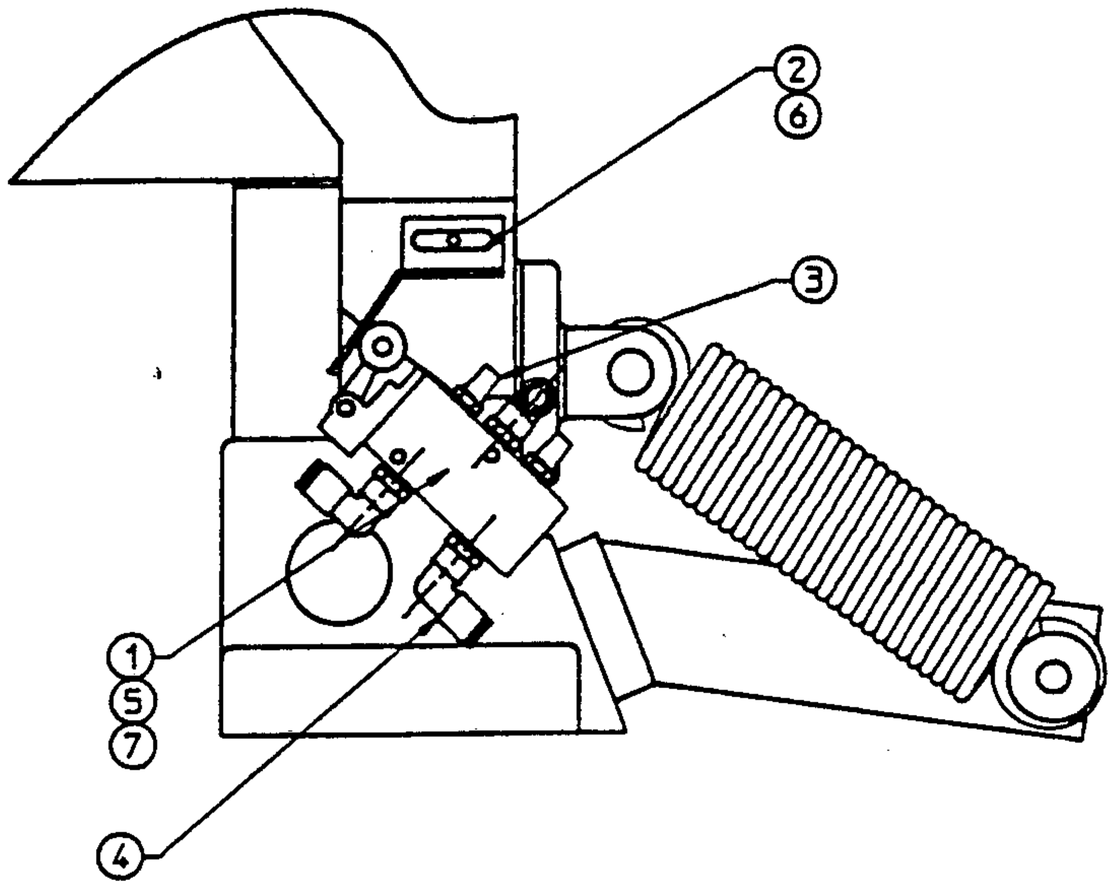
LINE #19
TO CARR RETRACT
VALVE (8SOL)




| | | |
|---|---|---|
| 1 | C-11 | SHUTOFF VALVE: PARKER #V402P-4-4 (2) |
| 2 | CS-4055 | VALVE MOUNTING PLATE |
| 3 | CS-4056 | AIR/OIL RESERVOIR: LUBE DEVICES #A/OR 2150-4 (2) |
| 4 | V20-8028 | 1/4 NPT x 3/8 HOSE ELBOW: ALKON #AQ69-PS-6x4 (2) |
| 5 | V20-8030 | 1/2 NPT x 1/2 HOSE ELBOW: ALKON #AQ69-PS-8x8 (2) |
| 6 | | 1/4-20 x 3/4 SOCKET HEAD CAP SCREW (4) |

EFFECTIVE FOR MACHINES BUILT AFTER S/N 241

# PNEUMATIC VALVE PARTS
# CS–350PV / FS–350PV

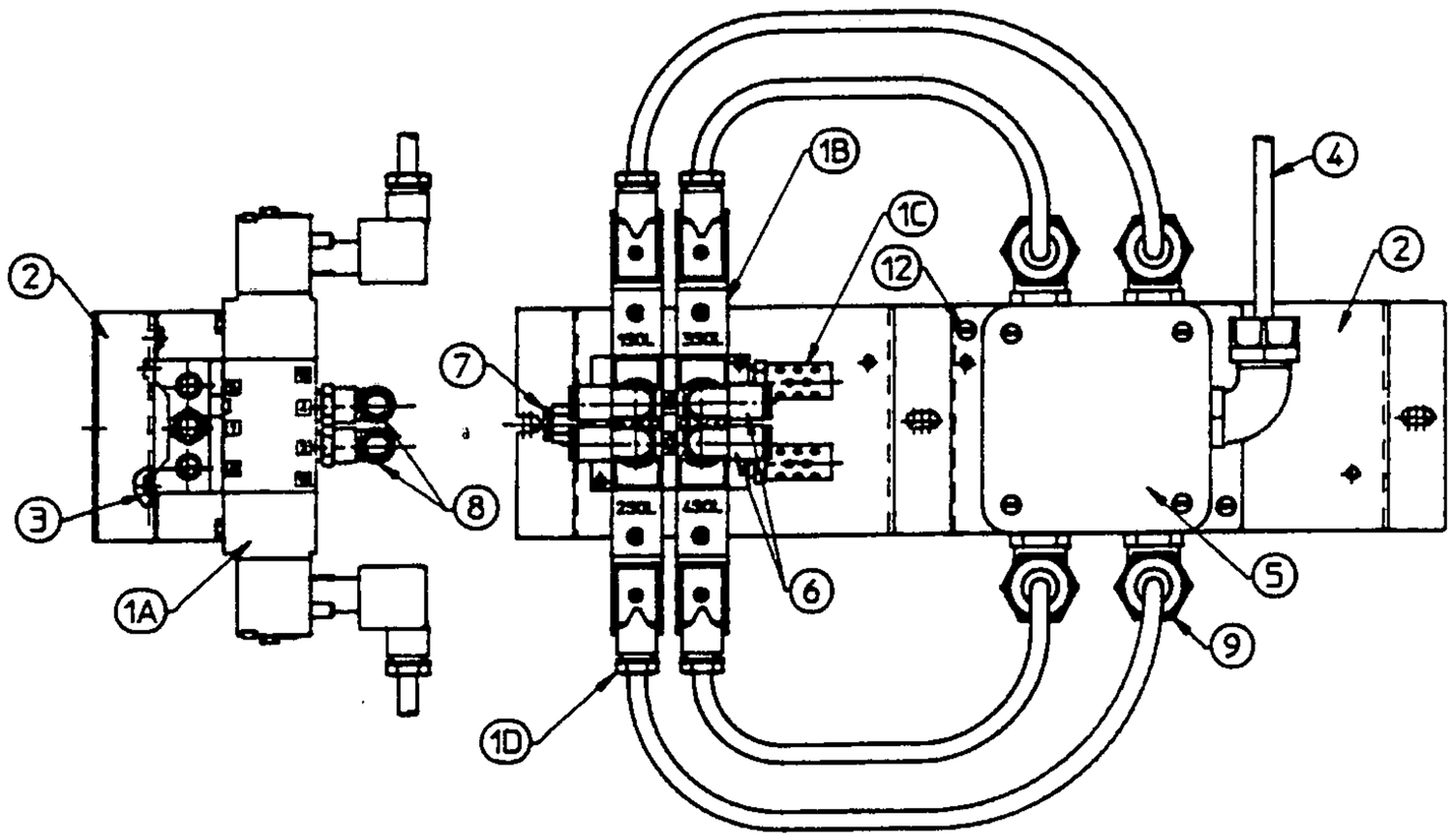



| | | |
|---|---|---|
| 1 | CS-4020-1 | AIR VALVE |
| 2 | CS-5054-1 | LIMIT SWITCH TRIGGER |
| 3 | V20-7122-1 | MUFFLER: PARKER #EM12 (2) |
| 4 | V20-8027 | 1/8 NPT x 3/8 HOSE ELBOW: ALKON #AQ69-PS-6x2 |
| 5 | | 10-24UNC x 1 1/2 SOCKET HEAD CAP SCREW (2) |
| 6 | | 1/4-20UNC x 3/8 SOCKET HEAD CAP SCREW |
| 7 | | #10 FLAT WASHER (12) - 6 LOCATED BETWEEN THE VALVE AND THE HEAD FRAME ON EACH MOUNTING SCREW (ITEM 5) |

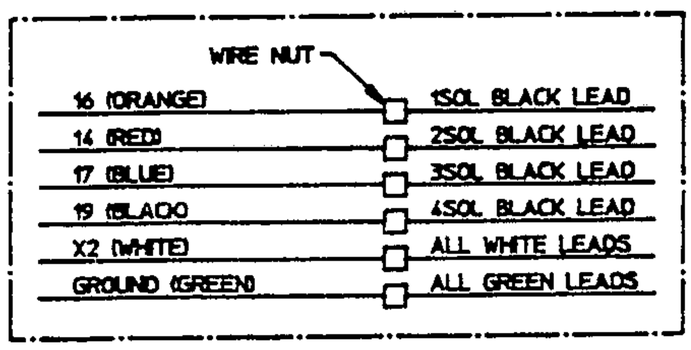
NOTE: SOME EARLY SAWS USED 1/4" TUBING, THE FITTING FOR THIS TUBING IS:

| | | |
|---|---|---|
| 4 | V20-8002 | 1/8 NPT x 1/4 HOSE ELBOW: ALKON #AQ69-PS-4x2 |

# VALVE MANIFOLD ASSEMBLY
# SEMI-AUTOMATIC SAWS

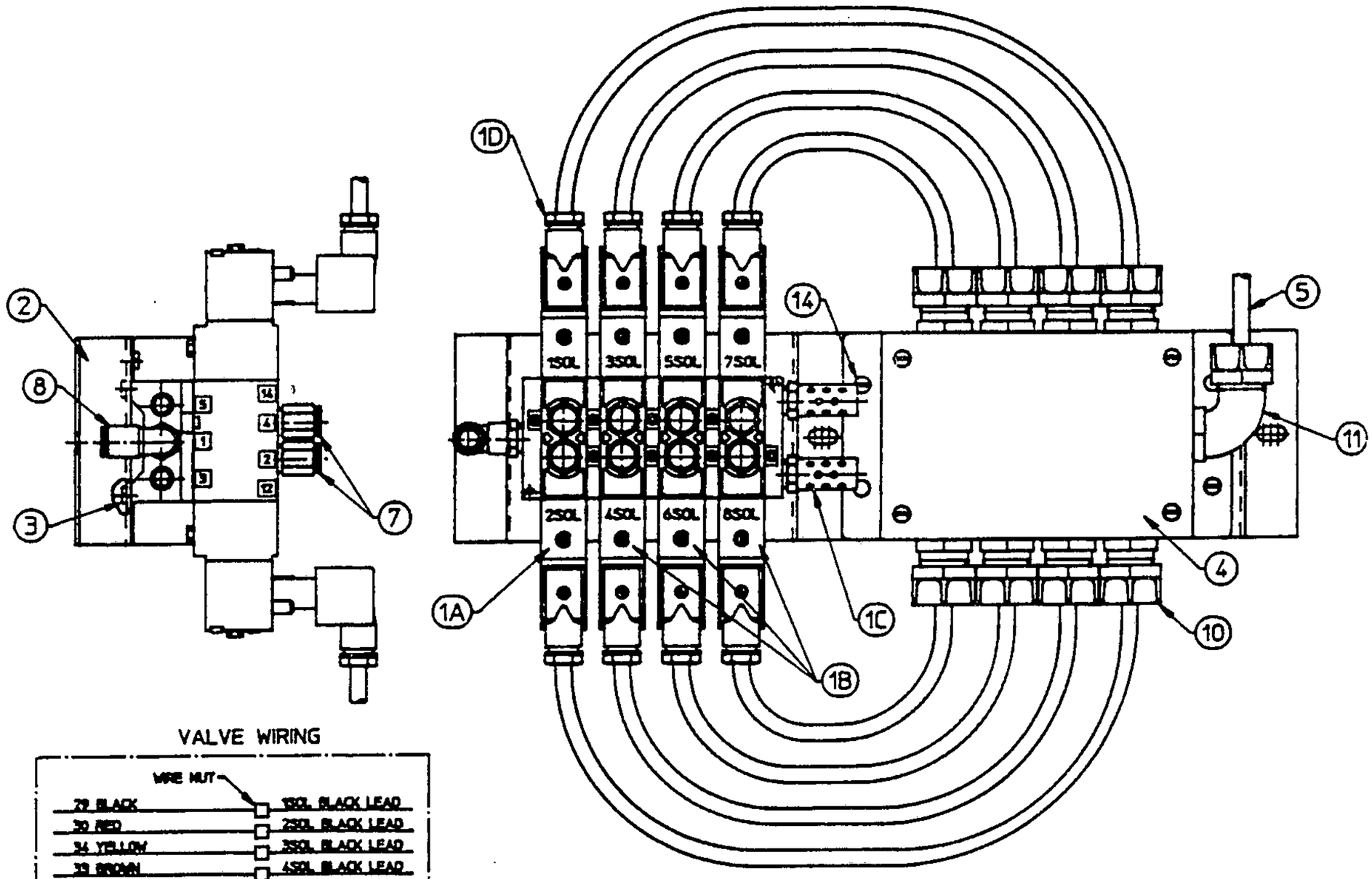



## VALVE WIRING

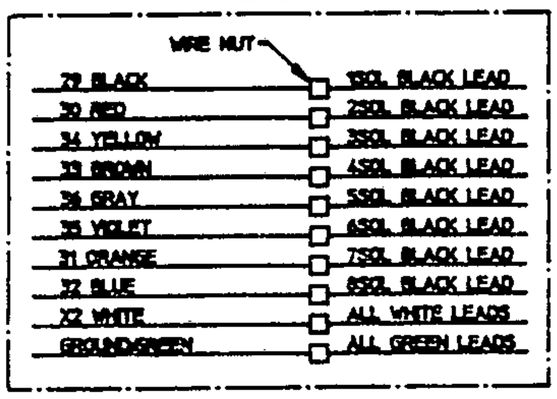



| | | |
|---|---|---|
| 1 | CS-4035 | VALVE MANIFOLD WITH MUFFLERS |
| 1A | CS-4035A | NUMATICS #L12BB5520 SOLENOID VALVE |
| 1B | CS-4035B | NUMATICS #L12BB6520 SOLENOID VALVE |
| 1C | CS-4035C | NUMATICS #B-28 1/4 NPT MUFFLER |
| 1D | CS-4035D | NUMATICS #230-366-SP 3 PIN PLUG W/LITE AND CORD |
| 2 | CS-4044 | VALVE MOUNTING PLATE |
| 3 | CS-4045 | M4 x 12 MM PHMS: MC MASTER CARR #90353A214 (2) |
| 4 | CS-5056A | 6 COND 20AWG CABLE: ALPHA #5056C (8') |
| 5 | HA-15303 | JUNCTION BOX: APPLETON #JIC-2 |
| 6 | V20-8001 | 1/4 NPT x 1/4 HOSE ELBOW: ALKON #AQ69-PS-4X4 (2) |
| 7 | V20-8026 | 1/4 NPT x 3/8 HOSE CONN: ALKON #AQ68-P-6X4 |
| 8 | V20-8028 | 1/4 NPT x 3/8 HOSE ELBOW: ALKON #AQ69-PS-6X4 (2) |
| 9 | | REMKE #RSR-9106 CORD GRIP (5) |
| 10 | | |
| 11 | | |
| 12 | | #8-32 x 3/8 SELF-TAPPING SCREW (2) |

# VALVE MANIFOLD ASSEMBLY
# AUTOMATIC SAWS

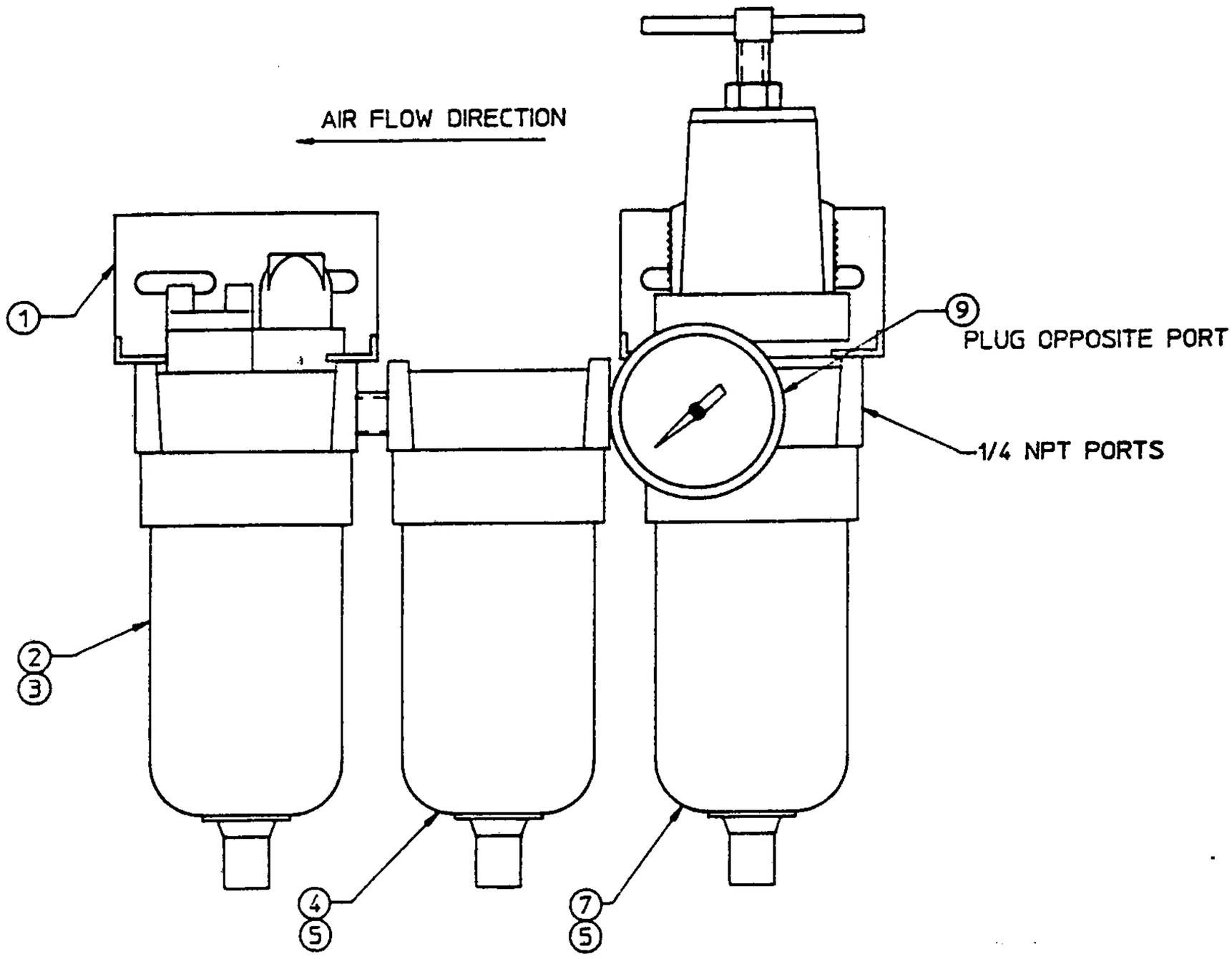



VALVE WIRING



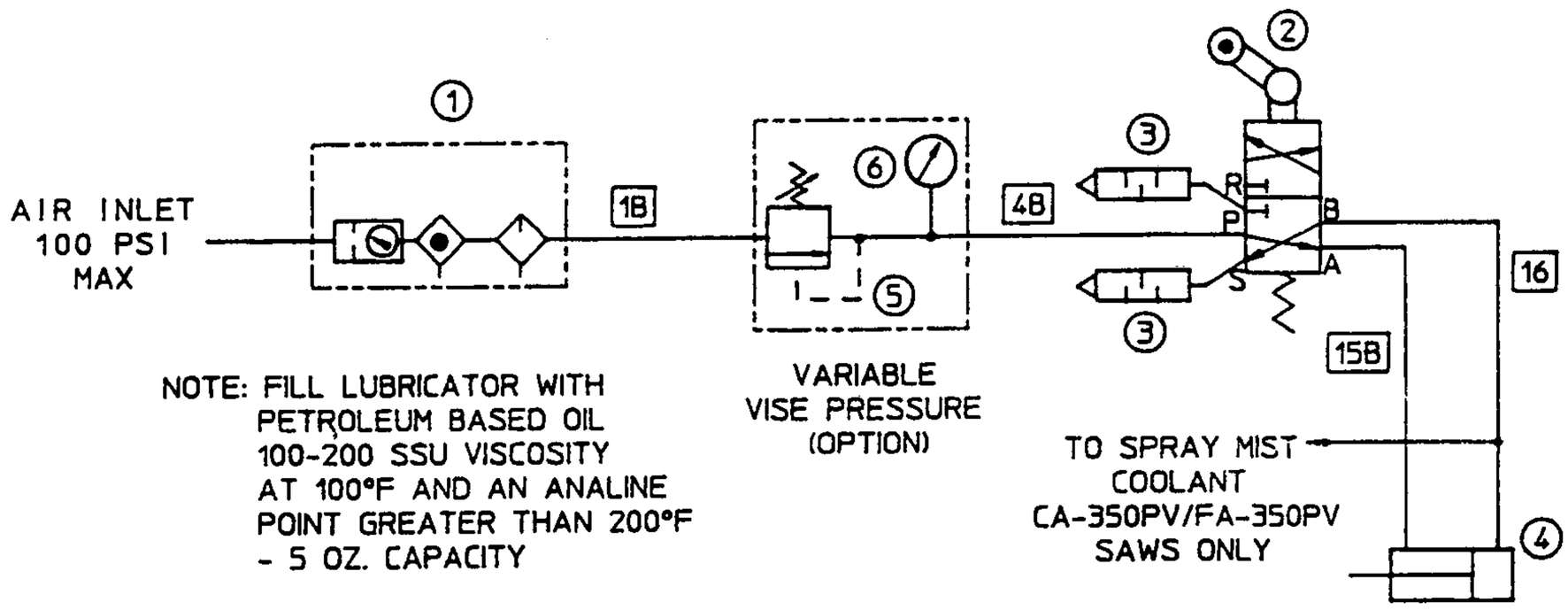

| | | |
|---|---|---|
| 1 | CS-4036 | VALVE MANIFOLD WITH MUFFLERS |
| 1A | CS-4035A | NUMATICS #L12B85520 SOLENOID VALVE |
| 1B | CS-4035B | NUMATICS #L12B86520 SOLENOID VALVE |
| 1C | CS-4035C | NUMATICS #B-28 1/4 NPT MUFFLER |
| 1D | CS-4035D | NUMATICS #230-366-SP 3 PIN PLUG W/LITE AND CORD |
| 2 | CS-4044 | VALVE MOUNTING PLATE |
| 3 | CS-4045 | M4 x 12 MM PHMS: MC MASTER CARR #90353A214 (2) |
| 4 | H3-3230 | JUNCTION BOX: HOFFMAN #A604SC |
| 5 | H3-5037 | 10 COND 18AWG CABLE: ALPHA #5070C (8') |
| 6 | | |
| 7 | V20-8026 | 1/4 NPT x 3/8 HOSE CONN: ALKON #AQ68-P-6X4 (8) |
| 8 | V20-8028 | 1/4 NPT x 3/8 HOSE ELBOW: ALKON #AQ69-PS-6X4 |
| 9 | | |
| 10 | | REMKE #RSR-106 CORD GRIP (8) |
| 11 | | REMKE #RSR-9106 CORD GRIP |
| 12 | | |
| 13 | | |
| 14 | | #8-32 x 3/8 SELF-TAPPING SCREW (2) |

# FILTER/REGULATOR/LUBRICATOR ASSEMBLY




| | | |
|---|---|---|
| 1 | CS-4013A | PARKER #PS109 MOUNTING BRACKET (2) |
| 2 | CS-4013B | PARKER #16L11BC LUBRICATOR |
| 3 | CS-4013B1 | PARKER #PS125 BOWL KIT |
| 4 | CS-4013C | PARKER #11F11EA OIL REMOVAL FILTER |
| 5 | CS-4013C1 | PARKER #PS105 BOWL KIT (2) |
| 6 | | |
| 7 | CS-4013D | PARKER #06E11A13AA FILTER/REGULATOR |
| 8 | | |
| 9 | CS-4013E | PARKER #P781642 0-160 PSI 2" DIAL GAUGE |
| | CS-4013REK | FILTER ELEMENT KIT-INCLUDES THE FOLLOWING:<br>PARKER #PS101 FILTER ELEMENT<br>PARKER #PS146 OIL REMOVAL FILTER ELEMENT |

# PNEUMATIC DIAGRAM
# CA–350PV/CS–350PV
# FA–350PV/FS–350PV




NOTE: FILL LUBRICATOR WITH
PETROLEUM BASED OIL
100-200 SSU VISCOSITY
AT 100°F AND AN ANALINE
POINT GREATER THAN 200°F
- 5 OZ. CAPACITY

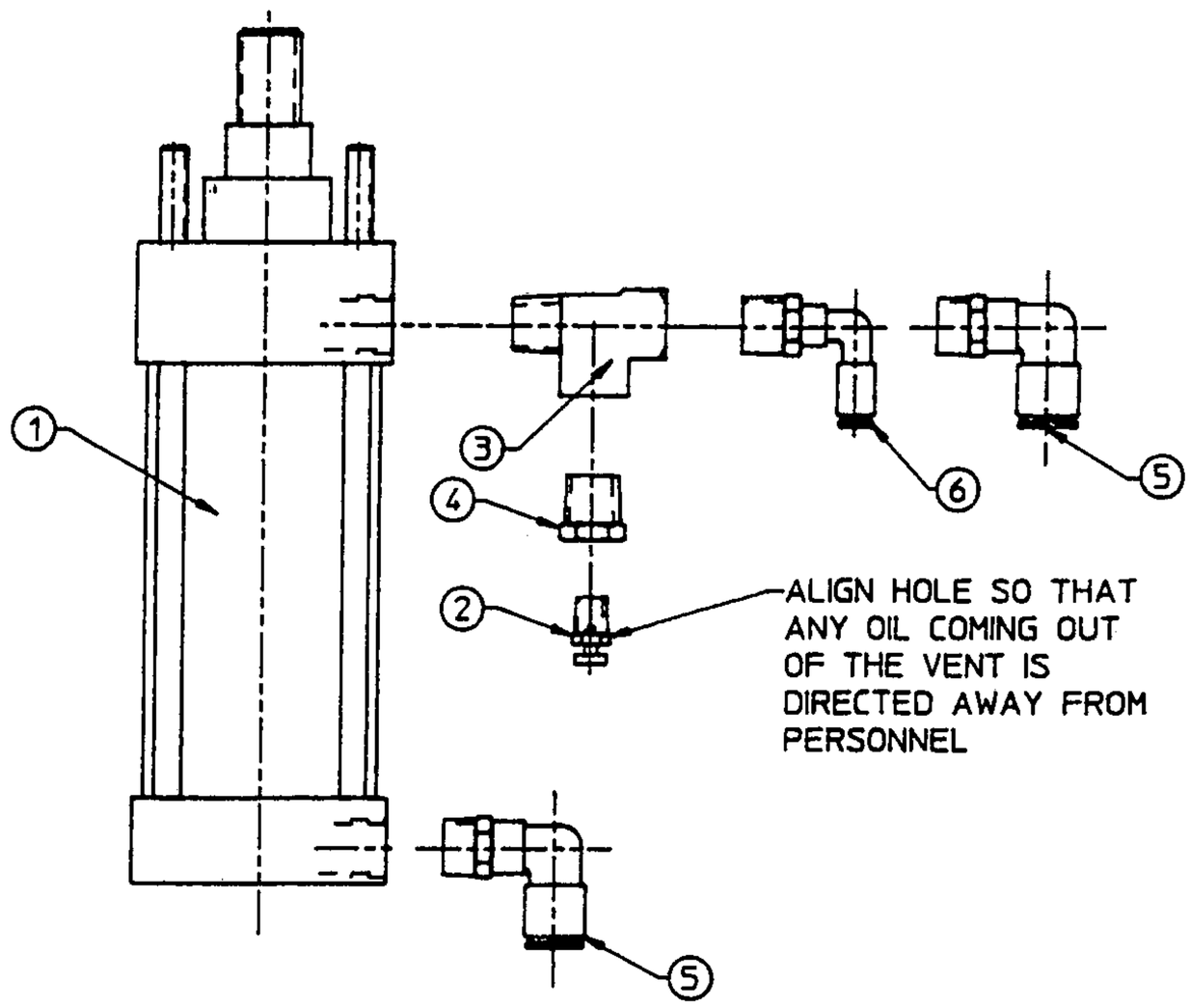
DO NOT TRY TO FILL WITH
SYSTEM UNDER PRESSURE

DRAIN FILTERS REGULARLY

| | | |
|---|---|---|
| 1 | CS-4013 | FILTER/REGULATOR/LUBRICATOR |
| 2 | CS-4022-1 | CAM-OPERATED VALVE: WABCO #GB15002-0955 |
| 3 | V20-7122-1 | EXHAUST MUFFLER: PARKER #EM12 |
| 4 | CS-2316 | VISE CYLINDER: 5' BORE x 3/8' STROKE |
| 5 | V20-7117B | PRESSURE REDUCING VALVE: PARKER #14R113F |
| 6 | V20-7117A | PRESSURE GAUGE: PARKER #77413 |

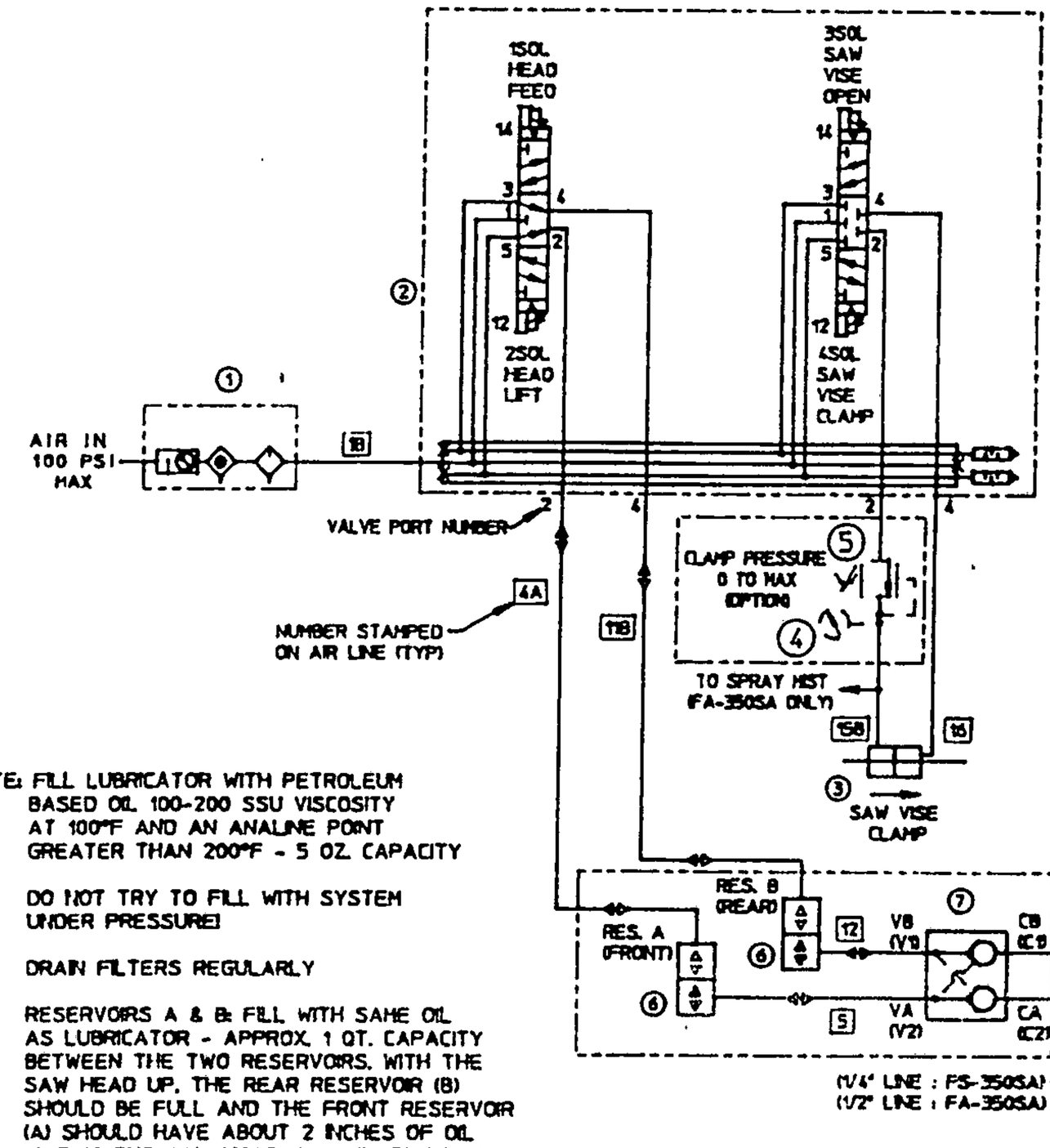
NOTE: SAWS WITH SERIAL NUMBERS BELOW 104 USE PRESSURE GAUGE P/N CS-4025
INSTEAD OF P/N V20-7117A

# HEAD LIFT CYLINDER
# FITTINGS
# CIRCULAR SAWS




| | | |
|---|---|---|
| 1 | CS-4014 | HEAD LIFT CYLINDER (REF) |
| 2 | CS-4046 | AIR VENT: WEATHERHEAD #705 |
| 3 | CS-4047 | STREET TEE: WEATHERHEAD #3750x6 |
| 4 | CS-4048 | 3/8NPT x 1/8NPT BUSHING: WEATHERHEAD #3220x6x2 |
| 5 | V20-8019 | 3/8NPT x 1/2 HOSE ELBOW: ALKON #AQ69-PS-8x6 |
| 6 | V20-8032 | 3/8NPT x 1/4 HOSE ELBOW: ALKON #AQ69-PS-4x6 |

# PNEUMATIC DIAGRAM
# FA-350SA/FS-350SA




NOTE: FILL LUBRICATOR WITH PETROLEUM BASED OIL 100-200 SSU VISCOSITY AT 100°F AND AN ANALINE POINT GREATER THAN 200°F - 5 OZ. CAPACITY

DO NOT TRY TO FILL WITH SYSTEM UNDER PRESSURE!

DRAIN FILTERS REGULARLY

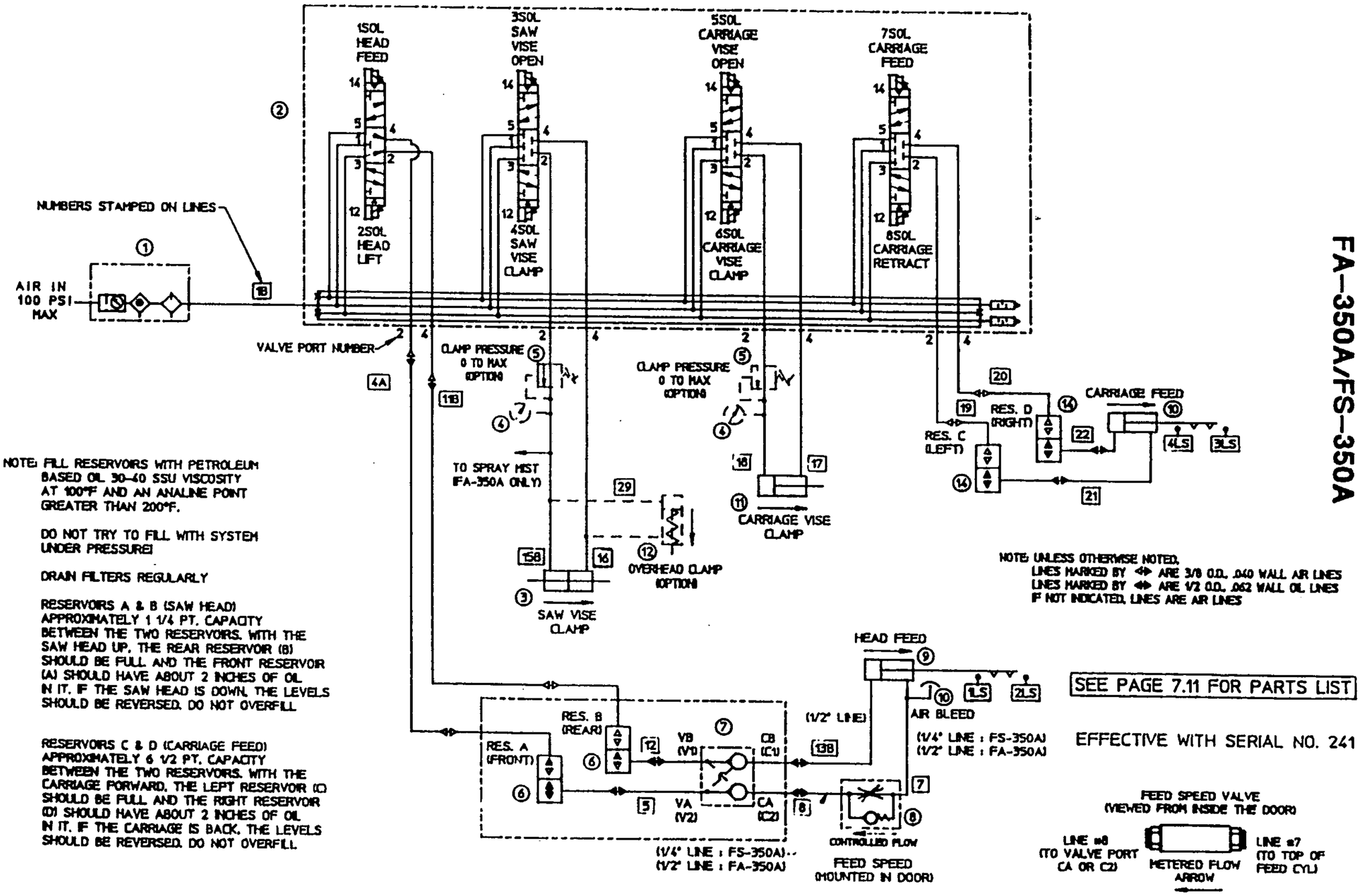
RESERVOIRS A & B: FILL WITH SAME OIL AS LUBRICATOR - APPROX. 1 QT. CAPACITY BETWEEN THE TWO RESERVOIRS. WITH THE SAW HEAD UP, THE REAR RESERVOIR (B) SHOULD BE FULL AND THE FRONT RESERVOIR (A) SHOULD HAVE ABOUT 2 INCHES OF OIL IN IT. IF THE SAW HEAD IS DOWN, THE LEVELS SHOULD BE REVERSED. DO NOT OVERFILL

NOTE: LINES MARKED BY ⟷ ARE 3/8 O.D. .049 WALL AIR LINES
LINES MARKED BY ⟷ ARE OIL LINES
IF NOT INDICATED, LINES ARE AIR LINES

| | | |
|---|---|---|
| 1 | CS-4013-1 | FILTER/REGULATOR/LUBRICATOR ASSEMBLY |
| 2 | CS-4035 | VALVE MANIFOLD ASSEMBLY |
| 3 | CS-2316 | VISE CYLINDER ASSEMBLY: 5" BORE x 3/8" STROKE x 1 1/2" THRU ROD |
| 4 | V20-7117A | PRESSURE GAUGE: PARKER #P77413 (OPTION) |
| 5 | V20-7117B | PRESSURE REGULATOR: PARKER #04R113F (OPTION) |
| 6 | V20-7115 | AIR/OIL RESERVOIR: LUBE DEVICES #1030-2 (2) |
| 7 | CS-4043 | DOUBLE P. O. CHECK VALVE: PARKER # CDP1010A206P |
| 8 | CS-4017-1 | FLOW CONTROL VALVE: DELTROL #EDF-258 |
| 9 | CS-4014-1 | PNEUMATIC CYL: 2 1/2" BORE x 3 3/4"STROKE x 1"ROD-NFPA STYLE MX-3 |
| 10 | CS-4046 | AIR VENT: WEATHERHEAD #705 |

EFFECTIVE WITH SERIAL NO. 240

# PNEUMATIC DIAGRAM
# FA-350A/FS-350A




NOTE: FILL RESERVOIRS WITH PETROLEUM BASED OIL 30-40 SSU VISCOSITY AT 100°F AND AN ANALINE POINT GREATER THAN 200°F.

DO NOT TRY TO FILL WITH SYSTEM UNDER PRESSURE!

DRAIN FILTERS REGULARLY

RESERVOIRS A & B (SAW HEAD) APPROXIMATELY 1 1/4 PT. CAPACITY BETWEEN THE TWO RESERVOIRS. WITH THE SAW HEAD UP, THE REAR RESERVOIR (B) SHOULD BE FULL AND THE FRONT RESERVOIR (A) SHOULD HAVE ABOUT 2 INCHES OF OIL IN IT. IF THE SAW HEAD IS DOWN, THE LEVELS SHOULD BE REVERSED. DO NOT OVERFILL

RESERVOIRS C & D (CARRIAGE FEED) APPROXIMATELY 6 1/2 PT. CAPACITY BETWEEN THE TWO RESERVOIRS. WITH THE CARRIAGE FORWARD, THE LEFT RESERVOIR (C) SHOULD BE FULL AND THE RIGHT RESERVOIR (D) SHOULD HAVE ABOUT 2 INCHES OF OIL IN IT. IF THE CARRIAGE IS BACK, THE LEVELS SHOULD BE REVERSED. DO NOT OVERFILL

NOTE: UNLESS OTHERWISE NOTED,
LINES MARKED BY ⟨4⟩ ARE 3/8 O.D. .040 WALL AIR LINES
LINES MARKED BY ⟨4⟩ ARE 1/2 O.D. .062 WALL OIL LINES
IF NOT INDICATED, LINES ARE AIR LINES

SEE PAGE 7.11 FOR PARTS LIST

EFFECTIVE WITH SERIAL NO. 241

FEED SPEED VALVE
(VIEWED FROM INSIDE THE DOOR)

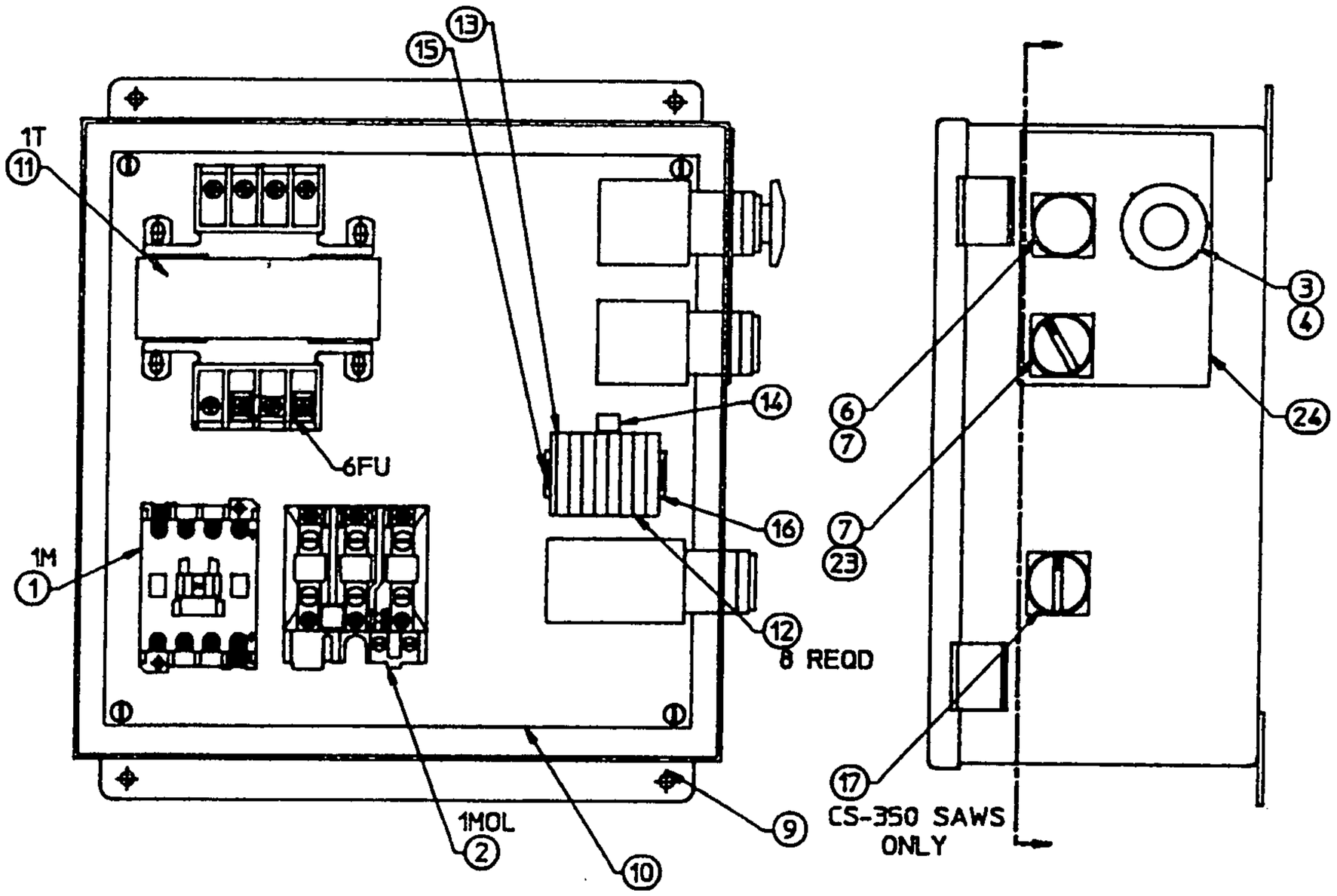
PARTS LIST
PNEUMATIC DIAGRAM
FA-350A/FS-350A

| | | |
|---|---|---|
| 1 | CS-4013-1 | FILTER/REGULATOR/LUBRICATOR ASSEMBLY |
| 2 | CS-4036 | VALVE MANIFOLD ASSEMBLY |
| 3 | CS-2316 | VISE CYLINDER ASSEMBLY: 5" BORE x 3/8" STROKE x 1 1/2" THRU ROD |
| 4 | V20-7117A | PRESSURE GAUGE: PARKER #P77413 (OPTION) |
| 5 | V20-7117B | PRESSURE REGULATOR: PARKER #O4R113F (OPTION) |
| 6 | V20-7115 | AIR/OIL RESERVOIR: LUBE DEVICES #A/OR1030-2 |
| 7 | CS-4043 | DOUBLE P. O. CHECK VALVE: PARKER #CDP101A206P |
| 8 | CS-4017-1 | FLOW CONTROL VALVE: DELTROL #EDF-25B |
| 9 | CS-4014-1 | PNEUMATIC CYL: 2 1/2 BORE x 3 3/4 STROKE x 1 ROD - NFPA STYLE MX-3 |
| 10 | CS-4034 | PNEUMATIC CYL: 2 1/2 BORE x 18 STROKE x 1 ROD - NFPA STYLE MX-3 |
| 11 | CS-4016-1 | PNEUMATIC CYL: 3 1/4 BORE x 1/2 STROKE x 1 ROD - NFPA STYLE MF-1 |
| 12 | CS-7515-1 | PNEUMATIC CYL: HUMPHREY #5-D-1/2: 1 1/2 BORE x 1/2 STROKE x 7/16 ROD (OPTION) |
| 13 | CS-4046 | AIR VENT: WEATHERHEAD #705 |
| 14 | CS-4056 | AIR/OIL RESERVOIR: LUBE DEVICES #A/OR2150-4 |

# NOTES

# ELECTRICAL CONTROLS
# CA–350/CA–350PV
# CS–350/CS–350PV

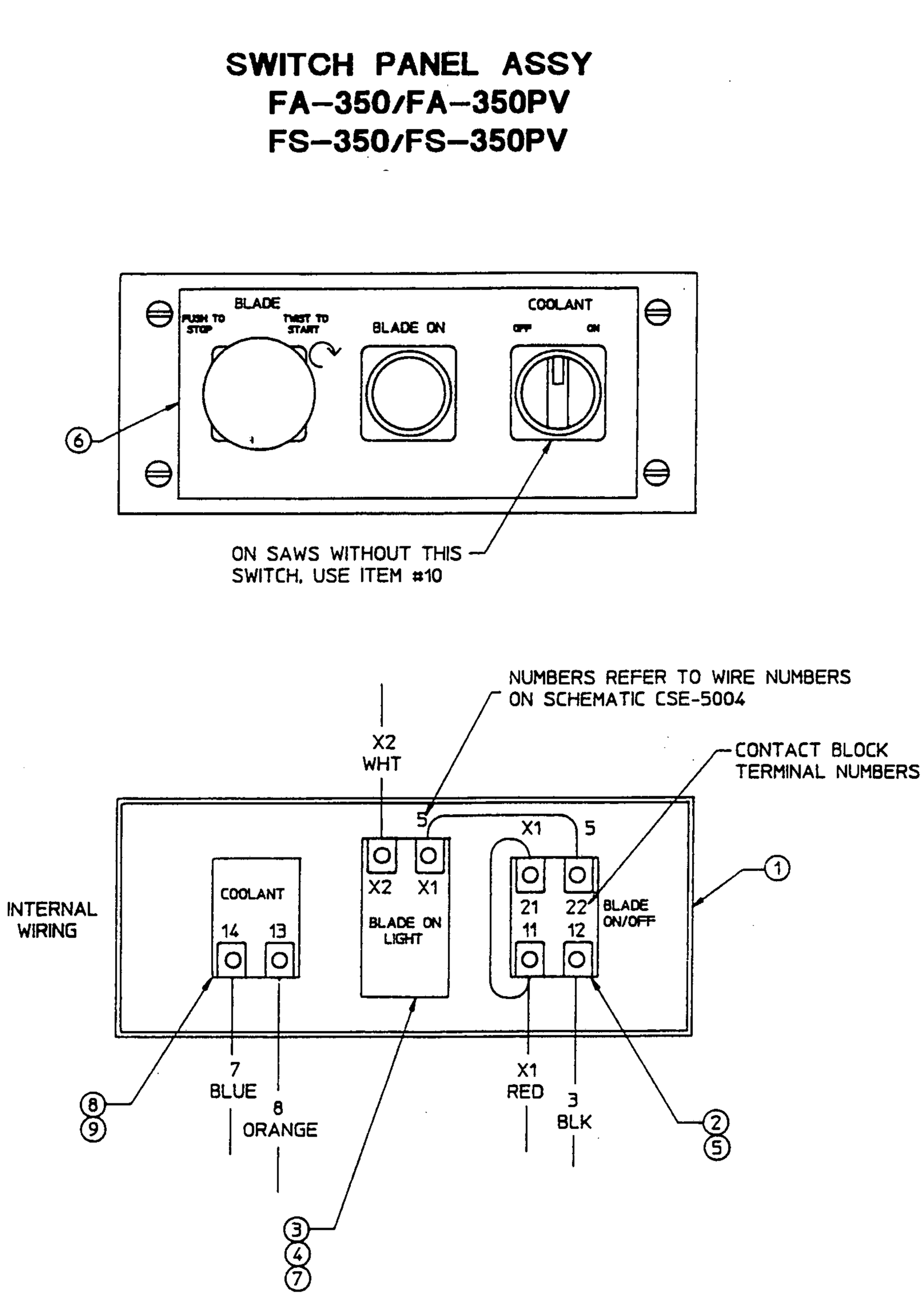
EFFECTIVE WITH S/N 382 (JUNE, 1992)




| | | |
|---|---|---|
| 1 | 9A-5040A | ALLEN-BRADLEY #100-A24ND3 CONTACTOR (120V) |
| 2 | 9A-5040B | ALLEN-BRADLEY #592-JOV16 OVERLOAD RELAY |
| 3 | 9A-5040C | ALLEN-BRADLEY #800E-MT4 MUSHROOM HEAD OPERATOR |
| 4 | 9A-5040D | ALLEN-BRADLEY #800E-XL01 1-N.C. CONTACT BLOCK |
| 5 | | |
| 6 | 9A-5040F | ALLEN-BRADLEY #800E-F3 GREEN PB OPERATOR |
| 7 | 9A-5040G | ALLEN-BRADLEY #800E-XL10 1-N.O. CONTACT BLOCK |
| 8 | | |
| 9 | 9A-5040J | HOFFMAN #A1212CH CLAMP COVER ENCLOSURE |
| 10 | 9A-5040K | HOFFMAN #A12P12 ENCLOSURE PANEL |
| 11 | CS-5019 | DONGAN #HC-0250-44 FKPS2S TRANSFORMER |
| 12 | | ALLEN-BRADLEY #1492-H1 TERMINAL BLOCK |
| 13 | | ALLEN-BRADLEY #1492-N36 END BARRIER |
| 14 | | ALLEN-BRADLEY #1492-N42 INSULATED JUMPER |
| 15 | | ALLEN-BRADLEY #1492-N2 RETAINING CLIP |
| 16 | | ALLEN-BRADLEY #1492-N1 MOUNTING CHANNELx2 1/4" |
| 17 | CS-5064-1 | MOTOR SPEED SWITCH ASSEMBLY (CS-350 SAWS ONLY: INCLUDES CS-5064-1A-1C BELOW) |
| | CS-5064-1A | MOTOR SPEED SWITCH LEGEND PLATE |
| | CS-5064-1B | MOTOR SPEED SWITCH OPERATOR HANDLE |
| | CS-5064-1C | MOTOR SPEED SWITCH CONTACT BLOCK |
| 18 | | |
| 19 | | |
| 20 | | |
| 21 | | |
| 22 | | |
| 23 | 9A-5040N | ALLEN-BRADLEY #800E-SM21 2 POS SS OPERATOR |
| 24 | 9A-5040R | SWITCH BOX OVERLAY |

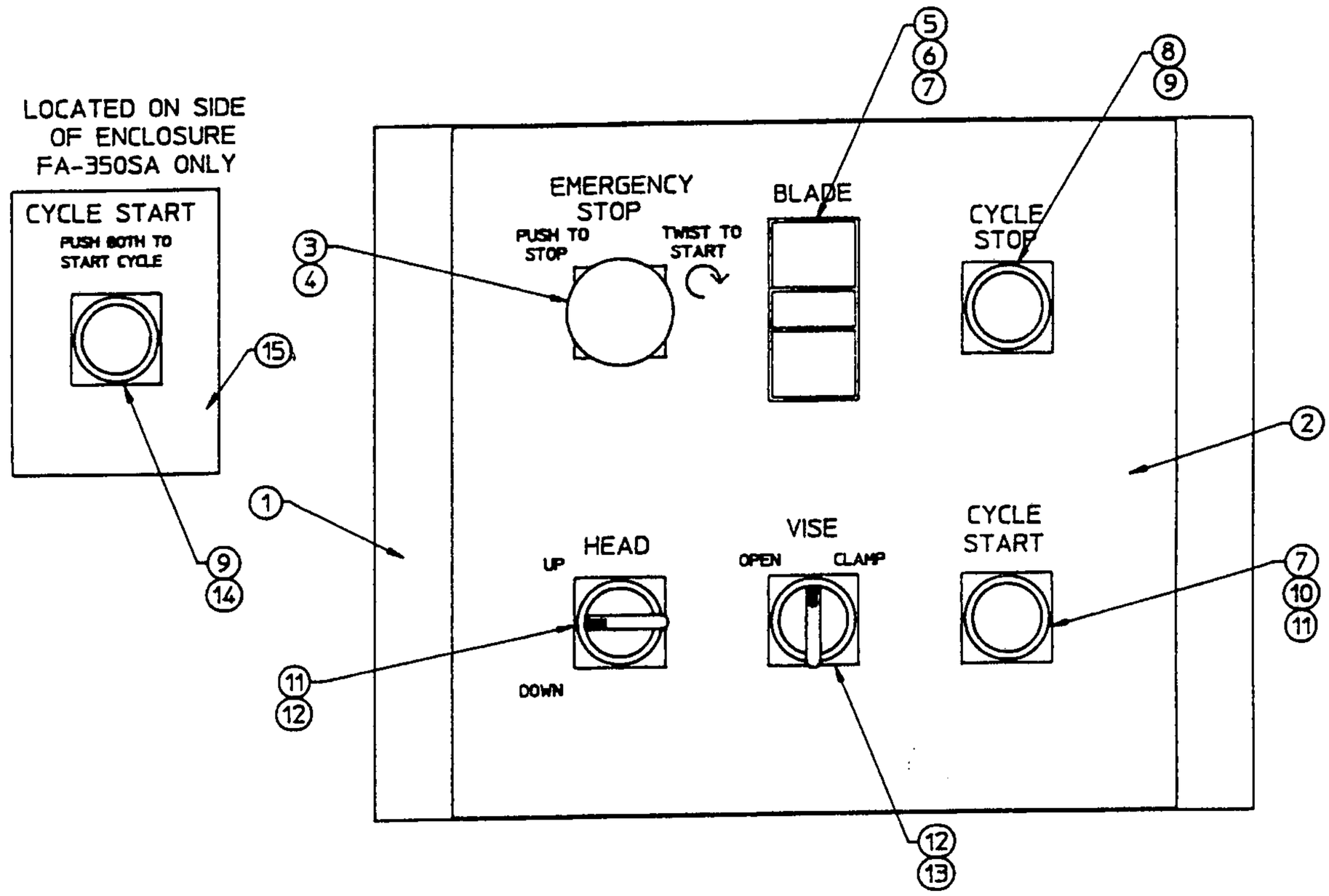
# SWITCH PANEL ASSY
# FA-350/FA-350PV
# FS-350/FS-350PV



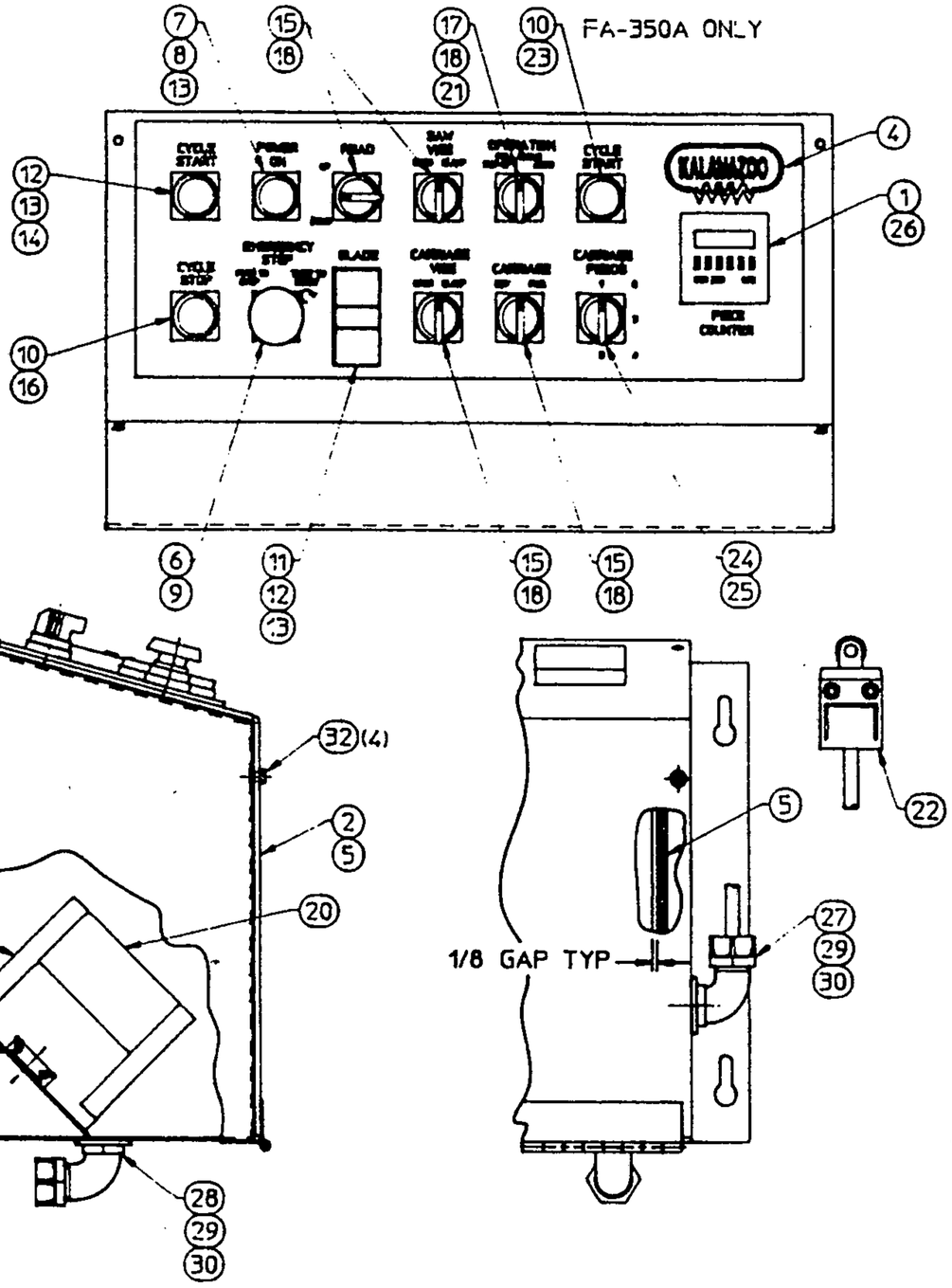

| | | |
|---|---|---|
| 1 | CS-5047 | 3 POS ENCLOSURE- HOFFMAN #E-3PBGX |
| 2 | CS-5022 | SWITCH OPERATOR- SQUARE D #9001-D1C1R |
| 3 | CS-5024 | PILOT LIGHT BODY- SQUARE D #9001-D1V1Y |
| 4 | CS-5025 | LIGHT MODULE- SQUARE D #9001-DTSC |
| 5 | CS-5053 | CONTACT BLOCK- SQUARE D #9001-DA02 |
| 6 | CS-8207 | PANEL OVERLAY- FS-350M/PV |
| 7 | CS-5031 | LAMP- GE #1866 |
| 8 | CS-5028 | CONTACT BLOCK- SQUARE D #9001-DA10 |
| 9 | CS-5034 | SWITCH OPERATOR- SQUARE D #9001-D1G2S |
| 10 | CS-5062 | CLOSING PLATE- SQUARE D #9001-Z33 |

# FA-350SA/FS-350SA
# SWITCH PANEL ASSEMBLY



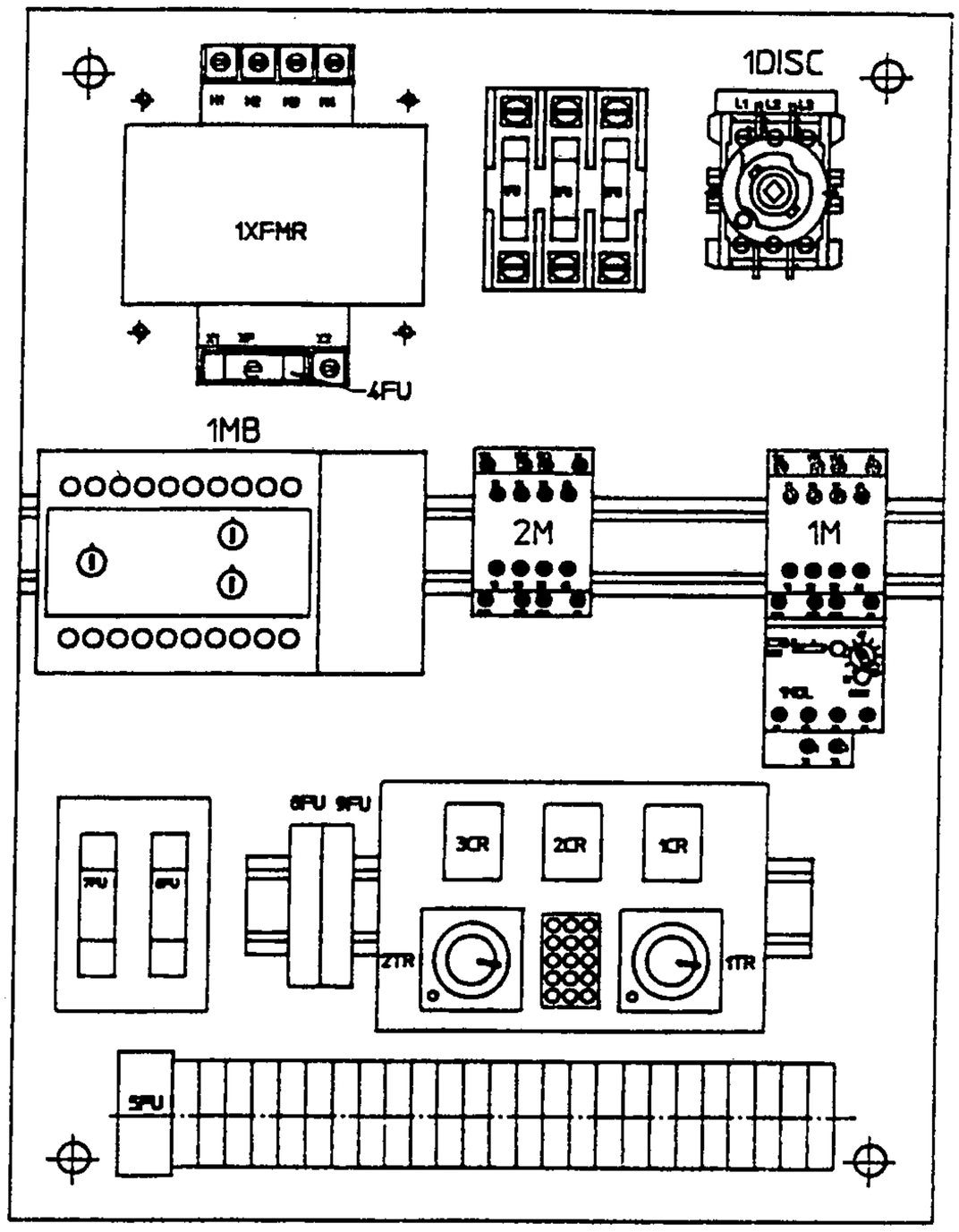

| | | |
|---|---|---|
| 1 | CS-5080 | SWITCH ENCLOSURE: HOFFMAN #E-9PBGX |
| 2 | CS-5082 | SWITCH ENCLOSURE OVERLAY |
| 3 | CS-5022 | SQUARE D #9001-D1C1R MUSHROOM HEAD SW. OPER. |
| 4 | CS-5027 | SQUARE D #9001-DA01 N.C. CONTACT BLOCK |
| 5 | CS-5029 | SQUARE D #9001-D1M3U DUAL FUNCTION OPERATOR |
| 6 | CS-5030 | SQUARE D #9001-DTSC11 LIGHT MOD. (INCL. 1LT) |
| 7 | CS-5031 | G.E. #1866 LAMP (2) |
| 8 | CS-5035 | SQUARE D #9001-D1A3R RED PUSH BUTTON OPERATOR |
| 9 | CS-5028 | SQUARE D #9001-DA10 N.O. CONTACT BLOCK (2) |
| 10 | CS-5032 | SQUARE D #9001-D1Y1G GREEN PUSH BUTTON OPER. |
| 11 | CS-5030 | SQUARE D #9001-DTSC11 LIGHT MOD. (INCL. 2LT) |
| 12 | CS-5033 | SQUARE D #9001-D1G4S 3 POS. MOM. SWITCH OPER.(2) |
| 13 | CS-5037 | SQUARE D #9001-DA20 2-N.O. CONTACT BLOCK (2) |
| 14 | CS-5065 | SQUARE D #9001-D1A1U GREEN PUSH BUTTON OPER. (FA-350SA) |
| 15 | CS-5075 | SECOND CYCLE START OVERLAY (FA-350SA) |

# CONSOLE ASSEMBLY
# FA-350A / FS-350A




| | | |
|---|---|---|
| 1 | AB-17130 | PRESET COUNTER: DURANT #45610-400 |
| 2 | CS-1415 | CONSOLE WELDMENT |
| 3 | CS-1415H | CONTROLLER MOUNTING SPAR |
| 4 | CS-1416 | CONSOLE OVERLAY (FA-350A) |
| | CS-1416S | CONSOLE OVERLAY (FS-350A) |
| 5 | CS-1417 | FOAM SEAL TAPE (68") |
| 6 | CS-5022 | MUSHROOM HD SW. OPERATOR:SQUARE D #9001-D1C1R |
| 7 | CS-5024 | AMBER PILOT LIGHT BODY:SQUARE D #9001-D1V1Y |
| 8 | CS-5025 | LIGHT MODULE:SQUARE D #9001-DTSC |
| 9 | CS-5027 | N.C. CONTACT BLOCK:SQUARE D #9001-DA01 |
| 10 | CS-5028 | N.O. CONTACT BLOCK:SQUARE D #9001-DA10 (2) |
| 11 | CS-5029 | DUAL FUNCTION SW. OPER.:SQUARE D #9001-D1M3U |
| 12 | CS-5030 | LIGHT MODULE:SQUARE D #9001-DTSC11 (2) |
| 13 | CS-5031 | LIGHT BULB: GE #1866 (3) |
| 14 | CS-5032 | GREEN LIGHTED SW. OPER.:SQUARE D #9001-D1Y1G |
| 15 | CS-5033 | 3-POS.MOMENTARY SW. OPER.:SQUARE D #9001-D1G4S (4) |
| 16 | CS-5035 | RED PUSHBUTTON SW. OPER.:SQUARE D #9001-D1A3R |
| 17 | CS-5036 | 3-POS.MAINTAINED SW. OPER.:SQ. D #9001-D1G3S |
| 18 | CS-5037 | 2-N.O. CONTACT BLOCK:SQUARE D #9001-DA20 (5) |
| 19 | CS-5042 | PROGRAMMABLE CONTROLLER: OMRON #C40K-CDR-A |
| 20 | CS-5044 | EEPROM CHIP: OMRON #0ROM-H |
| 21 | CS-5045 | 2-N.C. CONTACT BLOCK:SQUARE D #9001-D802 |
| 22 | CS-5057 | LIMIT SW.: OMRON D4C-1603 |
| 23 | CS-5065 | GREEN PUSHBUTTON SW. OPER.:SQ. D #9001-D1A1U |
| 24 | CS-5084 | 5-POS.MAINTAINED SW. OPER.:SQ. D #9003-KAB1A |
| 25 | CS-5085 | 5-POS. CONTACT BLOCK: SQUARE D #9003-K2D0040A |
| 26 | H3-5023 | VARISTOR: CKE #Z150LA20A (2) |
| 27 | | 1/2 NPT CORD GRIP: REMKE #RSR-9106 |
| 28 | | 1/2 NPT CORD GRIP: REMKE #RSR-9110 |
| 29 | | 1/2" CONDUIT SEALING RING (2) |
| 30 | | 1/2" CONDUIT LOCKNUT (2) |
| 31 | | #6-32 x 1/2 THREAD CUTTING SCREW (3) |
| 32 | | #10-24 x 1/2 THREAD CUTTING SCREW (4) |

# ELECTRICAL ENCLOSURE PANEL
# 'F' SERIES CIRCULAR SAWS




| | | |
|---|---|---|
| 1M | CS-5020A | MOTOR CONTACTOR: SQUARE D #8502 PE5.22E |
| 1DISC | CS-5020D | DISCONNECT SWITCH BODY: STROMBERG #OETL-NF30 |
| | | DISC. SWITCH HANDLE: STROMBERG #OETLZX 44/90 |
| | CS-5020F | FUSE BLOCK: MARATHON #6M30A3SP |
| 1XFMR | CS-5019 | TRANSFORMER: 250VA. 440/220/208V PRI-120V SEC |
| 1MB | CS-7150C | MOTOR BRAKE: SQUARE D #8922 EMB-20 440V/120V |
| | CS-7150B | MOTOR BRAKE: SQUARE D #8922 EMB-36 220V/120V |
| 2M | CS-5020A | MOTOR CONTACTOR: SQUARE D #8502 PE5.22E |
| 1MOL | CS-5020B1 | OVERLOAD RELAY: SQUARE D #9065-TE3.7 (440V) |
| | CS-5020B2 | OVERLOAD RELAY: SQUARE D #9065-TE8 (220/208V) |
| 1-3FU | | BUSSMAN #KTK-R-30 FUSE (208/230V) |
| 1-3FU | | BUSSMAN #KTK-R-12 FUSE (460V) |
| 4FU | | BUSSMAN #FNM-2 1/2 FUSE |
| 5FU | | BUSSMAN #FNM-1 1/4 FUSE |
| 8FU | | BUSSMAN #AGC-2 FUSE |
| 9FU | | BUSSMAN #AGC-3/10 FUSE |
| 10-11FU | CS-7151 | BUSSMAN #FWH-15 SEMICONDUCTOR FUSE (440V) |
| 10-11FU | CS-7151B | BUSSMAN #FWH-35 SEMICONDUCTOR FUSE (208/220V) |
| 1-3CR | CS-5011 | 4PDT RELAY: OMRON #MY4US-AC120 |
| 1-2TR | CS-5013-1 | TIMER: OMRON #H3G-8C-AC1105S |
| | CS-5070 | CIRCUIT BOARD (SEMI-AUTOMATIC SAWS ONLY) |

1MB, 2M, 7FU, AND 8FU ARE ONLY USED ON MACHINES WITH THE ELECTRONIC MOTOR BRAKE OPTION

FUSES 8FU AND 9FU ARE ONLY USED ON AUTOMATIC SAWS

FUSES 10FU & 11FU ARE SHOWN AS 7FU & 8FU ON SEMI-AUTOMATIC SAWS

1-3CR AND 1-2TR ARE ONLY USED ON SEMI-AUTOMATIC SAWS (FA-350SA AND FS-350SA)

# CHANGING OPERATING VOLTAGES
# CA-350/CS-350 SAWS

To change between 208/230 and 460 volts, you must change the motor wiring (shown on the motor nameplate), the overload heater elements (shown on page 8.25), and the transformer wiring (shown on a decal on the transformer and on page 8.9). It is not necessary to change the transformer fusing

NOTE: On CS-350 saws,,the motor itself must be changed. See page 6.5 for directions.

## CHANGING OPERATING VOLTAGES

If it should become necessary to change the operating voltage of your new KALAMAZOO circular saw, please note the following:

1. TURN OFF POWER AT THE SUPPLY!

2. POWER FUSES (1-3FU): Whenever voltages are changed, the fuse values should be adjusted accordingly. Improper fusing can lead to nuisance tripping or unprotected electrics.

   208V or 230V machines use Bussman KTK-R-30 fuses (or equal
   460V machines use Bussman KTK-R-12 fuses (or equal)
   575V machines use Bussman KTK-R-10 fuses (FA-350 saws only

3. TRANSFORMER (1XFMR): The standard transformer in your saw has a 'tri-voltage' primary. It can operate on 208V, 230V, or 460V by simply changing the primary leads. The four leads or terminals (depending on the transformer) are marked H1, H2, H3, and H4 and are at the top of the transformer. Proper connections are shown on page 8.9 and on the transformer nameplate. If there is any discrepancy between the manual and the nameplate, ALWAYS follow the nameplate instructions. If the transformer has primary leads, any unused leads should be insulated (separately) to prevent them from making electrical contact with the enclosure.

   The secondary leads (X1 and X2) do not change for different voltages.

4. OVERLOAD RELAY (1MOL): Depending on the operating voltage, the following overload relays are used:

   460V and 575V: KALAMAZOO P/N CS-5020B1 (Marked TE3.7)
   208V and 230V: KALAMAZOO P/N CS-5020B2 (Marked TE8)

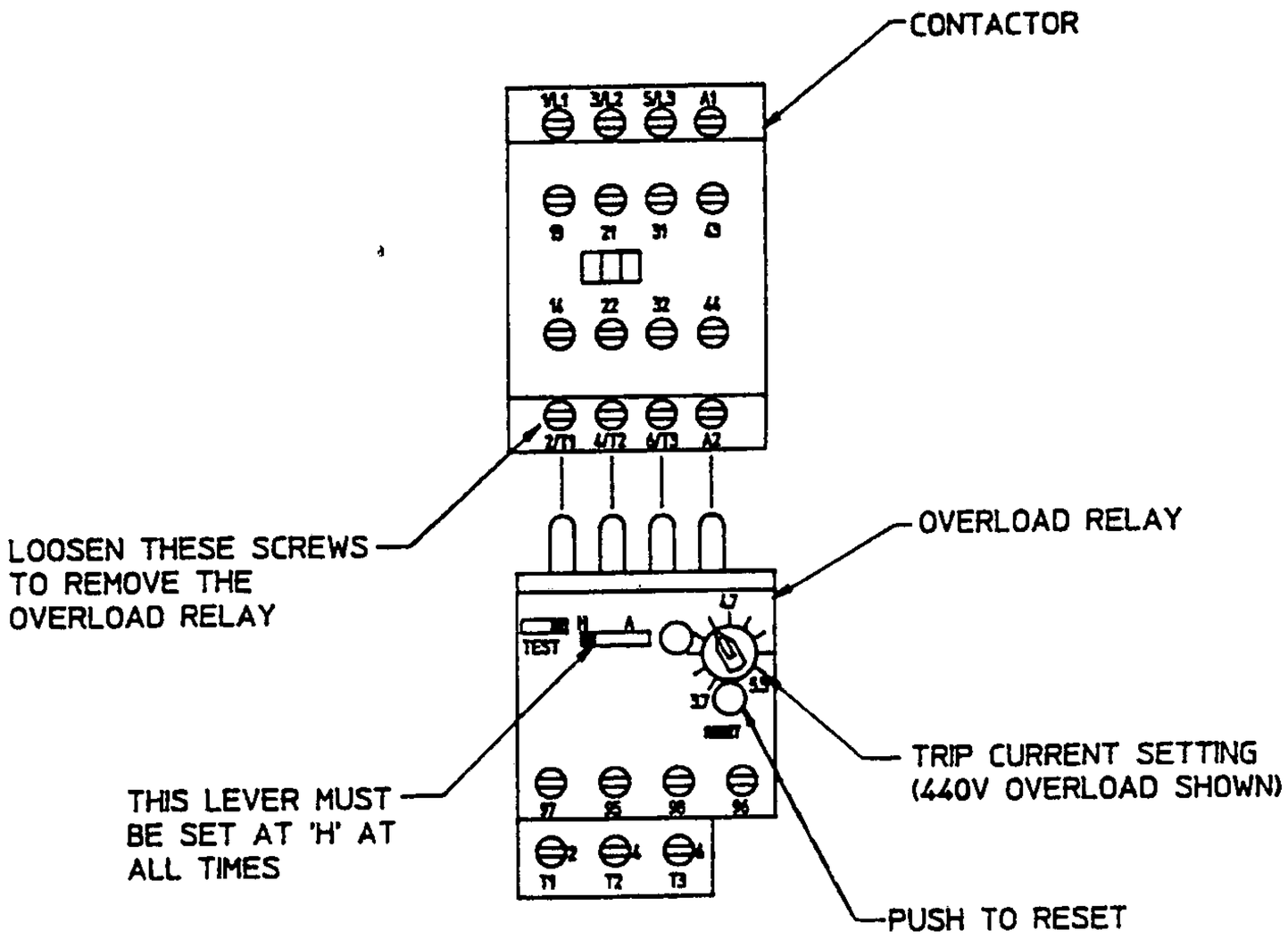
   Changing between 208/230V and 460/575V requires a change of overload relays. Changing between 208V and 230V or between 460V and 575V requires only an adjustment of the trip current setting. Those settings are as follows:

| FA-350 saws | FS-350 saws |
|---|---|
| 208V: 9.5 | 208V: 8.0 |
| 230V: 9.0 | 230V: 8.0 |
| 460V: 4.5 | 460V: 4.0 |
| 575V: 3.7 | not available at this voltage |

   Correct adjustment of the trip current setting will prevent nuisance tripping of the overload while protecting the motor.

   To replace the overload relay, undo the wires from the bottom two rows of terminals on the overload, then loosen the four lower contactor screws (see illustration on page 8.8). The relay will drop away from the contactor. When installing the new contactor, make sure all screws are tight.

If the overload relay is changed, the blue 'Reset' button must be pushed before the motor will operate.



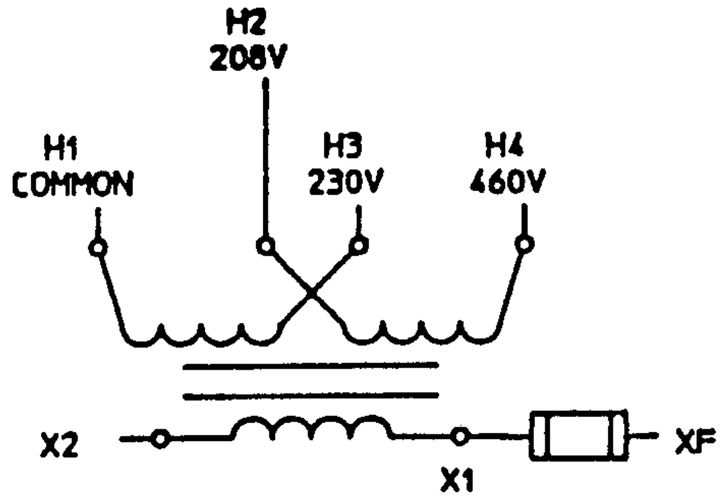

5. ELECTRONIC MOTOR BRAKE (1MB): If your machine has a motor brake, it must be changed if you are changing between 460V and 208/230V. No changes are required between 208V and 230V. Consult the factory for help in making this change.

## CHANGING OPERATING VOLTAGES
(continued)

6. CS-350/FS-350 SAWS: To change these saws between 208V and 230V operation, just change the transformer primary connection.

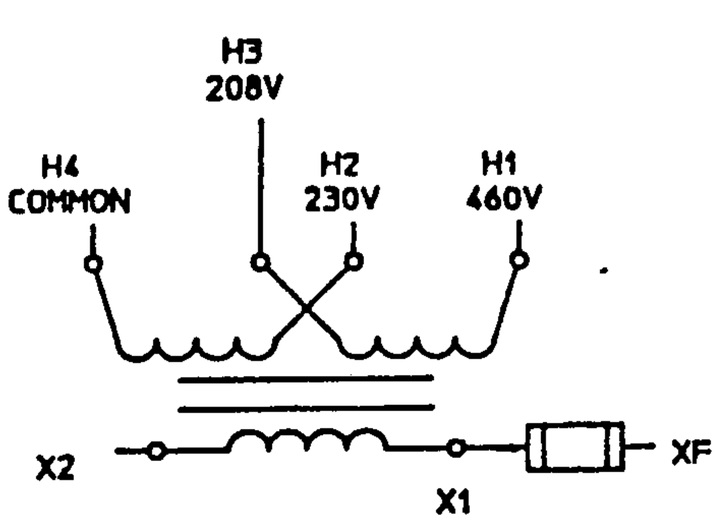
   To change between 208/230V and 460v operation, you must change the power fuses, overload relay, and transformer primary connections, and set the overload trip current as explained in steps 1-4 above. In addition, the drive motor must be changed. Refer to page 6.5 for details.

## TRANSFORMER CONNECTIONS




DONGAN #HC-0250-44 TRANSFORMER

208V OPERATION: CONNECT TO H1 AND H2
230V OPERATION: CONNECT TO H1 AND H3
460V OPERATION: CONNECT TO H1 AND H4




MICRON #V250MBT13XK TRANSFORMER

208V OPERATION: CONNECT TO H3 AND H4
230V OPERATION: CONNECT TO H2 AND H4
460V OPERATION: CONNECT TO H1 AND H4

## CHANGING INDICATOR LAMPS
## FA-350/FS-350 SAWS

REF: 'Blade On' light (M and PV models), 'Cycle Start' light (SA and A saws), 'Blade On' light (SA and A saws), and the 'Power On' light (A saws)

1. Turn off the power at the disconnect switch.

2. Unscrew the cover to the switch enclosure.

3. In the middle of one side of the contact block is a plastic loop with a metal wire. A screwdriver inserted into the loop and pried down will lift the wire and separate the contact block and lamp body from the switch operator.

4. The lamp should be visible on the front of the light module. It is removed by pushing down and rotating counter-clockwise.

5. The new bulb is inserted and turned clockwise.

6. The contact block/light module is reattached by lining up the side wires with the grooves in the switch operator or lens and pushing it into place. You will feel the light module snap into place.

7. Turn the power back on and test the light, then close up the switch enclosure.

## SWITCH OPERATOR/CONTACT BLOCK REPLACEMENT

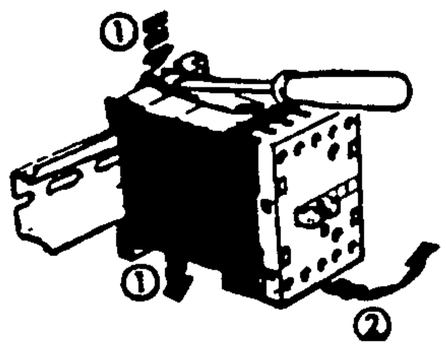
If it should become necessary to replace either the contact block or switch operator, they are both accessed and removed as described in steps 1-3 above. To remove the switch operator from the panel, loosen the plastic nut and slide the operator through the front of the panel. When replacing the operator, take note of the tab on one side. This tab should fit into the notch in the panel and overlay to prevent switch rotation.

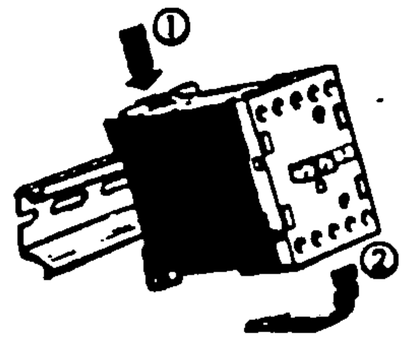
The contact block is re-installed as above.

MOTOR CONTACTOR MAINTENANCE
FA-350/FS-350 SAWS

INSTALLATION AND REMOVAL

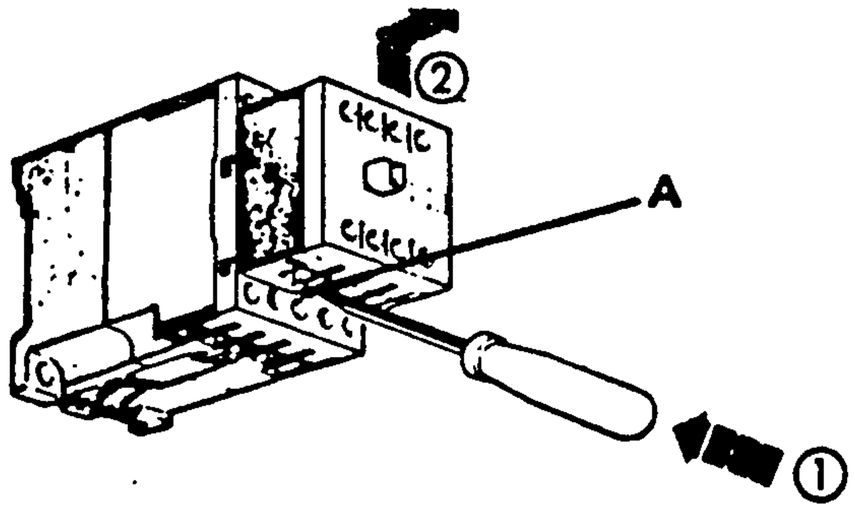
To remove a contactor from the DIN rail, insert a screwdriver into the red clip at the top back of the contactor and pry downward to lift the clip. This will loosen the contactor from the rail. To replace the contactor, place the contactor over the top lip of the DIN rail and push down while rotating the bottom of the contactor down toward the rail.



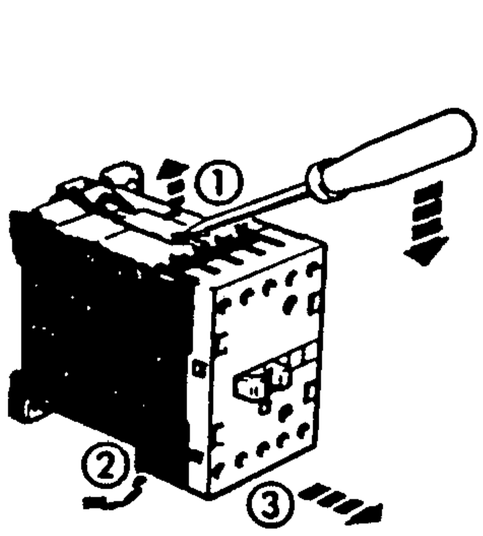



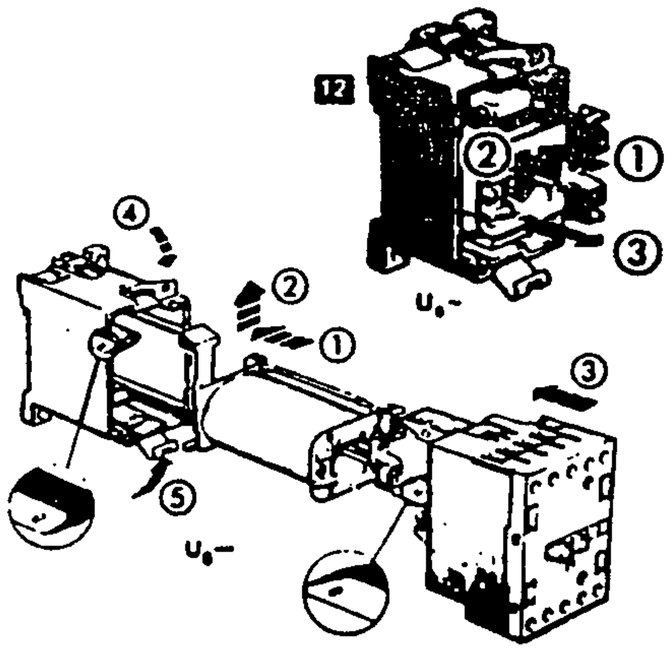

COIL REPLACEMENT

The first step in replacing the contactor coil is removing the auxilary contact block. Depress the red lever shown below and slide the block up. To replace, slip the tabs on the back of the block into the holes on the contactor face and push down.



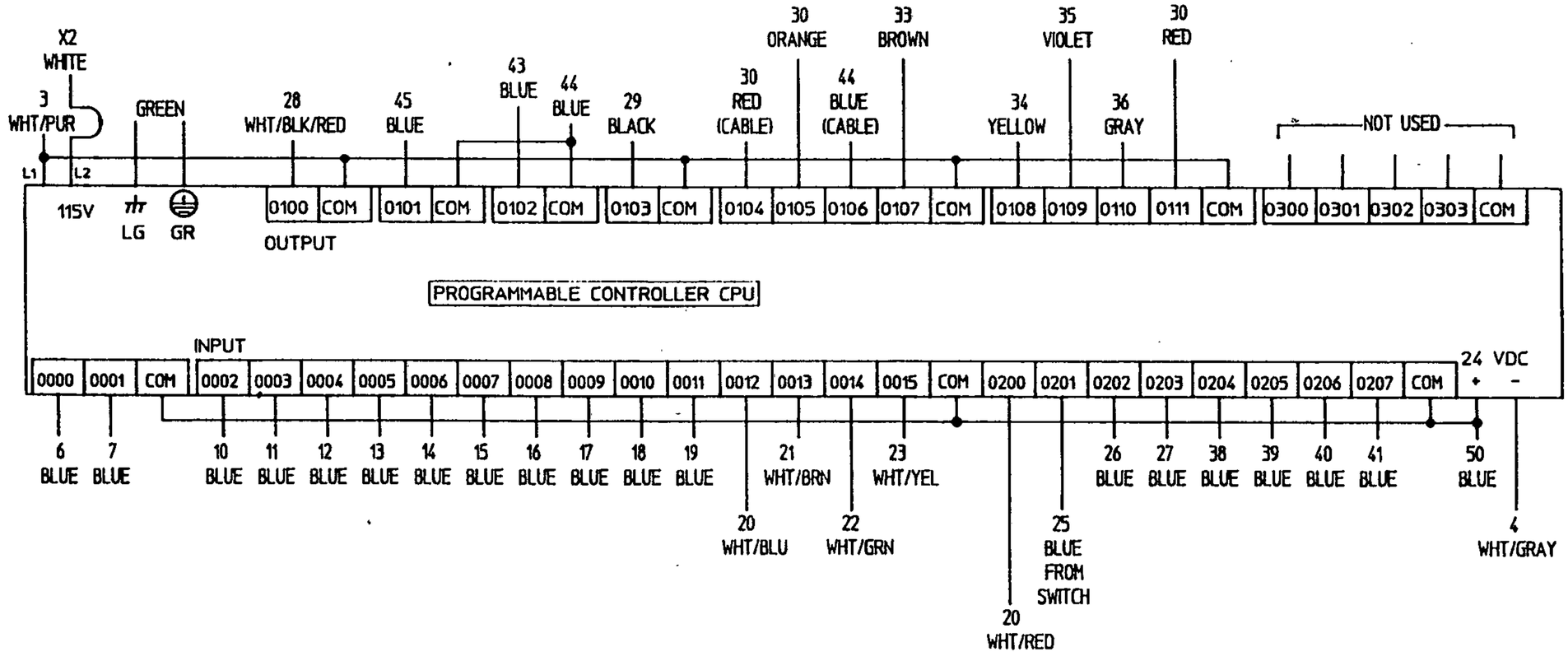

To remove the coil, use a screwdriver to release the two metal clips as shown below and lift the housing assembly. Depress the coil and slide it down. Replace with Square D P/N 9998PD2C110A.



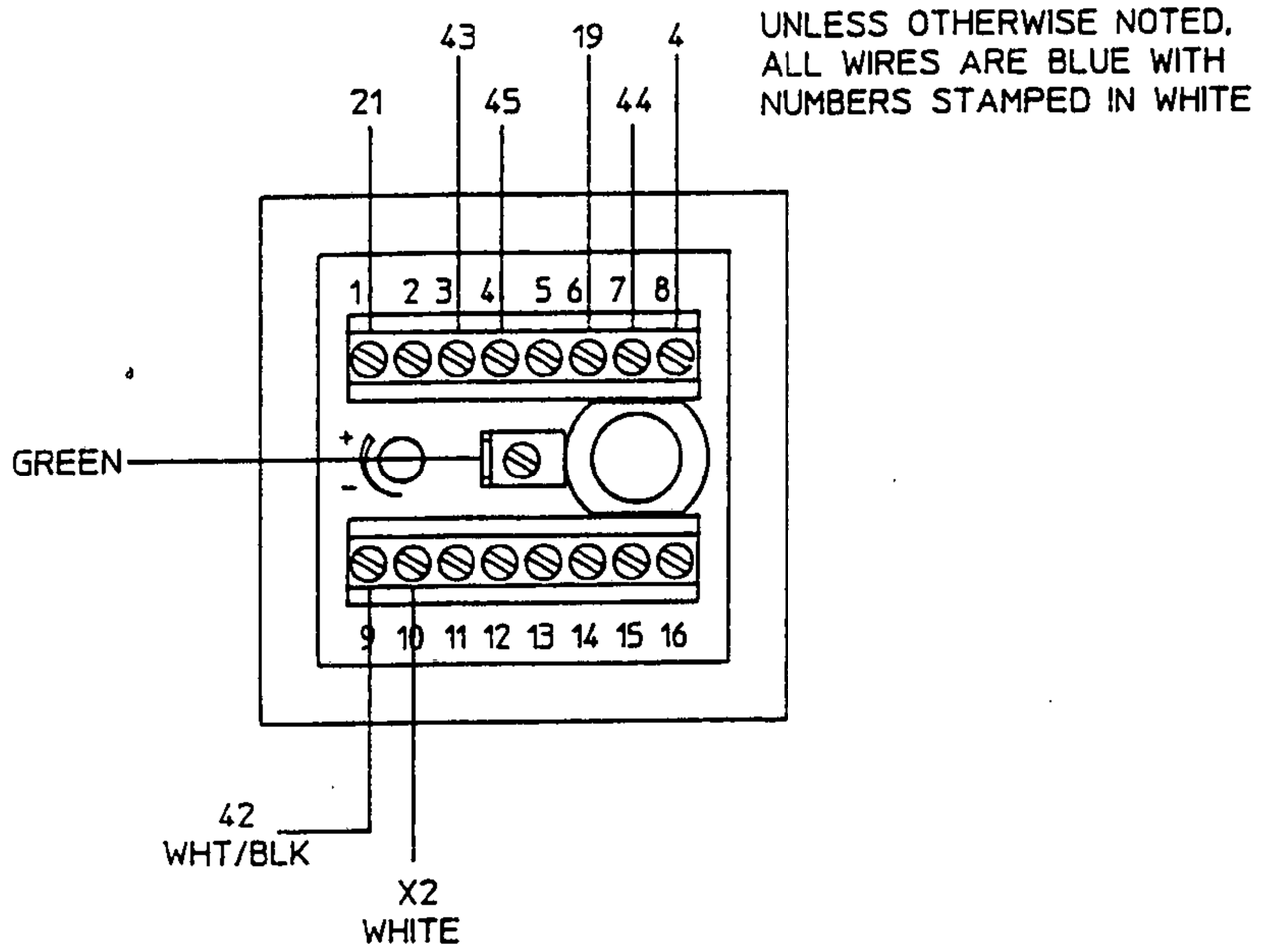
# LOGIC CONTROLLER WIRING
## FA-350A / FS-350A

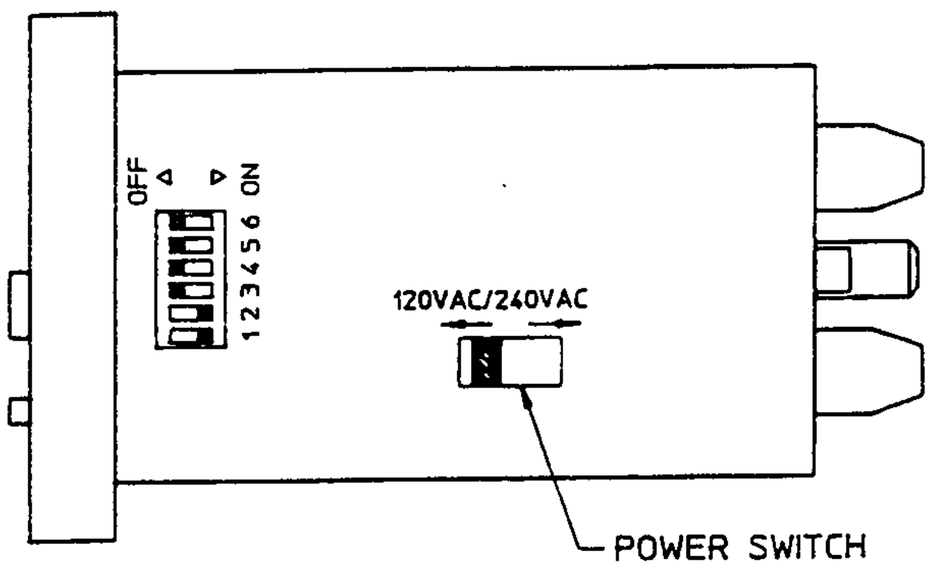
WIRE NUMBERS AND COLORS ARE REFERENCED ON THE ELECTRICAL SCHEMATICS




NOTE: A VARISTOR (P/N H3-5023) IS CONNECTED BETWEEN THE AC INPUT TERMINALS

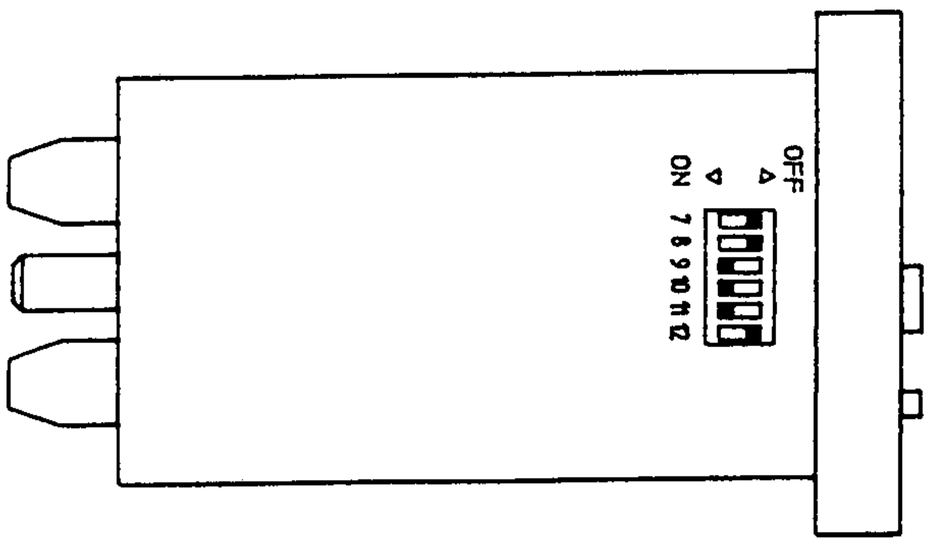
# PARTS COUNTER WIRING
# FA-350A/FS-350A



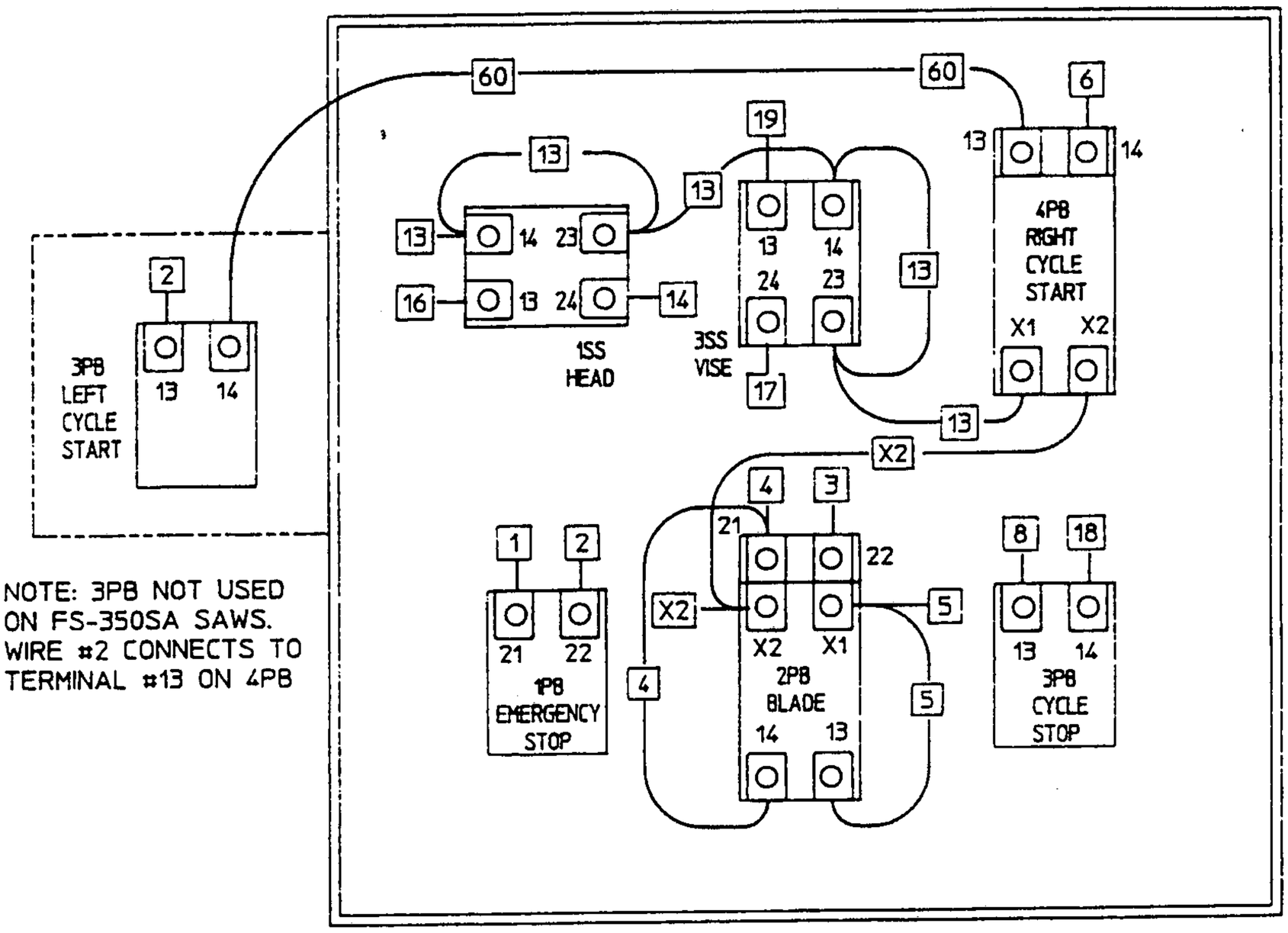

SWITCH SETTINGS ON SIDE OF COUNTER
SWITCHES 1. 2. 9. 10. 11 SHOULD BE 'ON'
ALL OTHER SWITCHES SHOULD BE 'OFF'

POWER SWITCH SHOULD BE SET FOR 120V



# FA-350SA/FS-350SA
# SWITCH PANEL ASSEMBLY

CONTROL PANEL WIRING
(VIEWED WITH COVER HINGED DOWN)

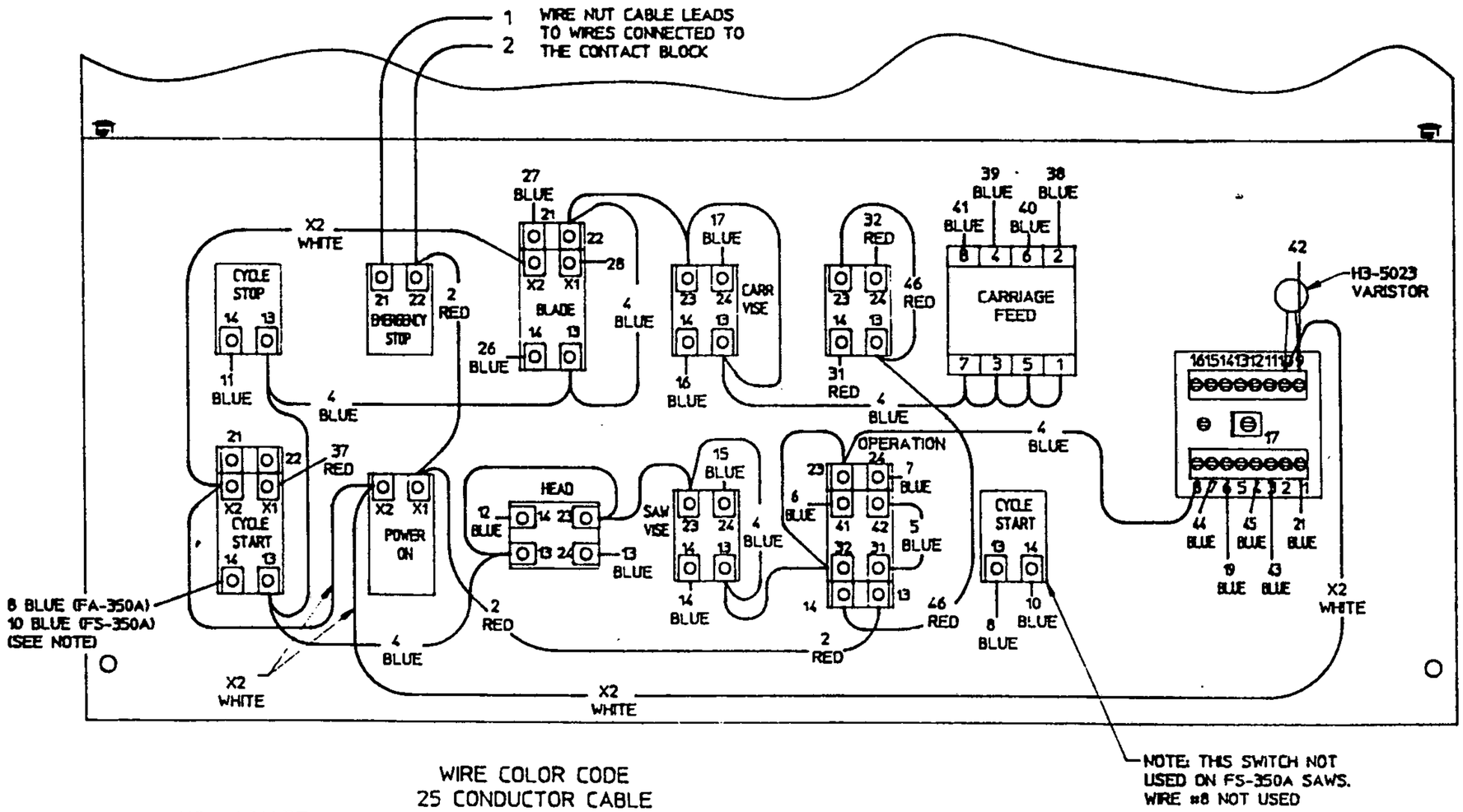



NOTE: 3PB NOT USED ON FS-350SA SAWS. WIRE #2 CONNECTS TO TERMINAL #13 ON 4PB

WIRE COLOR CODE
(WIRE COLOR/STRIPE COLOR(S))

| | |
|---|---|
| X2 | WHITE |
| 1 | WHITE/BLACK |
| 2 | RED/YELLOW |
| 3 | WHITE/BLACK & RED |
| 4 | WHITE/BLUE |
| 5 | WHITE/GRAY |
| 6 | WHITE/RED |
| 8 | WHITE/ORANGE |
| 13 | GRAY |
| 14 | RED |
| 16 | ORANGE |
| 17 | BLUE |
| 18 | RED/BLACK |
| 19 | BLACK |

# FA-350A/FS-350A
# WIRING CONNECTIONS

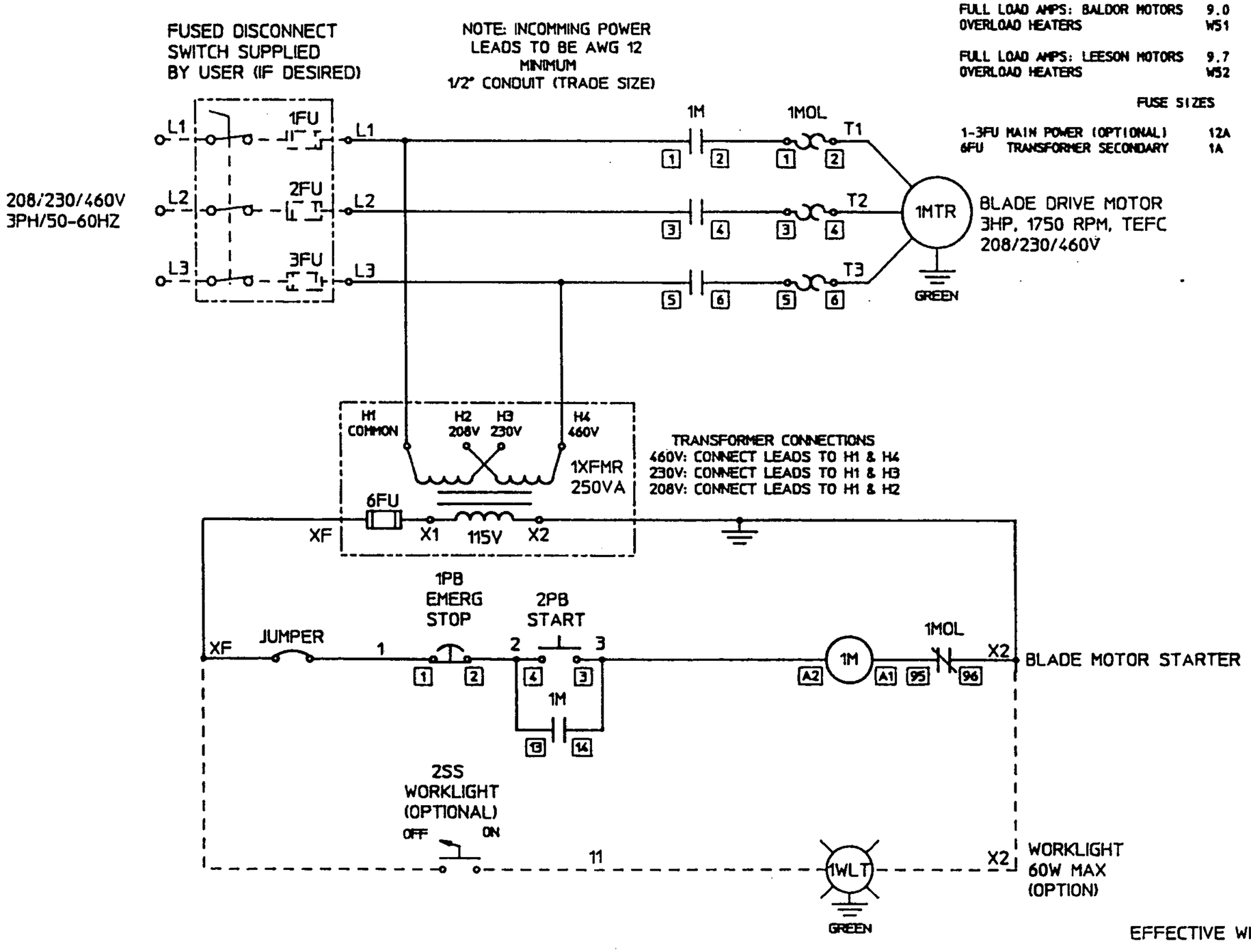



WIRE COLOR CODE
25 CONDUCTOR CABLE

| | | | |
|---|---|---|---|
| X2 | WHITE | 30 | RED |
| 1 | PINK | 31 | ORANGE |
| 2 | WHITE W/ORANGE TRACER | 32 | BLUE |
| 3 | WHITE W/PURPLE | 33 | BROWN |
| 4 | WHITE W/GRAY | 34 | YELLOW |
| 20 | WHITE W/BLUE | 35 | VIOLET |
| 21 | WHITE W/BROWN | 36 | GRAY |
| 22 | WHITE W/GREEN | 42 | WHITE W/BLACK |
| 23 | WHITE W/YELLOW | GND | GREEN |
| 24 | WHITE W/RED | | |
| 28 | WHITE W/BLACK & RED | | |
| 29 | BLACK | | |

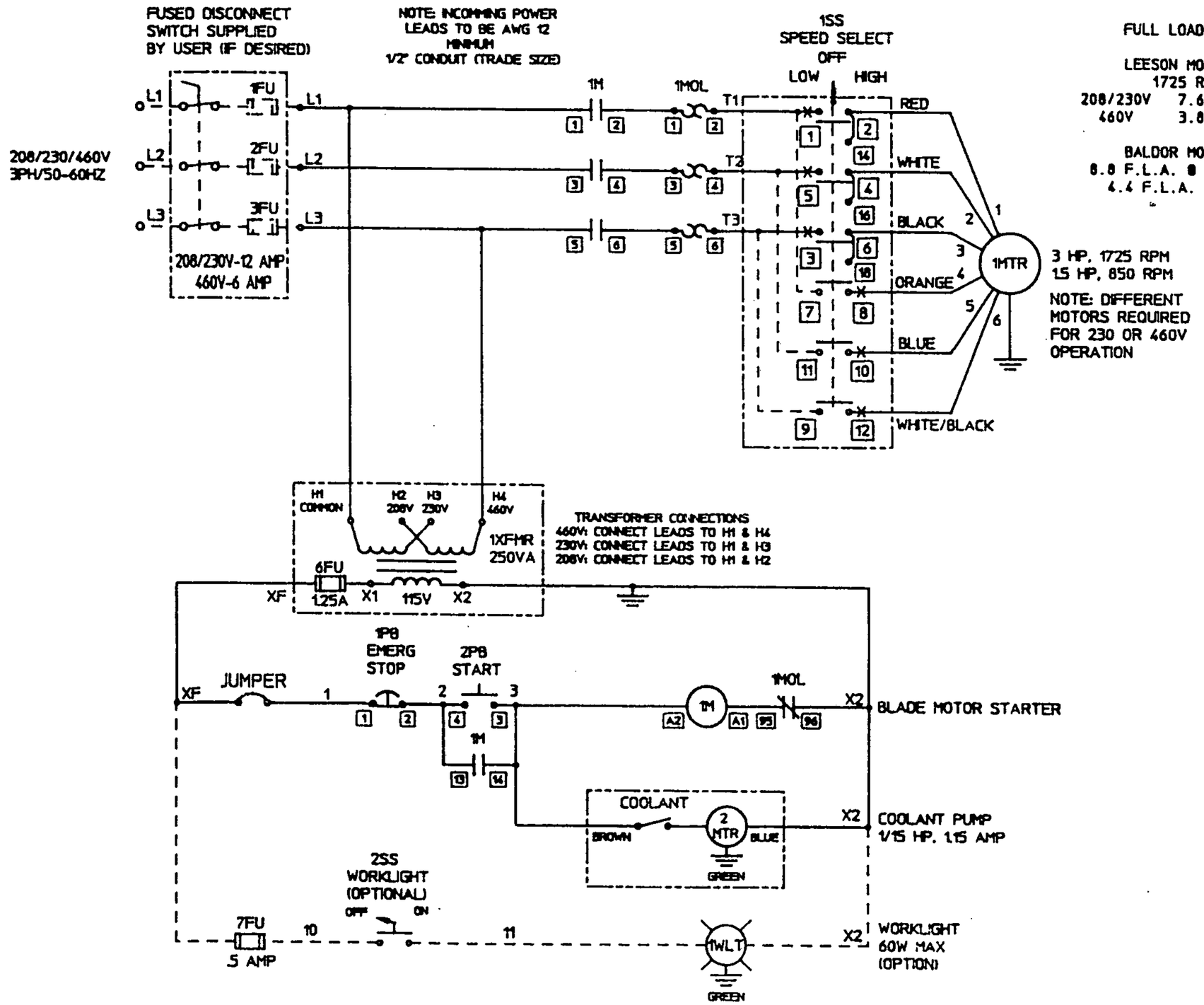
# ELECTRICAL SCHEMATIC
# CA-350/CA-350PV SAWS
# WITH MAGNETIC STARTER

| | 208V | 230V | 460V |
|---|---|---|---|
| FULL LOAD AMPS: BALDOR MOTORS | 9.0 | 8.6 | 4.3 |
| OVERLOAD HEATERS | W51 | W51 | W44 |
| FULL LOAD AMPS: LEESON MOTORS | 9.7 | 8.8 | 4.4 |
| OVERLOAD HEATERS | W52 | W51 | W44 |
| FUSE SIZES | | | |
| 1-3FU MAIN POWER (OPTIONAL) | 12A | 12A | 6A |
| 6FU TRANSFORMER SECONDARY | 1A | 1A | 1A |




EFFECTIVE WITH SERIAL NO. 377

# ELECTRICAL SCHEMATIC
# CS-350M/CS-350PV




FULL LOAD AMPS

| | LEESON MOTORS 1725 RPM | 850 RPM | OVERLOAD HEATERS |
|---|---|---|---|
| 208/230V | 7.6 | 6.9 | W49 |
| 460V | 3.8 | 3.5 | W42 |
| | BALDOR MOTORS | | |
| 8.8 F.L.A. @ 208/230V | | | W51 |
| 4.4 F.L.A. @ 460V | | | W44 |

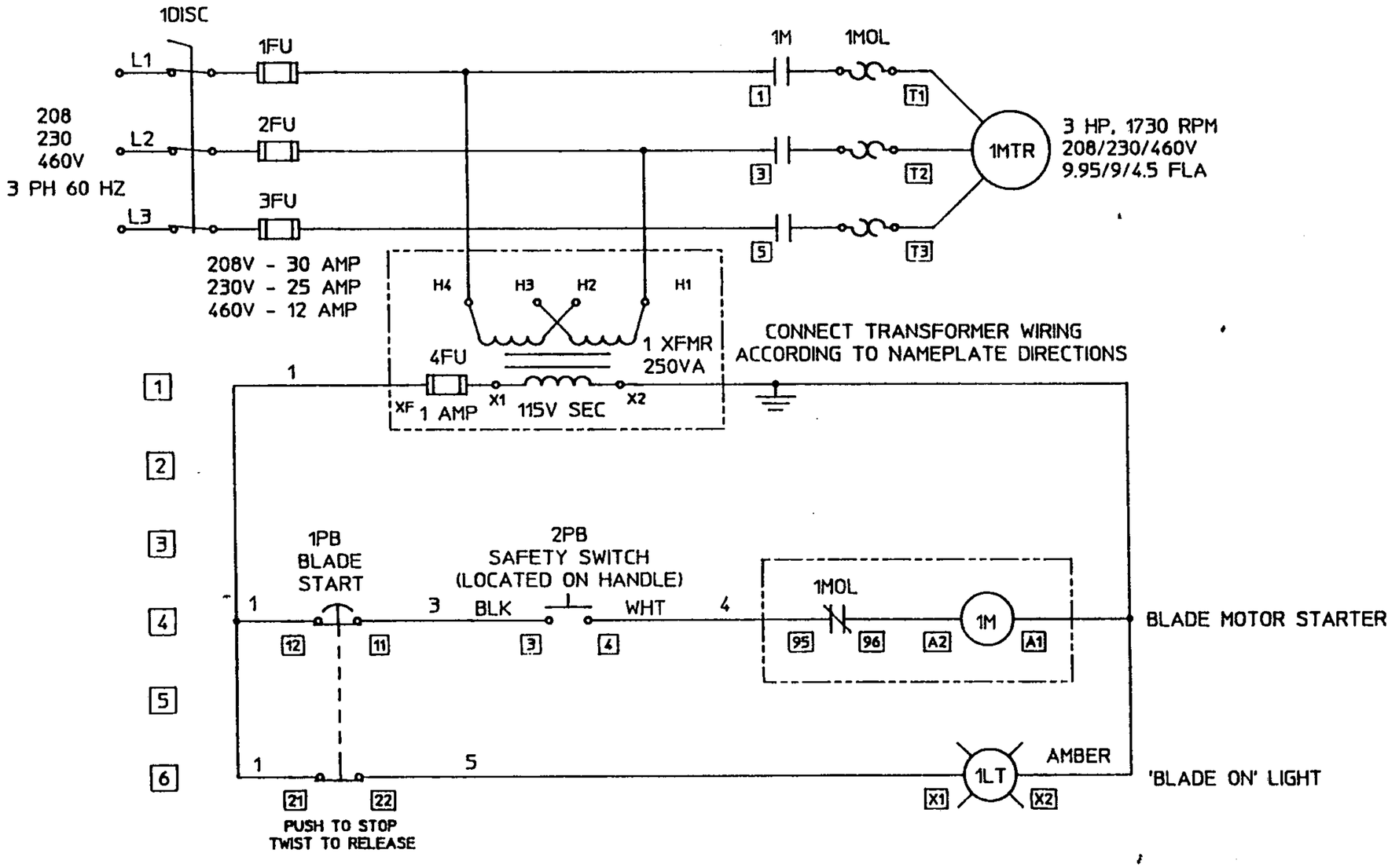
EFFECTIVE WITH S/N 382

REVISED 6/92

# ELECTRICAL SCHEMATIC
# FA–350M/FA–350PV

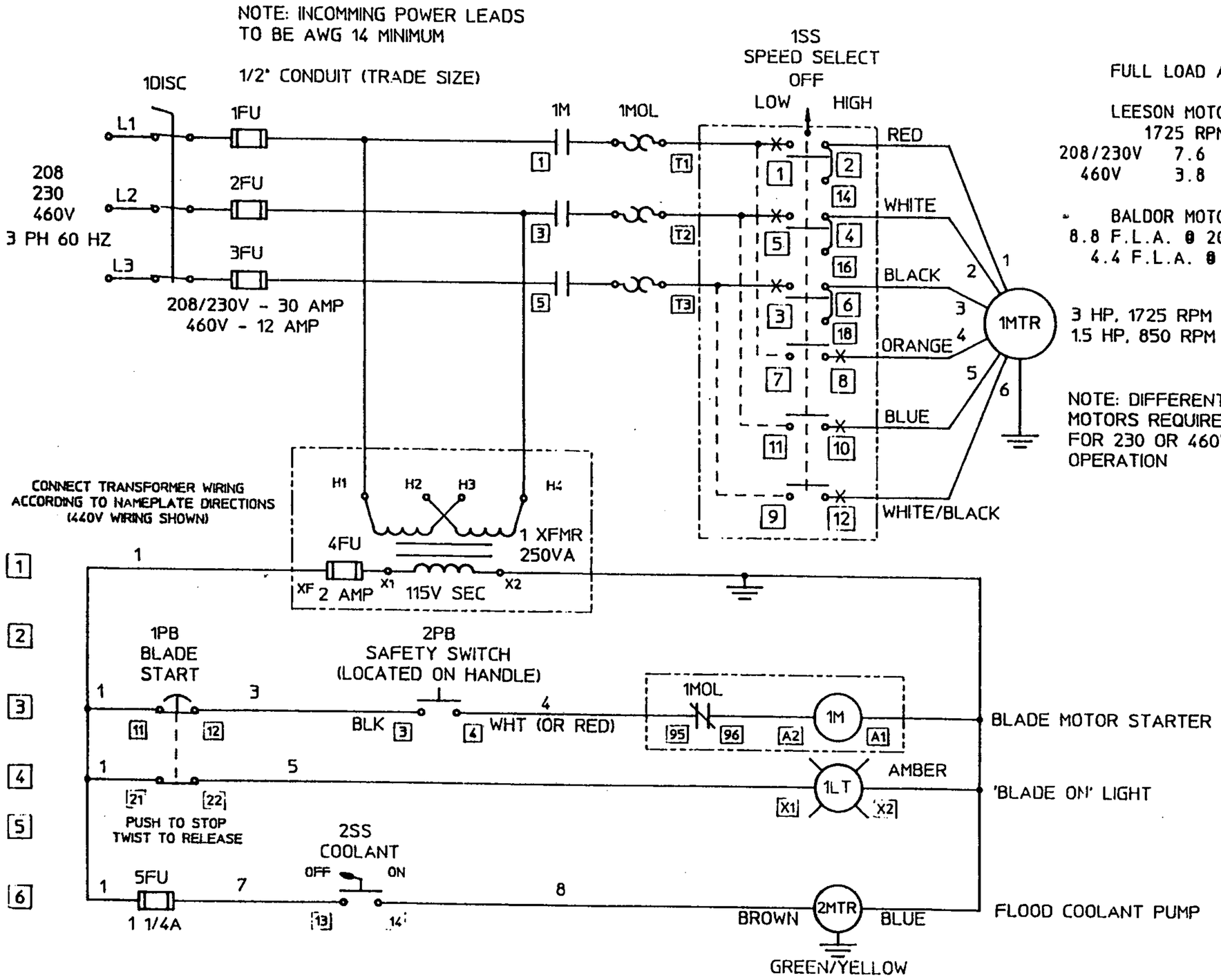
NOTE: INCOMMING POWER LEADS
TO BE AWG 10 MINIMUM

1/2" CONDUIT (TRADE SIZE)




8.18

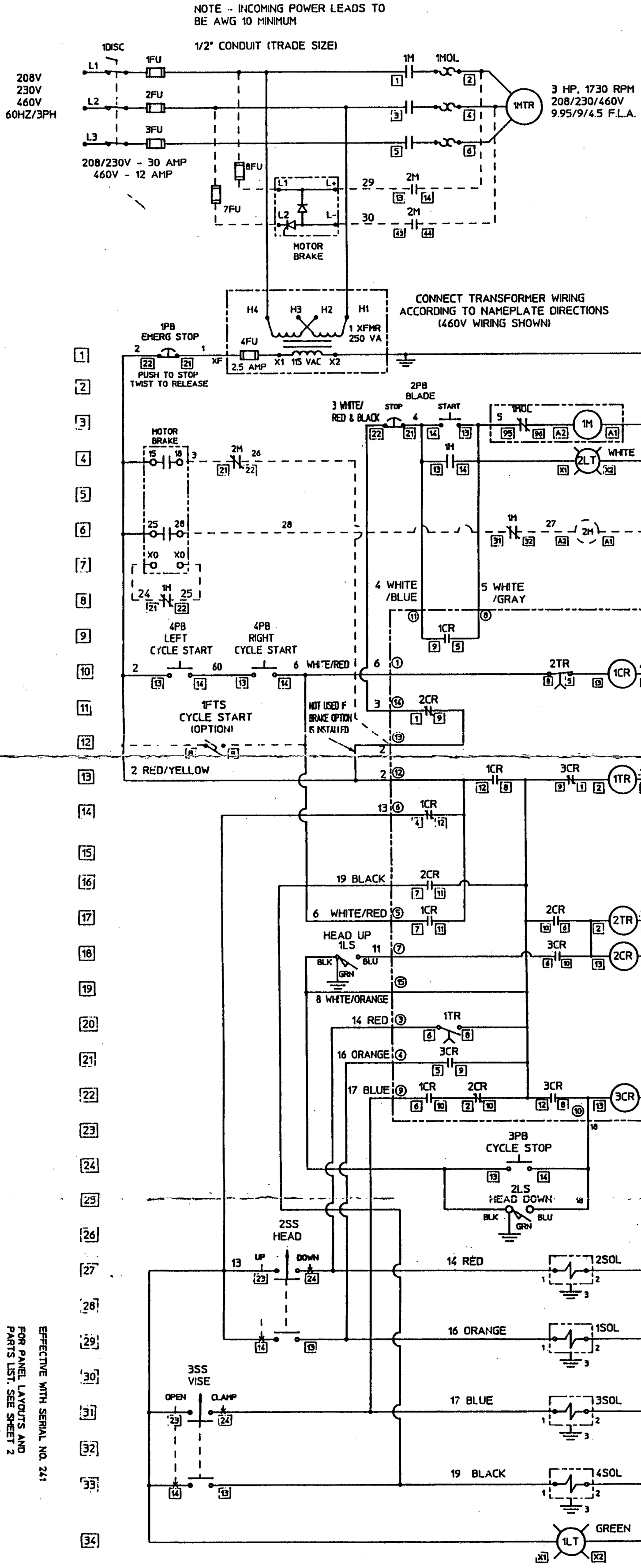
# ELECTRICAL SCHEMATIC
# FS-350M/FS-350PV



# ELECTRICAL SCHEMATIC
# FA-350SA

EFFECTIVE WITH SERIAL NO. 241

FOR PANEL LAYOUTS AND PARTS LIST, SEE SHEET 2



NOTE - INCOMING POWER LEADS TO BE AWG 10 MINIMUM

1/2" CONDUIT (TRADE SIZE)

208V
230V
460V
60HZ/3PH

1DISC
1FU
2FU
3FU
L1
L2
L3

208/230V - 30 AMP
460V - 12 AMP

1M
1MOL

1SS
SPEED SELECT
OFF
LOW
HIGH

RED
WHITE
BLACK
ORANGE
BLUE
WHITE/BLACK

1MTR

FULL LOAD AMPS

LEESON MOTORS

| | 1725 RPM | 850 RPM |
|---|---|---|
| 208/230V | 7.6 | 6.9 |
| 460V | 3.8 | 3.5 |

BALDOR MOTORS
8.8 F.L.A. @ 208/230V
4.4 F.L.A. @ 460V

3 HP, 1725 RPM
1.5 HP, 850 RPM

NOTE: DIFFERENT MOTORS REQUIRED FOR 230 OR 460V OPERATION

CONNECT TRANSFORMER WIRING ACCORDING TO NAMEPLATE DIRECTIONS (460V WIRING SHOWN)

H4 H3 H2 H1
1 XFMR 250 VA
4FU 2.5 AMP
X1 115 VAC X2

1PB EMERG STOP
PUSH TO STOP
TWIST TO RELEASE

2PB BLADE
STOP START

BLADE MOTOR STARTER (4, 5, 7)

BLADE ON (PART OF 2PB SWITCH)

5FU 1 1/4A
2MTR BROWN BLUE GREEN

COOLANT PUMP

4 WHITE /BLUE
5 WHITE /GRAY

1CR

4PB CYCLE START
6 WHITE/RED

2TR 4PDT X2
1LR 4PDT X2

CYCLE START RELAY (9, 13, 14, 15, 20)

PIN NUMBERS ON 15 PIN CONNECTOR

BOXED COMPONENTS LOCATED ON PRINTED CIRCUIT BOARD

1FTS CYCLE START (OPTION)

2CR

2 RED/YELLOW

1CR 3CR 1TR .75 SEC

HEAD FEED TIMER (18)

19 BLACK

6 WHITE/RED

2CR 2TR .75 SEC

CYCLE END TIMER (10)

HEAD UP 1LS
BLK BLU GRN

3CR 2CR 4PDT

END OF CYCLE RELAY (11, 15)

8 WHITE/ORANGE

14 RED 1TR

16 ORANGE 3CR

17 1CR 2CR 3CR 3CR 4PDT

END OF CUT RELAY (13, 16, 19, 20)

18 RED/BLACK

3PB CYCLE STOP

2LS HEAD DOWN
BLK BLU GRN

2SS HEAD
UP DOWN

3SS VISE
OPEN CLAMP

14 RED 1SOL HEAD FEED

16 ORANGE 2SOL HEAD RAISE

17 BLUE 4SOL VISE CLAMP

19 BLACK 3SOL VISE OPEN

GREEN
1LT
X1 X2

POWER ON LIGHT (PART OF 4PB)

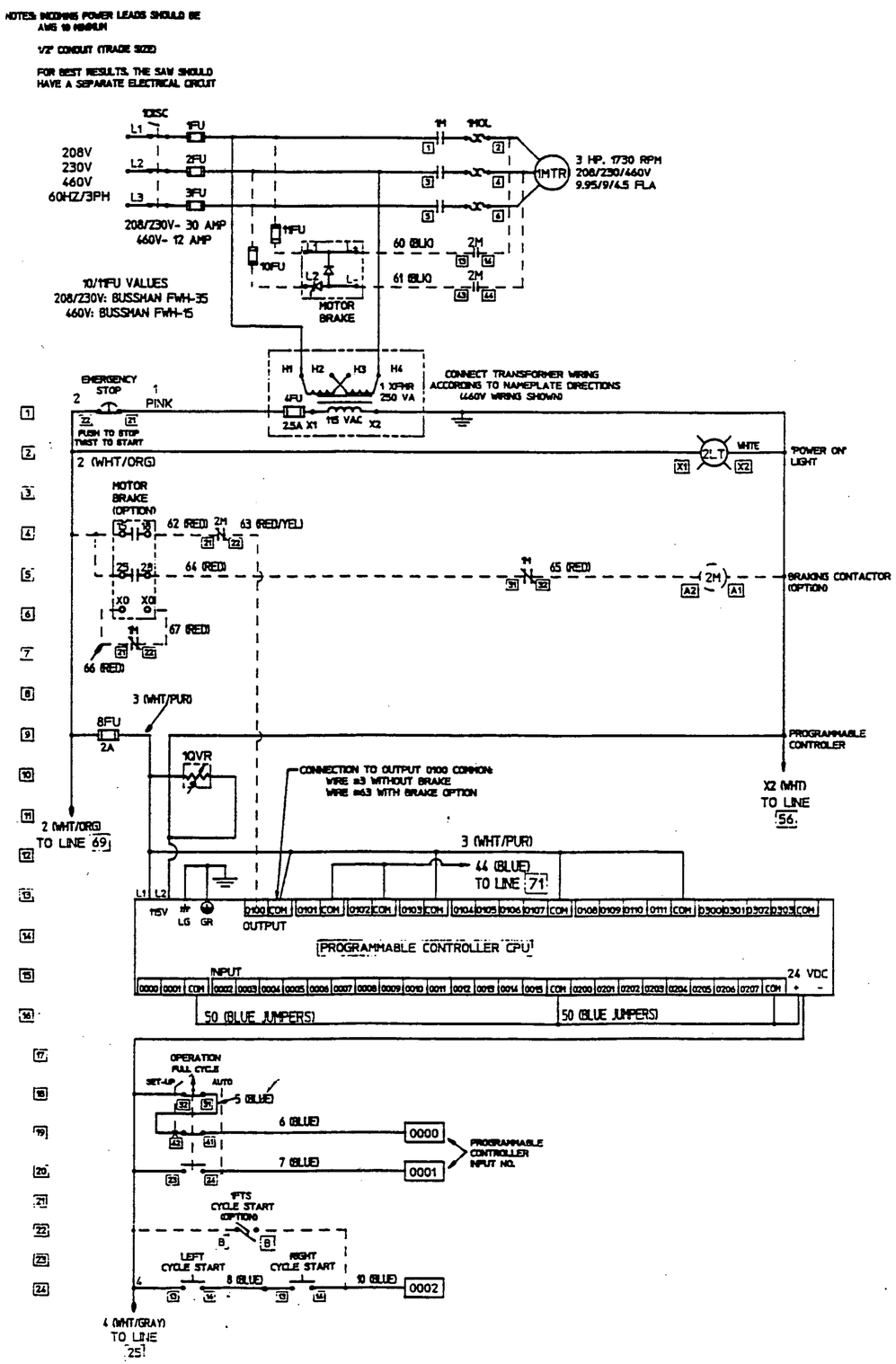
# ELECTRICAL SCHEMATIC
# FS-350SA

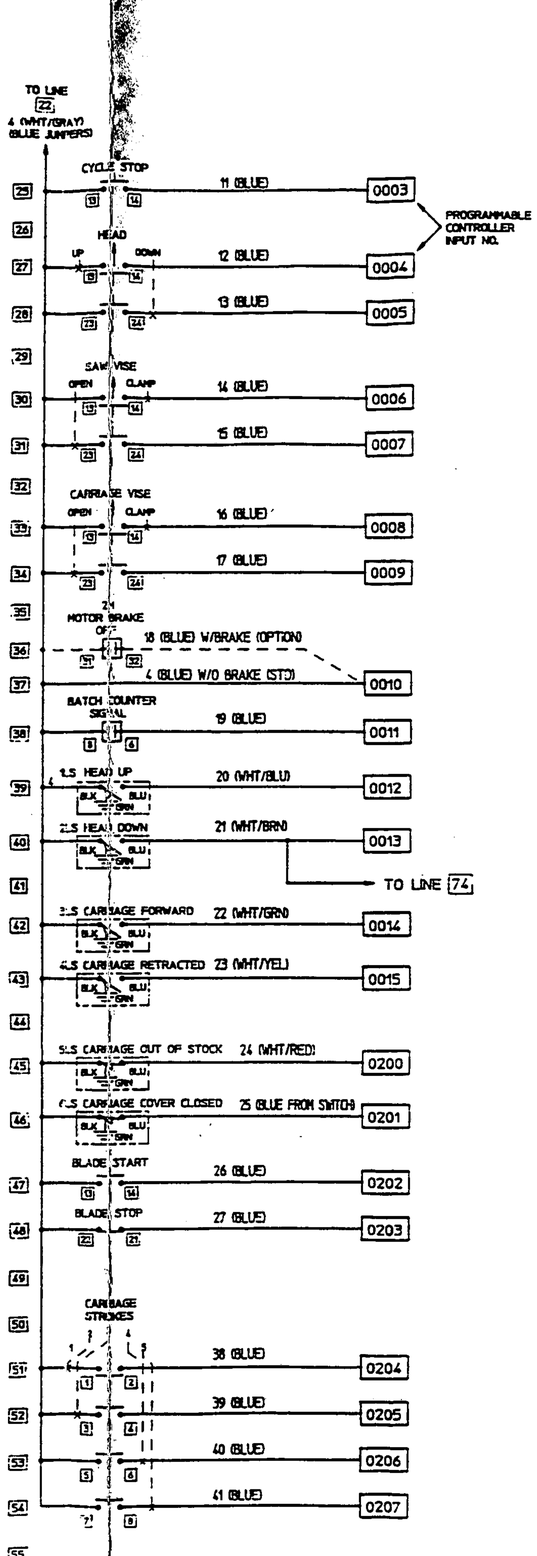
EFFECTIVE WITH SERIAL NO. 241

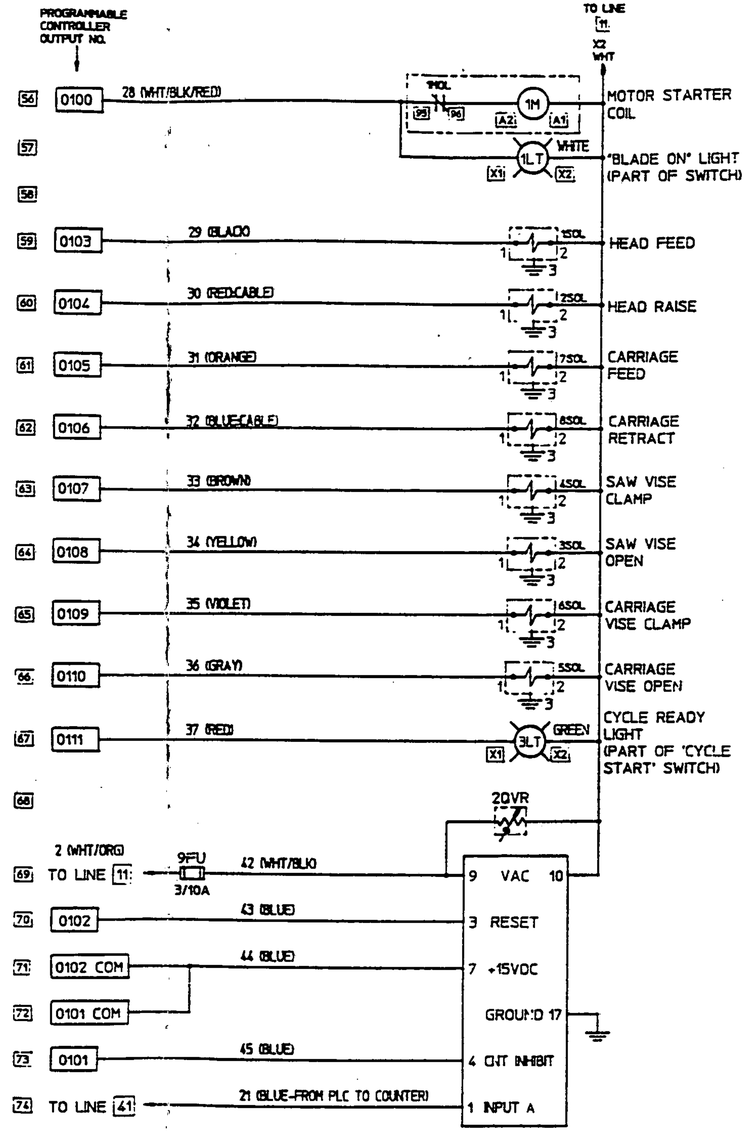
NOTES: INCOMING POWER LEADS SHOULD BE AWG 10 MINIMUM

1/2" CONDUIT (TRADE SIZE)

FOR BEST RESULTS, THE SAW SHOULD HAVE A SEPARATE ELECTRICAL CIRCUIT

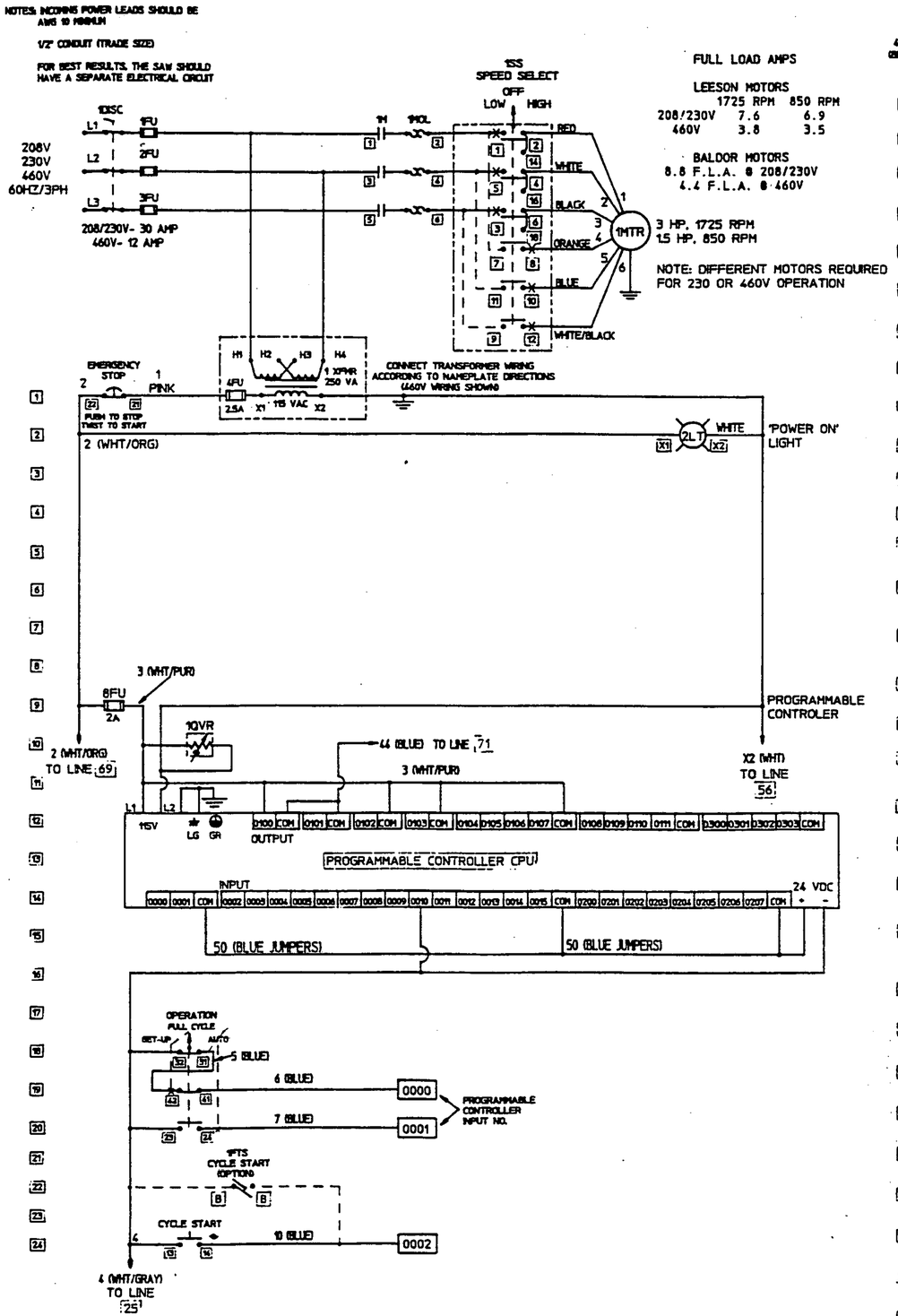



EFFECTIVE WITH SERIAL NO. 241

# ELECTRICAL SCHEMATIC
# FA–350A




EFFECTIVE WITH SERIAL NO. 241

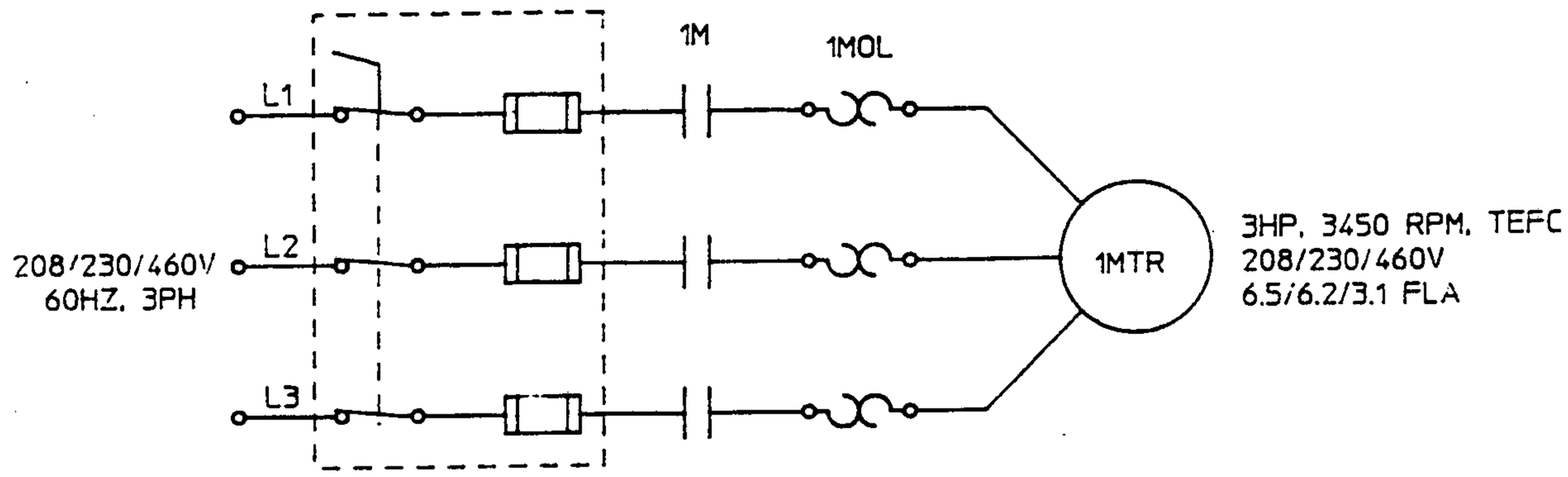
# ELECTRICAL SCHEMATIC
# FS-350A

# 3 PHASE ELECTRICAL SCHEMATIC
# CHIP COLLECTION SYSTEM

NOTE: INCOMING LEADS TO BE AWG 14 MINIMUM
1/2" CONDUIT (TRADE SIZE)

MACHINE SHOULD BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS ANY STATE OR LOCAL CODES THAT APPLY.

FUSED DISCONNECT RECOMMENDED
(INSTALLED BY USER)




| | | |
|---|---|---|
| 1MTR | | BALDOR #35J395-672 3HP MOTOR 56C FRAME |
| 1M | 9A-220E | ALLEN-BRADLEY #609TU-AAH STARTER (208V) |
| | 9A-220B | ALLEN-BRADLEY #609TU-AAA STARTER (230V) |
| | 9A-220C | ALLEN-BRADLEY #609TU-AAB STARTER (460V) |
| 1MOL | | ALLEN-BRADLEY #W47 HEATER ELEMENT (208/230V) |
| | | ALLEN-BRADLEY #W40 HEATER ELEMENT (460V) |

## OVERLOAD HEATER ELEMENTS
## ALLEN-BRADLEY 609TU SWITCHES
## SAWS WITH LEESON MOTORS

| MODEL(S) | VOLTAGE | HEATER(S) | FUSE SIZE AT SAW DISCONNECT | FUSE SIZE FOR WALL DISCONNECT |
|---|---|---|---|---|
| CS-350 | 208/230 | W50 | NONE | 9 AMP |
| (ALL) | 460 | W42 | NONE | 5 AMP |
| CA-350 | 208 | W52 | NONE | 10 AMP |
| (ALL) | 230 | W51 | NONE | 10 AMP |
| | 460 | W43 | NONE | 5 AMP |

## SAWS WITH BALDOR MOTORS

| | | | | |
|---|---|---|---|---|
| CS-350 | 208/230 | W51 | NONE | 10 AMP |
| (ALL) | 460 | W42 | NONE | 6 AMP |
| CA-350 | 208 | W52 | NONE | 10 AMP |
| (ALL) | 230 | W51 | NONE | 10 AMP |
| | 460 | W43 | NONE | 5 AMP |

## OVERLOAD HEATER ELEMENTS
## SQUARE D CONTACTORS
## SAWS WITH LEESON MOTORS

| | | | | |
|---|---|---|---|---|
| FS-350 | 208/230 | TE5.5 | 30AMP | 10 AMP |
| (ALL) | 460 | TE3.7 | 12AMP | 6 AMP |
| FA-350 | 208 | TE8 | 30AMP | 10 AMP |
| (ALL) | 230 | TE8 | 30AMP | 10 AMP |
| | 460 | TE3.7 | 12AMP | 6 AMP |

## SAWS WITH BALDOR MOTORS

| | | | | |
|---|---|---|---|---|
| FS-350 | 208/230 | TE8 | 30AMP | 10 AMP |
| (ALL) | 460 | TE3.7 | 12AMP | 6 AMP |
| FA-350 | 208 | TE8 | 30AMP | 10 AMP |
| (ALL) | 230 | TE8 | 30AMP | 10 AMP |
| | 460 | TE3.7 | 12AMP | 6 AMP |