



OPERATOR MANUAL

MODELS: CS1, CS2, CSP3



SAW DEVIL® Concrete Saw Models

A 100% employee-owned American manufacturer



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Concrete Saws

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CALIFORNIA PROPOSITION 65	IBC

User Information

Foreword

These instructions include:

- Safety regulations
- Operating instructions
- Maintenance instructions

These instructions have been prepared for operation on the construction site and for the maintenance engineer.

These instructions are intended to simplify operation of the machine and to avoid malfunctions through improper operation.

Observing the maintenance instructions will increase the reliability and service life of the machine when used on the construction site and reduce repair costs and downtimes.

Always keep these instructions at the place of use of the machine.

Only operate the machine as instructed.

Observe the safety regulations as well as the guidelines of the civil engineering trade association. Observe the safety rules for the operation and the pertinent regulations for the prevention of accidents.

Stone Construction Equipment, Inc. is not liable for the function of the machine when used in an improper manner or for other than the intended purpose.

Operating errors, improper maintenance and the use of incorrect operating materials are not covered by the warranty.

The above information does not extend the warranty and liability conditions of business of Stone Construction Equipment, Inc.

1. Machine Type: _____

Machine S/N: _____

2. Engine Type: _____

Engine S/N: _____

3. VIN: _____

4. Purchase Date: _____

5. Dealer/Distributor Information:

Name: _____

Address: _____

Phone #: _____

Fax #: _____

6. Battery
Manufacturer: _____

Battery Type: _____

Battery S/N: _____

Location of above information:

1. Information on S/N tag.
2. Information on engine tag.
3. Information on S/N tag - if applicable.
4. Date you purchased machine.
5. Dealer machine was purchased from.
6. Information on battery and battery warranty card.

Stone Construction Equipment, Inc.
P.O. Box 150, Honeoye, New York 14471
Phone: (800) 888-9926
Fax: (716) 229-2363

Limited Warranty

The Manufacturer warrants that products manufactured shall be free from defects in material and workmanship that develop under normal use for a period of 90 days for concrete vibrators and electric pumps, one year for Rhino®, Bulldog®, Wolfpac Rollers™, trowels, Stompers®, saws, forward plates, engine powered pumps, and 6 months for all other products from the date of shipment. The foregoing shall be the exclusive remedy of the buyer and the exclusive liability of the Manufacturer. Our warranty excludes normal replaceable wear items, i.e. gaskets, wear plates, seals, O-rings, V-belts, drive chains, clutches, etc. Any equipment, part or product which is furnished by the Manufacturer but manufactured by another, bears only the warranty given by such other manufacturer. (The Manufacturer extends the warranty period to "Lifetime" for the drum bearings and seals for the mortar mixers, and agrees to furnish, free of charge, the bearings and seals only upon receipt of the defective parts. The warranty is two years for eccentric bearings on the forward plate compactors, mortar and plaster mixer drums, trowel gearboxes and five years on the Bulldog trench roller eccentric bearings.) A Warranty Evaluation Form must accompany all defective parts. Warranty is voided by product abuse, alterations, and use of equipment in applications for which it was not intended, use of non-manufacturer parts, or failure to follow documented service instructions. The foregoing warranty is exclusive of all other warranties whether written or oral, expressed or implied. No warranty of merchantability or fitness for a particular purpose shall apply. The agents, dealer and employees of Manufacturer are not authorized to make modification to this warranty, or additional warranties binding on Manufacturer. Therefore, additional statements, whether oral or written, do not constitute warranty and should not be relied upon.

The Manufacturer's sole responsibility for any breach of the foregoing provision of this contract, with respect to any product or part not conforming to the Warranty or the description herein contained, is at its option (a) to repair, replace or refund such product or parts upon the prepaid return thereof to location designated specifically by the Manufacturer. Product returns not shipped prepaid or on an economical transportation basis will be refused (b) as an alternative to the foregoing modes of settlement - the Manufacturer's dealer to repair defective units with reimbursement for expenses, except labor, and be reviewed with the Manufacturer prior to repair. A Warranty Evaluation Form must accompany all warranty claims.

Except as set forth hereinabove and without limitation of the above, there are no warranties or other affirmations which extends beyond the description of the products and the fact hereof, or as to operational efficiency, product reliability or maintainability or compatibility with products furnished by others. In no event whether as a result of breach of contract or warranty or alleged negligence, shall the Manufacturer be liable for special or consequential damages including but not limited to: Loss of profits or revenues, loss of use of the product or any associated product, cost of capital, cost of substitute products, facilities or services or claims of customers.

No claim will be allowed for products lost or damaged in transit. Such claims should be filed with the carrier within fifteen days.

Effective April 1, 1998.



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SAFETY

These machines are designed to carry out the function of flat sawing material of the non-cohesive, bituminous and granular varieties.

If used correctly they will provide an effective and safe means of flat sawing and meet the appropriate performance standards.

It is essential that the operator/driver of the machine is adequately trained in its safe operation, be authorized to operate it, and have sufficient knowledge of the machine to ensure that it is in full working order, before being put to use.

Health and Safety

Safety Precautions

Before using this equipment, study this entire manual to become familiar with its operation. Do not allow untrained or unauthorized personnel, especially children, to operate this equipment. Use only factory authorized parts for service.

When warning decals are destroyed or missing, contact the Manufacturer immediately at 1-800-888-9926 for replacement. For the safety of yourself and others, it is imperative that the following rules are observed. Failure to do so may result in serious injury or death.



This notation appears before warnings in the text. It means that the step which follows must be carried out to avoid the possibility of personal injury or death. These warnings are intended to help the technician avoid any potential hazards encountered in the normal service procedures. We strongly recommend that the reader takes advantage of the information provided to prevent personal injury or injury to others.

USE COMMON SENSE WHEN HANDLING FUELS



Transport and handle fuel only when contained in approved safety container.

Do not smoke when refueling or during any other fuel handling operation.

Do not refuel while the engine is running or while it is still hot.

If fuel is spilled during refueling, wipe it off from the engine immediately and discard the rag in a safe place.

Do not operate the equipment if fuel or oil leaks exist - repair immediately.

Never operate this equipment in an explosive atmosphere.



Ear protection required when operating this equipment.

Health and Safety

Safety Precautions



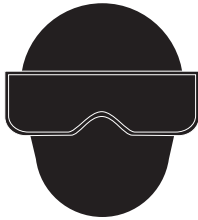
Avoid contact with hot exhaust systems and engines.

Allow engine to cool before performing any repairs.



Never operate unit in a poorly ventilated or enclosed area.

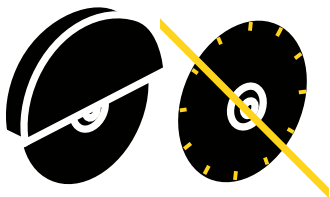
Avoid prolonged breathing of exhaust gases.



Eye protection required when operating this equipment.



Head protection required when operating this equipment.



Never operate this equipment without all guards in place.

Technical Data

Specifications Concrete/ Pavement Saws

Model		CS1	CS2	CSP3
Dimensions				
Weight	lb (kg)	175 lbs (80)	310 lbs (141)	475 lbs (216)
Dimensions	(LxWxH) † in (cm)	36.5" x 26.6" x 34.5" (92,7 x 67,6 x 87,6)	47.3" x 26.6" x 36.75" (120,1 x 67,6 x 93,3)	54" x 26.75" x 37" (137,2 x 68 x 94)
Blade Capacity	in (cm)	12", 14" (30,5 / 35,6)	12", 14", 16", 18" (30,5 / 35,6 / 40,6 / 45,7)	12", 14", 16", 18", 20" (30,5 / 35,6 / 40,6 / 45,7 / 50,8)
Cut Depth	in (cm)	3 5/8" w/ 12" blade (9,2) 4 5/8" w/ 14" blade (11,7)	3 5/8" w/ 12" blade (9,2) 4 5/8" w/ 14" blade (11,7) 5 5/8" w/ 16" blade (14,3) 6 5/8" w/ 18" blade (16,8)	3 5/8" w/ 12" blade (9,2) 4 5/8" w/ 14" blade (11,7) 5 5/8" w/ 16" blade (14,3) 6 5/8" w/ 18" blade (16,8) 7 5/8" w/ 20" blade (19,4)
Operating System				
Engines	hp/(kW)	9 hp Robin (6,7) 8 hp Honda (5,9) 11 hp Honda (8,2) †† recommended for 12" blade only	9 hp Briggs & Stratton Vang. (6,7) 11 hp Honda (8,2) 13 hp Honda (9,7) *16 hp Briggs & Stratton Vang. (11,9) 5 hp Electric (3,7) * electric start	13 hp Honda†† (9,7) *16 hp Briggs & Stratton Vanguard (11,9) *18 Honda Twin (13,4) *20 Honda Twin (14,9) * electric start †† not recommended for 18" blade
Air Filter		Dry Element	Dry Element Cyclone Air Cleaner (11-13 Honda)	Cyclone Air Cleaner (13 Honda) Remote Cyclone (20 & 18 Honda)
Engine	RPM (Hz)	3200 rpm (53)	3200 rpm (53)	3200 rpm (53)
Fuel Capacity	gal (L)	1.6 gal. (6,0)	1.7 gal. (6,4)	2 gals (7,6)
Drive		Push	Push	Hydrostatic
Water System		Corrosion Resistant, Dual Spray	Corrosion Resistant, Dual Spray	Corrosion Resistant, Dual Spray
Performance				
Speed	ft/ min (m/min)	Push	Push	90 ft/min (27,7 m/min)
Axle ‡	(mm)	5/8" (15,9)	3/4" (19,1)	3/4" (19,1)
Wheel‡ (R/F)	(cm)	8" R / 4" F (20,3 R / 10,2 F)	8" R / 4" F (20,3 R / 10,2 F)	8" R / 4" F (20,3 R / 10,2 F)
Blade Shaft Bearings ‡ size	in (mm)	Greasable pillow block sealed 1" (25,4)	Greasable pillow block sealed 1 1/4" (31,8)	Greasable pillow block sealed 1 1/4" (31,8)
Blade Arbor (size & R/L)	in (mm)	1" R/L (25,4)	1" R/L (25,4)	1" R/L (25,4)
Standard Features				
		Front cutting guide 14" blade guard	Lift eye, 4" wheeled front cutting guide, rear cutting guide, adjustable handles, depth gauge, 14" or 16" blade guard	Lift eye, 4" wheeled front cutting guide, rear cutting guide, adjustable handles, depth gauge, Triple V-belt, 14", 16" or 18" blade guard Pressurized Water pump (except on 13 Honda) 3-5 gal/min. (11-19 l/min)
Options		5 or 8 gal. polyethylene water tanks	5 or 8 gal. polyethelene water tanks	-

† Pointer in up position, Handles in mid-position

‡ Use Imperial measured components only (available from manufacturer)

Member Masonry and Concrete Saw Manufacturers Institute and the Concrete Sawing and Drilling Association.

Technical Data

Machine Sound and Vibration Measurements

Sound Pressure Values as measured are per the following:

	Model/Configuration		
	CS1 8 HP Honda w/14 in blade	CS2 11 HP Honda w/14 in blade	CSP3 18 HP Honda w/20 in blade
at operator's ear	88dBA	93dBA	91dBA

RMS acceleration on the handle were measured per the following:

meter/sec ²	13.16	23.4	18.0
------------------------	-------	------	------

Sound and vibration values have been taken in accordance to the EEC machine regulation (edition 93/68/EEC)

Sound Pressure measurements were taken with Simpson model 886-2 type 2 meter, calibrated 2/21/97

Acceleration measurements were taken with Quest Tech model VI-100 meter, calibrated 4/17/96

Sound and vibration measurements were obtained with machine operating at maximum engine speed of 3200 RPM.

Units had blades mounted and measurements were taken out of cuts.

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Technical Data

Service Check List

ALL SAWS

All saws set RPM at 3200 +/- 50 (no load).

Check blade clamp hub face run-out with indicator and magnetic chuck. Run-out not to exceed .015.

Check belt tension.

Belt deflection = .19 inches at 4.2 lbs. for used belt and 6.2 lbs for new belt.

Grease all pillow blocks.

Apply never-seize to acme screws.

CS2

Make sure kill switch is functional while running.

CS2 / CSP3

Check depth gauge making sure knob turns when lift crank is run up and down.

Check choke and throttle action.

CSP3

Run transmission with shifter making sure neutral correlates with neutral at shifter. (Adjust at clevis and/or at cable bracket on transmission mount).

Set drive axle load springs at 2.38 +/- .06 inches when axle is in run position.

While engine is running, check wet/dry switch for function. (Dry should run—wet should kill engine).

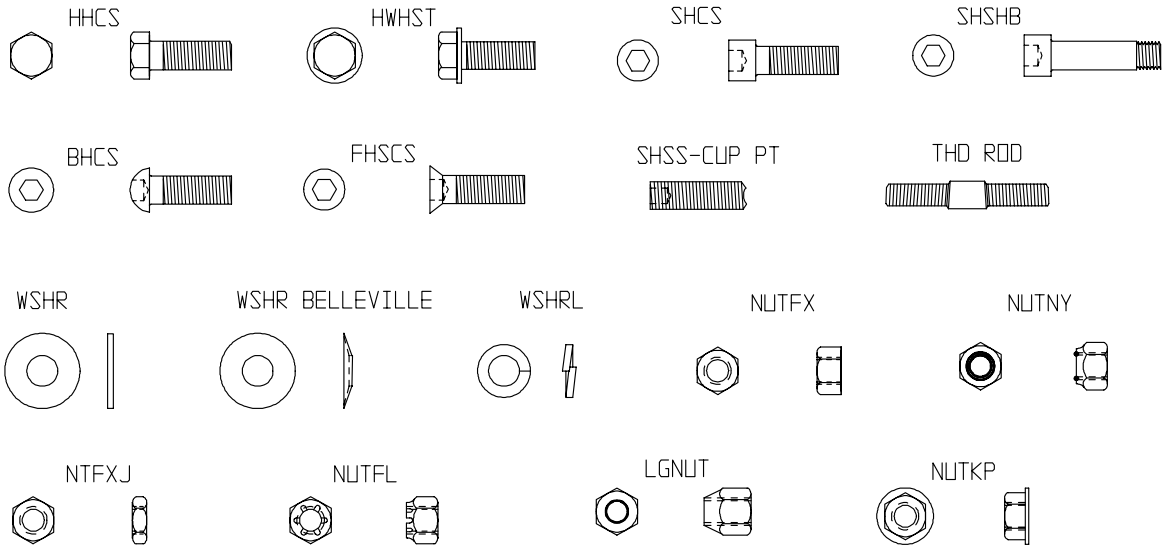
Check water pump switch for function.

Check engage/disengage lever. Drive axle to have .13 minimum clearance to wheel when disengaged.

For longest service life, use any SAE 20W20 in transmission.

Technical Data

Hardware Identification



VR005A

ZN = ZINC PLATED
BLK = BLACK OXIDE FINISH

Technical Data

Torque Chart - Imperial

SAE GRADE 5 Coarse Thread, Zinc-Plated		
SIZE	TORQUE	
	ft. lbs.	Nm
1/4 - 20 (.250)	6	8
5/16 - 18 (.3125)	13	18
3/8 - 16 (.375)	23	31
7/16 - 14 (.4375)	37	50
1/2 - 13 (.500)	57	77
9/16 - 12 (.5625)	82	111
5/8 - 11 (.625)	112	152
3/4 - 10 (.750)	200	271
7/8 - 9 (.875)	322	436.5
1 - 8 (1.000)	483	655

SAE GRADE 8 Coarse Thread, Zinc-Plated		
SIZE	TORQUE	
	ft. lbs.	Nm
1/4 - 20 (.250)	9	12
5/16 - 18 (.3125)	18	24
3/8 - 16 (.375)	33	45
7/16 - 14 (.4375)	52	70
1/2 - 13 (.500)	80	108
9/16 - 12 (.5625)	115	156
5/8 - 11 (.625)	159	215
3/4 - 10 (.750)	282	382
7/8 - 9 (.875)	454	615
1 - 8 (1.000)	682	925

SAE GRADE 5 Fine Thread, Zinc-Plated		
SIZE	TORQUE	
	ft. lbs.	Nm
1/4 - 28 (.250)	7	10
5/16 - 24 (.3125)	14	19
3/8 - 24 (.375)	26	35
7/16 - 20 (.4375)	41	56
1/2 - 20 (.500)	64	87
9/16 - 18 (.5625)	91	123
5/8 - 18 (.625)	128	173
3/4 - 16 (.750)	223	302
7/8 - 14 (.875)	355	481
1 - 12 (1.000)	529	717
1 - 14 (1.000)	541	733

SAE GRADE 8 Fine Thread, Zinc-Plated		
SIZE	TORQUE	
	ft. lbs.	Nm
1/4 - 28 (.250)	10	14
5/16 - 24 (.3125)	20	27
3/8 - 24 (.375)	37	50
7/16 - 20 (.4375)	58	79
1/2 - 20 (.500)	90	122
9/16 - 18 (.5625)	129	175
5/8 - 18 (.625)	180	244
3/4 - 16 (.750)	315	427
7/8 - 9 (.875)	501	679
1 - 12 (1.000)	746	1011
1 - 14 (1.000)	764	1036

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Technical Data

Torque Chart - Metric

Monthly, inspect all hardware on this equipment and engine/motor. Loose hardware can contribute to early component failure and poor performance. Use the torque chart below as a general guideline and keep all hardware tight.

Note: Some hardware is used to retain parts that have to move freely for correct operation of this unit. The hardware for these items should be snug enough to prevent excessive play, yet loose enough to allow the parts to pivot freely.

Property Class 8.8

ZINC-PLATED

SIZE	Coarse Thread		Fine Thread	
	Nm	ft. lbs.	Nm	ft. lbs.
M6	9.9	7	10	7
M8	24	18	25	18
M10	48	35	49	36
M12	83	61	88	65
M14	132	97	140	103
M16	200	148	210	155
M20	390	288	425	313
M24	675	498	720	531

Property Class 10.9

ZINC-PLATED

SIZE	Coarse Thread		Fine Thread	
	Nm	ft. lbs.	Nm	ft. lbs.
M6	14	10	14	10
M8	34	25	35	26
M10	67	49	68	50
M12	117	86	125	92
M14	185	136	192	142
M16	285	210	295	218
M20	550	406	600	443
M24	950	701	1000	738

Property Class 12.9

ZINC-PLATED

SIZE	Coarse Thread		Fine Thread	
	Nm	ft. lbs.	Nm	ft. lbs.
M6	16.5	12	16.5	12
M8	40	30	42	31
M10	81	60	82	60
M12	140	103	150	111
M14	220	162	235	173
M16	340	251	350	258
M20	660	487	720	531
M24	1140	841	1200	885

Conversion Factor: 1 ft. lb. = 1.3558 Nm

Operation

Introduction/Determining the Right Machine

Congratulations on your purchase of Stone's Saw Devil™! You've made an excellent choice! The Sawdevil has been specifically designed as the ideal machine for the professional contractor who is engaged in concrete and asphalt flat sawing.

Stone Saw Devils™ are used for the primary purpose of “flat” sawing. This type of sawing is described as “flat” because the pavement is cut somewhere close to a horizontal plane. It is the most common type of diamond blade cutting.

Concrete saws in the industry are available in a variety of types, sizes and styles. They range from manual or self propelled in horsepower from 7-72hp. It is possible to cut both concrete (green or cured, with or without rebar) or asphalt with a concrete saw.

The Stone Saw Devil™ line represents the most popular sizes and configurations on the market. You'll find manual or self propelled models powered by gasoline engines ranging from 7hp - 20hp capable of accepting blades of up to 20 inches in diameter. They are designed to cut horizontal slabs to depths of a maximum of 7-1/2 inches.

You will find a Stone Saw Devil™ to fit a wide variety of job applications.

Upon receipt of your Saw Devil™, **CARE-FULLY CHECK FOR ANY FREIGHT DAMAGE.** Any damage should be immediately reported to the carrier and a claim registered.

The Saw Devil™ is manufactured to the strictest specifications and inspection procedures. If any material or manufacturing defects are found, return the tag on the machine with assembler's signature and your findings to the manufacturer. We want to know when a product is less than perfect. We also welcome any and all input on how the product may serve you better.

DETERMINING THE RIGHT MACHINE

CS1--Used for small sawing jobs such as floor and pavement patching and repair, expansion joint cutting, conduit channel cutting and other flat work.

CS2--Utilized for jobs requiring precision cutting including floors, pavements, walkways, ramps and other flat sawing applications.

CSP3--Ideal for parking lots, streets, driveways, floors, building and restoration projects.

Operation

Operating Principle/Delivery Checks/ Installing Blade/Types of Cutting

OPERATING PRINCIPLE

The following instructions were compiled to provide you information on how to obtain long and trouble free use of the unit. Periodic maintenance of this unit is essential. Read the manual in its entirety and follow the instructions carefully. Failure to do so may injure yourself or a bystander.

DELIVERY CHECKS

Immediately upon taking delivery of your new equipment and before putting it into service:

- Read the handbook completely--it could save a great deal of unnecessary expense.
- Read the engine manual supplied.
- Check the general condition of the equipment--has it been damaged during delivery?
- Check engine oil level.
- Check fuel levels.

Recommended lubricants are detailed in the **CARE AND MAINTENANCE** section.

INSTALLING BLADE

1. Be certain that the spark plug is disconnected or saw is unplugged.
2. Remove the blade shaft nut, right hand thread, and take off outside blade shaft collar.
3. Clean off any foreign particles on the clamping surfaces of collars and on the mounting surface of the blade.

4. Place the blade on the blade shaft, lining up the offset drive pin in the blade with the drive pin in the mounting collar. If your blade has a directional rotational arrow, position arrow for down cut (diamond tail trailing for down cut).
5. Replace the outside blade shaft collar on the blade shaft. Drive pin on the inside collar must project through the drive hole in the blade and into the outside collar.
6. Tighten the blade shaft nut (right-hand thread) securely against star washer and outside collar, using two wrenches supplied.
7. Reconnect the spark plug or (with switch "off") plug in the electric supply cord.

TYPES OF CUTTING

Cut speed depends entirely on using the correct blade for the material to be cut. Wet or dry, diamond blades of various specifications are available for cutting concrete or asphalt.

Manual Saws - require the operator to push the saw through the material. They are ideal for small jobs where high productivity is not required. Stone Saw Devils are available in 7-16 hp models.

Self Propelled Saws - Designed for maximum productivity and reduced operator fatigue. They allow deeper cutting at a faster forward speed. Hydrostatic drive is typically standard on self-propelled saws with horsepower ranges from 13-65. Saw Devils are available in 13, 16, 18 and 20 hp models.

Operation

Before Starting/Cold Start/Hot Start/To Start Sawing

BEFORE STARTING

1. Use correct blade for cutting conditions.
2. Ensure arbors and collars are clean and undamaged.
3. Mount blade and tighten securely using both wrenches.
4. When wet cutting, check water jets for adequate flow.
5. Disengage transmission on self-propelled models.
6. Align pointer with saw blade.



Caution - Set unit up in an open area. Avoid close proximity to structures or other equipment. Failure to do so may cause inadvertent injury to operator or other persons in the area.

Cold Start - Open the fuel valve under the gas tank all the way. Position the engine stop switch, located on the engine, to run. Open the throttle approximately half way and apply the choke. Pull the starter rope sharply. When the engine starts, open the choke and adjust the throttle as necessary to keep it running. Allow the engine to warm up for a few minutes before placing it under the load. If the engine doesn't start after (3) pulls, open choke slightly to prevent flooding. Always operate the engine at full throttle when under load.

Hot Start - Open the valve under the gas tank all the way if it has been shut off. Open the

throttle approximately half way. Do not apply the choke. Pull the starter rope sharply until the engine starts. When the engine starts, adjust the throttle. Always operate the engine at full throttle when under load.

NOTE: These starting instructions are general guidelines only. Since many engine options are available, consult the Engine Manual included with this unit for specific instructions.



Caution - Gasoline Engines - To improve the engine service life, allow the engine to idle without load for (2) to (5) minutes before shutting it down. When the idling period is up, use the stop switch located on the engine and turn it to stop. Close the fuel valve under the gas tank. Engine flooding can occur if the valve is left open during transport.

TO START SAWING

1. Start engine and let engine warm up. All sawing is done at full throttle.
2. Align blade and saw with cut. If wet sawing, open water valve and turn water safety switch on. (CSP3)
3. Lower blade to touch surface and re-zero depth gauge. (CS2 and CSP3 models).
4. Lower blade into cut slowly.
5. Put speed control in neutral, engage transmission and move speed control lever slowly toward forward position. (CSP3 model only).

Operation

Cutting/Belts & Pulleys

6. Cut as fast as blade will allow. If blade climbs out of cut, reduce forward speed or depth of cut.
7. Use only enough side pressure on saw handles to follow cutting line.

CUTTING

Lower the blade into concrete to required depth by turning the tilt crank counterclockwise. Ease the saw slowly forward. Slow forward pressure if the saw begins to stall.

Note: For deeper cuts (4 inches/102 mm or more), several cuts should be made in incremental steps of 1-1/2 inch (38 mm) to 2 inches (51 mm) until the desired depth is reached.

Push the saw steadily forward using the front pointer as a guide. Exert enough forward pressure so that the engine/motor begins to labor, but does not slow down. If the saw begins to stall, retard forward movement until full RPM is restored to the blade. If saw stalls, raise the blade out of the cut before restarting. Avoid excessive side pressure or twisting of the blade in the cut.

BELTS & PULLEYS



NEVER MAKE ADJUSTMENTS TO V-BELTS AND PULLEYS WHILE ENGINE IS RUNNING.

1. The best tension for a v-belt drive is the lowest tension at which the belts will not slip under full load.
2. Take up tension until the belts are snug in the grooves. Run the drive for about five (5) minutes to "seat" the belts. Then impose the peak load. If the belts slip, tighten them until they no longer slip at peak load. Most new belts will need additional tensioning after seating.
3. Remember, too much tension shortens belt and bearing life.
4. Check the belt tension frequently during the first day of operation. Check the belt tension periodically thereafter and make any necessary adjustments.
5. The two most common causes of sheave misalignment are:
 - a) The engine drive shaft and the blade shaft are not parallel.
 - b) The pulleys are not located properly on the shafts.

Operation

Dry Cutting

6. To check alignment, use a steel straight edge.
See Figure 1.

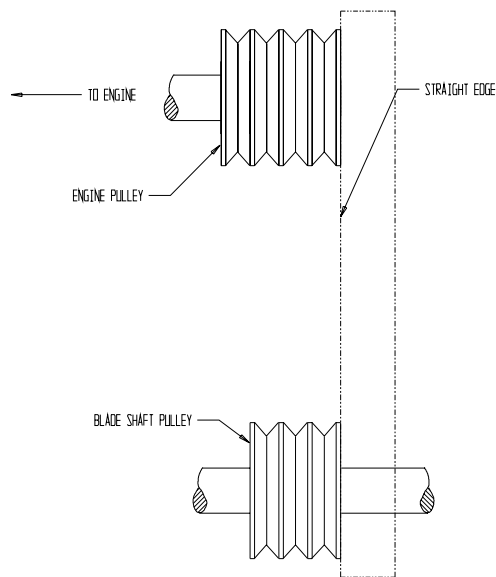


Figure 1

cs002a

DRY CUTTING



7. Line up the straight edge along the outside face of both pulleys shown in the drawing. All pulleys have (2) set screws in the bottom of their grooves. Set screws require thread locking lock tite.
8. Misalignment will show up as a gap between the pulley face and straight edge. Make sure there is clearance between arbor pulley and saw base on both sides.

- **Never operate any saw without safety guards in place.**
- **Do not exceed maximum operating speed established for blade diameter.**
- **Do not force blade into material: allow blade to cut at its own speed.**
- **Do not make long continuous cuts. Never dry cut for more than 30 seconds at a time. Allow blade to cool.**
- **Do not cut or grind with side of blade or cut a curve or radius.**
- **Do not cut dry with blades recommended for wet cutting.**
- **Do not operate saw with blade diameter larger than machine's capacity.**



IMPORTANT

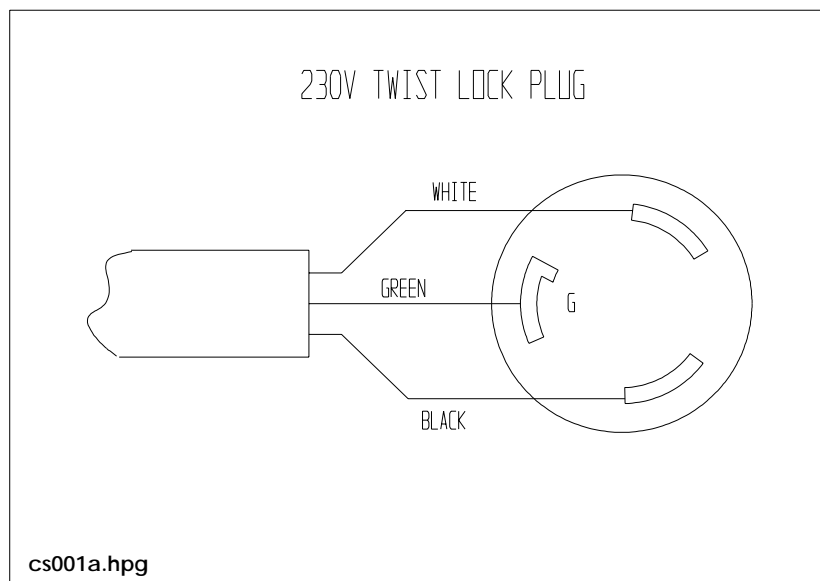
THE PERSON ATTEMPTING ANY OF THE FOLLOWING MAINTENANCE TASKS, MUST BE AUTHORIZED TO DO SO AND HAVE READ AND UNDERSTOOD ALL SECTIONS WITHIN THIS MANUAL

Maintenance

Electrical Power Supply Connection

Connecting wires or extension cords should be as short as possible and one piece. In no case should the connecting wires or extension cords be longer than shown in the following chart.

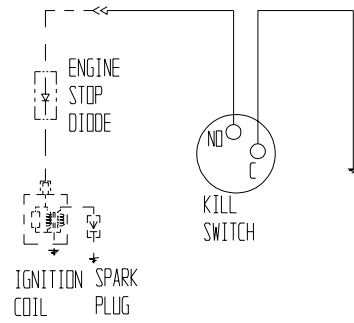
RECOMMENDED MAXIMUM LENGTH OF POWER CORD	
WIRE GAUGE	230V, SINGLE PHASE, 5HP MOTORS
#8	110 Feet
#6	180 Feet
CAUTION: Use of a wire gauge that is too small will cause loss of power and will damage the electric motor.	
IMPORTANT: Be sure saw is properly grounded prior to operation. Refer to National Electric Code for required grounding methods.	



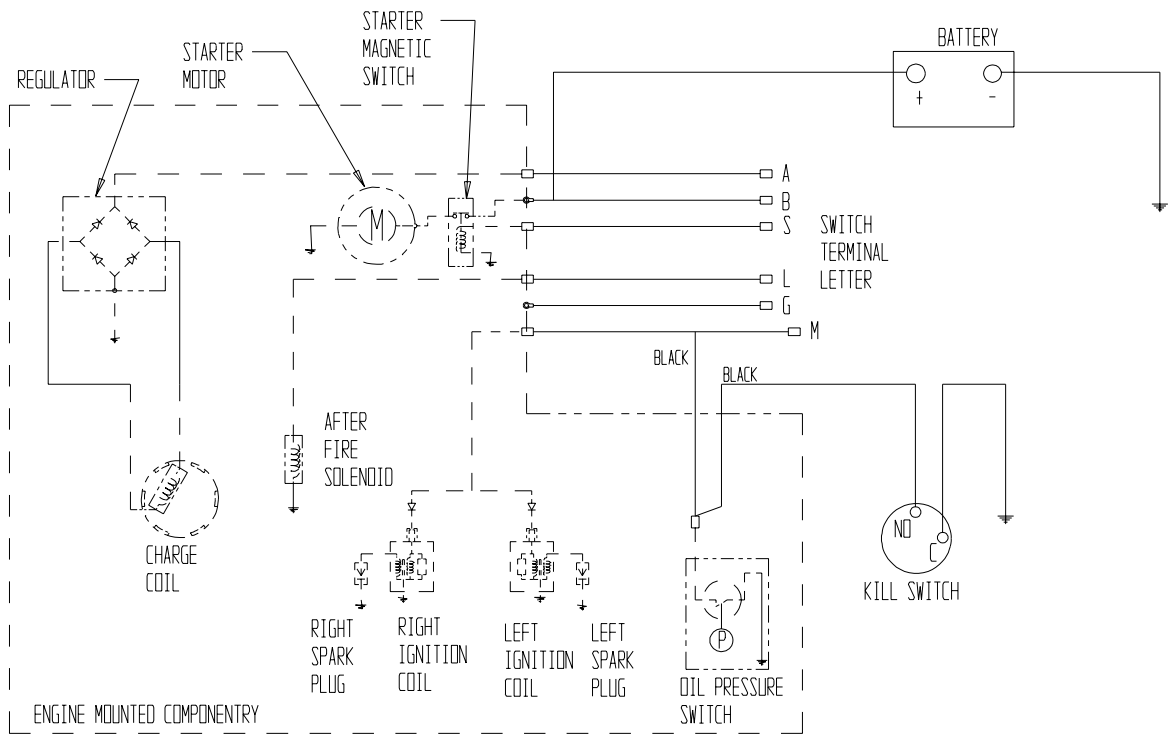
Maintenance

CS2 Electrical System

CS2 KILL SWITCH



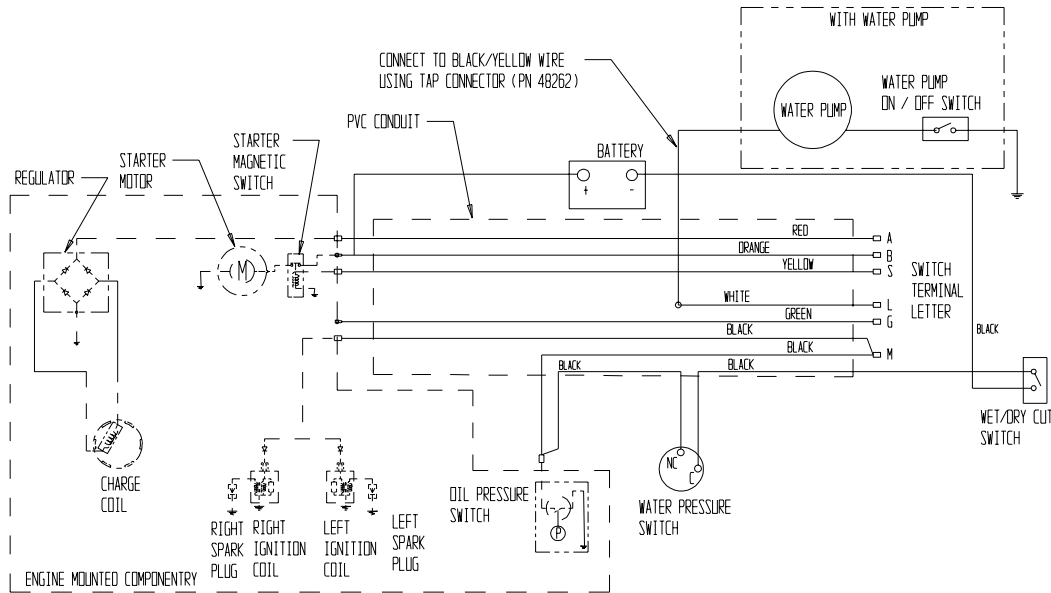
CS2 WITH 16HP BRIGGS & STRATTON



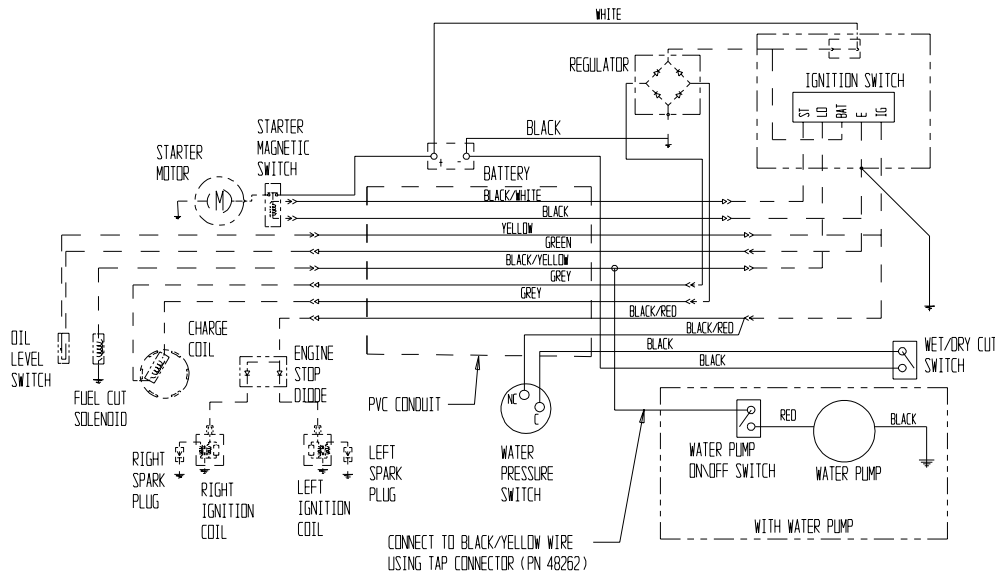
Maintenance

CSP3 Electrical System

CSP3 WIRING DIAGRAM WITH 16HP BRIGGS & STRATTON

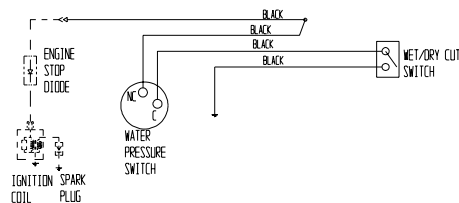


CSP3 WITH 18HP OR 20HP HONDA ENGINES







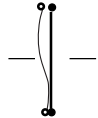
CS008c

CSP3 WITH 13HP HONDA ENGINE



Maintenance

Troubleshooting

PROBLEM	CAUSE	REMEDY
UNEVEN SEGMENT WEAR 	<ul style="list-style-type: none"> • (In wet cutting) Insufficient water (usually on one side of blade). • Equipment defects also can cause the segments to wear unevenly. • Saw head is misaligned. 	<ul style="list-style-type: none"> • Flush water system. • Check flow to both sides of blade. • Replace bad bearings, worn arbor shaft or misalignment to spindle. • Check alignment for squareness, both vertically and horizontally, of the saw blade.
SEGMENT CRACKS 	<ul style="list-style-type: none"> • Blade is too hard for material being cut. 	<ul style="list-style-type: none"> • Use a blade with a softer bond/matrix.
SEGMENT LOSS 	<ul style="list-style-type: none"> • Blade overheats because of lack of coolant (water or air). • Core is worn from undercutting. • Defective collars/flanges set blade out of alignment. • Blade is too hard for material being cut. • Blade is cutting out of round, causing a pounding motion. • Improper blade tension. 	<ul style="list-style-type: none"> • (Wet Cutting) Check water lines. Make sure flow is adequate on both sides of blade and there are no blockages. Use sufficient water to flush out the cut. • (Dry Cutting) Run blade free of cut periodically to air cool. • Clean collars/flanges or replace if they are under recommended diameter. • Use proper blade specification for material being cut. • Replace worn bearings; realign blade shaft or replace worn blade mounting arbor. • When ordering blades match shaft speed of saw. • Check spindle speed to ensure blade is running at correct RPM. • Avoid twisting or turning blade in the cut.
CRACKS IN CORE 	<ul style="list-style-type: none"> • Blade flutters in cut as a result of losing blade tension. • Blade specification is too hard for the material being cut. 	<ul style="list-style-type: none"> • Tighten the blade shaft nut. • Make sure blade is running at proper speed and that drive pin is functioning properly. • Use a softer bond/matrix to eliminate stress.
LOSS OF TENSION 	<ul style="list-style-type: none"> • Core overheating. • Core overheating as a result of blade spinning on arbor. • Core overheating from rubbing the material being cut. • Unequal pressure at blade clamping collars/flanges. • Blade is too hard for the material being cut. 	<ul style="list-style-type: none"> • Make certain blade RPM is correct. • Check water flow, distribution and lines. • Tighten the blade shaft nut. • Make certain the drive pin is functioning. • Properly align the saw to square cut. • Collars/flanges must be identical in diameter and the recommended size. • Use a softer bond/matrix to reduce stress.

Maintenance

Troubleshooting

PROBLEM

CAUSE

REMEDY

BLADE WOBBLER



- Blade is on a damaged or worn saw.
- Worn collar.
- Blade runs at an incorrect speed.
- Collar /flange diameters are not identical.
- Blade is bent as a result of dropping or twisting.

- Check for bad bearings, bent shaft, or worn mounting arbor.
- Check collars/flanges to make sure they are clean, flat and of correct diameter.
- Set engine at proper rpm.
- Use proper size blade collars/flanges.
- DO NOT USE bent blade. Contact blade manufacturer.

BLADE WILL NOT CUT



- Blade is too hard for material being cut.
- Blade has become dull.
- Blade does not cut material it was specified for.

- Select proper blade for material being cut.
- Sharpen by cutting on softer abrasive material to expose diamonds. If continually sharpening, the blade is too hard for the material being cut.
- Break-in on the material to be cut. If it does not dress itself, sharpen as you would a dull blade.

UNDERCUTTING THE CORE



- Abrasive wearing of the core faster than the segments.

- Use water to flush out fines generated during cutting
- Use wear-retardant cores.

ARBOR HOLE OUT-OF-ROUND



- Collars/flanges are not properly tightened, permitting blade to rotate or vibrate on the shaft.
- Collars/flanges are worn or dirty.
- Blade is not properly mounted.

- Make certain the blade is mounted on the proper shaft diameter. Tighten the shaft nut with a wrench to make certain that the blade is secure.
- Clean collars/flanges, make sure they are not worn.
- Tighten arbor nut.
- Make sure the pin hole slides over drive pin.

BLADE WORN OUT OF ROUND



- Shaft bearings are worn.
- Surges occur because engine is not properly tuned.
- Blade arbor hole is damaged from incorrectly mounting the blade.
- Bond/matrix is too hard for material.
- Blade is slipping, wearing one half of blade more than other.

- Install new blade shaft bearings or blade shaft, as required.
- Tune engine according to manufacturer's manual.
- If core is worn or arbor hole damaged, DO NOT USE. Contact blade manufacturer.
- Use proper blade. Consult blade manufacturer.
- Replace worn shaft or mounting arbor bushing.
- Make certain that drive pin is functioning.
- Tighten spindle nut.

Lubrication

Lubrication and Service

- Check oil levels, wiring, hoses (air, fuel, water) and lubricate machine daily.
- Repair or replace all worn or damaged components immediately.
- Check drive belt tension, do not over-tension.
- Make sure machine has full set of matched belts.
- Check bladeshaft, make sure arbor and threads are not worn, damaged, or bent.
- Bladeshaft bearings should be tight, no free play side-to-side or up and down.
- Grease blade shaft bearings daily.
- Blade collars should be clean, free of nicks and burrs. No diameter wear and not out of round.
- Drive pin not excessively worn or bent and free of gouges.
- All guards in place and secure.
- All fasteners tight and secure.
- Air filter/oil filter (hydraulic or engine) clean.
- Flush clean water through the pump and spray the assembly every night. This prolongs the pump and blade life.

Lubricants:

Engine Oil SAE 10W/30 see engine manual

General Grease #1 Lithium

Model 6 Transmissions CSP3 Any SAE20W20

- Clean machine before starting lubrication maintenance.
- Insure machine is on solid, level ground before starting maintenance.
- During lubrication maintenance insure strict cleanliness is observed at all times.
- To avoid the risk of accidents, use the correct tool for the job and keep tools clean.
- The draining of engine oil is best carried out when the oil is warm NOT hot.
- Any spilled oil must be cleaned up immediately.
- Use only clean containers for oil and only CLEAN, FRESH oils and grease of correct grade.
- Contaminated Water/Fluids/Oils/Filters Must Be Disposed of Safely.

Lubrication

Service Record Chart

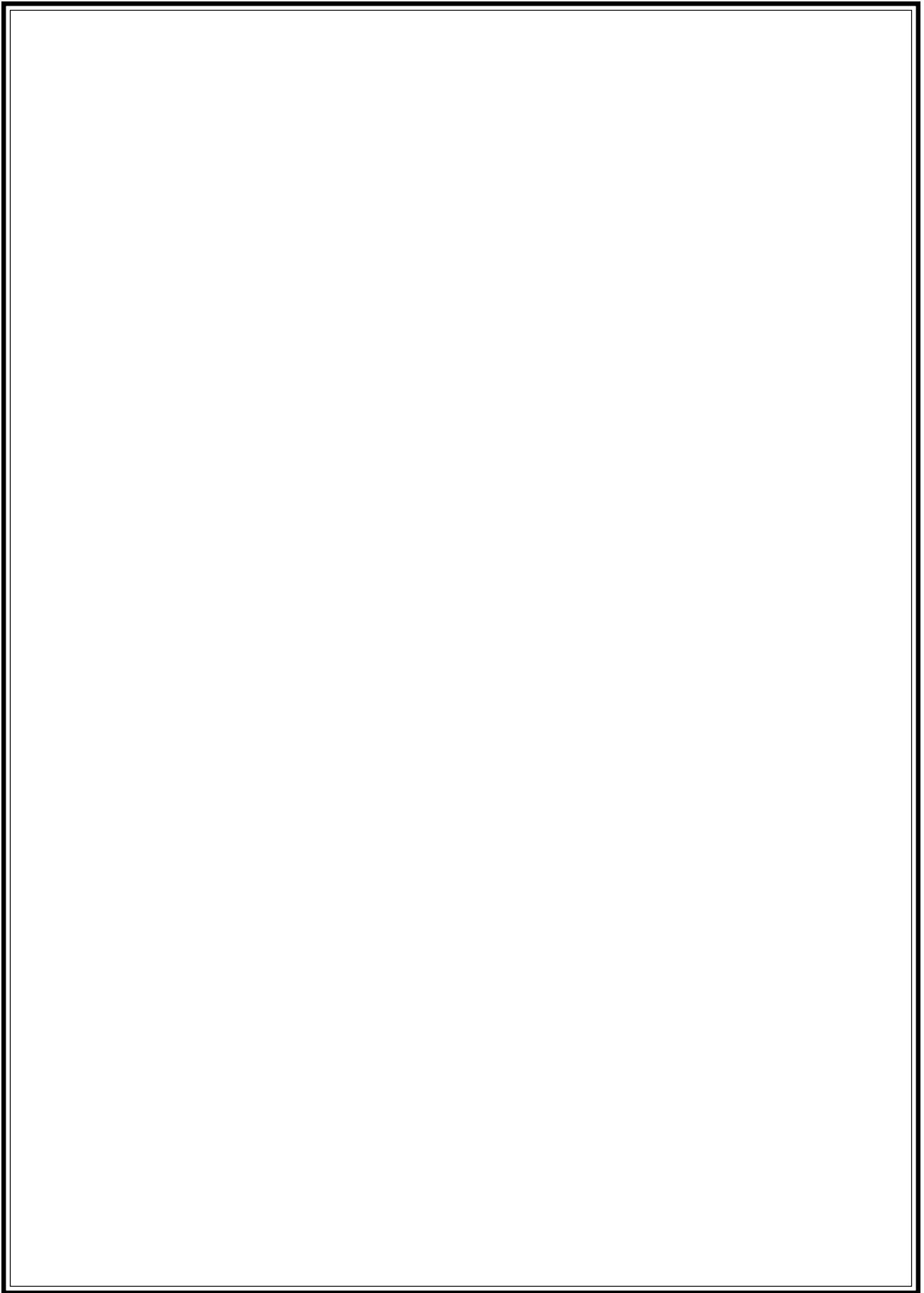
SERVICE RECORD

Model No. _____ Serial No. _____

Note: See Engine Manual for Frequency and Part Numbers

Date	Engine Oil	Engine Oil Filter	Fuel Filter	Air Filter	Spark Plugs	Transmission Fuel

Notes:





**CALIFORNIA PROPOSITION 65 WARNING:
Operation of this equipment and/or engine
exhaust from this product contains chemicals
known to the State of California to cause cancer,
birth defects, or other reproductive harm.**



*Bred Tough. Born to Work.
The Way It Ought To Be.*

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