Download full manual at youfixthis.com

CHARGING CIRCUIT 1886s-05 & 06

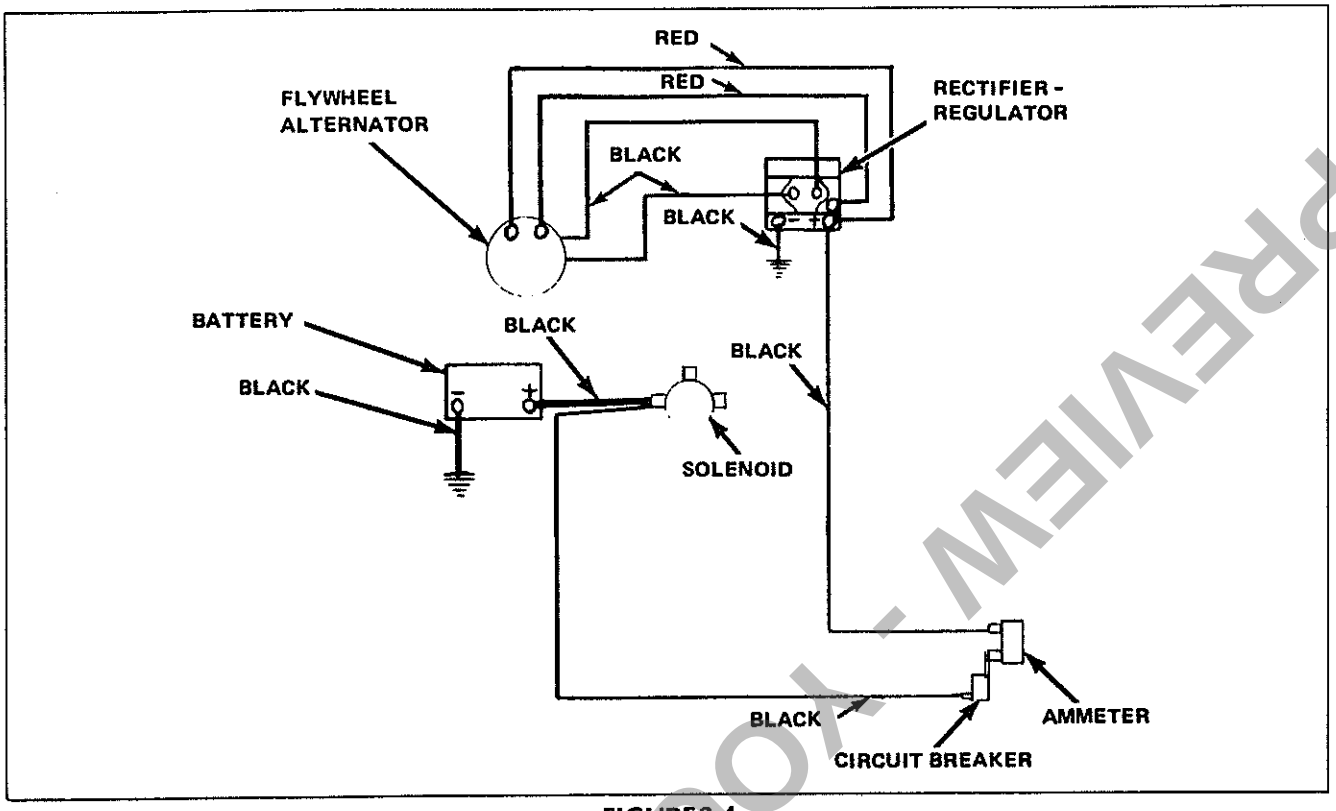


FIGURE 2-4

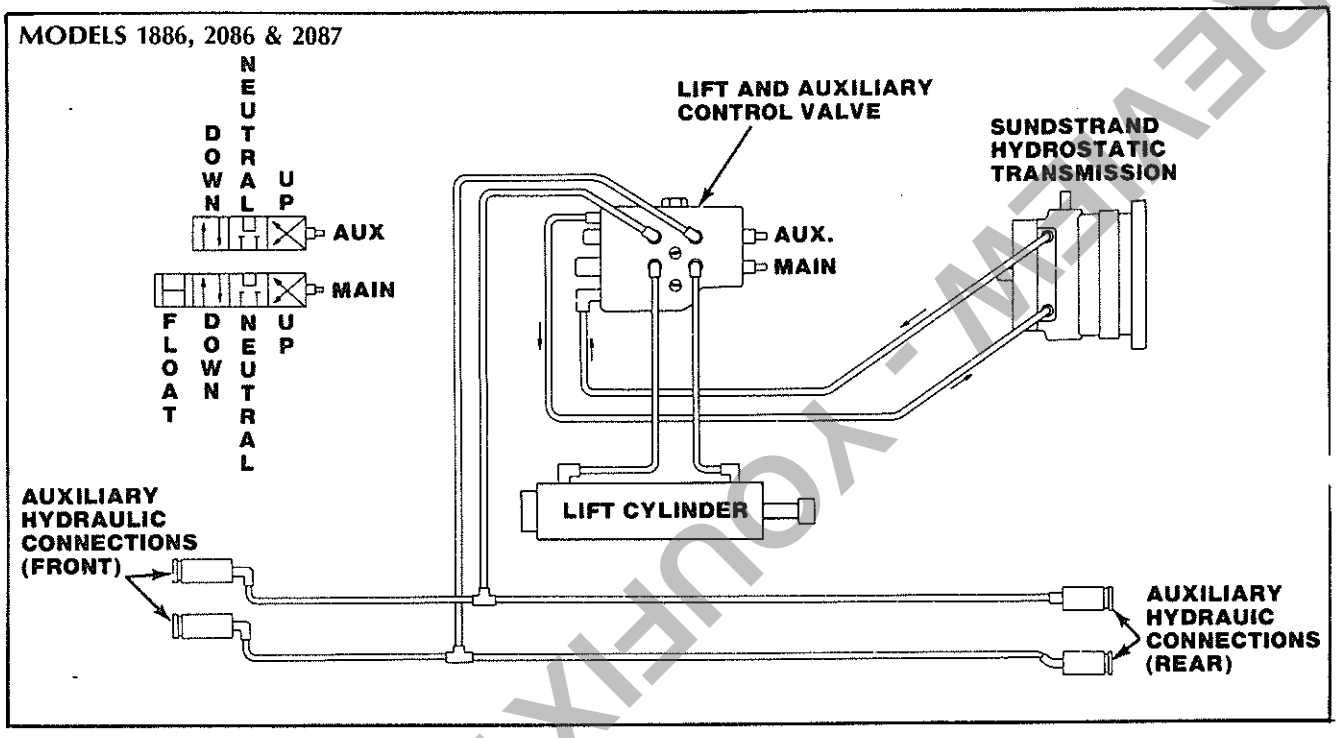
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

HYDRAULIC SYSTEM (Continued)

PRINCIPLE OF OPERATION

The hydraulic system uses the hydrostatic charge pump as its power source. Its oil supply is also that of the transaxle and hydrostatic transmission. The oil is pumped by the hydrostatic to the hydraulic control valve. When the controls are actuated the oil flow can be directed to the hydraulic cylinder or auxiliary hydraulic connections in either direction.



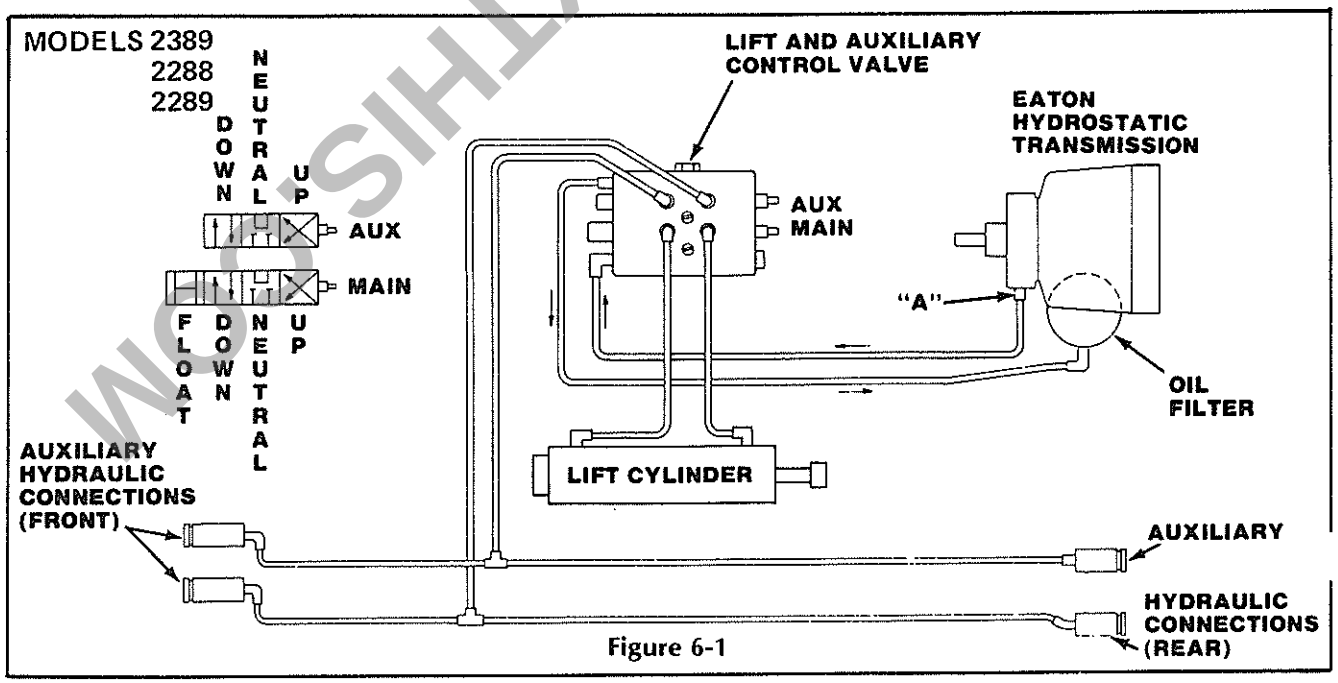
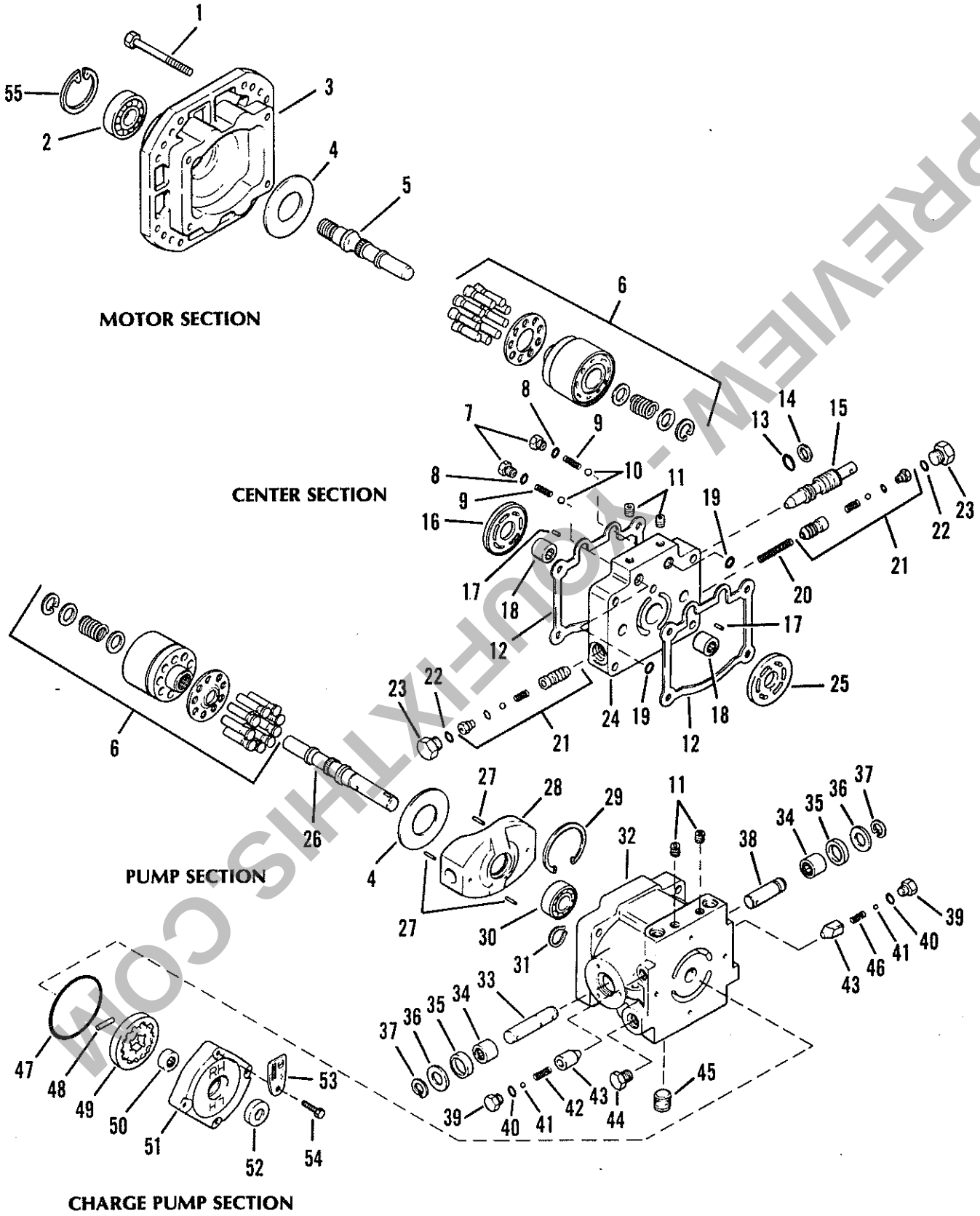


Figure 6-1

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DRIVE TRAIN (Continued)



PREVIEW - YOUFIXTHIS.COM

FIGURE 3-13 HYDROSTATIC EXPLODED VIEW

Download full manual at youfixthis.com

TROUBLE SHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
Starter Motor does not energize	1. P.T.O. engaged	1. Disengage P.T.O.
	2. Brake pedal not depressed	2. Depress brake pedal and lock
	3. Corroded or loose electrical connections	3. Clean and tighten
	4. Discharged battery	4. Locate problem and recharge
	5. Defective switches P.T.O. interlock, brake interlock ignition switch, etc.	5. Check and replace if necessary
	6. Defective solenoid	6. Check and replace if necessary
Starter Motor turns too slow	1. Weak or partially discharged battery	1. Check battery charge or replace if necessary
	2. Corroded or loose electrical connections	2. Clean and tighten
Battery discharges rapidly	1. Low water level	1. Check and refill
	2. Low or no output from alternator	2. Check output and repair if necessary
	3. Short in electrical system	3. Check out and repair
Battery will not charge	1. Dirt and moisture on case	1. Clean case
	2. Corroded or loose battery terminals	2. Clean and tighten
	3. Defective battery	3. Replace battery
	4. No alternator output	4. Check out alternator and repair or replace
	5. Defective rectifier-regulator	5. Check out rectifier-regulator, replace if necessary
Lights not operating	1. Bulbs burned out	1. Replace bulbs
	2. Loose or poorly connected wire	2. Install properly and tighten
	3. Circuit breaker defective	3. Check out circuit breaker, replace if necessary

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

GENERAL (Continued)

SPECIFICATIONS

ENGINE	1886s-05 & 06	2086	2087
Manufacturer	Kohler	Kohler	Kohler
Model/Spec	K482S 35208B & 35113B	K 532S 53100A	K532S 553102A & 53138A
Type	Horz. shaft, air cooled 2 cyl., 4 cycle	Horz. shaft, air cooled, 2 cyl., 4 cycle	Horz. shaft, air cooled, 2 cyl., 4 cycle
Bore and Stroke	3-1/4" X 2-7/8" (82.5 x 73 mm)	3-3/8" X 3" (85.7 X 76.2 mm)	3-3/8" X 3" (85.7 X 76.2 mm)
Piston Displacement	47.7 Cu. In. (781.3 cc)	53.7 Cu. In. (879.6 cc)	53.7 Cu. In. (879.6 cc)
Mfr's H.P. Rating	18 H.P. at 3600 R.P.M.	19.5 H.P. at 3450 R.P.M.	19.5 H.P. at 3450 R.P.M.
Air Cleaner	Paper Element Kohler 277138	Paper Element Kohler 277138	Paper Element Kohler 277138
Oil Capacity	3 Quarts (2.8 liter) and 1 pint (.47 liters) in filter	3 Quarts (2.8 liter) and 1 pint (.47 liter) in filter	3 Quarts (2.8 liter) and 1 pint (.47 liter) in filter
Oil Filter	Kohler 277233	Kohler 277233	Kohler 277233
Governor	Mechanical	Mechanical	Mechanical
Speed Control	Remote, cable operated	Remote, cable operated	Remote, cable operated
Starter	Electric	Electric	Electric
Charging System	30 Amp. Alternator	15 Amp. Alternator	15 Amp. Alternator
Spark Plug Size	14 mm	14 mm	14 mm
Spark Plug	Champion HR 10	Champion HR 10	Champion HR 10
Spark Plug Gap	.025" (0.63 mm)	.025" (0.63 mm)	.025" (0.63 mm)
Breaker Point Gap	.020" (0.5 mm)	.020" (0.5 mm)	.020" (0.5 mm)

ENGINE	2288	2289	2389/2389s
Manufacturer	Ducati	Teledyne Wisconsin	Kohler
Model/Spec	21522	WD2-860	K 582S 36272A/K582S 36328
Type	Horz. shaft, air cooled. 4 cycle, 2 cyl. Diesel	Horz. shaft, air cooled. 4 cycle, 2 cyl. Diesel	Horz. shaft, air cooled 2 cyl. 4 cycle
Bore and Stroke	3.307" X 3.071 (84 X 78 mm)	3.307" X 3.071" (84 X 78 mm)	3-1/2" x 3" (88.9 mm X 76.2 mm)
Piston Displacement	52.7 Cu. In. (864 cc)	52.7 Cu. In. (864 cc)	57.7 Cu. In. (946.0 cc)
Mfr's H.P. Rating	22 H.P. at 3000 RPM	19.9 H.P. at 3000 RPM	23 H.P. (17.1 KW) at 3600 RPM
Air Cleaner	Bolens 1721457	Bolens 1721457	Paper element Kohler 4708303
Oil Capacity	2.2 Qt. (2 liter) and 1 Pint (.47 liter) in filter.	2.2 Qt. (2 liter) and 1 Pint (.47 liter) in filter.	8 Pts. (2.8 liter) and 1 Pint (.47L) (.47 liter) in filter
Oil Filter	Bolens 1726450	Bolens 1726450	Kohler 277233
Governor	Mechanical	Mechanical	Mechanical
Fuel Filter	Bolens 1738804	Bolens 1738804	
Speed Control	Remote, cable operated.	Remote, cable operated.	Remote, cable operated
Starter	Electric	Electric	Electric
Charging	9 Amp. Alternator (35 Amp. alter, kit available).	9 Amp. Alternator (35 Amp. alter kit available) .	15 Amp. Alternator
Spark Plug Size			14 mm
Spark Plug			Champion HR 10
Spark Plug Gap			.035 (0.89 mm)
Breaker Point Gap			.020 (0.51 mm)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

GENERAL (Continued)

MAINTENANCE CHART
KOHLER MODELS

MAINTENANCE REQUIRED	Length of Operation	Type of Maintenance
Engine Oil Filter —	100 Hrs.*	Replace
Engine Cooling Air Screen —	Daily or 10 Hrs.*	Brush Clean
Engine Air Cleaner —	50 Hrs.*	Shake Out Dirt
	100 Hrs.*	Replace
Cooling Fins — (Engine) —	Daily or 10 Hrs.	Clean — Use Air Hose if Available
Spark Plugs —	100 Hrs.	Service or Replace
Breaker Points —	500 Hrs.	Service or Replace
Ignition Timing —	500 Hrs.**	Adjust
Engine Valves —	500 Hrs.**	Adjust
Engine Cylinder Heads —	500 Hrs.**	Remove Carbon
Fuel Filter —	100 Hrs.	Clean
Battery —	Daily or 10 Hrs.	Check Water Level — Add As Necessary
Hydrostatic Transmission	50 Hrs.*	Clean — Use Air Hose if Available
Belts —	50 Hrs.*	Check for Wear and Adjust
Tires —	25 Hrs.	Check for Damage and Air Pressure
Transmission Filter —	After First 5 Hours then After Every 100 Hours	Change and Add Oil to Bring to Operating Level Use Only Bolens Filter

*More often under extreme conditions.
**Services should be performed by an Authorized Kohler Engine Dealer.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

HYDRO REMOVAL

1. Drain fluid from Transaxle.

NOTE: DO NOT REUSE OLD FLUID.

2. Loosen set screw and remove bolt holding drive shaft on engine crankshaft. Slide shaft forward until it clears hydro input shaft.
3. Disconnect hydraulic lines (Reference "A" fig. 3-9).
4. Disconnect pick-up tube line (Reference "B" at hydro end).
5. Remove hydro oil filter.
6. Remove bolt holding neutral adjusting rod (Reference "C").
7. Drive out roll pin (Reference "A" fig. 3-12) holding linkage to control shaft. Remove linkage as an assembly.
8. Remove the remaining three bolts holding hydro.

NOTE: Hold hydro while removing last bolt to prevent it from dropping. Remove hydro from tractor.

9. Remove the two oil line fittings and the pick-up tube fitting from old hydro.
10. Remove roll pin from free wheeling valve.

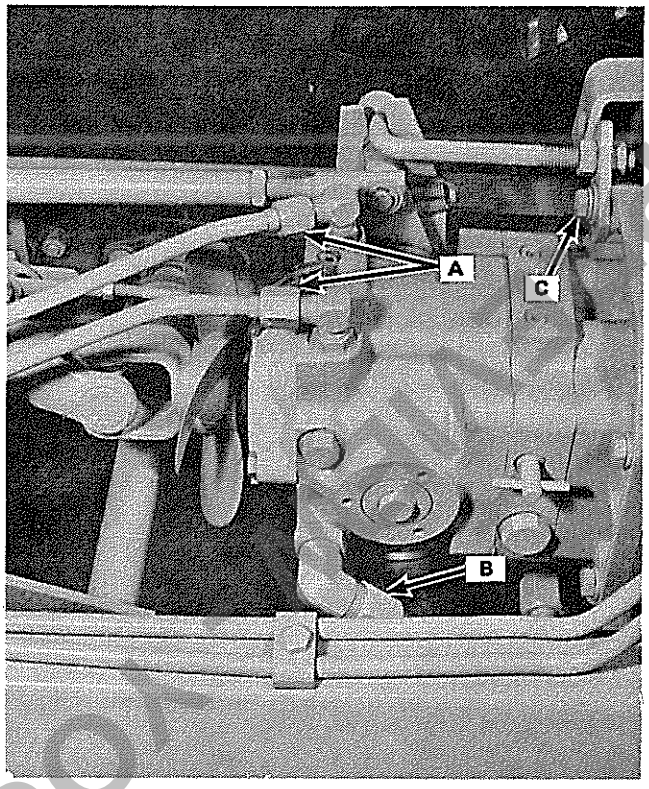


FIGURE 3-9

HYDRO INSTALLATION

1. Remove protection cap from oil filter stud and stake stud to prevent it from turning further into hydro during filter installation.

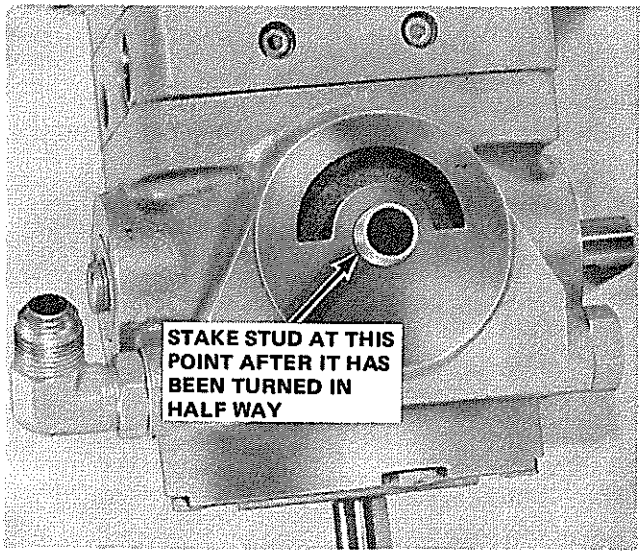


FIGURE 3-10

FIXTHIS.COM

Download full manual at yourfixthis.com

MOWERS

MOWER LEVELING

Set parking brake, start tractor engine and raise mower with lift. Check level of mower, if it needs releveling, proceed as follows:

a. Lower mower to the ground.

b. Remove clevis pins of leveler rods (A), Figure 8-2.

c. If mower was low in front, shorten the leveler rods. If mower was high in front, lengthen the leveler rods.

d. Reinstall clevis pins and secure with spring cotters. Securely tighten lock nuts on leveler rod clevises.

Position stop nuts (B) Figure 8-1 on lift links flush with bottom of pivot stud (C). Turn up on the studs until desired height is obtained.

If mower needs leveling from side to side, adjust by turning nut (B) Figure 8-1 either up or down on lift studs (C).

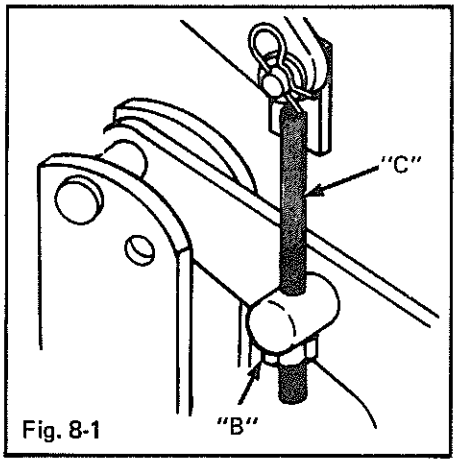


Fig. 8-1

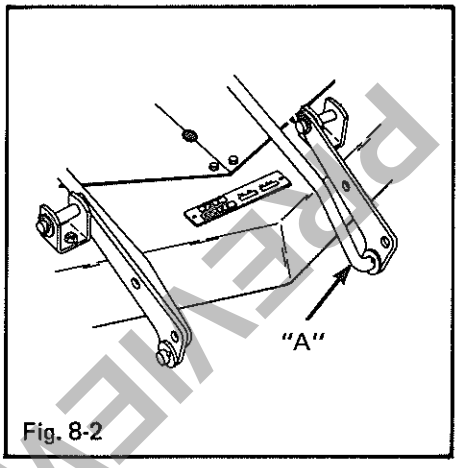


Fig. 8-2

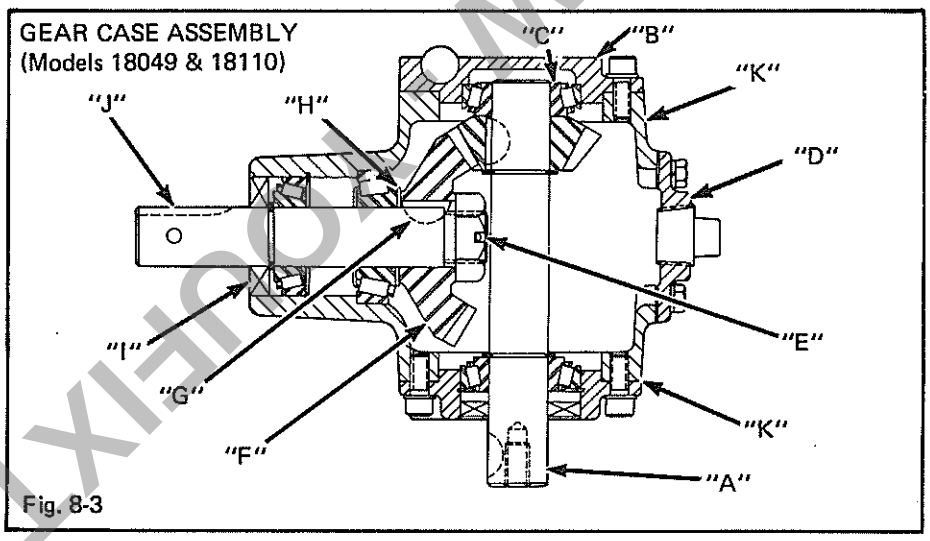


Fig. 8-3

LUBRICATION

The unit has five grease fittings; one on each blade spindle located on the top side of the mower; one on each universal joint. Lubricate grease fittings every 50 hours of operation or once each year, whichever occurs first, with Bolens multi-purpose grease and Bolens grease gun. Oil all linkages, gauge wheels and anti-scalp roller at periodic intervals.

NOTE

The gear case is filled at the factory with 11 oz. (.324 liter) of Bolens gear lube. Remove plug at rear of gear case. Check oil level - oil should be to the level of the plug opening - thereafter check at intervals of every 25 hours of operation to maintain plug level.

GEAR CASE DISASSEMBLY

1. Remove universal joint, R.H. belt cover and remove belt from the gear case.

2. Disassemble the gear box from the mower support.

3. Remove the rear plug and drain the oil.

4. Remove drive pulley and woodruff key from output shaft (A). Remove any burrs on end of shaft.

5. Remove cover (B) and roller bearing (C).

6. Slide output shaft assembly out of case.

7. Remove cover (D).

8. Through gear case opening remove cotter pin and nut (E).

9. Slide gear (F) off of input shaft and remove woodruff key (G) and shims (H).

10. Remove oil seal (I) and slide input shaft (J) out.

11. Replace all worn parts.

GEAR CASE ASSEMBLY

1. If required, remove and replace any bearings and oil seals.

2. Insert input shaft (J) through bearings.

3. Slide shims (H) on shaft and install woodruff key (G).

4. Install gear (F) and secure using nut (E) and cotter pin.

5. Install output shaft (A) assembly and bearing into case.

6. Install cover (B).

PREVIEW FROM FIXTHIS.COM

Download full manual at youfixthis.com

TABLE OF CONTENTS

	PAGE
GROUP I. GENERAL	1-1
SERIAL NUMBER INFORMATION	1-1
SPECIFICATIONS	1-2
TORQUE	1-3
MAINTENANCE CHART KOHLER	1-4
MAINTENANCE CHART (WISCONSIN/DUCATTI)	1-5
LUBRICATION POINTS	1-6
LUBRICATION CHART	1-7
MAINTENANCE CHART (MITSUBSHI)	1-8
LUBRICATION CHART	1-9
GROUP II. ELECTRICAL SYSTEM	2-1
TROUBLE SHOOTING GUIDE	2-1
WIRING DIAGRAM – 1886s-05 and 06	2-3
LIGHT CIRCUIT DIAGRAM	2-4
START/RUN CIRCUIT	2-4
CHARGING CIRCUIT	2-5
WIRING DIAGRAM – 2086 and 2087 S/N 01/03	2-6
WIRING DIAGRAM – 2087-04 and 2389	2-6A
LIGHT CIRCUIT	2-7
START/RUN CIRCUIT – 2086 and 2087-01/03	2-7
START/RUN CIRCUIT – 2389, 2087-04 and 2389s	2-8
CHARGING CIRCUIT	2-8
CRUISE CONTROL CIRCUIT	2-9
WIRING DIAGRAM – 2389s	2-6B
WIRING DIAGRAM – 2288 and 2289	2-10
CHARGING CIRCUIT	2-11
SEAT CIRCUIT	2-12
START CIRCUIT	2-13
LIGHT CIRCUIT	2-13
WIRING DIAGRAM – 2388s	2-14
START CIRCUIT	2-15
RUN CIRCUIT	2-15
LIGHT CIRCUIT	2-16
CRUISE CONTROL CIRCUIT	2-16
PREHEAT CIRCUIT	2-17
TESTING ELECTRICAL SYSTEM	2-15
GROUP III. DRIVE TRAIN	3-1
TROUBLE SHOOTING GUIDE	3-1
PRINCIPLES OF HYDROSTATIC OPERATION	3-2
HYDROSTATIC TRANSMISSION FLOW CHART	3-3
IDENTIFICATION	3-4
TESTING HYDRO (SUNDSTRAND)	3-6
HYDRO REMOVAL AND INSTALLATION (SUNDSTRAND)	3-7
TESTING HYDRO (EATON)	3-11A
HYDRO REMOVAL AND INSTALLATION (EATON)	3-11B
HYDROSTATIC REPAIR (SUNDSTRAND)	3-12
CHARGE PUMP SECTION	3-12
PUMP SECTION	3-15
CENTER SECTION	3-18
MOTOR SECTION	3-20
TRANSAXLE REMOVAL	3-21A
ASSEMBLY PROCEDURE OF CARRIER AND AXLE	3-24
TRANSAXLE ASSEMBLY	3-26
TRANSAXLE ASSEMBLY PROCEDURE	3-28
TWO SPEED TRANSAXLE ASSEMBLY 2389, 2288, 2389s, 2388s, and 2289	3-30
GROUP IV. FUEL SYSTEM	4-1
TROUBLE SHOOTING GUIDE	4-1
FUEL TANK AND VALVE	4-3
FUEL FILTER	4-4
AIR CLEANER	4-4
CARBURETOR ADJUSTMENTS	4-5
GROUP V. CHASSIS	5-1
FRONT AXLE	5-1
FRONT WHEEL ALIGNMENT	5-2
TURNING RADIUS	5-2
FRONT WHEEL BEARINGS	5-3
TIRES	5-3
BRAKES	5-4
POWER TAKE-OFF LEVER AND BELTS	5-5
REAR WHEELS	5-6
TRAVEL PEDAL	5-6
FOOT BRAKE AND SEAT INTERLOCK SWITCH	5-7
GROUP VI. HYDRAULIC SYSTEM	6-1
TROUBLE SHOOTING GUIDE	6-1
PRINCIPLE OF OPERATION	6-2
TESTING HYDRAULIC SYSTEM	6-4
CHECKING IMPLEMENT RELIEF VALVE	6-4
HYDRAULIC POWER LIFT	6-4
REPAIRING HYDRAULIC SYSTEM	6-6
DISASSEMBLY	6-6
ASSEMBLY	6-7
OIL COOLER	6-8
POWER STEERING	6-10
ADJUSTMENT OF STEERING NUT	6-11
GROUP VII. ENGINE	7-1
TROUBLE SHOOTING GUIDE	7-1
ENGINE REMOVAL	7-3
GROUP VIII. TRACTOR ATTACHMENTS	8-1
MOWERS	8-1
SNOW THROWER	8-3
TILLERS	8-6

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SERIAL NUMBER INFORMATION

Model number of Tractor.
Serial number of Tractor.

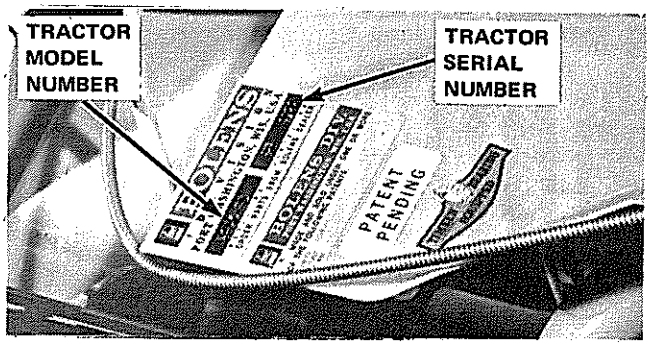


FIGURE 1-1 1886s

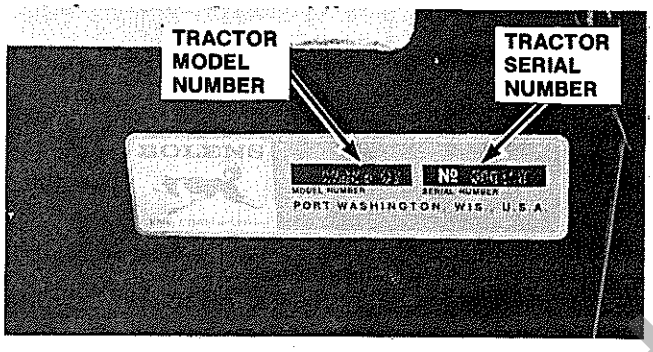


FIGURE 1-2 2086, 2087

Engine Model Number.
Engine Serial Number.
Engine Spec. Number.

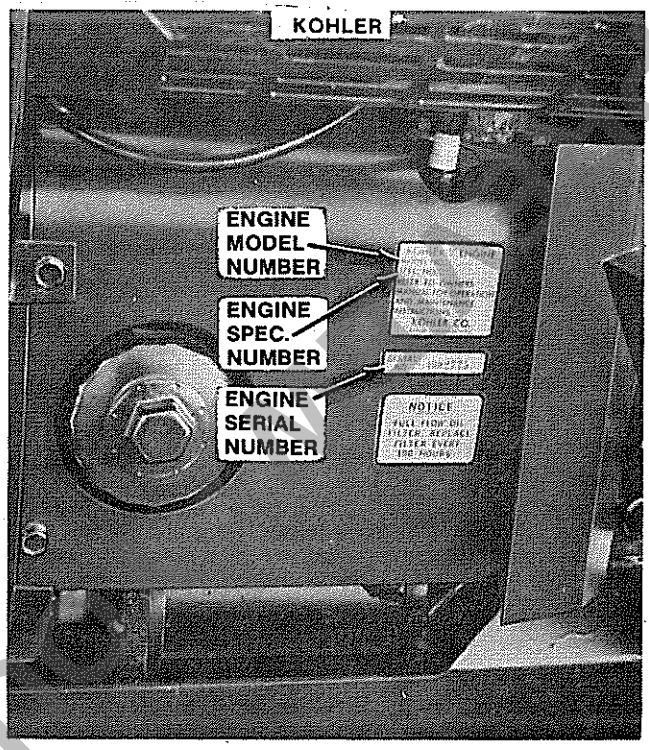
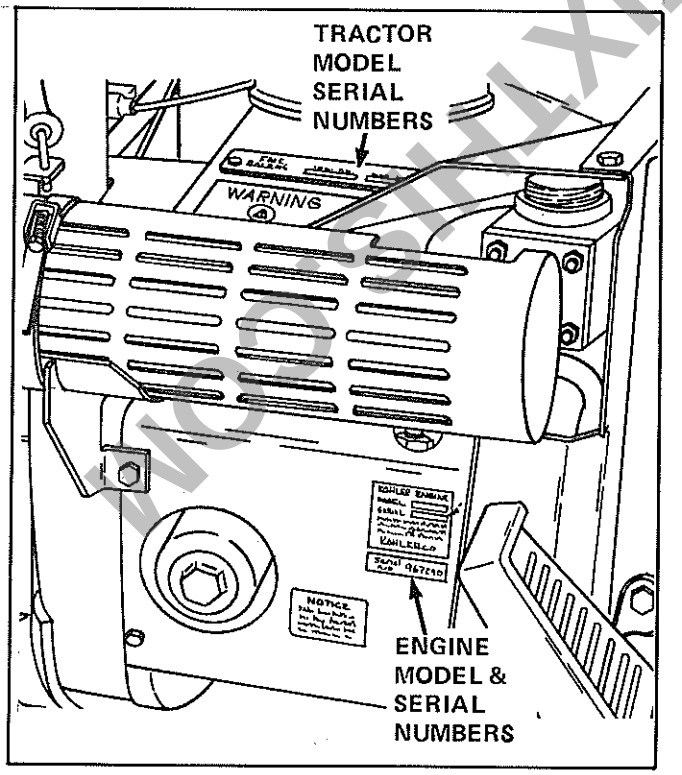
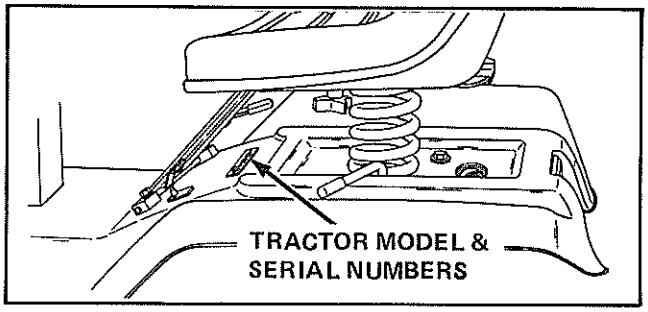
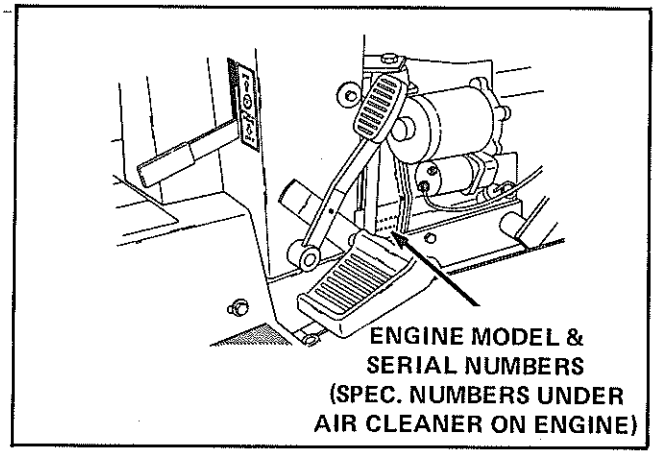


FIGURE 1-3 1886s, 2086, 2087



2389 & 2389s





2288, 2289

Download full manual at youfixthis.com

DRIVE TRAIN (Continued)

Hydrostatic valves which can be checked, repaired, or replaced with unit remaining in the tractor are identified in Fig. 3-3.

1. Reverse Acceleration Valve Assy.
2. Charge Pump Relief Valve Assy.
3. Acceleration Valve Spring.
4. Forward Acceleration Valve Assy.
5. Free Wheeling By-Pass Valve.
6. Implement Relief Valve Assy.

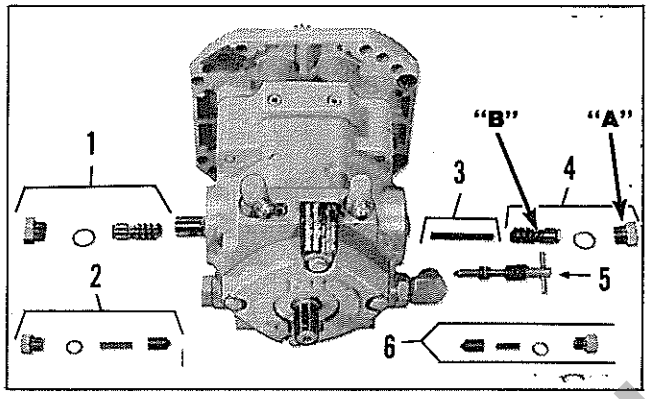


FIGURE 3-3

Right side of hydrostatic shows location of the charge pump relief valve assembly and the reverse acceleration valve. See Fig. 3-3.

Left side of hydrostatic shows location of the implement relief valve assembly, the free wheeling valve and the forward acceleration valve.

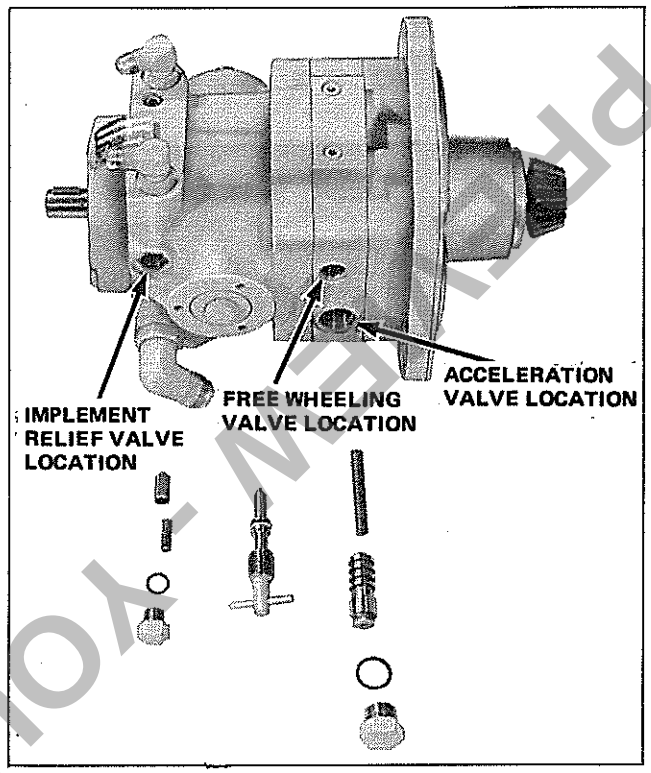


FIGURE 3-4

To check the acceleration valve the cap "A", Fig. 3-3 can be turned out of the body "B." The spring and ball can then be removed and inspected for dirt which could cause erratic shifting of the hydrostatic.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

TROUBLE SHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
Hard starting	1. Fuel shut off valve closed	1. Open valve
	2. Choke linkage not working properly	2. Check linkage and repair
	3. Dirt in fuel system	3. Clean fuel lines, carburetor, and install new fuel filter
	4. Engine flooded	4. Check linkage, carburetor float setting etc.
	5. Carburetor out of adjustment	5. Adjust carburetor
	6. Water in fuel system	6. Clean system and refill with clean fuel
	7. Dirty air filter	7. Install new air filter
No fuel reaches carburetor	1. Empty fuel tank	1. Refill tank
	2. Fuel filter plugged	2. Clean or replace fuel filter
	3. Gas tank vent plugged	3. Clean out vent
Carburetor leaks	1. Loose fuel line fitting	1. Tighten fuel line
	2. Carb float setting set too high	2. Adjust float
Engine starts but runs rough with low power output	1. High or low speed mixture adjustments off	1. Readjust carburetor
	2. Incorrect float setting	2. Adjust float
	3. Dirty air filter	3. Install new air filter
	4. Carburetor loose on engine block	4. Tighten carburetor mounting screws

PREVIEW - YOUFIXTHIS.COM

PREVIEW ONLY

You're viewing 12 of 107 pages

The full manual includes:

- All 107 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Bolens 1886s-05, 1886s-06, 2086, 2087, 2288, 2289, 2389, 2388s, 2389s, HT 18, HT 20, HT 22, HT 23, HDT 1000 Service Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual