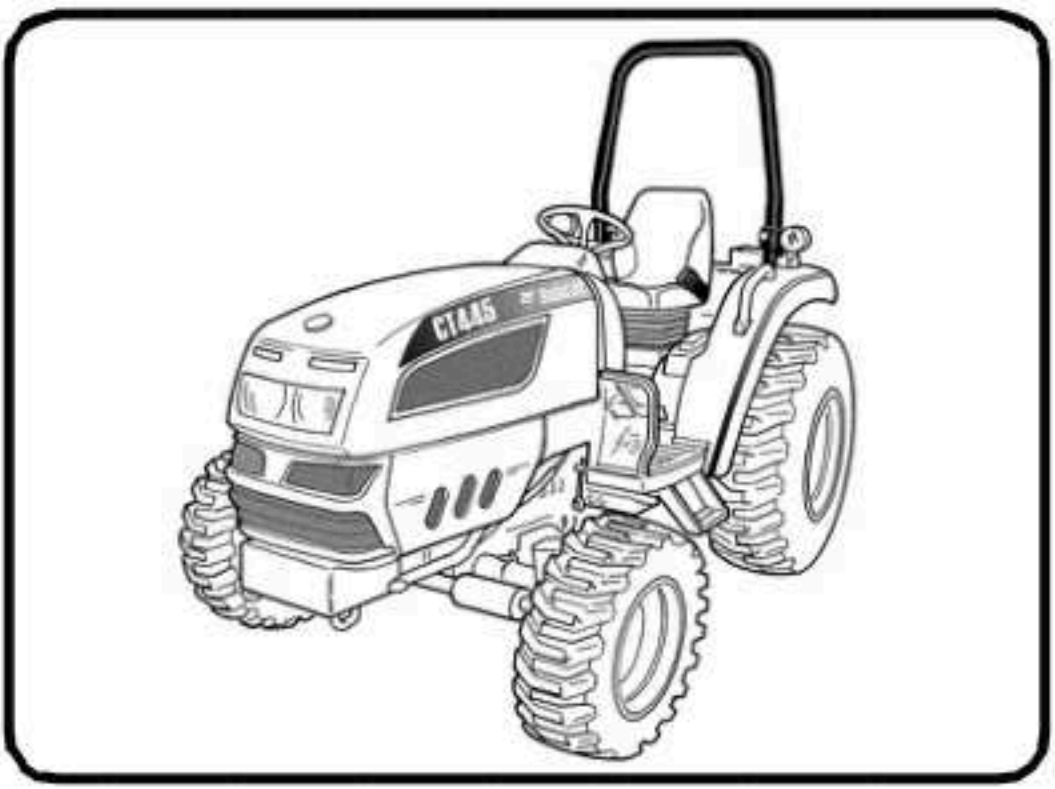
Bobcat®

Service Manual
CT440, CT445 & CT450
Compact Tractor

HST - S/N ABHE11001 & Above
HST - S/N ABHL11001 & Above
HST - S/N ABHM11001 & Above
SST - S/N AKB911001 & Above
SST - S/N AKBP11001 & Above



6987079 (12-09)

Printed in U.S.A.

© Bobcat Company 2009

MidWestTech | Bobcat CT440, CT445 & CT450 Compact Tractor Service Manual | Publicat... Order the manual at mid-west-tech.com >

ALPHABETICAL INDEX

AIR CLEANER 70-01
AIR CLEANER SERVICE 10-01
AIR CONDITIONING BELT 10-01
AIR CONDITIONING SERVICE 80-01
AIR CONDITIONING SYSTEM FLOW 80-01
ALTERNATOR 60-01
ALTERNATOR BELT 10-01
AUXILIARY CONTROL VALVE 20-01
AXLE AND DIFFERENTIAL 40-01
AXLE AND DIFFERENTIAL (SST MODELS) 40-01
AXLE CASE 40-01
AXLE TOE IN (HST MODELS) 10-01
AXLE TOE IN (SST MODELS) 10-01

BATTERY 60-01
BLOWER FAN 80-01
BOB-TACH HAND LEVER 10-01
BRAKE CASE 40-01
BRAKE PEDAL ASSEMBLY 40-01
BRAKE/CLUTCH PEDAL ASSEMBLY (SST MODELS) 40-01
BRAKE SYSTEM 10-01

CAB (HST MODELS) 50-01
CAB COVER 50-01
CAB POST COVER 50-01
CAMSHAFT AND TIMING GEARS 70-01
CLUTCH PEDAL AND HOUSING (SST ONLY) 10-01
CLUTCH PEDAL (SST ONLY) 10-01
CLUTCH ASSEMBLY (SST MODELS) 70-01
CLUTCH LEVER (SST MODELS) 70-01
COMPACT TRACTOR STORAGE AND RETURN TO SERVICE 10-01
COMPONENTS 80-01
COMPRESSOR 80-01
CONDENSOR 80-01
CONSOLE COVER (WITH CAB) 50-01
CONSOLE COVER (WITHOUT CAB) 50-01
CONVERSIONS SPEC-01
CRANKSHAFT AND PISTONS 70-01
CRUISE CONTROL (HST ONLY) 60-01
CYLINDER HEAD 70-01

DIFFERENTIAL LOCK 10-01
DRAW BAR 50-01
DRAW BAR ASSEMBLY 50-01
DRIVE SHAFT (EARLY MODELS) 40-01
DRIVE SHAFT (LATER MODELS) 40-01

ELECTRICAL SYSTEM INFORMATION 60-01
ENGINE COOLING SYSTEM 10-01, 70-01
ENGINE COVER 10-01, 50-01
ENGINE INFORMATION 70-01
ENGINE LUBRICATION SYSTEM 10-01
ENGINE SIDE COVER 50-01
ENGINE SPEED CONTROL 70-01
ENGINE SPEED CONTROL PEDAL (SST MODELS) 70-01
EVAPORATOR 80-01
EVAPORATOR / HEATER UNIT 80-01
EVAPORATOR / HEATER UNIT COVER 80-01
EXPANSION VALVE 80-01

FAN 70-01
FENDER (WITH CAB) 50-01
FENDER (WITHOUT CAB) 50-01
FENDER ASSEMBLY (WITHOUT CAB) (HST MODELS) 50-01
FENDER ASSEMBLY (WITHOUT CAB) (SST MODELS) 50-01
FIREWALL (WITH CAB) (HST MODELS) 50-01
FIREWALL (WITHOUT CAB) (HST MODELS) 50-01
FIREWALL (SST MODELS) 50-01
FLOORMAT (HST MODELS) 50-01
FLOORMAT (SST MODELS) 50-01
FLOOR PLATE 50-01
FLYWHEEL AND HOUSING (HST MODELS) 70-01
FLYWHEEL AND HOUSING (SST MODELS) 70-01
F-N-R LEVER (SST ONLY) 60-01
FRESH AIR FILTERS (WITH CAB) 10-01
FRONT AIR DUCT 80-01
FRONT AXLE 10-01, 40-01
FRONT AXLE (SST MODELS) 10-01, 40-01
FRONT LIGHTS (WITH CAB) 60-01
FRONT WORK LIGHT (WITH CAB) 60-01
FRONT WORK LIGHT MOUNT (WITH CAB) 50-01
FRONT WHEEL DRIVE 20-01
FUEL, COOLAND AND LUBRICANTS (ALL MODELS) SPEC-01
FUEL LEVEL SENDER 60-01
FUEL SYSTEM 10-01, 70-01
FUEL TANK 50-01

GENERAL AIR CONDITIONING SERVICE GUIDELINES 80-01
GRILL 50-01

HEADLINER 50-01
HEATER COIL 80-01
HEATER VALVE 80-01
HOOD LIGHTS 60-01
HORN 60-01
HVAC CONTROL PANEL 80-01
HYDRAULIC PUMP 20-01
HYDRAULIC FLUID SPECIFICATIONS SPEC-01
HYDRAULIC SYSTEM INFORMATION 20-01
HYDRAULIC /HYDROSTATIC/ TRANSMISSION SYSTEM 10-01
HYDROSTATIC PUMP (HST MODELS) 30-01

Continued On Next page

MidWestTech | Bobcat CT440, CT445 & CT450 Compact Tractor Service Manual | Publicat... Order the manual at mid-west-tech.com >

HYDROSTATIC PUMP TESTING (HST MODELS) 30-01
HYDROSTATIC SYSTEM INFORMATION (HST MODELS) 30-01

INNER FENDER ACCESS COVER (WITH CAB) ... 50-01
INSTRUMENT PANEL 60-01

LUBRICATING THE COMPACT TRACTOR 10-01
LUBRICATION SYSTEM 70-01

MAIN RELIEF VALVE 20-01
MID MOUNT PTO SWITCH 60-01
MID PTO CONTROL 50-01
MLS VALVE 20-01
MODULATOR VALVE 20-01

OIL COOLER (HST MODELS) 20-01
OPERATOR SEAT 50-01

PARKING BRAKE SYSTEM 10-01
PIVOT PINS 10-01
PRESSURE SWITCH 80-01
PTO LEVER (MID) (IF EQUIPPED) 60-01
PTO SAFETY SHIELD 50-01
PTO SWITCH (REAR) 60-01

REAR LIGHTS 60-01
REAR PTO 20-01
REAR WORKLIGHT (WITH CAB) 60-01
RECEIVER / DRIER 80-01
REGULAR MAINTENANCE 80-01
RESISTOR 80-01
RIGHT JOYSTICK (WITH CAB) 20-01
RIGHT JOYSTICK (WITHOUT CAB) 20-01
RIGHT JOYSTICK VALVE (IF EQUIPPED) 20-01
ROPS 50-01
ROCK SHAFT 20-01

SAFETY 80-01
SAFETY INTERLOCK SYSTEM - NEUTRAL START 10-01
SAFETY INTERLOCK SYSTEM - OPERATING 10-01
SEAT BELT 10-01
SEAT SENSOR 60-01
SEPERATING THE TRACTOR (HST MODELS) 40-01
SEPERATING THE TRACTOR (SST MODELS) 40-01
SERVICE BRAKE 40-01
SERVICE SCHEDULE 10-01
SIDE AIR DUCT 80-01
SPARK ARRESTOR MUFFLER 10-01, 70-01
SPEED RANGE LEVER (HST MODELS) 10-01, 60-01
SPLASH BOARD 50-01
STARTER 60-01
STEERING AXLE ADJUSTMENT (HST MODELS) 40-01
STEERING AXLE ADJUSTMENT (SST MODELS) 40-01
STEERING CYLINDER 20-01
STEERING CYLINDER (SST MODELS) 20-01
STEERING COLUMN COVER 60-01
STEERING VALVE 20-01
STEERING VALVE TESTING 20-01
SUPPORTING THE COMPACT TRACTOR ON JACKSTANDS 10-01
SYSTEM CHARGING AND RECLAMATION 80-01
SYSTEM TROUBLESHOOTING CHART 80-01

TEMPERATURE / PRESSURE 80-01
THERMOSTAT 80-01
THREE POINT CYLINDER 20-01
THREE POINT CYLINDER CONTROL 20-01
THREE POINT HITCH HOUSING 20-01
THREE POINT HITCH LOWER LINKS 50-01
TIRE MAINTENANCE 10-01
TORQUE SPECIFICATIONS FOR BOLTS SPEC-01
TOWING THE COMPACT TRACTOR 10-01
TRANSMISSION (HST MODELS) 40-01
TRANSMISSION (SST MODELS) 40-01
TRANSMISSION CASE (HST MODELS) 50-01
TRANSMIAAION CASE (SST MODELS) 50-01
TRANSPORTING THE COMPACT TRACTOR ON A TRAILER 10-01
TROUBLESHOOTING 70-01
TRAVEL CONTROL PEDAL (HST ONLY) 10-01
TRAVEL CONTROL PEDAL LINKAGE (HST MODELS) 30-01
TRAVEL CONTROL PEDAL PIVOT ARMS (HST MODELS) 30-01
TRAVEL CONTROL PEDALS (HST MODELS) 30-01

MidWestTech | Bobcat CT440, CT445 & CT450 Compact Tractor Service Manual | Publicat... Order the manual at mid-west-tech.com >

CONTENTS

FOREWORD II

SAFETY INSTRUCTIONS V

FIRE PREVENTION VIII

SERIAL NUMBER LOCATIONS X

DELIVERY REPORT XI

COMPACT TRACTOR IDENTIFICATION XII

COMPACT TRACTOR IDENTIFICATION (WITH OPTIONAL LOADER AND REAR BALLAST) XIII

COMPACT TRACTOR IDENTIFICATION (WITH OPTIONAL THREE-POINT IMPLEMENT AND FRONT BALLAST) XIV

COMPACT TRACTOR IDENTIFICATION (WITH OPTIONAL CAB). XV

SAFETY AND MAINTENANCE. 10-01

HYDRAULIC SYSTEM 20-01

HYDROSTATIC SYSTEM 30-01

DRIVE SYSTEM 40-01

MAINFRAME. 50-01

ELECTRICAL SYSTEM 60-01

ENGINE SERVICE 70-01

SPECIFICATIONS. SPEC-01

MidWestTech | Bobcat CT440, CT445 & CT450 Compact Tractor Service Manual | Publicat... Order the manual at mid-west-tech.com >

Fuse And Relay Location - Instrument Panel - SST Models

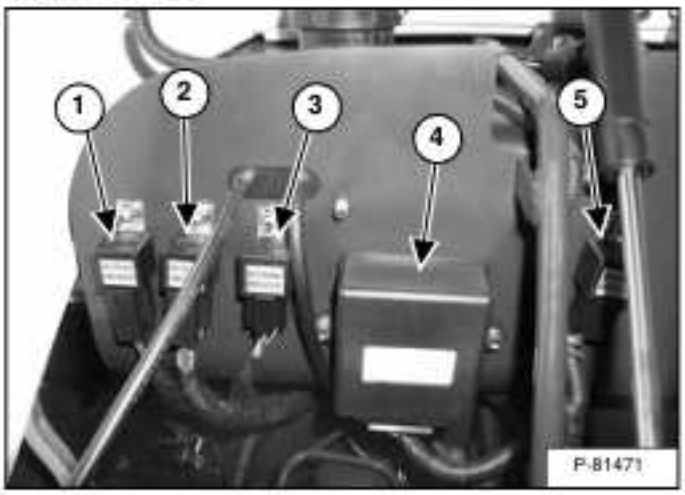
RELAYS

There are eight relays used in the electrical circuit.

Four of the relays and the glow plug timer module are located on the engine firewall (as shown in **[Figure 60-10-10]**).

Four of the relays and the flasher are located under the instrument panel (as shown in **[Figure 60-10-11]**). (The instrument panel must be removed to access these components.)

Figure 60-10-10



Relay (Item 1) **[Figure 60-10-10]** is for the ignition switch.

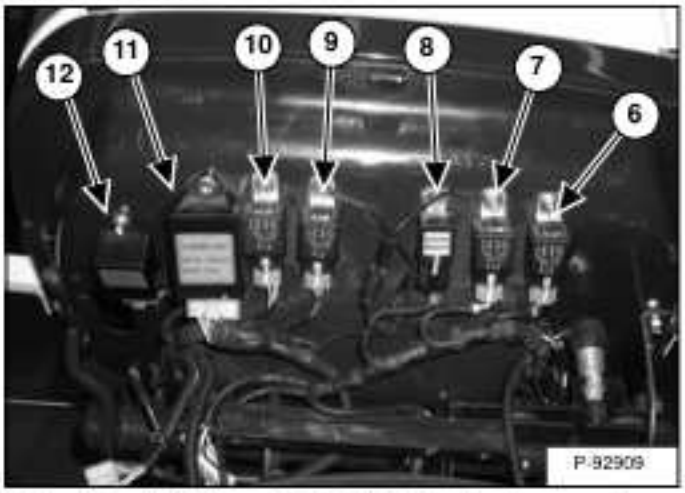
Relay (Item 2) **[Figure 60-10-7]** is for the glow plugs.

Relay (Item 3) **[Figure 60-10-7]** is for the fuel pull solenoid.

Operating Control Unit (Item 4) **[Figure 60-10-7]**.

Relay (Item 5) **[Figure 60-10-7]** is for the timer.

Figure 60-10-11



Relay (Item 6) **[Figure 60-10-11]** is for low beam relay.

Relay (Item 7) **[Figure 60-10-11]** is for high beam relay.

Relay (Item 8) **[Figure 60-10-11]** is for PTO relay.

Relay (Item 9) **[Figure 60-10-11]** is for the brake light.

Relay (Item 10) **[Figure 60-10-11]** is for the Shuttle Shift neutral switch.

Flasher (Item 11) **[Figure 60-10-11]** is for the directional signals / hazard / flashers.

Preheat controller (Item 12) **[Figure 60-10-11]** is for controlling glow plug activation time.

MidWestTech | Bobcat CT440, CT445 & CT450 Compact Tractor Service Manual | Publicat... Order the manual at mid-west-tech.com >

Specifications (CT440, Engine Model 4A200LWH) (Cont'd)

Cylinder

Item	Factory Specification	Allowable Limit
Cylinder bore inner diameter	3.2677 - 3.2690 in. (83,000 - 83,022 mm)	0.0059 in. (0,15 mm)

Valve Springs

Item	Factory Specification	Allowable Limit
Free length	1.6417 - 1.6614 in. (41,7 - 42,2 mm)	1.6220 in. (41,2 mm)
Assembling load / assembling length	26.5 lb. / 1.3839 in (12.0 kgf / 35,15 mm)	22.5 lb. / 1.3839 in. (10.2 kgf / 35,15 mm)
Squareness	-	0.039 in. (1,0 mm)

Rocker Arms

Item	Factory Specification	Allowable Limit
Rocker arm shaft O.D	0.7463 - 0.7472 in. (18,955 - 18,980 mm)	-
Rocker arm bushing I.D	0.7463 - 0.7490 in (19,000 - 19,025 mm)	-

Tappet

Item	Factory Specification	Allowable Limit
Clearance between tappet and guide	0.00079 - 0.00244 in. (0,020 - 0,062 mm)	0.0028 in. (0,07 mm)
Tappet O.D	0.94327 - 0.94410 in (23,959 - 23,980 mm)	-
Tappet guide I.D	0.94488 - 0.9457 in (24,000 - 24,021 mm)	-

MidWestTech | Bobcat CT440, CT445 & CT450 Compact Tractor Service Manual | Publicat... Order the manual at mid-west-tech.com >

SYSTEM TROUBLESHOOTING CHART

Blower Motor Does Not Operate

	POSSIBLE CAUSE	INSPECTION	SOLUTION
1.	Blown Fuse.	Inspect the fuse/wiring.	Replace fuse/repair wiring.
2.	Broken wiring or bad connection.	Check the fan motor ground and connectors.	Repair the wiring or connector.
3.	Fan motor malfunction.	Check the lead wires from the motor with a circuit tester.	Replace Motor.
4.	Resistor malfunction.	Check resistor using a circuit tester.	Replace Resistor.
5.	Fan motor switch malfunction.	Check power into and out of the fan switch.	Replace Fan Switch.

Blower motor operates normally, but air flow is insufficient

	POSSIBLE CAUSE	INSPECTION	SOLUTION
1.	Evaporator inlet obstruction	Check evaporator for plugging.	Remove obstruction and clean evaporator fins with air or water.
2.	Air leak.	Check to make sure air hoses are properly hooked to Louvers, and air ducts.	Repair of adjust.
3.	Defective thermo. switch (frozen evaporator).	Check thermostat using a circuit tester.	Replace thermostat.

Insufficient cooling although air flow and compressor operation are normal

	POSSIBLE CAUSE	INSPECTION	SOLUTION
1.	System low on refrigerant.	The high side pressure will be low and bubbles may be present in sight glass on receive drier.	Repair any leaks and recharge the refrigerant to the correct level.
2.	Excessive refrigerant.	The high pressure side pressure will be high.	Use refrigerant recovery equipment to capture excess refrigerant. Charge to the correct refrigerant level.

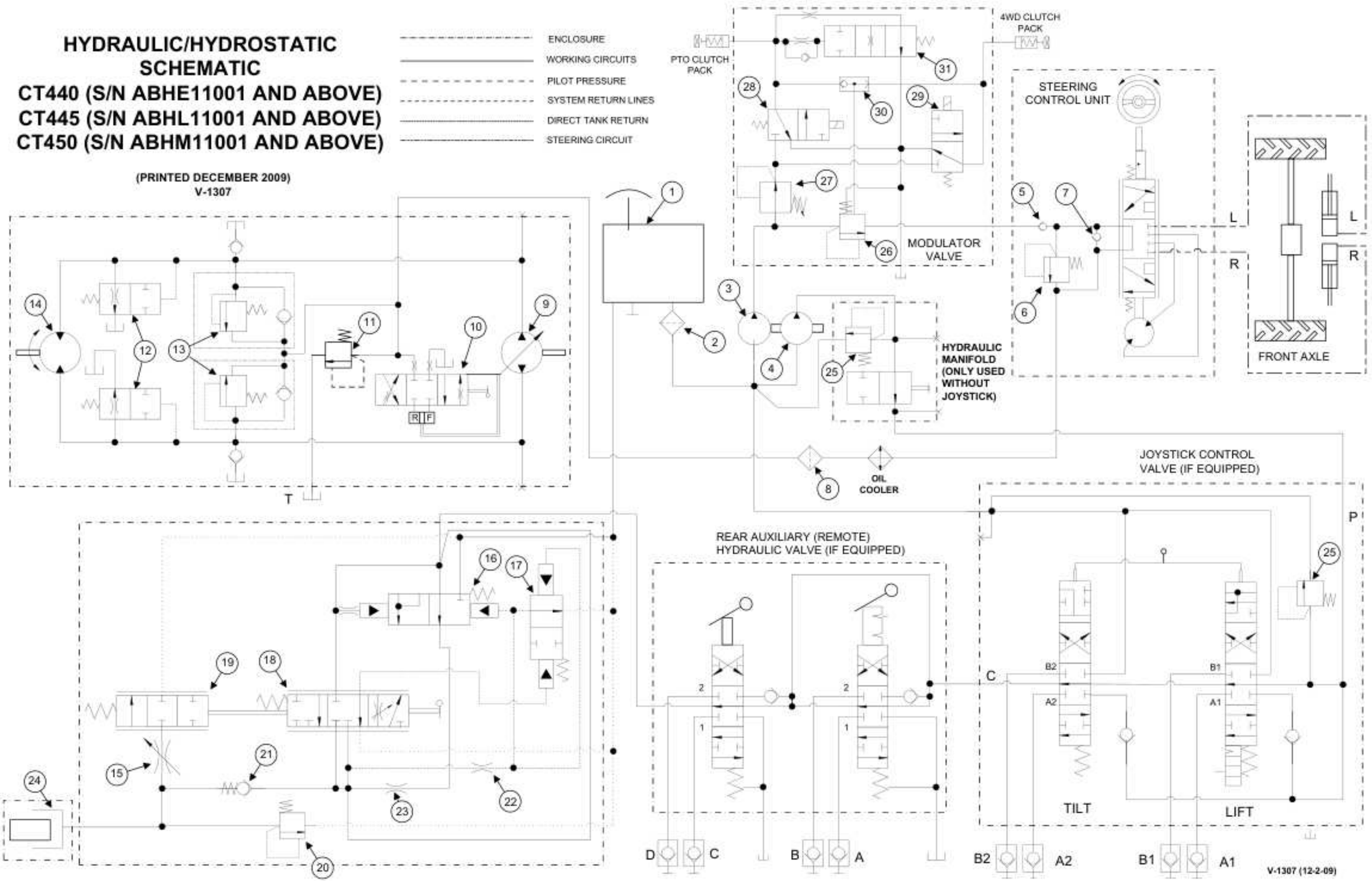
The compressor does not operate at all, or operates improperly

	POSSIBLE CAUSE	INSPECTION	SOLUTION
1.	Loose drive belt.	The belt is vibrating or oscillating.	Adjust tension.
2.	Internal compressor malfunction.	The compressor is locked up and the belt slips.	Replace compressor.
		Magnetic clutch related	
3.	Low battery voltage.	Clutch slips.	Recharge the battery.
4.	Faulty coil.	Clutch slips.	Replace the magnetic clutch.
5.	Oil on the clutch surface.	Clutch slips.	Replace or clean the clutch surface.
6.	Open oil.	Clutch does not engage and there is not reading when a circuit tester is connected between the coil and terminals.	Replace clutch.
7.	Broken wiring or poor ground.	Clutch will not engage. Inspect the ground and connections.	Repair.
8.	Wiring harness components.	Test the conductance of the pressure switch, thermostat, Relay, etc.	Check operation.

MidWestTech | Bobcat CT440, CT445 & CT450 Compact Tractor Service Manual | Publicat... Order the manual at mid-west-tech.com >

HYDRAULIC/HYDROSTATIC SCHEMATIC
CT440 (S/N ABHE11001 AND ABOVE)
CT445 (S/N ABHL11001 AND ABOVE)
CT450 (S/N ABHM11001 AND ABOVE)

(PRINTED DECEMBER 2009)
V-1307



Order the manual at mid-west-tech.com >