



**HYDRAULIC POWER SYSTEMS, INC.**



**AUGER SYSTEMS**

**MODEL H-50 VT  
OPERATORS, MAINTENANCE  
AND PARTS MANUAL**



## TABLE OF CONTENTS

SECTION	DESCRIPTION .....	PAGE
	<b>TABLE OF CONTENTS .....</b>	<b>1-3</b>
-	<b>REGISTRATION INFORMATION .....</b>	<b>4</b>
1.0	<b>GENERAL INFORMATION .....</b>	<b>5</b>
1.1	<b>Warranty .....</b>	<b>5</b>
1.2	<b>Model H - 50VT Assembly Instruction .....</b>	<b>6</b>
1.3	<b>Model H - 50VT Auger System .....</b>	<b>6</b>
1.3.1	Auger Drive Unit .....	7
1.3.2	Diesel Hydraulic Power Unit .....	7
1.3.3	Hydraulic Hose Bundle .....	7
2.0	<b>SAFETY INFORMATION .....</b>	<b>8</b>
2.1	<b>Important Safety Information .....</b>	<b>8</b>
2.2	<b>Standard Safety Procedures .....</b>	<b>9-10</b>
3.0	<b>INTRODUCTION .....</b>	<b>11</b>
3.1	<b>Specifications .....</b>	<b>11</b>
3.2	<b>General Overview .....</b>	<b>12</b>
4.0	<b>MAINTENANCE .....</b>	<b>13</b>
4.1	<b>Daily Maintenance .....</b>	<b>14</b>
4.2	<b>General Maintenance .....</b>	<b>15</b>
4.2.1	Power Unit .....	15
4.2.2	Auger Unit .....	16
4.3	<b>Maintenance Schedule .....</b>	<b>16</b>
4.4	<b>Torque Specifications .....</b>	<b>17</b>
4.5	<b>Fluids and Filters Specifications .....</b>	<b>18</b>
4.5.1	Lubricants .....	18
4.5.2	Fuels .....	18
4.5.3	Coolants .....	18
4.5.4	Filters .....	19
4.6	<b>Disassembly of Auger Unit .....</b>	<b>20</b>
4.6.1	Disassembly of Auger Housing .....	20
4.6.2	Disconnect the Case Drain .....	20
4.6.3	Diagram of Auger Unit Exploded .....	21



## TABLE OF CONTENTS

SECTION	DESCRIPTION .....	PAGE
<b>4.7</b>	<b>Disassembly of Planetary Subassembly .....</b>	<b>21</b>
4.7.1	To Remove Disassembly of Planetary Subassembly .....	21
4.7.2	Disassemble Bull Gear Housing .....	22
4.7.3	Disassemble Bull Gear Housing - Exploded View .....	23
<b>5.0</b>	<b>Operation .....</b>	<b>25</b>
<b>5.1</b>	<b>Connecting the Hydraulic Hoses .....</b>	<b>25</b>
5.1.1	Connecting the Hydraulic Hoses between the Power Pack and the Auger .....	25
<b>5.2</b>	<b>Pre-Start of Auger Unit .....</b>	<b>25</b>
5.2.1	Pre-Start .....	25
<b>5.3</b>	<b>Starting Units .....</b>	<b>26</b>
5.3.1	Auger and Power Unit .....	26
5.3.2	Stopping Units .....	26
<b>5.4</b>	<b>Setting System Flows and Pressures .....</b>	<b>27</b>
5.4.1	Pressure Relief Setting .....	27
<b>6.0</b>	<b>TROUBLE SHOOTING .....</b>	<b>28</b>
<b>6.1</b>	<b>Power Unit .....</b>	<b>28</b>
6.1.1	Engine Will Not Start .....	28
6.1.2	Throttle Will Not Operate .....	28
<b>6.2</b>	<b>Auger System .....</b>	<b>29</b>
6.2.1	Loss of Operating Performance .....	29
6.2.2	Air Remote Box Does Not Function .....	30



## TABLE OF CONTENTS

SECTION	DESCRIPTION .....	PAGE
<b>7.0</b>	<b>DIAGRAM OF PARTS .....</b>	<b>31</b>
<b>7.1</b>	<b>Auger .....</b>	<b>32</b>
7.1.1	Bill Of Materials .....	32
7.1.2	Exploded View .....	33
<b>7.2</b>	<b>Multi-Planematic Drive .....</b>	<b>34</b>
7.2.1	Bill Of Materials .....	34
7.2.2	Exploded View .....	35
<b>7.3</b>	<b>Hydraulic Valve .....</b>	<b>36</b>
7.3.1	Bill Of Materials .....	36
7.3.2	Exploded View .....	37
<b>7.4</b>	<b>Power Unit Replacement Parts .....</b>	<b>38</b>
7.4.1	Bill Of Materials .....	38
7.4.2	Exploded View .....	39
<b>7.5</b>	<b>Hydraulic Schematic Model H - 50VT .....</b>	<b>40</b>
7.5.1	Bill Of Materials .....	40
7.5.2	Hydraulic Schematic .....	41
<b>8.0</b>	<b>Placards and Safety Signs .....</b>	<b>46-51</b>
<b>9.0</b>	<b>Hose Section .....</b>	<b>52</b>
9.1.1	Power Pack Hoses .....	54
9.1.2	Motor Hoses .....	55



**HYDRAULIC POWER SYSTEMS INC.**

Release 01

Model H - 50VT Operators, Maintenance, and Parts Manual

Effective Date 12/97

## REGISTRATION INFORMATION

EQUIPMENT NAME \_\_\_\_\_

POWER PACK MODEL # \_\_\_\_\_

POWER PACK SERIAL # \_\_\_\_\_

AUGER DRIVE MODEL # \_\_\_\_\_

PRIME MOVER \_\_\_\_\_

PRIME MOVER SERIAL # \_\_\_\_\_

CUSTOMER \_\_\_\_\_

DATE: \_\_\_\_\_



## SECTION 1- GENERAL INFORMATION

### 1.1 Warranty

HYDRAULIC POWER SYSTEMS, INC. hereby warrants that the is free from defects in material and workmanship attributable to HYDRAULIC POWER SYSTEMS, INC. under normal use and service for a period of ninety (90) days from date of delivery of such machine.

THE EXCLUSIVE REMEDY OF THE BUYER UNDER THIS WARRANTY is the repair or replacement, without charge, of any defective part or parts of this machine as long as buyer notifies HYDRAULIC POWER SYSTEMS, INC. by registered mail of such defect within seventy-five (75) days from the date of delivery of this machine.

Any part or parts claimed to be defective must be shipped to the HYDRAULIC POWER SYSTEMS, INC. factory at 1203 Ozark, North Kansas City, Missouri 64116, transportation prepaid. The HYDRAULIC POWER SYSTEMS, INC. acceptance of any part so shipped shall not be deemed an admission that the part is defective, and if HYDRAULIC POWER SYSTEMS, INC. finds that any part returned is not defective, such part shall be reshipped to the Buyer at Buyer's expense.

THE BUYER'S SOLE AND EXCLUSIVE REMEDY AGAINST HYDRAULIC POWER SYSTEMS, INC. UNDER THIS WARRANTY shall be for the REPAIR OR REPLACEMENT of defective parts as provided above. THE BUYER AGREES THAT NO OTHER REMEDY, INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSONS OR PROPERTY OR OTHER INCIDENTAL OR CONSEQUENTIAL LOSS SHALL BE AVAILABLE TO THE BUYER.

THE SOLE PURPOSE OF THE STIPULATED EXCLUSIVE REMEDY shall be to provide the Buyer with free repair or replacement of defective parts in the manner provided herein. This EXCLUSIVE REMEDY shall not be deemed to fail of its essential purpose so long as HYDRAULIC POWER SYSTEMS, INC. is willing and able to repair or replace defective parts in the prescribed manner.

THE BUYER SHALL NOT BE REQUIRED TO DELIVER A DEFECTIVE PART TO HYDRAULIC POWER SYSTEMS, INC. IF:

(1) The part was destroyed as a result of its defect in any part covered in the warranty,

AND

(2) HYDRAULIC POWER SYSTEMS, INC. is reasonably satisfied that the part was defective at the time of sale.

If both of these conditions are met, HYDRAULIC POWER SYSTEMS, INC. shall replace the part in the same manner provided herein as if the Buyer had delivered it to HYDRAULIC POWER SYSTEMS INC. at its factory.

THIS WARRANTY SHALL NOT APPLY to any machinery which has suffered abuse, misuse, neglect or accident or to any machinery which has been altered so as to affect its ability or reliability, (except where such alteration has been accomplished with the prior written consent of HYDRAULIC POWER SYSTEMS, INC.) or which has been repaired in any way by the Buyer without the prior written consent of HYDRAULIC POWER SYSTEMS, INC. or which has been negligently installed by the Buyer.

WARNING: THIS PRODUCT IS NOT TO BE USED IN ANY FASHION DIFFERENT FROM THAT WHICH BUYER HAS ADVISED SELLER SHALL BE ITS INTENDED USE. NO WARRANTY CONVEYED HEREIN SHALL APPLY TO A USE OTHER THAN THAT WHICH BUYER HAS INDICATED TO SELLER AT THE TIME OF PURCHASE.

SELLER DOES NOT WARRANT PRODUCTS MANUFACTURED BY OTHER MANUFACTURERS WHICH MAY BE USED IN THE ASSEMBLY OF THE TOTAL PRODUCT SOLD BY SELLER, BUYER'S SOLE REMEDY AS TO PRODUCTS MANUFACTURED BY OTHERS SHALL BE PURSUED WITH SUCH OTHER COMPONENT PRODUCT MANUFACTURERS.

THE BUYER EXPRESSLY UNDERSTANDS THAT HYDRAULIC POWER SYSTEMS, INC. HAS MADE NO EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, IMPLIED OR EXPRESSED WARRANTIES FOR MERCHANTABILITY OR FITNESS, OTHER THAN THE EXPRESSED WARRANTY SET FORTH ABOVE. THE SELLER, HEREBY, DISCLAIMS ALL OTHER EXPRESSED WARRANTIES, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER IMPLIED WARRANTIES.

Any oral statements made by any person about the machine described in the Agreement DO NOT CONSTITUTE WARRANTIES and are not part of this Agreement. The entire Agreement between the parties hereto is embodied in this writing. This writing constitutes the final expression of the parties' Agreement, and it is a COMPLETE AND EXCLUSIVE STATEMENT of the terms of that Agreement. All oral or written agreements between the parties made prior to the execution of this Agreement are hereby merged herein. This Agreement SHALL NOT BE MODIFIED OR ALTERED in any way other than by a writing, signed by the parties to this Agreement, their successors or authorized agents, and this Agreement SHALL NOT BE VARIED, SUPPLEMENTED, QUALIFIED, EXPLAINED, OR INTERPRETED BY ANY PRIOR COURSE OR DEALING BETWEEN THE PARTIES OR BY ANY USAGE OF TRADE.



## SECTION 1 - GENERAL INFORMATION

### 1.2 - Assembly Instructions

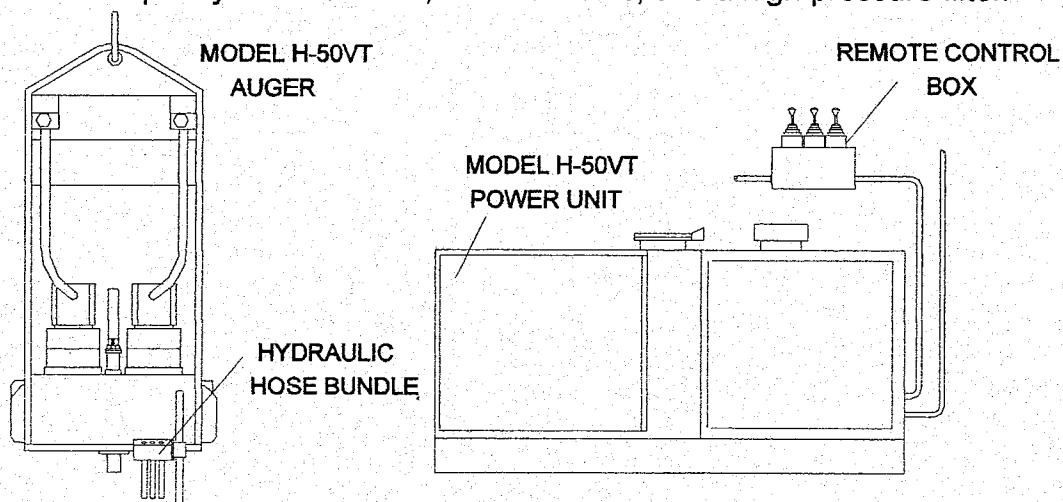
Assembly of the H.P.S.I. Model H - 50VT consists of locating the power unit and auger drive unit, making hose connections between the two units, and positioning the remote control box. The power unit is mounted on a steel tubing skid, so it can be located on the ground near the crane, or affixed to the crane. Position the auger unit in pile driving leads, or on a sufficient guide track to with stand the auger torque. Connect the 1" ID case drain hose between the power unit and the auger drive unit. This line should always be connected first to prevent accidental unit operation without proper motor drainage. Connect the two 1-1/4" ID main power hoses between the power unit and the auger drive unit. Locate the hydraulic control panel it a safe location accessible to the operator. Finally connect the 3/8" pilot line between the power unit and the auger drive unit.

### 1.3 - Model H - 50VT Auger System

The H.P.S.I. Model H - 50VT Auger is designed to drill with an output speed of 30-100 RPM at 15,000 ft. lb or 0-30 RPM at 50,000 ft. lb. The Model H-50VT consists of an Auger Drive Unit, diesel driven Power Pack and Hose Bundle for interconnecting the two. The system is an open loop design which means that the oil is pumped from the reservoir tank to the system and returned to the tank.

#### 1.3.1 - Auger Drive Unit

From the directional valve on the power pack, the oil is directed through a hose bundle, to the auger drive unit. The auger unit drive unit consists of a four planetary drive gearbox, four variable torque hydraulic motors, two manifolds, and a high pressure filter.





## **SECTION 1- GENERAL INFORMATION - continued**

### **1.3 - Model H - 50VT Auger with Power Unit**

#### **1.3.1 - Auger Drive Unit - continued:**

Oil (in the forward direction of rotation) enters the high pressure, in-line filter and passes into one of the manifold blocks. From the manifold, oil is evenly distributed to the four hydraulic motors. The motors are arranged in a parallel circuit, and automatically split the oil flow evenly, because they are geared to a common output gear. Oil from the motors, is combined in the other manifold, and returned to the power unit.

#### **1.3.2 - Diesel Hydraulic Power Unit**

The H - 50VT Hydraulic Power unit is equipped with a Diesel Engine with a rated output of 335H. P. at 2100 R.P.M. The power unit also includes a main hydraulic pump, and auxiliary hydraulic pump for controls, a reservoir, a directional control valve with pressure relief, an engine mounted oil cooler, a charge pressure filter, a return filter, and a relief for the control circuit. All the components are mounted on a sturdy steel tubing skid. The main drive system oil passes from the reservoir, through a 4" suction strainer and 4" shut-off valve (for maintenance purposes only), into the gear pump. The gear pump has approximately 15% more volume capacity than the piston pump. There is a relief in the gear pump discharge port, to allow relieving excess fluid. Oil from the gear pump is directed through a 20 micron, in-line filter, and into the inlet of the main piston pump. From the discharge port pump, oil is directed to the inlet of the directional valve.

#### **1.3.3 - Hydraulic Hose Bundle**

There are two additional hoses between the power pack and the four motors. The 1" hose is used as a case drain line for the four motors. This prevents excessive pressure buildup in the motor cases and must always be connected when operating the auger. The 3/8" hose is used to direct pilot oil for varying the motor torque.

The final portion of the hydraulic circuitry involves the control system. Oil from the reservoir enter the auxiliary pump. Pilot oil is directed to the 3-spool remote control valve. The functions performed from the remote control include throttle control, forward and reverse of the auger, and motor displacement control to achieve the variable torque feature.

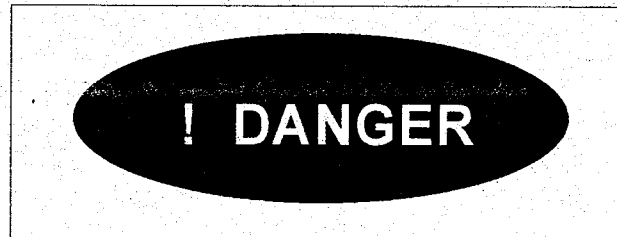




## **SECTION 2- SAFETY**

### **2.1 Important Safety Information**

Most accidents involving product operation, maintenance and repair are caused by a failure to observe basic safety rules and precautions. An accident can often be avoided by recognizing potentially hazardous situations before the situation occurs. A person must always be alert to potential hazards. This person should also have the necessary training, skills, and tools to perform these functions properly.



**WARNING: IMPROPER OPERATION AND/OR MAINTENANCE OF THIS PRODUCT CAN BE EXTREMELY DANGEROUS AND COULD RESULT IN SERIOUS INJURY OR DEATH.**

**DO NOT OPERATE, MAINTENANCE, OR PERFORM ANY REPAIRS ON THIS PRODUCT UNTIL YOU HAVE READ AND UNDERSTOOD THE OPERATION, MAINTENANCE AND REPAIR INFORMATION IN THIS MANUAL.**

**SAFETY PRECAUTIONS AND WARNINGS ARE ALSO PROVIDED ON THE PRODUCT. IF THESE HAZARD WARNINGS ARE NOT HEEDDED, SERIOUS BODILY INJURY OR DEATH COULD OCCUR TO YOU OR OTHER PERSONS.**

**HYDRAULIC POWER SYSTEMS INC. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are therefore not all inclusive. If a tool, procedure, work method or operating technique not specifically recommended by H.P.S.I. is used, you must first determine that it is in no way dangerous for you and others in the vicinity. Concern for the safety of the product should also be taken into consideration. You should ensure that the unit will not be damaged or made unsafe by the particular operation, maintenance, or repair procedures you choose.**



## **SECTION 2- SAFETY - continued**

### **2.1 Important Safety Information**

The information, specifications, and illustrations in this publication are on the basis of information available at the time it was written. The specifications, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service given to the product. Obtain the complete and most current information before starting any job. H.P.S.I. dealers have the most current information available. For the name of the nearest FACTORY AUTHORIZED REPRESENTATIVE contact HYDRAULIC POWER SYSTEMS INC. at (816) 221-4774.

### **2.2 - Standard Safety Procedures**



**NEVER START ENGINE WITH THE GOVERNOR LINKAGE DISCONNECTED.**

**INSTALL GUARDS OVER ALL EXPOSED ROTATING PARTS.**

**ALWAYS STOP ENGINE BEFORE ADJUSTING OR REPAIRING ENGINE HYDRAULIC POWER UNIT.**

**DO NOT WEAR LOOSE CLOTHING WHEN WORKING NEAR ENGINE.**

**ALWAYS WEAR PROTECTIVE GLASSES, CLOTHING, HEADGEAR, RESPIRATOR, ETC. WHEN CONDITIONS REQUIRE THEM.**

**NEVER INSPECT ENGINE COOLING SYSTEM WHILE UNIT IS RUNNING.**

**IF EQUIPPED WITH JACKET WATER COOLING SYSTEM, REMOVE COOLANT FILLER CAP SLOWLY TO RELIEVE PRESSURE THAT MAY HAVE BUILT UP DURING OPERATION. NEVER REMOVE CAP WHILE ENGINE IS HOT OR OPERATING. STEAM FROM COOLING SYSTEM COULD CAUSE SERIOUS INJURY.**

**EXTINGUISH ALL OPEN FLAMES INCLUDING CIGARETTES OR OTHER BURNING SUBSTANCES WHILE REFUELING UNIT AND WHEN SERVICING BATTERIES.**



## **SECTION 2- SAFETY - continued**

### **2.2 - Standard Safety Procedures - continued**

EXTINGUISH ALL OPEN FLAMES INCLUDING CIGARETTES OR OTHER BURNING SUBSTANCES WHILE CHECKING BATTERY ELECTROLYTE LEVEL BECAUSE BATTERIES GIVE OFF FLAMMABLE FUMES.

ELECTROLYTE SOLUTION IS AN ACID. CONTACT WITH EXPOSED SKIN WILL CAUSE SERIOUS INJURY. ALWAYS WEAR PROTECTIVE GEAR WHEN REFILLING AND HANDLING ELECTROLYTE SOLUTION.

POWER UNIT MUST HAVE PROPER VENTILATION TO INSURE SAFE AND EFFICIENT OPERATION.

NEVER ATTEMPT REPAIRS YOU DO NOT UNDERSTAND. ALWAYS FOLLOW MANUAL INSTRUCTIONS.

ALWAYS REPAIR AND/OR REPLACE BROKEN OR DAMAGED PARTS BEFORE OPERATION. USE OF INCORRECT TOOLS IN OPERATION AND REPAIR SITUATIONS CAN FURTHER INCREASE RISKS TO MACHINERY AND OPERATORS.

REMOVE ALL TOOLS, ELECTRICAL CORDS, AND OTHER LOOSE ITEMS FROM THE POWER UNIT AND AUGER PRIOR TO USE.

DISPOSE OF WASTE OIL AND OTHER WASTE PRODUCTS SAFELY. ALWAYS WIPE UP SPILLED OIL, COOLANT, FUEL, ETC.

SAFELY DISPOSE OF CONTAMINATED RAGS AND CONTAINERS. NEVER LEAVE IN OR ON THE POWER UNIT CONTAINER. NEVER STORE FLAMMABLE LIQUIDS NEAR THE POWER UNIT OR AUGER.



**! DANGER**

INSULATE ALL ELECTRICAL CONNECTIONS AND DISCONNECTED WIRES.

DISCONNECT AND TAPE THE BATTERY GROUND LEAD BEFORE WORKING ON THE ENGINE TO PREVENT ACCIDENTAL IGNITION.