Service & Maintenance Manual

Model(s)
DVL &
DVSP
Series

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ANSI

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SECTION 1. MACHINE SPECIFICATIONS

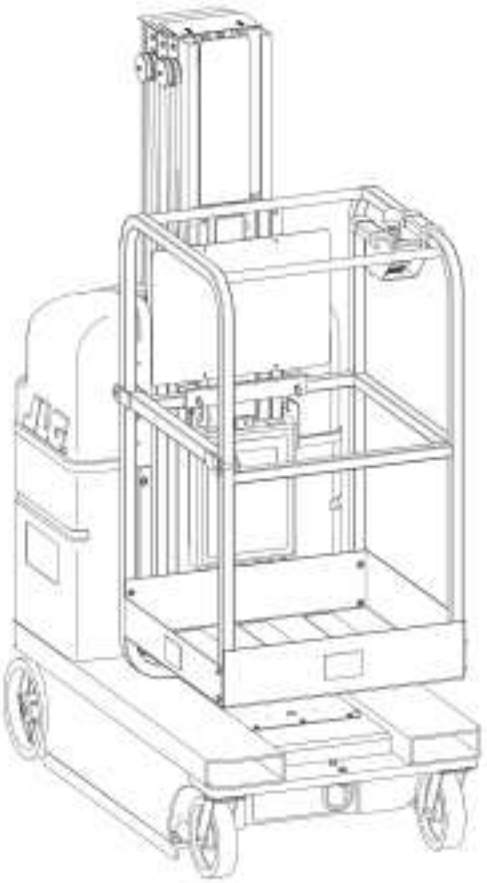


Table 1-1. DVL and DVSP - Machine Specifications

	15DVL	20DVL	15DVSP	20DVSP
Maximum Occupants:	1			
Maximum Work Load (Capacity): (DVL-Std. Platform / DVSP - Stockpicker Platform)	500 lb. (230 kg)	350 lb. (160 kg)	500 lb. (230 kg)	400 lb. (180 kg)
Maximum Travel Grade (Gradeability): (Platform STOWED ONLY)	20%			
Maximum Travel Grade (Side Slope): (Platform STOWED ONLY)	5°			
Maximum Vertical Platform Height:	15 ft. (4.57 m)	19.5 ft. (5.94 m)	15 ft. (4.57 m)	19.5 ft. (5.94 m)
Maximum Wheel Load (Per Wheel):	800 lb. (360 kg)			
Maximum Drive Speeds (Operator Variable):	0.5 - 2 mph (0.8 - 3.2 kph)			
Max. Platform Speeds (w/Max. Load): Platform Up:	20 sec.	22.5 sec.	20 sec.	22.5 sec.
Platform Down:	15 - 21 sec.	21 - 26 sec.	15 - 21 sec.	21 - 26 sec.
Gross Machine Weight (Platform Empty):	2,105 lb. (955 kg)	2,105 lb. (955 kg)	2,150 lb. (975 kg)	2,150 lb. (975kg)

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SECTION 6. TROUBLESHOOTING

6.1 GENERAL

This section contains troubleshooting information to be used for locating and correcting most operating problems. If a problem should develop which is not presented in this section or which is not corrected by listed corrective actions, technically qualified guidance should be obtained before proceeding with any maintenance.

6.2 TROUBLESHOOTING INFORMATION

Troubleshooting procedures applicable to this machine are listed and defined starting with Section 6.5, TROUBLESHOOTING TABLES Index in this section of the manual.

Each malfunction within an individual group or system is followed by a listing of probable causes which will enable determination of the applicable remedial action. The probable causes and the remedial action should, where possible, be checked in the order listed in the troubleshooting tables.

It should be noted that there is no substitute for a thorough knowledge of the equipment and related systems.

It should be recognized that the majority of the problems arising in the machine will be centered in the hydraulic and electrical systems. For this reason, every effort has been made to ensure that all likely problems in these areas are given the fullest possible treatment. In the remaining machine groups, only those problems which are symptomatic of greater problems which have more than one probable cause and remedy are included. This means that problems for which the probable cause and remedy may be immediately obvious are not listed in this section.

The first rule for troubleshooting any circuit that is hydraulically operated and electrically controlled is to determine if the circuit is lacking hydraulic oil and electrical control power. This can be ascertained by overriding the bypass valve *(mechanically or electrically)* so that oil is available to the function valve, then overriding the function valve mechanically. If the function performs satisfactorily, the problem exists with the control circuit.

6.3 HYDRAULIC CIRCUIT CHECKS

(See Figure 6-5.)

The first reference for improper function of a hydraulic system, where the cause is not immediately apparent, should be the Hydraulic Diagram Circuit. The best place to begin the problem analysis is at the power source *(pump)*. Once it is determined that the pump is serviceable, then a systematic check of the circuit components, would follow.

NOTE: *For aid in troubleshooting, refer to Figure 6-5. for HYDRAULIC DIAGRAM circuit.*

6.4 ELECTRICAL CIRCUIT CHECKS

General

The drive system on the DVL Series and DVSP machines requires a microprocessor controlled electrical circuit to operate smoothly and accurately. All platform control console functions are relayed to various machine components *(i.e. platform up/down, drive functions, etc.)* through the Ground Control Module microprocessor box *(mounted at the rear of the machine)*. The Ground Control Module is pre-programmed with factory pre-set personality settings for each machine function.

To help diagnose any problems with components plugged into the Ground Control Module, the module is designed with an internal fault code and text messaging system displayed on an LCD screen at the module. The platform control console also will display LED Flash Codes using the LED strip at the top of the console. When operating normally the LED panel on the platform control console indicates the battery voltage status using ten (10) LEDs *(red/yellow/green)*. If a malfunction to the machine's electrical components occurs, the platform console LED's will flash a number of LEDs to help indicate the problem to the Operator in the platform. The Fault Codes and LED Flash Codes are outlined in the following sub-sections of this chapter.

NOTE: *For aid in troubleshooting electrical problem, refer to Figure 6-3. for an ELECTRICAL DIAGRAM of the various circuits. Also for a pictorial overview of the connected components, See Figure 6-2. "Pictorial Overview of the DVL/DVSP Electrical System".*

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Code 19 - Alarm - Disconnected

Check For These Obvious Conditions First:

- Damaged wiring in the alarm wiring harness or a damaged alarm.
- Activate a function to check if alarm beeps.

Table 6-22. Code 19 - Alarm - Disconnected

STEP	ACTION	SPEC	YES	NO
1.	Check voltage at the P1 connector on the Ground Control Module between pin-13 and pin-6. Is reading within specification?	2 - 4V DC	Replace Ground Control Module	Go to Step 2
2.	Remove the wire terminals at the alarm, check continuity of each of the wires from pins 13 and 6 on the P1 connector to the alarm end.	—	Replace the Alarm	Repair or Replace Wiring

Code 20 - Beacon - Short Circuit

Check For These Obvious Conditions First:

- Damaged wiring in the beacon wiring harness or a damaged beacon unit.

Table 6-23. Code 20 - Beacon - Short Circuit

STEP	ACTION	SPEC	YES	NO
1.	At the Ground Control Module, P1 connector, check the voltage across pins-12 and 5 to the beacon. Is reading within specification?	0 - 2V DC	Go to Step 2	Replace Ground Control Module
2.	Remove the wire terminals at the beacon, check continuity of each of the wires from pins 12 and 5 on the P1 connector to the beacon end.	—	Replace the Beacon	Repair or Replace Wiring

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