

# KTi Hydraulics Engineering

3.195 D Airport Loop

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## KTi DC POWER UNIT TROUBLE SHOOTING GUIDE

### General Instructions for 12V DC Systems

- 1) Check battery voltage. If voltage is 9 Volt or less, do not operate power unit. Change battery to 12 Volts
- 2) Check to see that the motor is wired correctly to starter switch and all other contact wires have light connections
- 3) Check ground wire for good connection
- 4) Check reservoir oil level
- 5) Do not tamper with relief valve. Factory preset to specified pressure and wired. Cutting this wire voids warranty

### SYMPTOMS

- 1) Unit will not start (see causes 1,2,7)
- 2) Unit drifts when power is off (see causes 3,4,5)
- 3) Slow Cylinder travel (see causes 1,2,4,5)
- 4) Unit will not lower (see causes 2,3)

### PROBABLE CAUSE

- 1) Improper voltage motor (see solutions A,D,E)
- 2) Improper Ground (see solutions A,F,G)
- 3) Improper voltage to calves (see solutions A,F)
- 4) Leakage thru solenoid valves (see solutions C,D)
- 5) Internal leakage at cylinder (see solutions D,E)
- 6) Insufficient oil to pump inlet (see solutions B,C,E)
- 7) Pump seized or locked (see solutions D,E)

### POSSIBLE SOLUTION

- A) Check wiring to insure that all connections are tight
- B) Keep oil reservoir full and clean
- C) Flush and clean cartridge valves and/or hydraulic system
- D) Replace components
- E) Return for necessary repair
- F) Check for clean, tight, metal- to- metal contact on wire connections
- G) Make sure nuts on top of solenoid valve coil is tight to 40 inch/lb maximum

### FLUIDS

KTi recommends using top quality hydraulic fluid with AISO VG 22-68(198-74 8 cSt 97-347 SUS at 40\* C) to ensure optimum performance and system life. Fluids should have anti-wear properties rust and oxidation inhibitors. If using synthetic fluids, consult the factory for alternative seal material requirements

#### Fluid Temperature Range

#### ISO Viscosity Grade (ISO VG)

|                    |    |
|--------------------|----|
| -5* F to +140 *F   | 22 |
| -21* C to + 60* C  | 22 |
| +5* F to + 170* F  | 32 |
| -15* C to + 77 * C | 32 |
| +15* F to + 190*F  | 46 |
| -9*C to + 88* C    | 46 |
| +30* F to + 210* F | 68 |
| -1*C to + 99*C     | 68 |

Do not operate Power unit above recommended Fluid Temperature Range. Premium hydraulic oil with proper Viscosity Grade and additives such as Chevron EP, Mobile DTE10, DTE 20 Series or Shell Tellus would be acceptable.

# QUICK REFERENCE TROUBLE SHOOTING GUIDE

## For KTI Hydraulics Pump



For additional trouble shooting questions, please call KTI Hydraulics at  
(1) -714-556-8818

|                                                          | Not Building Pressure | Motor Not Running | Cylinder Won't Extend | Cylinder Won't Retract | Won't Hold Load | Excessive Heat From Unit | Aeration of Hydraulic Fluid | Reservoir Overflows | Cylinder Extends With Unit Not Operating | Struggles To Lift Load | Load Bounces When Cylinder Retracts | Start Solenoid Just Clicks-Motor Not Engaging | Won't Lift Load (DC Motor Under Load) | Won't Lift Load (DC Motor Not Under Load) | Won't Lower | Start Solenoid Stays On | Cylinder Won't Retract (Motor Under Load) |
|----------------------------------------------------------|-----------------------|-------------------|-----------------------|------------------------|-----------------|--------------------------|-----------------------------|---------------------|------------------------------------------|------------------------|-------------------------------------|-----------------------------------------------|---------------------------------------|-------------------------------------------|-------------|-------------------------|-------------------------------------------|
| LOW BATTERY VOLTAGE                                      |                       | •                 | •                     | •                      | •               | •                        | •                           | •                   | •                                        | •                      | •                                   |                                               |                                       |                                           |             |                         |                                           |
| POOR GROUND CONDITION                                    |                       | •                 | •                     | •                      | •               | •                        | •                           | •                   | •                                        | •                      | •                                   |                                               |                                       |                                           |             |                         |                                           |
| CHECK HAND CONTROL                                       |                       |                   |                       |                        |                 |                          |                             |                     |                                          |                        | •                                   |                                               |                                       |                                           |             |                         |                                           |
| DEBRIS IN LOAD HOLDING VALVE                             |                       |                   |                       | •                      |                 |                          |                             |                     |                                          |                        |                                     |                                               | •                                     |                                           |             |                         | •                                         |
| THERMAL PRESSURE LOCK                                    |                       |                   | •                     |                        |                 |                          |                             |                     |                                          |                        |                                     |                                               |                                       |                                           |             |                         | •                                         |
| COIL NOT ENERGIZING                                      |                       |                   | •                     | •                      |                 |                          |                             |                     |                                          |                        |                                     |                                               |                                       |                                           |             |                         | •                                         |
| BAD SEALS IN CYLINDER                                    | •                     |                   |                       |                        |                 |                          |                             |                     |                                          | •                      |                                     | •                                             | •                                     |                                           |             |                         | •                                         |
| LOOSE INLET                                              |                       |                   |                       | •                      |                 |                          |                             |                     |                                          | •                      |                                     |                                               |                                       |                                           |             |                         | •                                         |
| PACKING ON CYLINDER ROD WORN OUT                         |                       |                   | •                     | •                      |                 | •                        | •                           |                     |                                          | •                      |                                     |                                               |                                       |                                           |             |                         | •                                         |
| HOSES CONNECTED BACKWARDS                                |                       |                   |                       |                        |                 |                          | •                           |                     |                                          | •                      |                                     |                                               |                                       | •                                         |             |                         | •                                         |
| PUMP NOT PRIMING                                         | •                     |                   | •                     |                        |                 |                          |                             |                     |                                          | •                      |                                     |                                               |                                       |                                           |             |                         |                                           |
| CLOGGED ORIFICE                                          |                       |                   |                       | •                      |                 |                          |                             |                     |                                          |                        |                                     |                                               |                                       |                                           |             |                         |                                           |
| RUST IN MOTOR                                            |                       | •                 |                       |                        |                 |                          |                             |                     |                                          |                        |                                     |                                               | •                                     |                                           |             |                         | •                                         |
| BAD DIODE                                                |                       |                   |                       | •                      |                 |                          |                             |                     |                                          |                        |                                     |                                               |                                       |                                           |             |                         | •                                         |
| CHECK FOR ADDITIONAL VALVING ON OR CONNECTED TO CYLINDER |                       |                   |                       | •                      |                 |                          |                             |                     |                                          |                        |                                     |                                               |                                       |                                           |             |                         |                                           |
| DIRECTIONAL VALVE NOT SHIFTING PROPERLY                  |                       |                   | •                     | •                      |                 |                          |                             | •                   |                                          |                        |                                     |                                               |                                       | •                                         |             |                         | •                                         |
| BAD START SOLENOID                                       |                       |                   |                       |                        |                 |                          |                             |                     |                                          | •                      |                                     |                                               |                                       |                                           |             |                         |                                           |
| DIRTY CONTACTS IN HAND CONTROL                           |                       |                   | •                     | •                      |                 |                          |                             |                     |                                          | •                      | •                                   |                                               |                                       | •                                         | •           |                         |                                           |