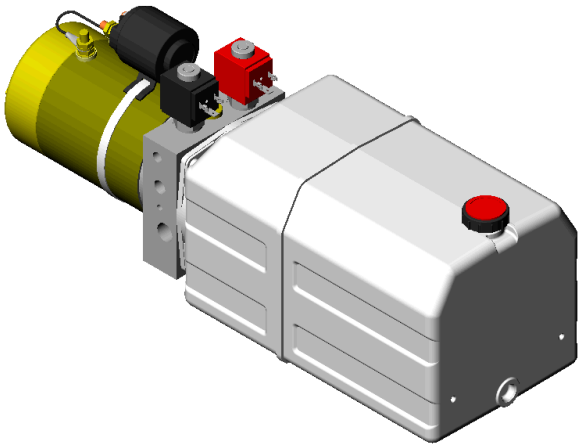
Oil Sistem Operating Manual



Power Unit Choice: The proper sizing of a hydraulic power unit depends on the characteristics of the hydraulic system. Required system flow, pressure and duty cycle determine the system is sized correctly. Our Sales Department is at your disposal and can be reached at **1-877-866-8337**.

Installation: As to mounting position, there are no limits. Avoid any installation that could compromise the pump suction. When the unit is to be fitted on structures liable to vibrations, it is better to place vibration-dampening blocks between the mounting surface and power unit.

Oil Tank and Temperature: Oil Sistem hydraulic tanks have two volumetric ratings. The “Nominal capacity” refers to the maximum fill amount of hydraulic fluid. The “Usable Capacity” refers to the system usable amount of hydraulic fluid. Usable capacity is based on the location of the gear pump suction filter inside the tank. The proper tank sizing is critical to unit operation. The O-rings and gaskets inside the power unit are recommended for use at temperatures between **5 degrees and 176 degrees** Fahrenheit. Hydraulic fluids having the following characteristics should be used: viscosity 80 ssu-360 ssu. Oil Sistem suggested viscosity is between 130-210 ssu. The different oil grades must be chosen according to the ambient temperature and maximum working pressure ambient.

Cleaning and Maintenance: The power unit must be cleaned in each part because it has only one suction filter. Oil Sistem recommends changing the hydraulic fluid after the first 100 hours of usage and again after 3000 hours.

GENERAL TROUBLE SHOOTING:

1. CHECK THAT THE MOTOR IS WIRED CORRECTLY WITH TIGHT CONNECTIONS, AND FOR THE PROPER VOLTAGE. THE "POSITIVE" CONNECTION FROM THE BATTERY SHOULD BE CONNECTED TO THE MOTOR START RELAY. THE "POSITIVE" SHOULD BE ATTACHED WHERE THE "BLUE" WIRE IS CURRENTLY LOCATED. THE "NEGATIVE" CONNECTION FROM THE BATTERY OR CHASSIS SHOULD BE CONNECTED TO THE NEGATIVE MOTOR TERMINAL ON WHICH THE BLACK GOUND WIRES ARE CURRENTLY LOCATED. SEE WIRING SCHEMATIC ON FOLLOWING PAGE.

2. CHECK RESERVOIR OIL LEVEL.

3. CHECK PRESSURE RELIEF VALVE FOR PROPER SETTING WITH PRESSURE GAUGE IN OUTLET PORT.

4. GENERALLY IF THE MOTOR RUNS THIS MEANS BOTH THE MOTOR AND THE STARTING RELAY ARE OPERATING CORRECTLY. TO FURTHER ASSIST WITH TROUBLE SHOOTING SOLENOD COILS WE SUGGEST DISCONNECTION OF THE YELLOW / GREEN (STRIPE) WIRE FROM THE MOTOR START RELAY. WHEN THE YELLOW / GREEN (STRIPE) WIRE IS DISCONNECTED THE MOTOR WILL NOT OPERATE. THE SOLENOID COIL (COILS) WILL STILL OPERATE. YOU SHOULD BE ABLE TO FEEL THEM "CLICK" WHILE PUSHING THE CORD SET BUTTON (BUTTONS).

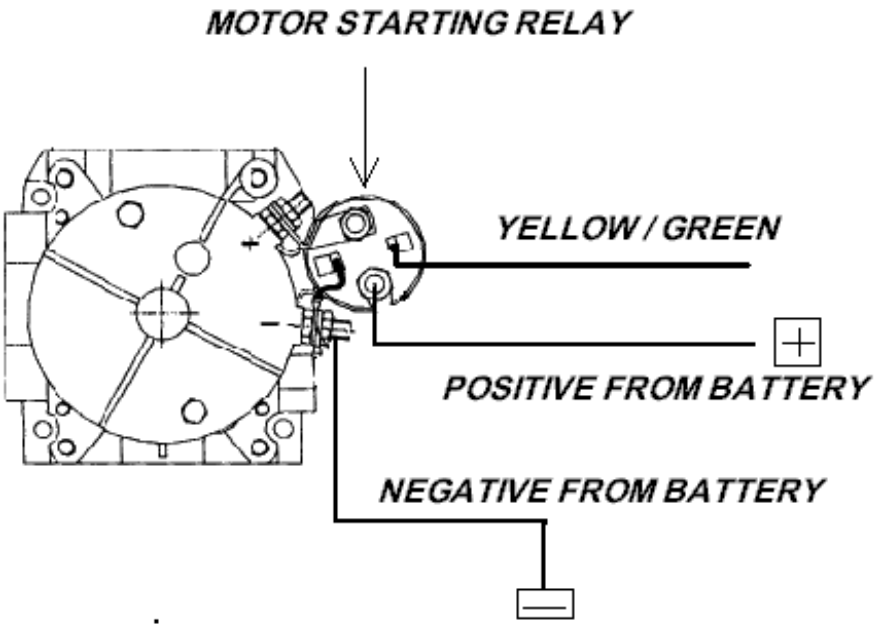
5. ON DOUBLE ACTING UNITS THE **HIGH PRESSURE** PORT IS MARKED "**C1**". THIS PORT IS LOCATED CLOSE TO THE 2-WAY VALVE WHICH HAS THE **RED** COIL. THE **LOW PRESSURE** PORT IS MARKED "**C2**". THIS PORT IS LOCATED CLOSE TO THE 4-WAY VALVE WHICH HAS THE **BLACK** COIL. HOSES CONNECTED INCORRECTLY WILL RESULT IN THE UNIT NOT HAVING SUFFICIENT PRESSURE TO LIFT THE LOAD. ALSO, IF CONNECTED WRONG THE LOAD WILL DRIFT. SEE FOLLOWING DOUBLE ACTING SCHEMATIC SHOWING PROPER HOSE CONNECTION.

6. SEQUENCE OF OPERATION OF COILS FOR DOUBLE ACTING UNITS: ON MOST CYLINDER APPLICATIONS THE **HIGH PRESSURE** PORT "C1" IS CONNECTED TO THE PISTON SIDE OF THE HYDRAULIC CYLINDER. THE **LOW PRESSURE** PORT "C2" IS CONNECTED TO THE ROD SIDE OF THE HYDRAULIC CYLINDER. WHEN CONNECTED PROPERLY, THE FOLLOWING IS THE SEQUENCE OF COIL OPERATION:

A. CYLINDER EXTENDS, MOTOR RELAY & BLACK COIL ENERGIZES:
ENGAGEMENT OF "UP" BUTTON ON CORD SET ENERGIZES THE MOTOR START RELAY THAT OPERATES THE MOTOR. THE **BLACK COIL** ON THE 4-WAY VALVE, V4D-CE-2P, ENERGIZES SENDING HYDRAULIC FLUID TO THE PISTON PORT OF THE CYLINDER THROUGH THE PORT ON THE POWER UNIT MARKED "C1". FLUID FROM THE ROD END OF THE HYDRAULIC CYLINDER IS RETURNED THROUGH PORT "C2" BACK TO THE RESERVOIR.

B. CYLINDER RETRACTS, MOTOR RELAY & RED COIL ENERGIZES:
ENGAGEMENT OF THE "DOWN" BUTTON ON THE CORD SET ENERGIZES THE MOTOR START RELAY THAT OPERATES THE MOTOR. FLOW IS DIRECTED OUT PORT MARKED "C2" TO THE ROD END OF THE HYDRAULIC CYLINDER. THE **RED COIL** ON THE 2-WAY VALVE, CE1-NC ENERGIZES ALLOWING HYDRAULIC FLUID TO RETURN TO THE TANK.

DC ELECTRICAL ATTACHMENTS:



CONNECT POSITIVE FROM BATTERY TO MOTOR START RELAY
WHERE THE "BLUE" WIRE IS CURRENTLY ATTACHED.

CONNECT NEGATIVE FROM BATTERY TO MOTOR TERMINAL
WHERE THE "BLACK" WIRES ARE CURRENTLY ATTACHED.

TROUBLE SHOOTING
SINGLE ACTING

GENERAL

1. CHECK TO SEE THAT THE MOTOR IS WIRED CORRECTLY WITH TIGHT CONNECTIONS, AND FOR THE PROPER VOLTAGE. THE POSITIVE CONNECTION FROM THE BATTERY SHOULD BE CONNECTED TO THE MOTOR START RELAY WHERE THE "**BLUE**" WIRE IS CURRENTLY CONNECTED. THE NEGATIVE CONNECTION FROM THE BATTERY SHOULD BE ATTACHED TO THE NEGATIVE MOTOR TERMINAL. THE NEGATIVE MOTOR TERMINAL HAS "**BLACK**" WIRES CURRENTLY CONNECTED.

2. CHECK RESERVOIR OIL LEVEL.

3. CHECK RELIEF VALVES FOR PROPER SETTINGS WITH PRESSURE GAUGES IN OUTLET LINE.

4. CHECK FOR EXTERNAL LEAKAGE AT CYLINDERS, HOSE AND POWER UNIT.

TYPICAL EXAMPLES

SYMPTOM	POSSIBLE CAUSE	FIXES & HINTS
UNIT WILL NOT START. (SEE CAUSES 1,2,8)	1. IMPROPER VOLTAGE TO MOTOR OR TOO SMALL POSITIVE CABLE.(A)	A. CHECK WIRING AND INSURE CONNECTIONS ARE TIGHT, AS WELL AS PROPER VOLTAGE. REPLACE POSITIVE CABLE OR ATTACH NEGATIVE CABLE TO NEGATIVE MOTOR TERMINAL
UNIT WILL NOT RAISE (SEE CAUSES 7,9,10,11)	2. IMPROPER GROUND, DETERMINE GROUND WIRE IS ATTACHED TO NEGATIVE MOTOR TERMINAL. (A)	B. KEEP OIL RESERVOIR FULL & CLEAN
UNIT WILL NOT LOWER (SEE CAUSES 12)	3. PRESSURE RELIEF VALVE (VALVES) SET TOO LOW.(C,E)	C. DO NOT ADJUST VALVES WITHOUT THE PROPER EQUIPMENT (PRESSURE GAUGES)
UNIT DRIFTS WITH POWER UNIT OFF. (SEE CAUSES 4,5,6)	4. LEAKAGE THROUGH PUMP CHECK. (D,F)	D. FLUSH & CLEAN APPROPRIATE VALVE.
SLOW CYLINDER TRAVEL (SEE CAUSES 1,3,6,7,9)	5. LEAKAGE THROUGH "**RED**" 2-WAY, NORMALLY CLOSED, SOL. VALVE. (D,F)	E. ADJUST RELIEF VALVE TO PROPER SETTING.
	6. EXTERNAL OR INTERNAL LEAKAGE AT CYLINDER. (F)	
	7. INSUFFICIENT OIL IN RESERVOIR. (B)	F. REPLACE COMPONENT.
	8. GEAR PUMP SEIZED-FROZEN UP. (F)	
	9. CYLINDER OVERLOADED. (C.E)	G. REPLACE "**RED**" COIL.
	10. INSUFFICIENT OIL IN RESERVOIR. (B)	
	11. CYLINDER OVERLOADED. (C.E)	
	12. COIL ON "**RED**" 2-WAY, NORM. CLOSED, SOL. VALVE NOT ENERGIZED. (G)	

TROUBLE SHOOTING
DOUBLE ACTING

GENERAL

1. CHECK TO SEE THAT THE MOTOR IS WIRED CORRECTLY WITH TIGHT CONNECTIONS, AND FOR THE PROPER VOLTAGE. THE POSITIVE CONNECTION FROM THE BATTERY SHOULD BE CONNECTED TO THE MOTOR START RELAY WHERE THE "**BLUE**" WIRE IS CURRENTLY CONNECTED. THE NEGATIVE CONNECTION FROM THE BATTERY SHOULD BE ATTACHED TO THE NEGATIVE MOTOR TERMINAL. THE NEGATIVE MOTOR TERMINAL HAS "**BLACK**" WIRES CURRENTLY CONNECTED.

2. CHECK RESERVOIR OIL LEVEL.

3. CHECK RELIEF VALVES FOR PROPER SETTINGS WITH PRESSURE GAUGES IN OUTLET LINES.

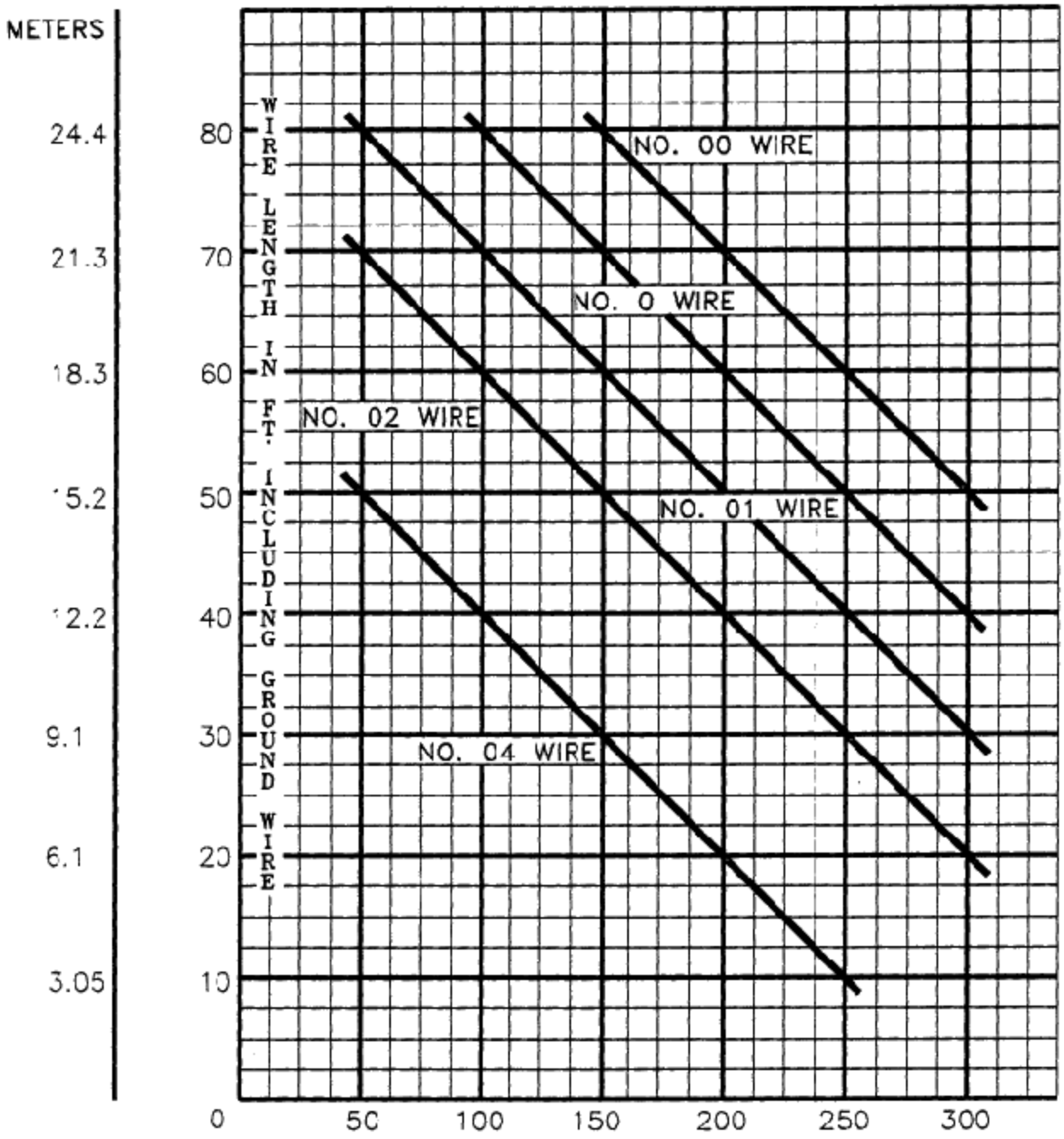
4. CHECK FOR EXTERNAL LEAKAGE AT CYLINDERS, HOSE AND POWER UNIT.

TYPICAL EXAMPLES

SYMPTOM	POSSIBLE CAUSE	FIXES & HINTS
UNIT WILL NOT START. (SEE CAUSES 1,2,9)	1. IMPROPER VOLTAGE TO MOTOR OR TOO SMALL POSITIVE CABLE.(A)	A. CHECK WIRING AND INSURE CONNECTIONS ARE TIGHT, AS WELL AS PROPER VOLTAGE. REPLACE POSITIVE CABLE OR ATTACH NEGATIVE CABLE TO NEGATIVE MOTOR TERMINAL
UNIT WILL NOT RAISE (SEE CAUSES 4,8,10,11,,12,13)	2. IMPROPER GROUND, DETERMINE GROUND WIRE IS ATTACHED TO NEGATIVE MOTOR TERMINAL. (A)	B. KEEP OIL RESERVOIR FULL & CLEAN
UNIT WILL NOT LOWER (SEE CAUSES 3,8,11,14)	3. PRESSURE RELIEF VALVE (VALVES) SET TOO LOW.(C,E)	C. DO NOT ADJUST VALVES WITHOUT THE PROPER EQUIPMENT (PRESSURE GAUGES)
UNIT DRIFTS WITH POWER UNIT OFF. (SEE CAUSES 4,5,6,7)	4. HOSES FROM POWER UNIT CONNECTED IN REVERSE. (I)	D. FLUSH & CLEAN APPROPRIATE VALVE.
SLOW CYLINDER TRAVEL (SEE CAUSES 1,3,7,8,10)	5. LEAKAGE THROUGH PUMP CHECK. (D,F)	E. ADJUST RELIEF VALVE TO PROPER SETTING.
	6. LEAKAGE THROUGH "**RED**" 2-WAY, NORMALLY CLOSED, SOL. VALVE. (D,F)	F. REPLACE COMPONENT.
	7. EXTERNAL OR INTERNAL LEAKAGE AT CYLINDER. (F)	G. REPLACE "**BLACK**" COIL.
	8. INSUFFICIENT OIL IN RESERVOIR. (B)	H. REPLACE "**RED**" COIL.
	9. GEAR PUMP SEIZED-FROZEN UP. (F)	I. REVERSE HOSES EITHER AT POWER UNIT OR CYLINDER.
	10. CYLINDER OVERLOADED. (C.E)	
	11. INSUFFICIENT OIL IN RESERVOIR. (B)	
	12. CYLINDER OVERLOADED. (C.E)	
	13. COIL ON "**BLACK**" 4-WAY, 2 POSITION VALVE NOT ENERGIZING. (G)	
	14. COIL ON "**RED**" 2-WAY, NORM. CLOSED, SOL. VALVE NOT ENERGIZED. (H)	

D.C. UNIT RECOMMENDED

ELECTRIC CONDUCTOR SIZE



oil sistem U.S.A.
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Oil Control Group

DOUBLE ACTING
POWER UNIT

Oil Sistem USA
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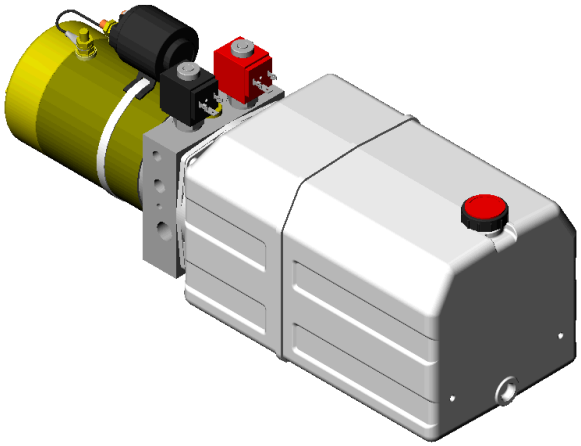

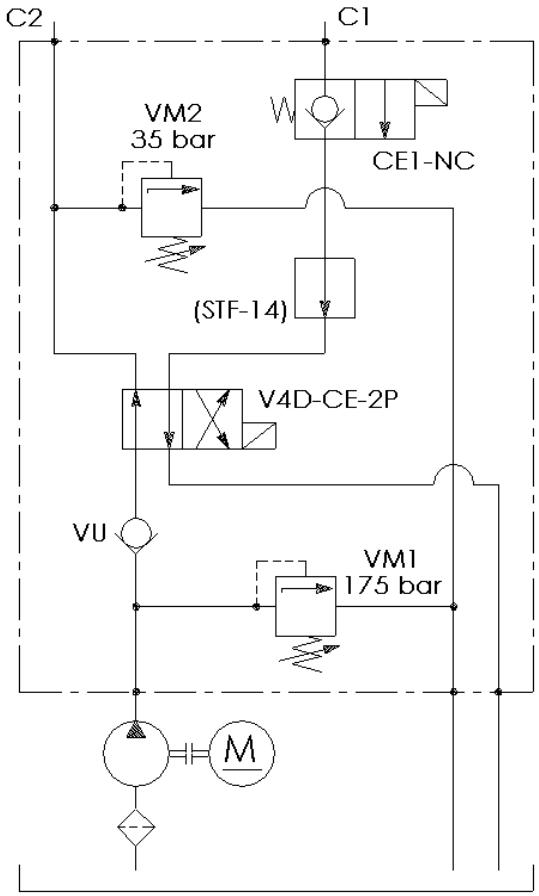

**** UNIT SPECIFICATION ****

MOTOR
12 VOLT DC STANDARD DUTY 2-TERMINAL

PUMP
PRESSURE PLATED 0.09 CU. IN/REV.

MAIN RELIEF
ADJUSTABLE SET AT 3300 PSI

SECONDARY RELIEF
ADJUSTABLE SET AT 1500 PSI

MANIFOLD
1/4" NPT PORTS “A” & “B”

TANK

2.1 GALLON PLASTIC

VALVING
2P4W SOLENOID OPERATED CARTRIDGE VALVE, PORT “C1” POSITIVELY CHECKED BY 2 WAY NORMALLY CLOSED SOLENOID OPERATED CARTRIDGE VALVE