SERVICE MANUAL

FUELKARE

EEFS305A

SERIES-1
SERIES-1.5
SERIES-2

AEC GROUP
3600 WEST CARRIAGE DRIVE
SANTA ANA CA 92704

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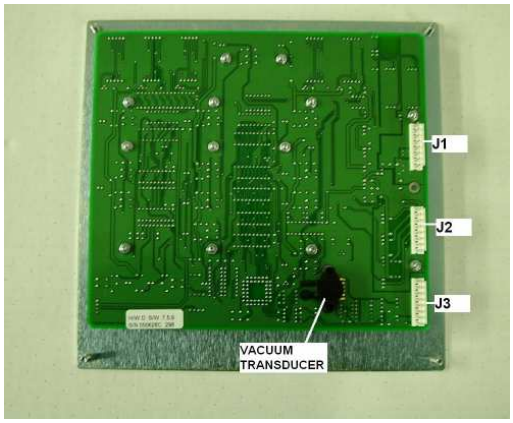
IDENTIFY YOUR FUELKARE

There are 3 versions of FUELKARE machines.

SERIES-1 : Single spin-on filter located under hose hanger.
SERIES-1.5: Has 2 filters, the spin-on filter located under hose hanger and the inline filter is located towards bottom.
SERIES-2 Also has 2 filters but spin-on filter is located towards bottom and inline filter below hose hanger.

CHAPTER 1

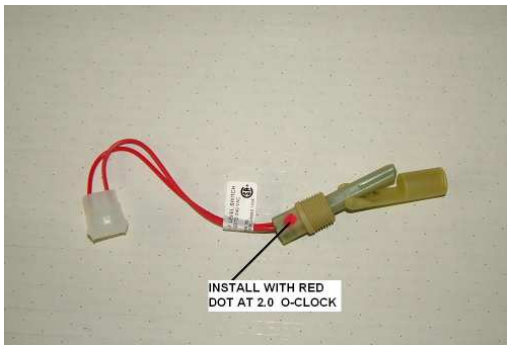
COMPONENT DESCRIPTION:



3030-01-01-0 DISPLAY PANEL W/CIRCUIT BOARD ASSEMBLY

This assembly consists of 2 components.

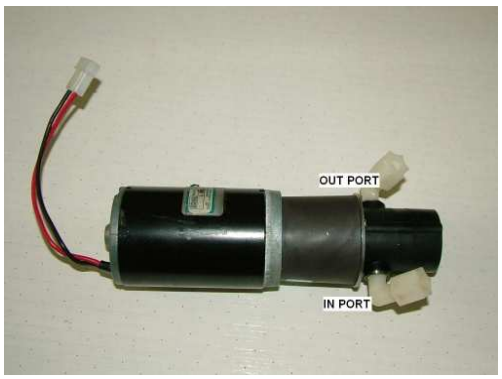
1) 5135-00-01-2 Display mounting panel w/overlay assy
2) 3030-01-00-0 Circuit board receives 12 vdc through wire loom J1 upper 4 pins and powers pump through J1 lower 4 pins. J2 wire loom channels output signals to solenoids and audio signal. J3 wire loom receives input signals from pressure transducer and max level switch.



3113-58-50-8 LEVEL SENSOR ½"NPTM X 6"LEADS

Normally open reed switch with magnetic float that closes the switch in presence of fluid, located near the top of the tank and used to prevent tank overfill.

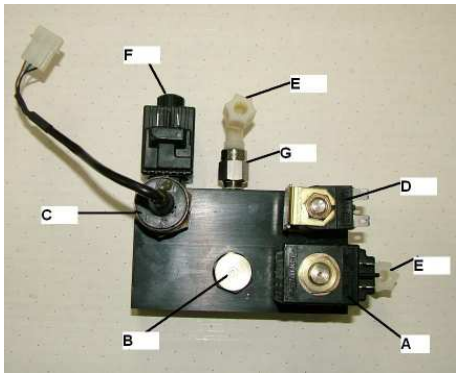
Note: Install with red dot at 2 o-clock.



2246-22-11-0 PUMP ASSEMBLY(FUELKARE-1 / 1.5)

12 vdc gear pump with +/- 1 gpm flow rate
175 psi max pressure (magnetic clutch)

COMPONENT DESCRIPTION:



2141-98-12-4 MANIFOLD BLOCK ASSEMBLY (FUELKARE-1) BLACK

A) 2136-30-20-3 RETURN VALVE, Normally closed cartridge valve, open during 2 line service, Soak(closed 250 millisecond when pulsing), leak down test and to fill tank.

B) 2140-00-20-1 INTERNAL CHECK VALVE open during diagnostic mode to return fuel to vehicle gas tank.

C) 3109-54-31-2 PRESSURE TRANSDUCER, Measures pressure 0 – 175 psi.

D) 2136-10-20-3 BY-PASS VALVE, 1/32 orifice opens during purge to remove unwanted air from internal lines and passages, and to perform 1 line service allowing return of excess volume/pressure of cleaning solution mixture back to fuelkare tank.

E) 2354-21-10-6 FITTING ¼”MPT X 90 X 5/16” TUBE

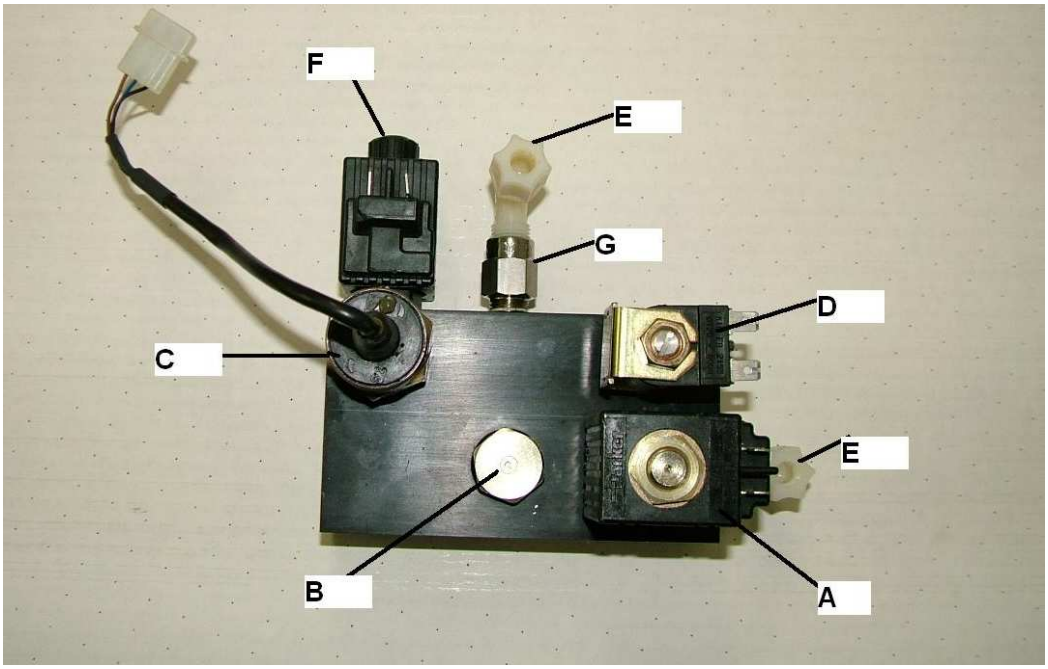
F) 2135-30-20-3 PRESSURE VALVE, Normally open cartridge valve closes to perform dead head test.

G) 2140-39-20-1 EXTERNAL CHECK VALVE, Prevents fuel to return to pump.

FILTRATION, 3 /Micron spin-on filter

CHAPTER 2

PARTS & COMPONENTS



MANIFOLD BLOCK ASSEMBLY
FUELKARE-1
2141-98-12-4

No.	PART NUMBER	DESCRIPTION	QTY.
A	2136-30-20-3	RETURN SOLENOID VALVE ASSY (FUELKARE ALL)	1
B	2140-00-20-1	CHECK VALVE INTERNAL 5 PSI (FUELKARE-1) S/S	1
C	3109-54-31-2	PRESSURE TRANSDUCER ¼”MPT ASSEMBLY	1
D	2136-10-20-3	BY-PASS VALVE 1/32” ORIFICE (FUELKARE-1)	1
E	2354-21-10-6	FITTING ¼”MPT X 90 X 5/16”HOSE(NYLON)	2
F	2135-30-20-3	PRESSURE SOLENOID VALVE ASSY (FUELKARE ALL)	1
G	2140-39-20-1	CHECK VALVE EXTERNAL ¼”FPT X ¼”MPT(S/S)VITON	1

CHAPTER 2

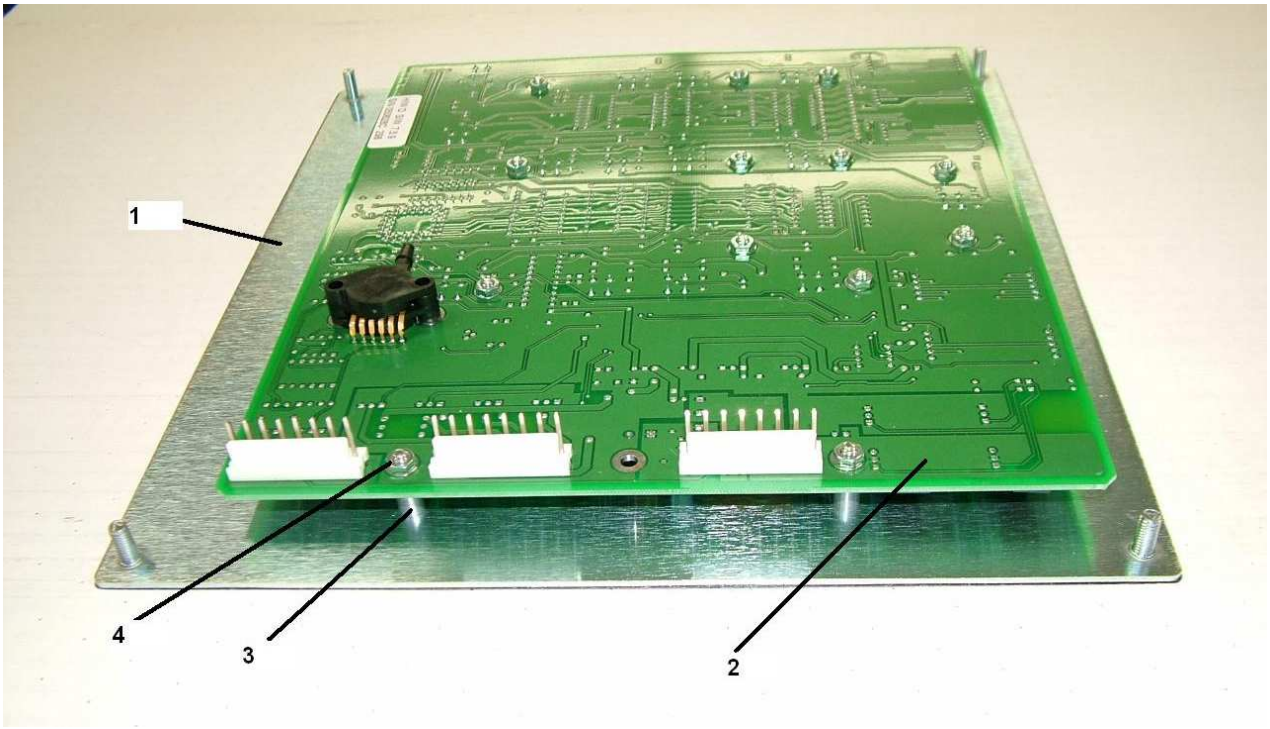
PARTS & COMPONENTS

PUMP ASSEMBLY
FUELKARE SERIES 1 AND 1.5
2246-22-11-0

No.	PART NUMBER	DESCRIPTION	QTY.	
1	2247-22-10-0	PUMP, EXTERNAL GEAR 1/8”FPT X 12VDC(FUEL)	1	
2	2352-21-10-6	FITTING, 1/8”MPT X 90 X 5/16”HOSE(NYLON)	2	

CHAPTER 2

PARTS & COMPONENTS

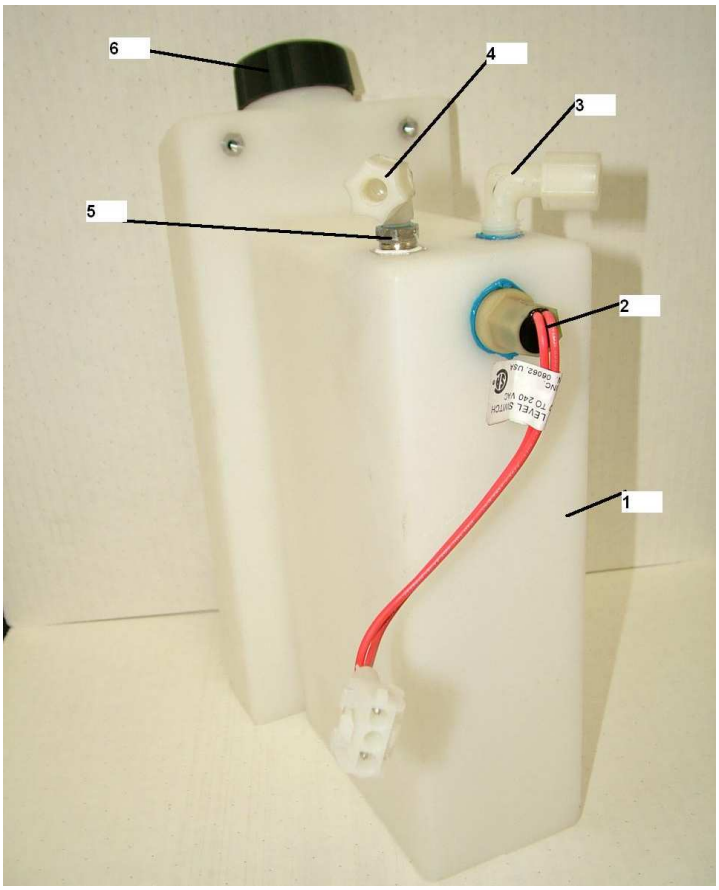


DISPLAY PANEL W/CIRCUIT BOARD ASSEMBLY 3030-01-01-0

No.	PART NUMBER	DESCRIPTION	QTY
1	5135-00-01-2	DISPLAY MOUNTING PANEL W/OVERLAY(FUELKARE)	1
2	3030-01-00-0	CIRCUIT BOARD (FUELKARE)	1
3	1614-12-46-4	STAND-OFF .250”OD X .172”ID X .461”LONG(ALUMINUM)	13
4	1011-99-00-8	NUT 6-32 HEX (ZINC)	13

CHAPTER 2

PARTS & COMPONENTS



TANK, 1 GALLON ASSEMBLY (FUELKARE-1 & 1.5)
2262-44-11-1

No.	PART NUMBER	DESCRIPTION	QTY
1	2262-44-10-1	TANK 1 GALLON (FUELKARE)	1
2	3113-58-50-5	SENSOR LEVEL ½”MPT X 6” LEADS	1
3	2354-21-10-6	FITTING, ¼”MPT X 90 X 5/16”HOSE (NYLON)	1
4	2352-21-10-6	FITTING, 1/8”MPT X 90 X 5/16”HOSE (NYLON)	1
5	2293-00-90-1	TANK TUBE .38” X 9.700” LONG (S/S)	1
6	2291-78-11-4	CAP 1 ¾”ID TANK FUEL	1

CHAPTER 2

PARTS & COMPONENTS

ALPHABETICAL PART LIST

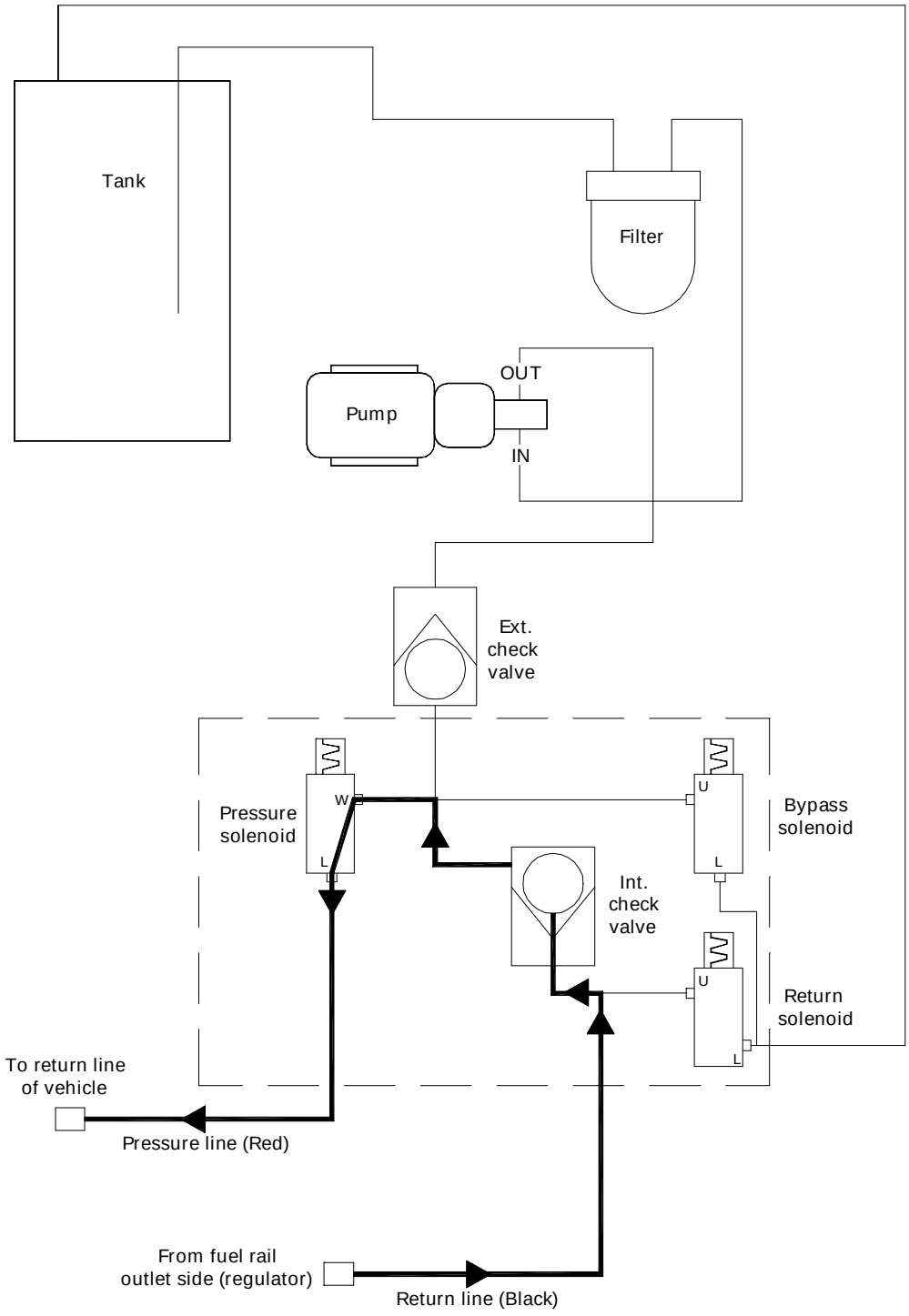
PART NUMBER	DESCRIPTION
3160-68-12-1	AUDIO SIGNAL, 3-28VDC
5120-11-00-2	AXLE (FUELKARE ALL)
3030-00-00-0	CHIP, VER:7.58(FUELKARE-1)
3030-01-00-0	CIRCUIT BOARD (FUELKARE ALL)
3075-12-22-7	CORD/CLAMP ASSEMBLY 12VDC X 12' (RED/BLACK)
1615-03-16-8	COTTERPIN, 1/8"OD X 1 1/4" LONG
3030-01-01-0	DISPLAY & BOARD ASSEMBLY (FUELKARE ALL)
2354-20-10-6	FITTING, 1/4"MPT X 90 X 5/16"HOSE (NYLON)
2352-21-10-6	FITTING, 1/8"MPT X 90 X 5/16"HOSE (NYLON)
0901-54-90-2	HOSE, 1/4"MPT X 90 X 10' PRESSURE ASSEMBLY(RED)HYTRON
0901-54-90-1	HOSE, 1/4"MPT X 90 X 10' RETURN ASSEMBLY(BLACK)HYTRON
0904-53-10-1	HOSE, 10' VACUUM(BLACK) RUBBER
2227-36-32-3	HOUSING, FILTER ASSEMBLY (FUELKARE-1 , 1.5)
3142-10-03-1	INPUT HARNESS "J3" (FUELKARE ALL)
3113-58-50-5	LEVEL SENSOR 1/2"MPT X 6"LEADS
1029-95-00-8	NUT, 1/4"-20 NYLOC HEX (ZINC)
3142-10-02-1	OUTPUT HARNESS "J2" (FUELKARE ALL)
3142-10-01-1	POWER HARNESS "J1"(FUELKARE ALL)
3109-54-31-2	PRESSURE TRANSDUCER 1/4"MPT ASSEMBLY (NICKEL)
2246-22-11-0	PUMP ASSEMBLY (FUELKARE-1 , 1.5) 12VDC
2023-12-10-2	QUICK DISC, BODY S/23 X 1/4"FPT(VITON)NICKEL
2023-13-10-2	QUICK DISC, BODY S/23 X 1/4"MPT(VITON)NICKEL
1029-04-58-3	SCREW, 1/4"-20 X 3/8" BHCS ALLEN (BLACK)
1017-10-56-8	SCREW, 10-32 X 3/8" PANHEAD PHILLIPS
2291-78-11-4	TANK, CAP, 1 3/4"ID (FUELKARE ALL)
2262-44-11-1	TANK, FUEL 1 GALLON ASSEMBLY (FUELKARE-1 , 1.5)
2122-39-40-8	VALVE, BALL 1/4"MPT X 1/4"FPT WITH T-HANDLE (NICKEL)
2136-10-20-3	VALVE, BY-PASS 1/32"ORIFICE (FUELKARE-1, 1.5)
2144-94-10-0	VALVE, COIL 12VDC/14WATT FITS PARKER 08 SERIES
2135-30-20-3	VALVE, PRESSURE ASSEMBLY(FUELKARE ALL)VITON
2136-30-20-3	VALVE, RETURN ASSEMBLY (FUELKARE ALL)VITON
1631-09-61-2	WHEEL, 9"OD X 3/4"WD X 1/2"BORE
1635-44-40-4	WHEEL, CASTER 4"OD X 1 1/4"WD WITH BRAKE

CHAPTER 2

NUMERICAL PART LIST

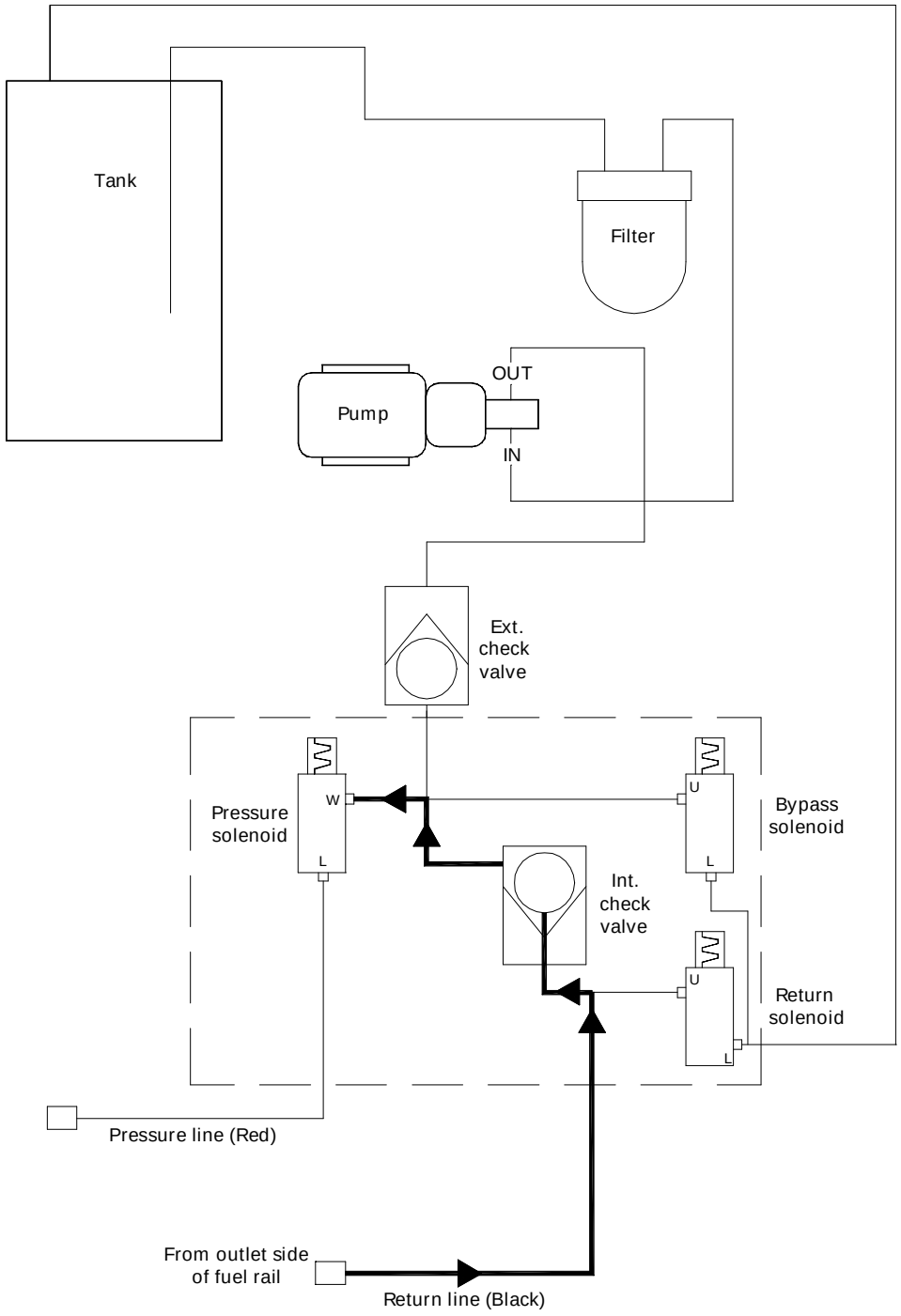
PART NUMBER	DESCRIPTION
0901-54-90-1	HOSE, 1/4"MPT X 90 X 10' RETURN ASSEMBLY(BLACK)HYTRON
0901-54-90-2	HOSE, 1/4"MPT X 90 X 10' PRESSURE ASSEMBLY(RED)HYTRON
0904-53-10-1	HOSE, 10' VACUUM(BLACK) RUBBER
1017-10-56-8	SCREW, 10-32 X 3/8" PANHEAD PHILLIPS
1029-04-58-3	SCREW, 1/4"-20 X 3/8" BHCS ALLEN (BLACK)
1029-95-00-8	NUT, 1/4"-20 NYLOC HEX (ZINC)
1615-03-16-8	COTTERPIN, 1/8"OD X 1 1/4" LONG
1631-09-61-2	WHEEL, 9"OD X 3/4"WD X 1/2"BORE
1635-44-40-4	WHEEL, CASTER 4"OD X 1 1/4"WD WITH BRAKE
2023-12-10-2	QUICK DISC, BODY S/23 X 1/4"FPT(VITON)NICKEL
2023-13-10-2	QUICK DISC, BODY S/23 X 1/4"MPT(VITON)NICKEL
2122-39-40-8	VALVE, BALL 1/4"MPT X 1/4"FPT WITH T-HANDLE (NICKEL)
2135-30-20-3	VALVE, PRESSURE ASSEMBLY(FUELKARE ALL)VITON
2136-10-20-3	VALVE, BY-PASS 1/32"ORIFICE (FUELKARE-1, 1.5)
2136-30-20-3	VALVE, RETURN ASSEMBLY (FUELKARE ALL)VITON
2144-94-10-0	VALVE, COIL 12VDC/14WATT FITS PARKER 08 SERIES
2227-36-32-3	HOUSING, FILTER ASSEMBLY (FUELKARE-1 , 1.5)
2246-22-11-0	PUMP ASSEMBLY (FUELKARE-1 , 1.5) 12VDC
2262-44-11-1	TANK, FUEL 1 GALLON ASSEMBLY (FUELKARE-1 , 1.5)
2291-78-11-4	TANK, CAP, 1 3/4"ID (FUELKARE ALL)
2352-21-10-6	FITTING, 1/8"MPT X 90 X 5/16"HOSE (NYLON)
2354-20-10-6	FITTING, 1/4"MPT X 90 X 5/16"HOSE (NYLON)
3030-00-00-0	CHIP, VER:7.58(FUELKARE-1)
3030-01-00-0	CIRCUIT BOARD (FUELKARE ALL)
3030-01-01-0	DISPLAY & BOARD ASSEMBLY (FUELKARE ALL)
3075-12-22-7	CORD/CLAMP ASSEMBLY 12VDC X 12' (RED/BLACK)
3109-54-31-2	PRESSURE TRANSDUCER 1/4"MPT ASSEMBLY (NICKEL)
3113-58-50-5	LEVEL SENSOR 1/2"MPT X 6"LEADS
3142-10-01-1	POWER HARNESS "J1"(FUELKARE ALL)
3142-10-02-1	OUTPUT HARNESS "J2" (FUELKARE ALL)
3142-10-03-1	INPUT HARNESS "J3" (FUELKARE ALL)
3160-68-12-1	AUDIO SIGNAL, 3-28VDC
5120-11-00-2	AXLE (FUELKARE ALL)

FLOW DIAGRAM



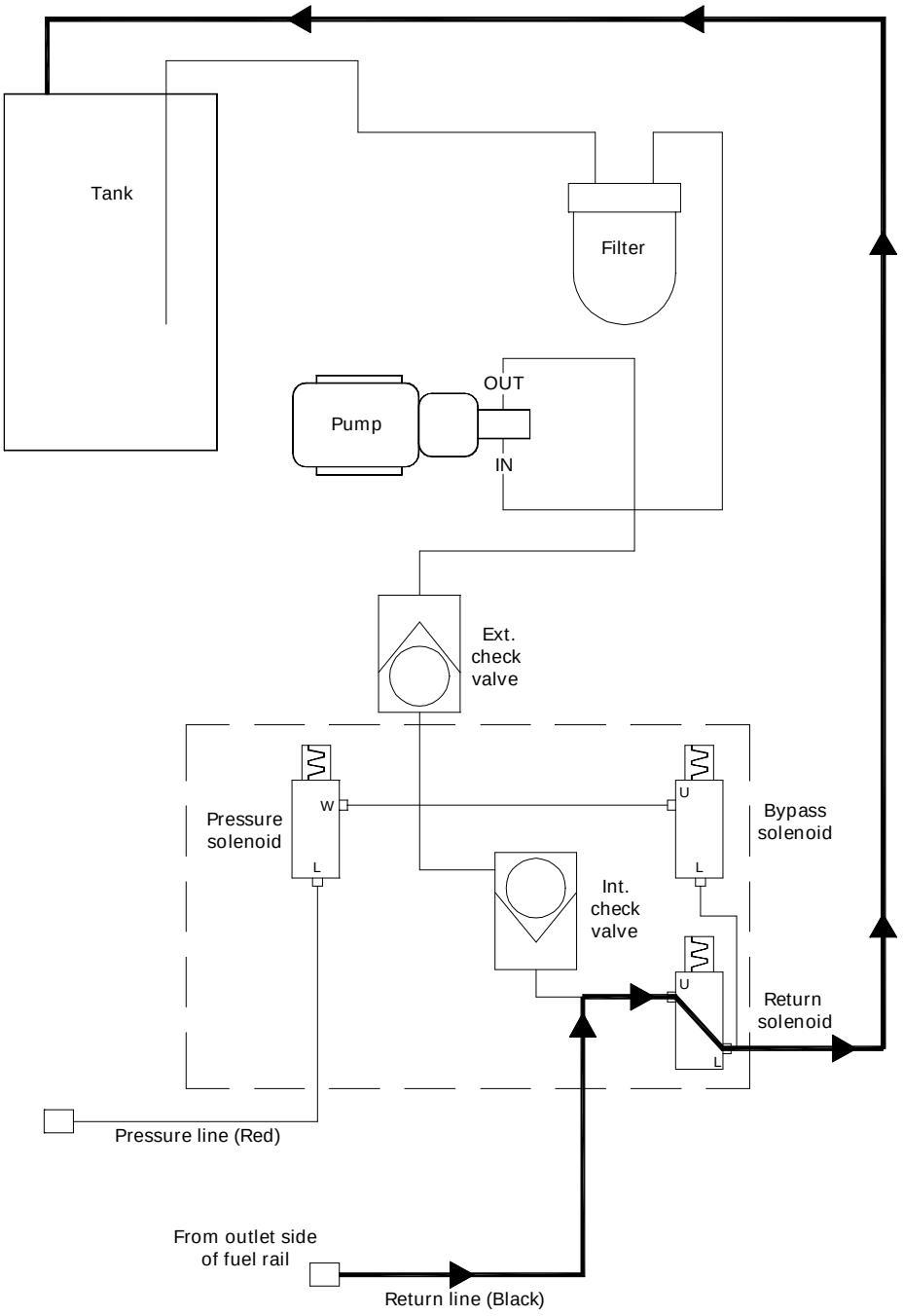
DIAGNOSTIC MODE
ENGINE RUNNING NO KEYS “PRESSED”
2 LINE SERVICE

FLOW DIAGRAM



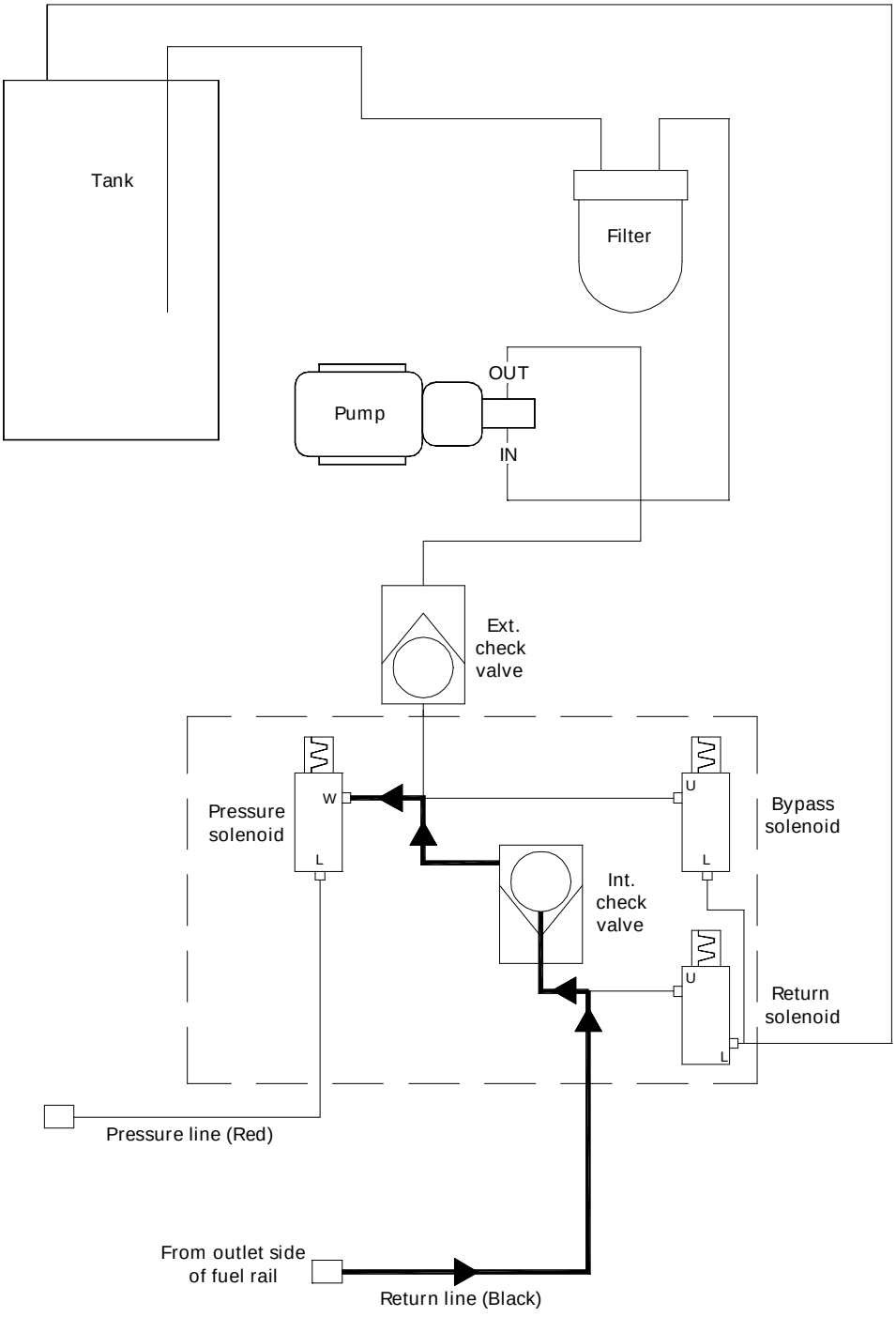
DIAGNOSTIC MODE
ENGINE RUNNING NO KEYS “PRESSED”
1 LINE SERVICE

FLOW DIAGRAM



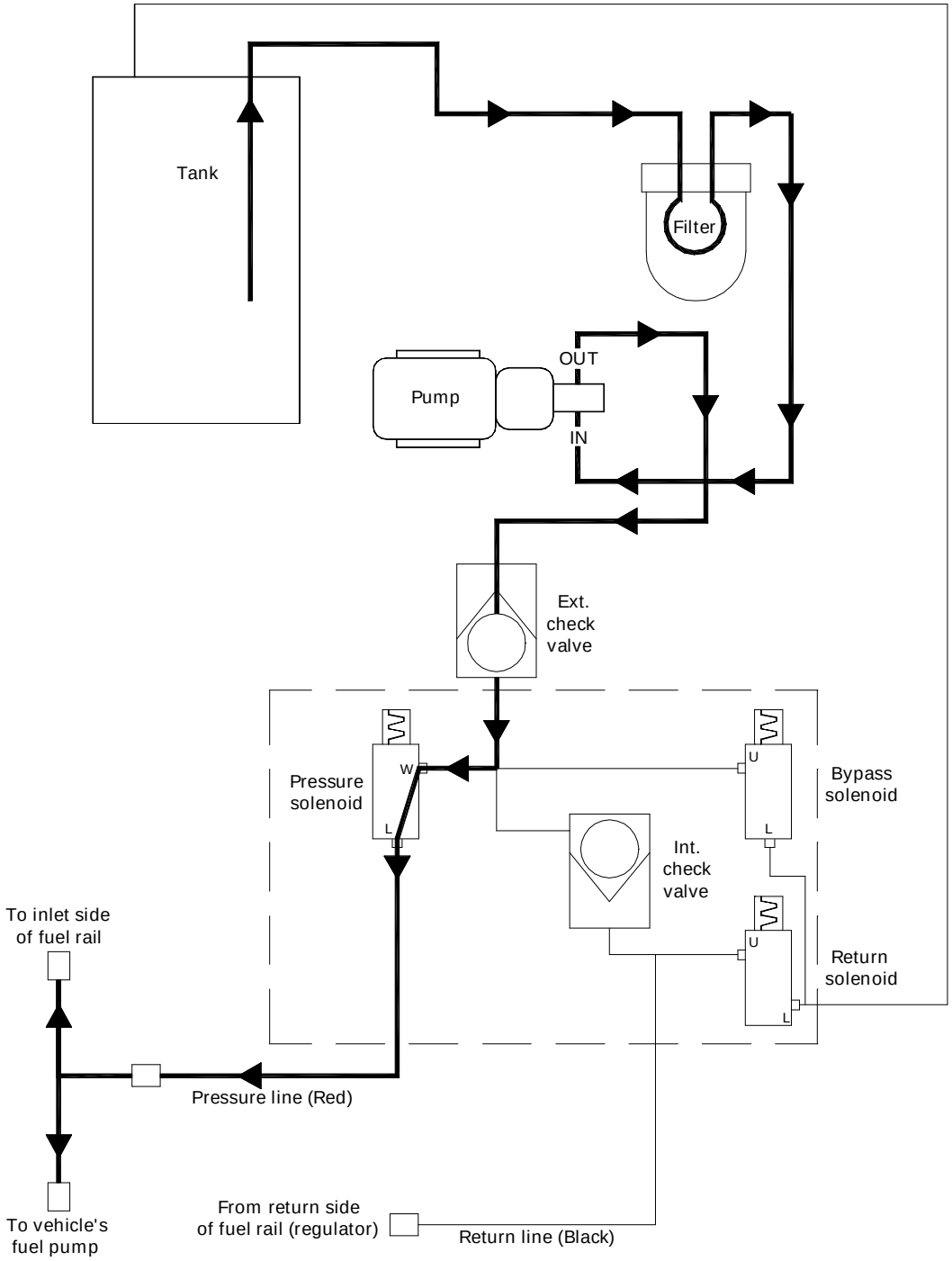
DIAGNOSTIC/FILL MODE
ENGINE RUNNING FILL TANK “PRESSED”

FLOW DIAGRAM



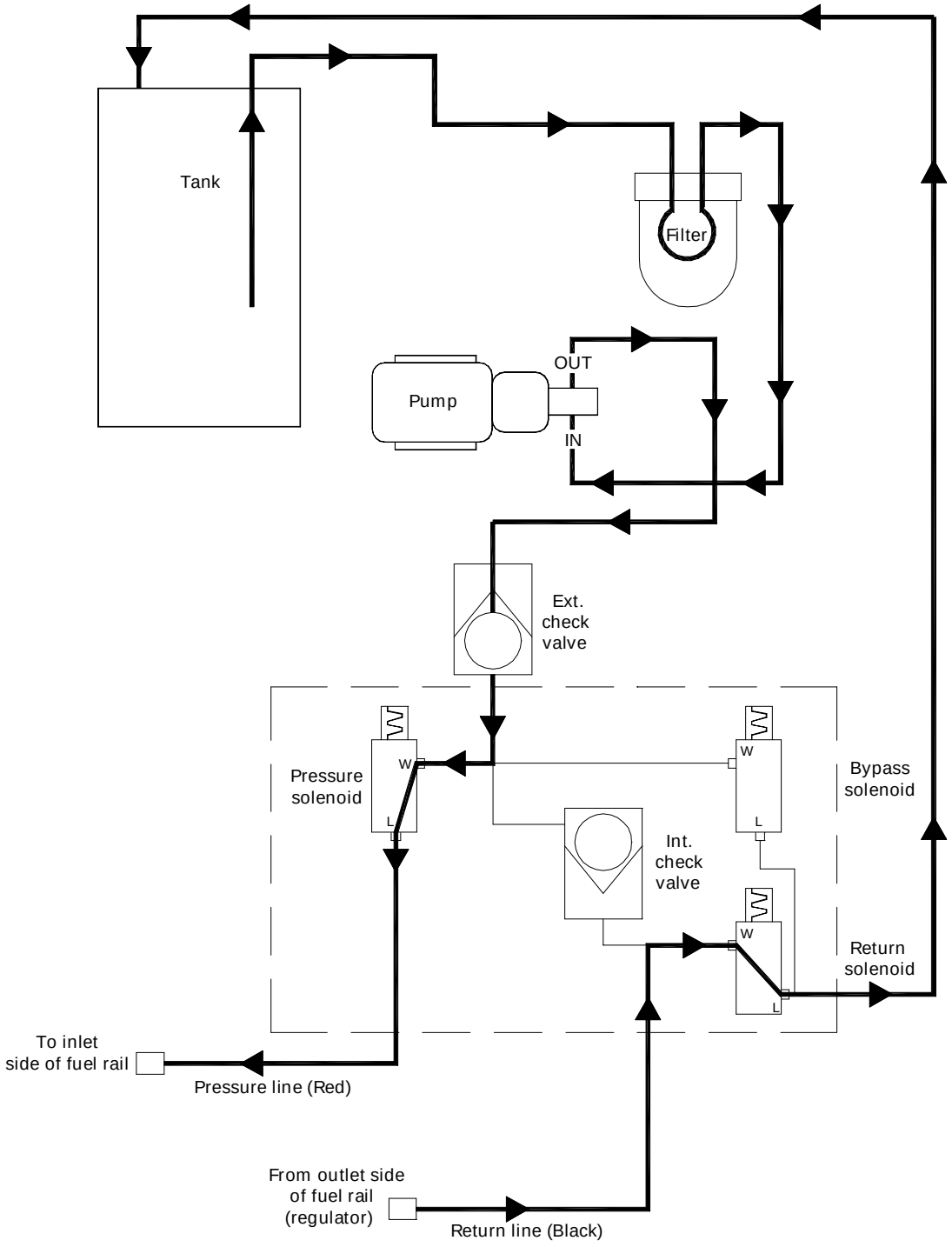
DIAGNOSTIC MODE
ENGINE RUNNING
DEADHEAD KEY “PRESSED”

FLOW DIAGRAM



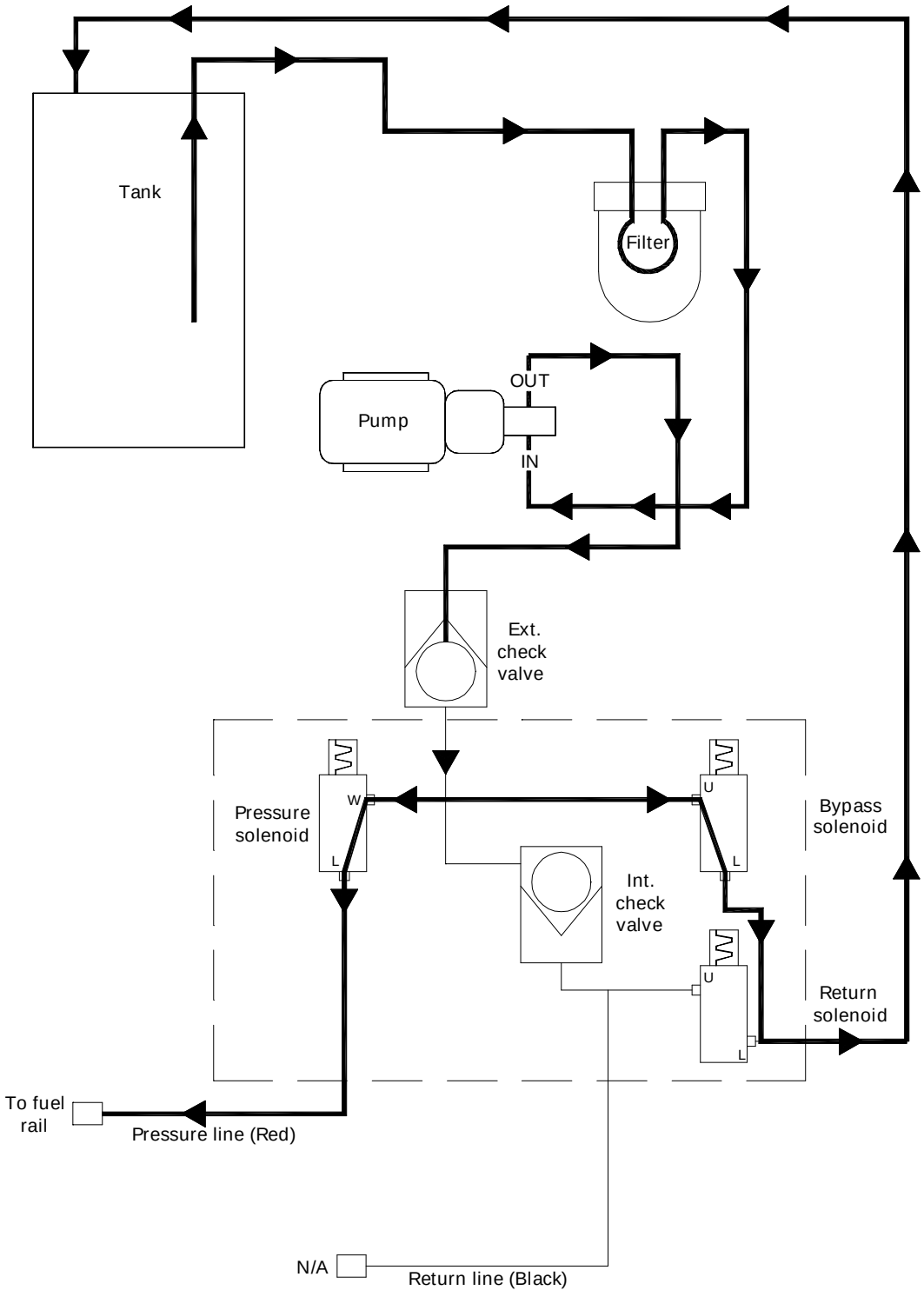
DIAGNOSTIC MODE
LEAKDOWN TEST

FLOW DIAGRAM



2 LINE SERVICE

FLOW DIAGRAM



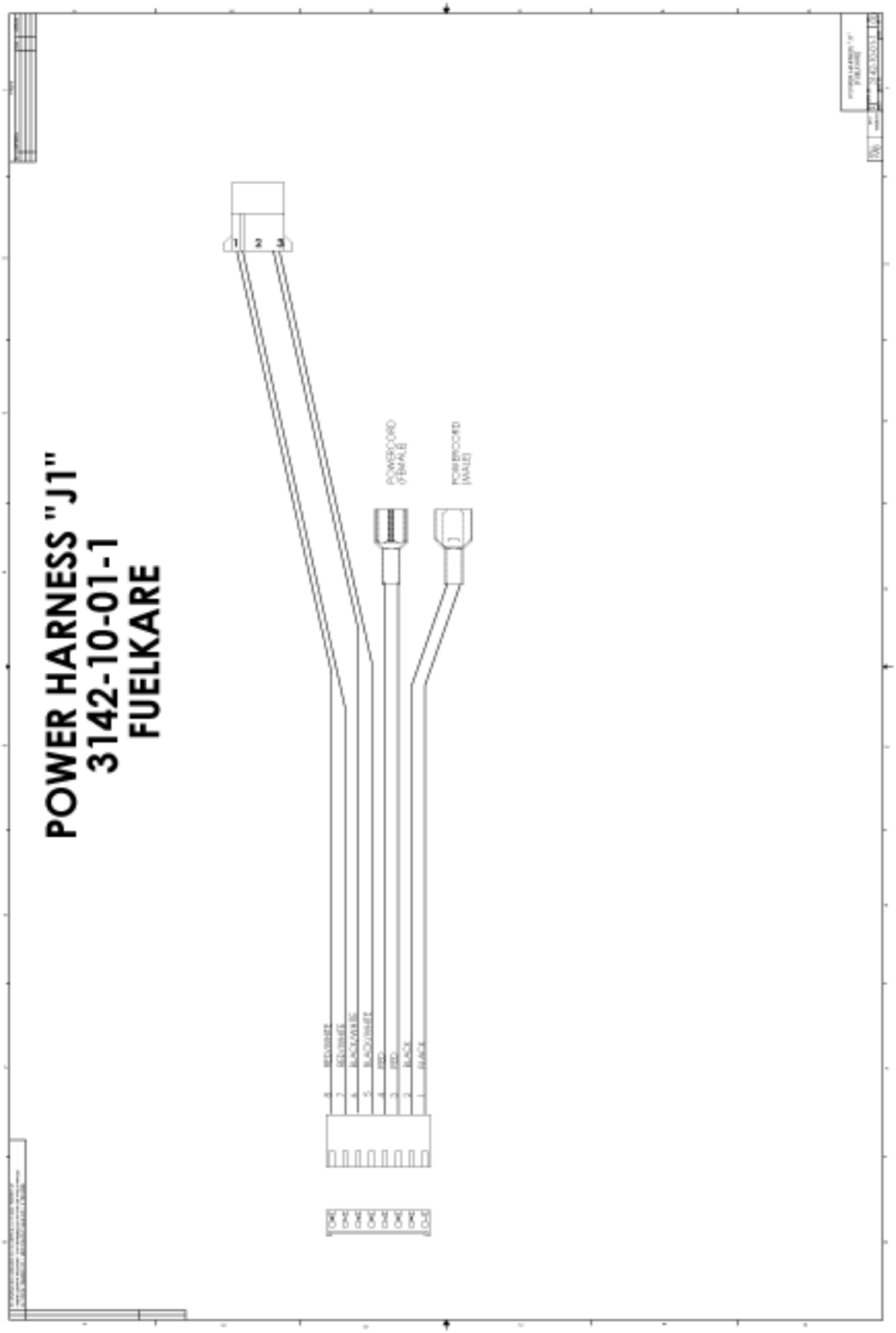
1 LINE SERVICE

CHAPTER 2

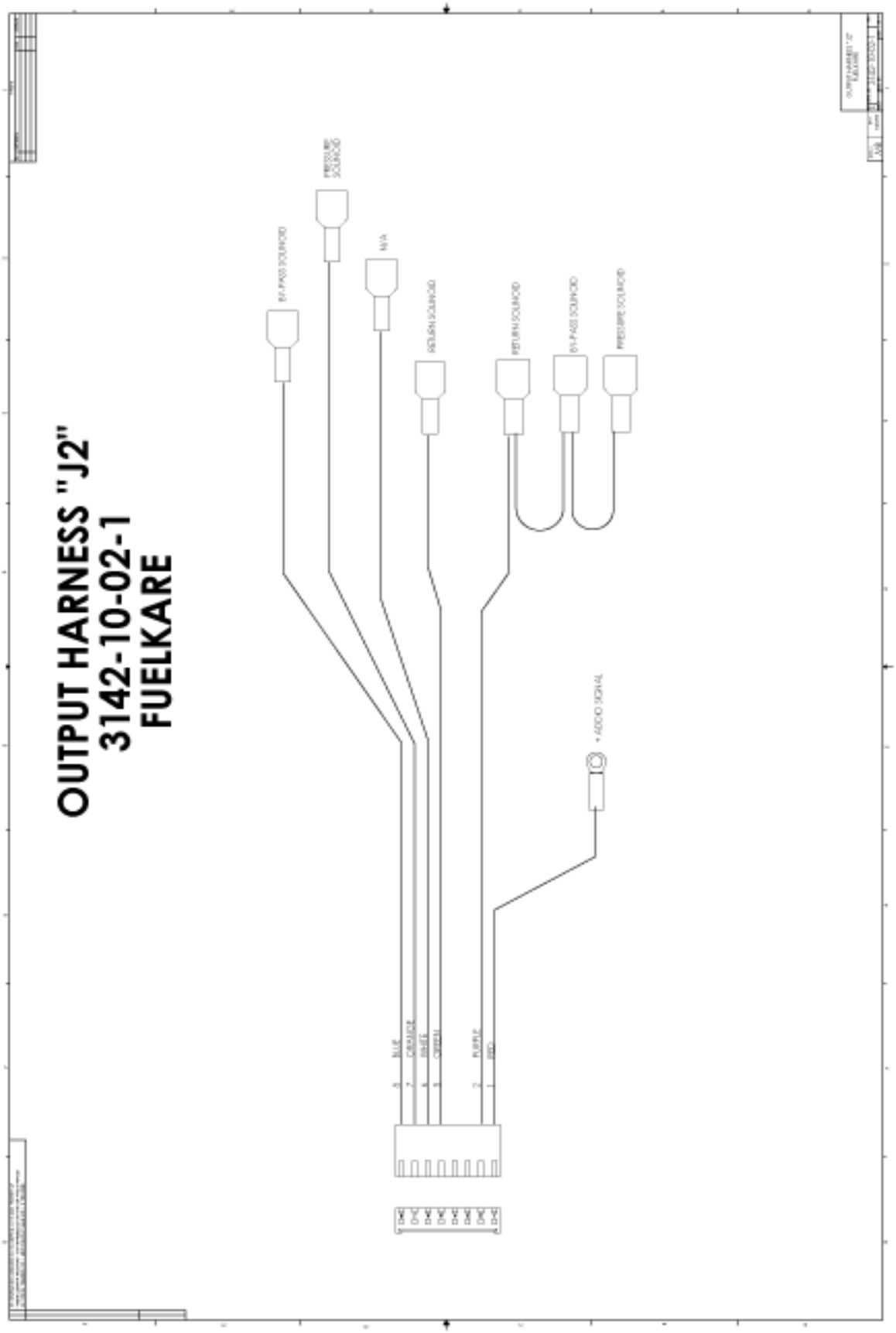
COMPONENT POWER CHART

	RETURN SOLENOID VALVE	PRESSURE SOLENOID VALVE	BY-PASS SOLENOID VALVE	PUMP
FILL TANK FLOW RATE CHECK	**ON**	**OFF**	**OFF**	**OFF**
DEADHEAD PRESSURE CHECK	**OFF**	**ON**	**OFF**	**OFF**
LEAKDOWN PURGE	**OFF**	**OFF**	**ON**	**ON**
LEAKDOWN TEST	**ON**	**OFF**	**OFF**	**ON**
2 LINE SERVICE	**ON**	**OFF**	**OFF**	**ON**
1 LINE SERVICE	**OFF**	**OFF**	**ON**	**ON**

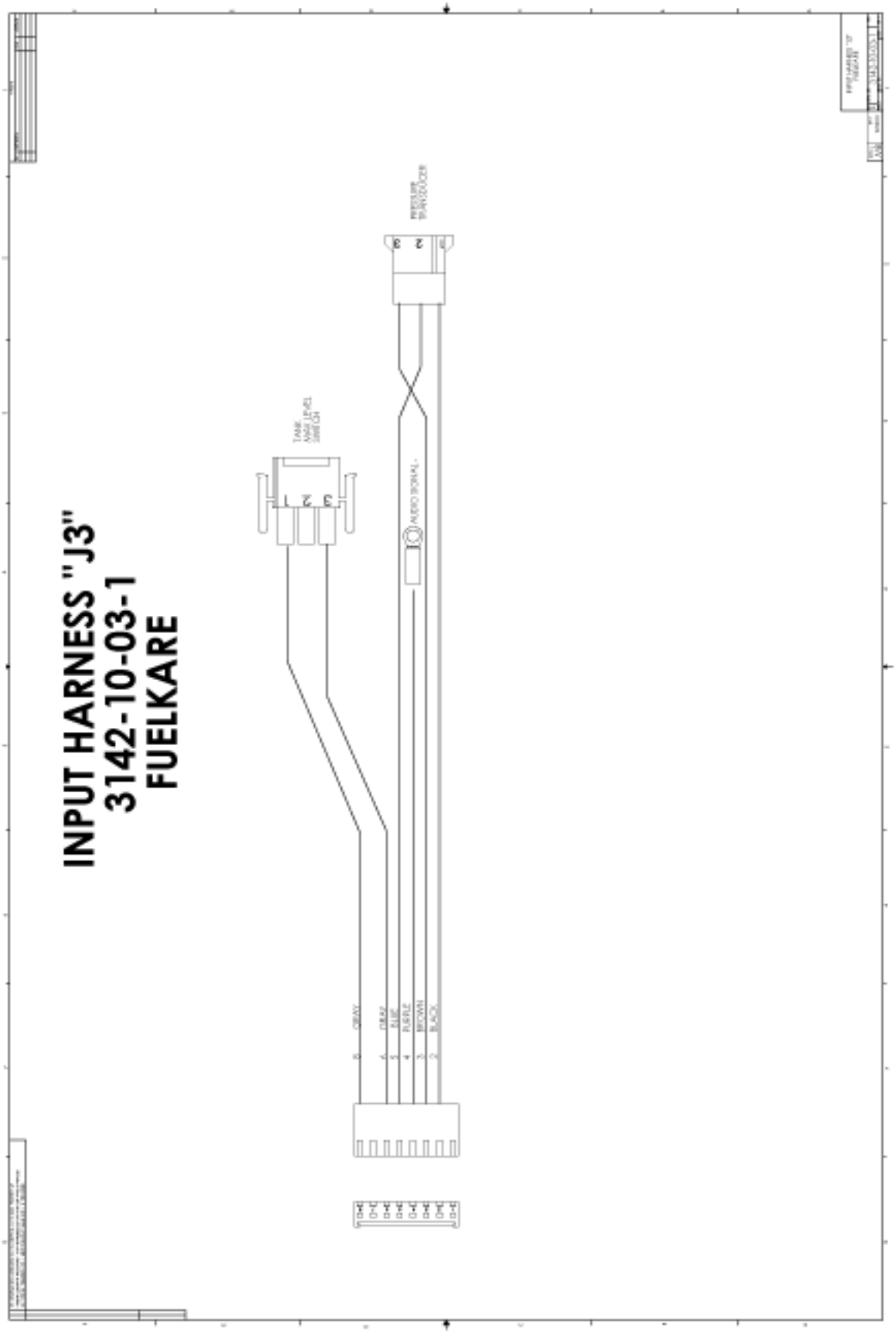
WIRE DIAGRAMS



WIRE DIAGRAMS



WIRE DIAGRAMS



CHAPTER 3

THROUBLE SHOOTING

UNIT WILL NOT POWER UP

1. Verify that power leads are securely connected to a 12VDC power source(car battery)
2. Verify proper connection. Black lead to ground and red lead to positive. Make sure connections are clean.
3. Check for battery power at 'J1' connector pins 1, 2 and 3, 4 red and black wires.
   -If no battery power is detected at 'J1' connector, check internal connection between power cord and 'J1' wire loom, repair or replace as needed.

FAILS TO CALIBRATE AFTER POWER-UP

1. If Fuelkare black and red hoses where connected before power-up, remove hoses from fuel system and connect 2 open end adapters to red and black hose.
   - If still no calibration, using shop air apply short bursts of pressure to red hose this should reset transducer.
   - If still no calibration check connection to 'J3' wire loom
   - If connection is correct, replace pressure transducer.

DOES NOT FILL TANK

1. First time use will take up to 60 seconds (on a properly functioning vehicle's fuel supply system) to prime filter and lines.
2. Verify that hoses and adapters are properly connected to vehicle fuel system.
3. If properly connected to fuel system, check return solenoid assembly for 12vdc.
   -If 12VDC is not present, check 'J2' wire loom repair or replace as needed.
   -If 12VDC is present remove return solenoid assembly and apply power to see if plunger retracts.
   -If not push center of plunger several times with Phillips screw driver and clean with compressed air, re-power solenoid valve assembly and check plunger movement.
   -If plunger moves freely, reinstall and repeat fill tank mode.
   -If plunger does not move freely replace solenoid assembly.

CHAPTER 3

THROUBLE SHOOTING

LOOSES PRESSURE DURING LEAKDOWN MODE

1. Remove Fuelkare red and black hoses from vehicle and press leak down test key, pressure should ramp up to +/- 100 p.s.i. once achieved, the pressure displayed will alternately show baseline and current pressure. Normal acceptable decay is 10% @ 100 p.s.i. over one minute. If holding pressure problem with vehicle.
   - **If not holding pressure, perform the following**.
2. Press and release the STOP key to relieve pressure.
3. Install open end adapters to red and black hoses.
4. Remove Fuelkare tank cap and insert red hose with adapter in new fluid tank.
5. Using shop air and an appropriate blow gun, blow air into adapter now attached to black hose. Continue blowing until red hose is empty.
6. Using shop air, apply short bursts of pressure to red hose to reseat internal check valve.
7. Remove adapters from black and red hoses; connect black and red hoses together with male loop adapter p/n: 6016-02-01-1; press and release leak down test key to restore cleaning solution to the now cleared pathway through the machine and hoses. When pumps stops remove loop from black and red hoses.
8. Retest leak down mode.
   -**If not holding pressure**,
9. Remove rear panel
10. Press leak down key, monitor clear tube between manifold and pump and monitor clear tube between manifold and tank for fluid flow
    -If fluid flows from manifold to pump
11. Unscrew white nylon nut from clear tube on output side of pump
12. Install adapter on red hose and insert hose in new fluid tank
13. Using shop air blow into clear tube until red hose is empty.
14. Take red hose with adapter and apply short bursts of air to reseat external check valve
15. Reattach clear tube to pump and press leak down test key fluid will circulate through red hose repeat if needed to remove air from system.
16. Remove adapter from red hose.
17. Retest leak down mode
    -If fluid flows from manifold to tank
18. Remove internal check valve, inspect for debris and condition of O-rings or replace if needed.

CHAPTER 3

LOW PRESSURE DURING SERVICE MODE

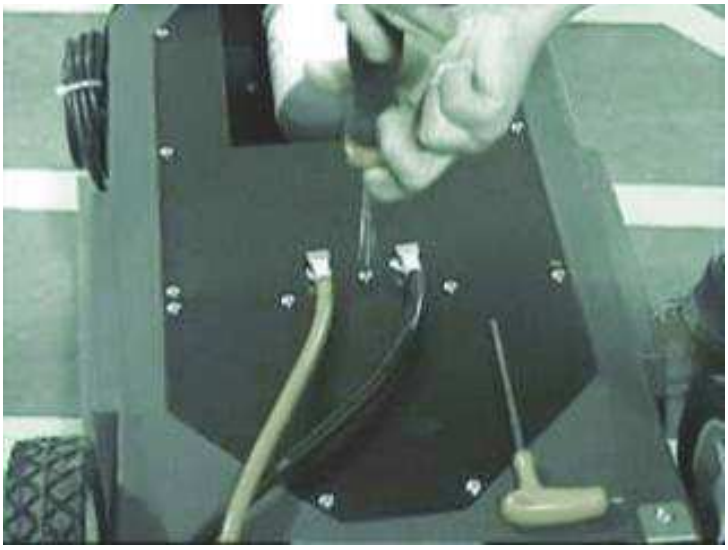
1. Check filter replacement history (+/- 50 services per filter).
2. Remove hoses from vehicle.
3. Install open end adapters to red and black hose.
4. Insert red hose to new fluid tank.
5. Using shop air, pressurize black hose until red hose is empty.
6. Using shop air, apply short bursts of pressure to red hose to reseat internal check valve.
7. Reconnect red and black hoses to vehicle.
8. Resume service.

CHAPTER 4

SERVICE PROCEDURES

REPLACING INTERNAL CHECK VALVE

1. Remove the Phillips Head pan screws from the **center** back panel;



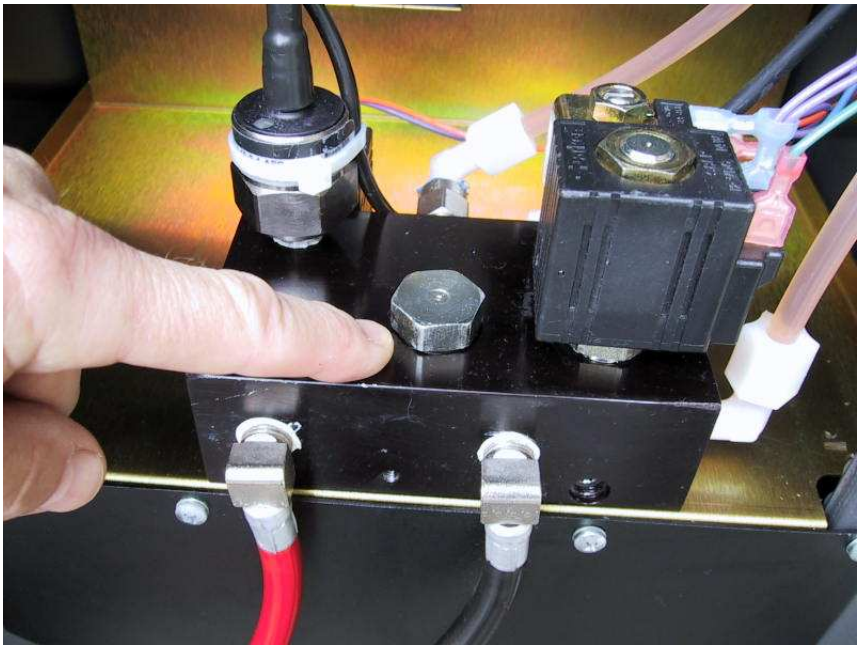
2. Remove the two (2) 5/32" Allen Head screws in filter cavity; a 4mm Allen Socket will also fit these 2 screw heads

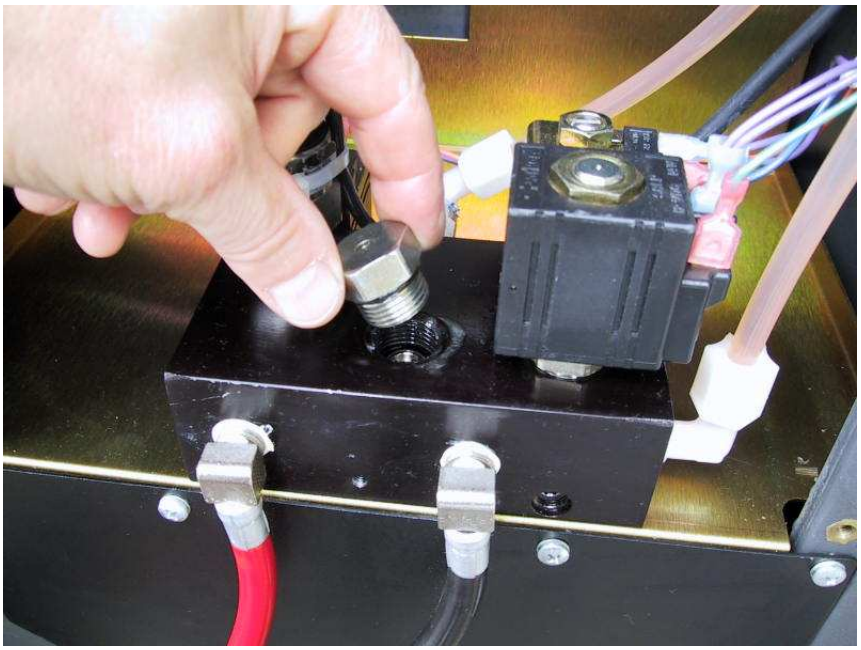
3. Remove the nickel plated hex head bolt threaded into the top of the black anodized Manifold Block (7/8" across the flats);

CHAPTER 4

SERVICE PROCEDURES

REPLACING INTERNAL CHECK VALVE



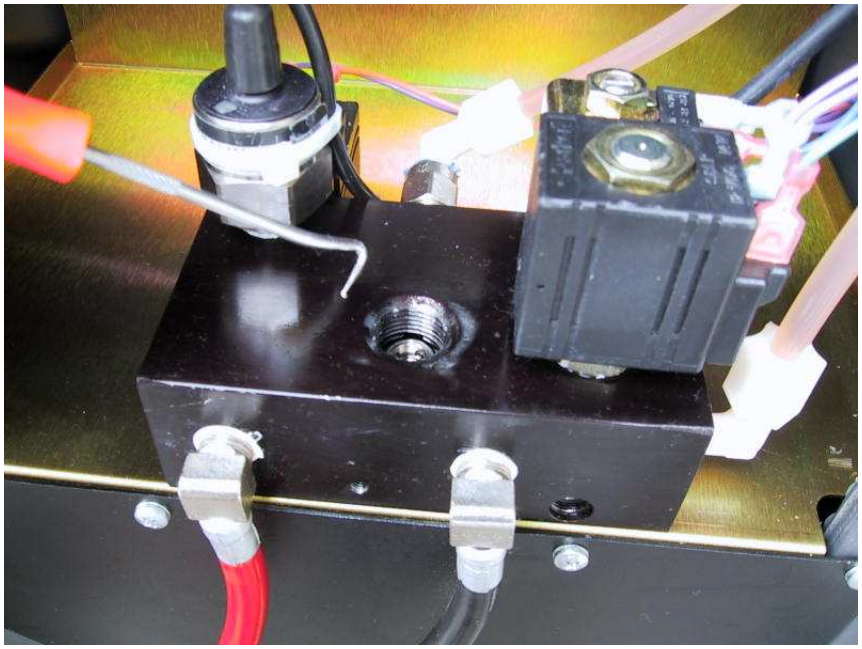


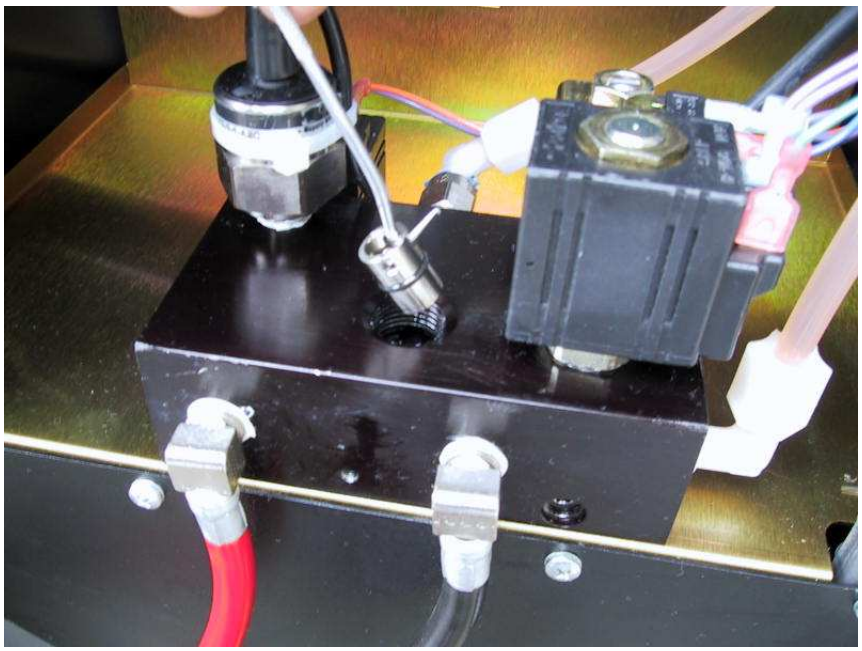
CHAPTER 4

SERVICE PROCEDURES

REPLACING INTERNAL CHECK VALVE

4. Take a pick tool and work the check valve from the manifold block (it is held in with an "O-ring" interference fit) by inserting the tip of the tool, alternately, in the offsetting holes in the top of the check valve.





CHAPTER 4

SERVICE PROCEDURES

REPLACING INTERNAL CHECK VALVE

Insure there are no contaminants in the manifold block; insert the new check valve in the manifold block. The correct orientation is with the "holes up" as described in the removal process. Firmly seat to bottom of block and replace the retainer bolt.

This process takes maybe ten minutes and can also be tested by powering up the unit; hooking the red and black hoses together with the 6016-02-01-1 extension (double male) adapter;

Press **+** and **-** buttons simultaneously (Version 7.56 software only) for three seconds to bypass diagnostics;

Press "**Two Line**" button; press "Start Soak" button and watch the air disappear from the plastic hoses inside the machine. Your pressure display will indicate 16 p.s.i. (or thereabout, depending on battery voltage and the resulting pump speed), which is enough pressure to continue the simulation without crimping hoses.

Press the "**Set Time**" button until you round the clock back to 0 minutes, shortly after which the process will time out and stop. Paying attention to the lines inside the machine, you will note that no air reappears and the lines do not "drain down".

Remove the extension adapter from the red and black hoses with a shop towel handy to catch the solution that escapes from the adapter.

Replace the back cover and retaining screws to complete the process.

CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD

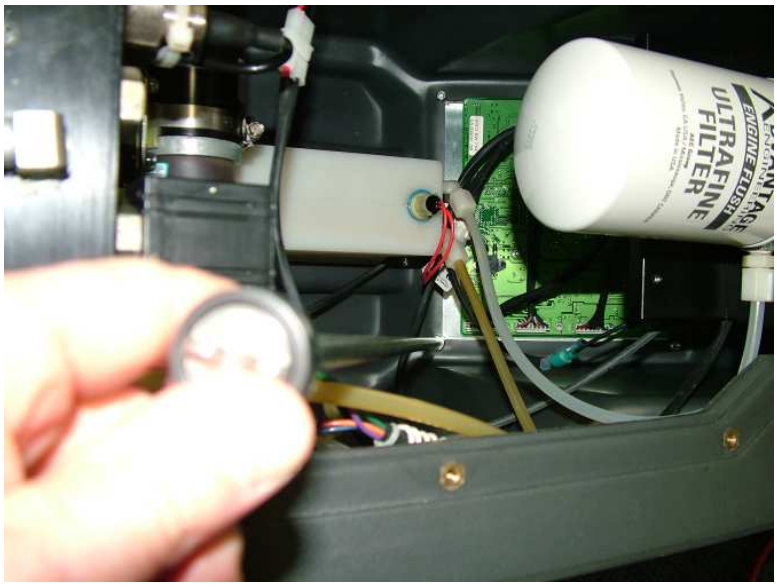
1. Remove rear center panel, 9 Phillips screws.
2. Remove 2 Allen head ¼”-20 screws using 5/32” Allen wrench.

CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD

3. Remove the 4 nyloc nuts securing the front control board assembly using long extension with 3/8” Socket.



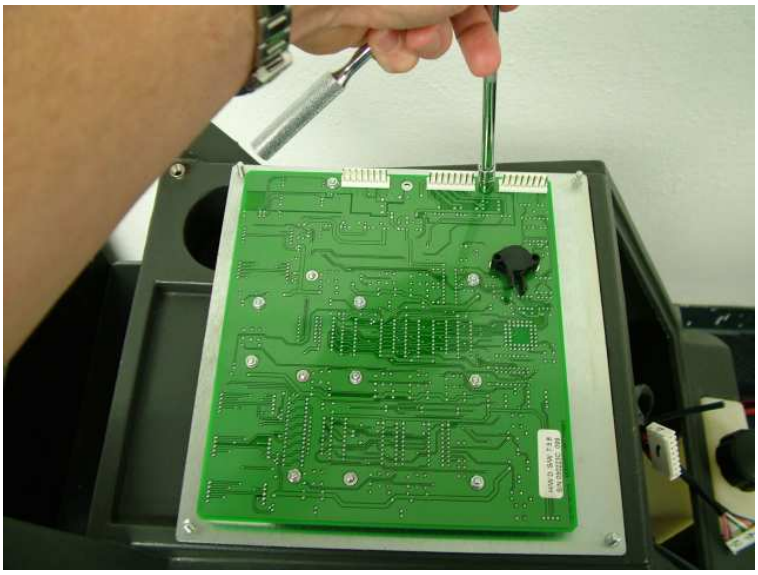
4. Disconnect wire connectors from board, if not marked J1, J2, J3 please mark before removal.

CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD

5. Place board assembly on top of unit and remove screws or nuts to separate circuit board from display panel



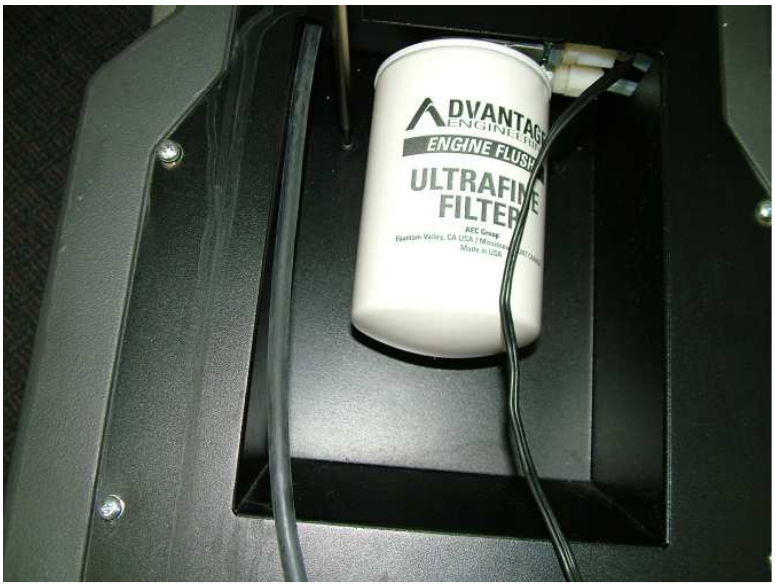
6. Replace circuit board
7. Reassemble and test.

CHAPTER 4

SERVICE PROCEDURES

REPLACING PROCESSOR CHIP

1. Remove rear center panel, 9 Phillips screws.
2. Remove 2 Allen head ¼”-20 screws using 5/32” Allen wrench.

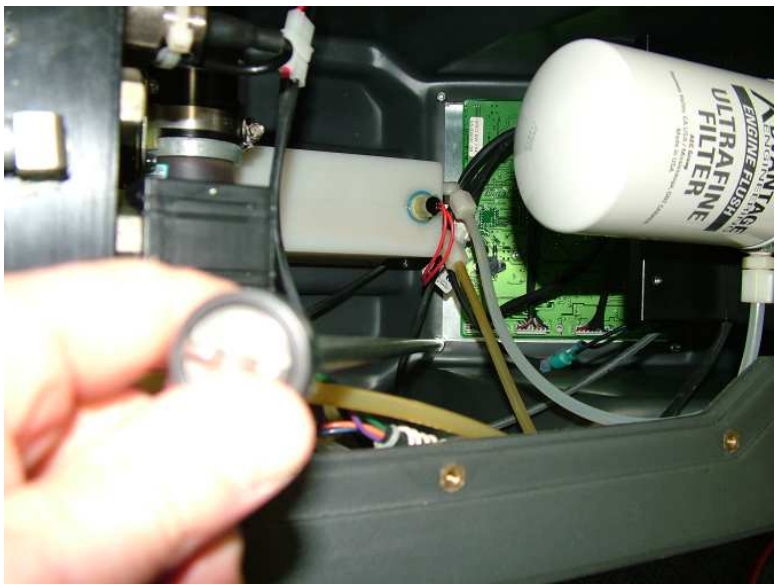


CHAPTER 4

SERVICE PROCEDURES

REPLACING PROCESSOR CHIP

3. Remove the 4 nyloc nuts securing the front control board assembly using long extension with 3/8” Socket.



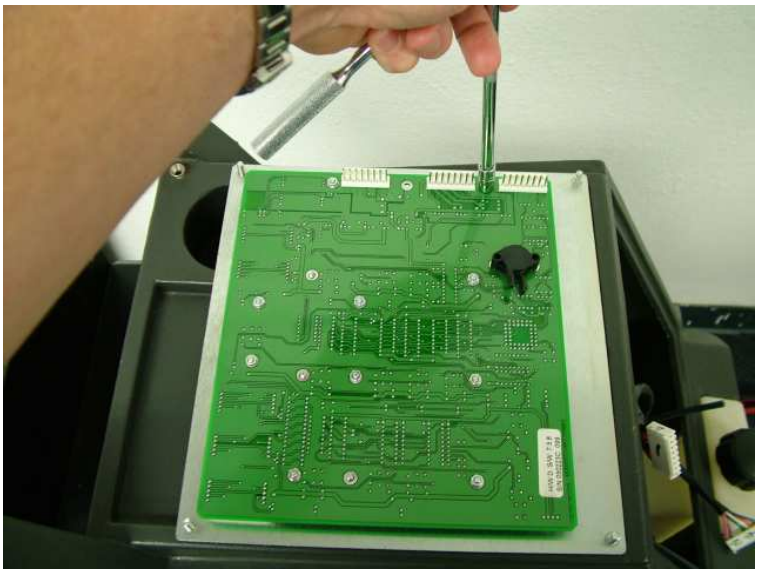
4. Disconnect wire connectors from board, if not marked J1, J2, J3 please mark before removal.

CHAPTER 4

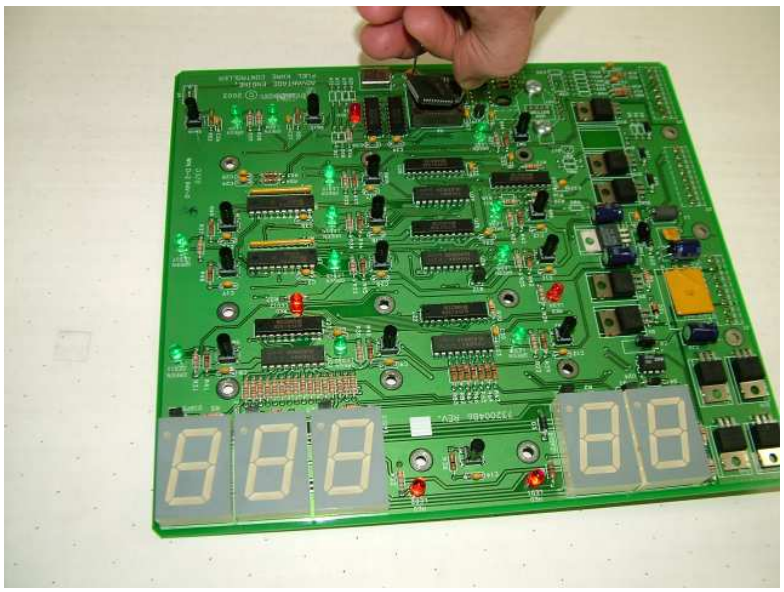
SERVICE PROCEDURES

REPLACING PROCESSOR CHIP

5. Place board assembly on top of unit and remove screws or nuts to separate circuit board from display panel



6. Remove processor chip from board using chip puller or tool that came with new chip.

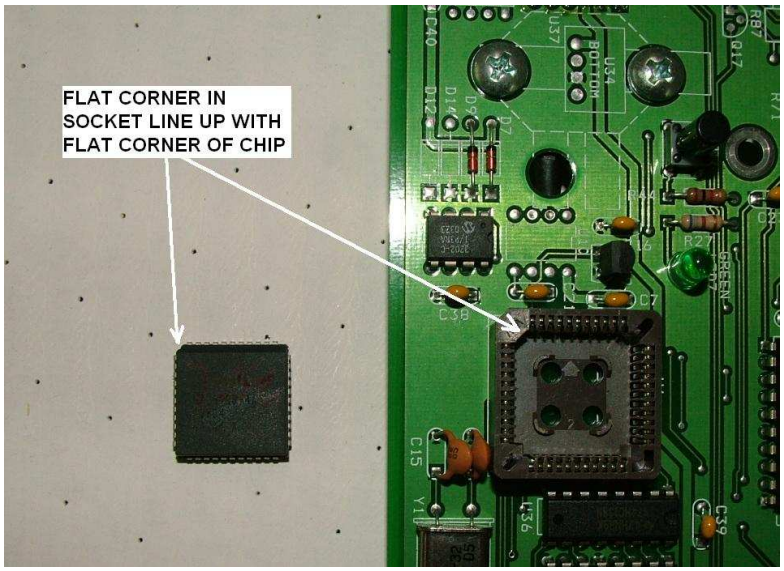


CHAPTER 4

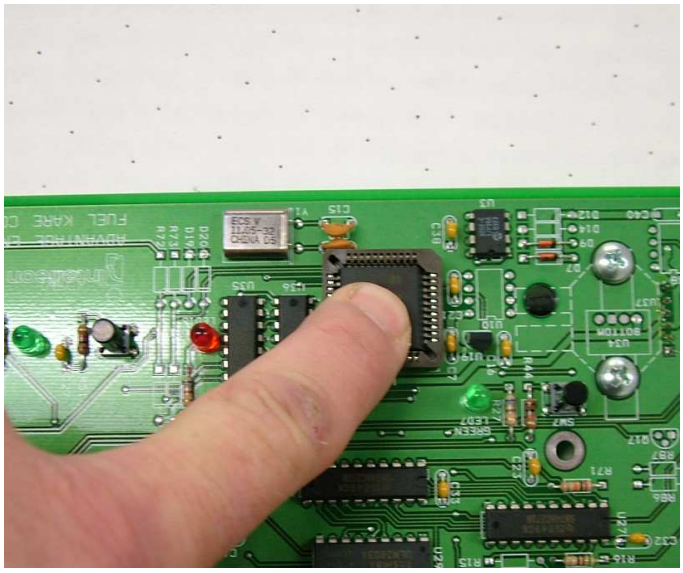
SERVICE PROCEDURES

REPLACING PROCESSOR CHIP

7. **Pay close attention:** Find the flat corner of the new processor chip and flat corner of socket.



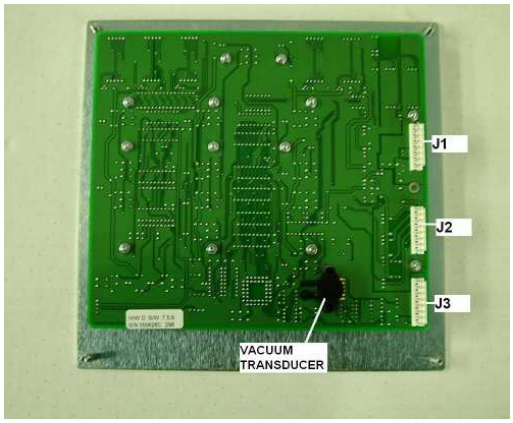
8. Insert new processor chip into socket.



9. Reassemble board to display panel, connect wires to board and test before closing up machine

CHAPTER 1

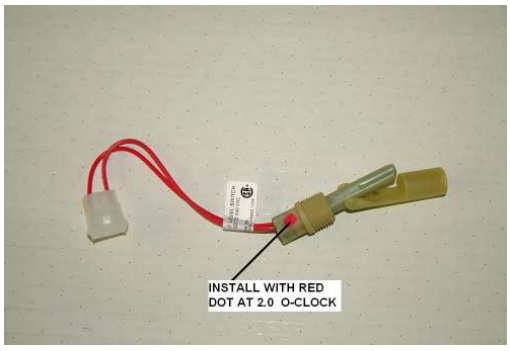
COMPONENT DESCRIPTION:



3030-01-01-0 DISPLAY PANEL W/CIRCUIT BOARD ASSEMBLY

This assembly consists of 2 components.

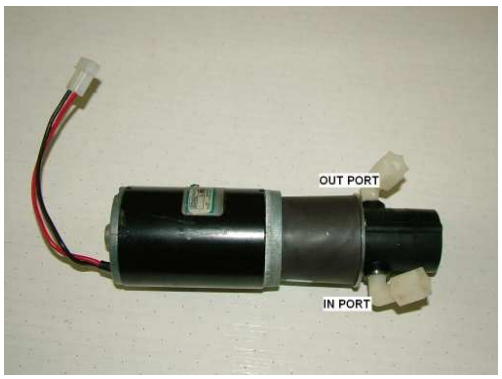
1) 5135-00-01-2 Display mounting panel w/overlay assy
2) 3030-01-00-0 Circuit board receives 12 vdc through wire loom J1 upper 4 pins and powers pump through J1 lower 4 pins. J2 wire loom channels output signals to solenoids and audio signal. J3 wire loom receives input signals from pressure transducer and max level switch.



3113-58-50-8 LEVEL SENSOR ½"NPTM X 6"LEADS

Normally open reed switch with magnetic float that closes the switch in presence of fluid, located near the top of the tank and used to prevent tank overfill.

Note: Install with red dot at 2 o-clock.

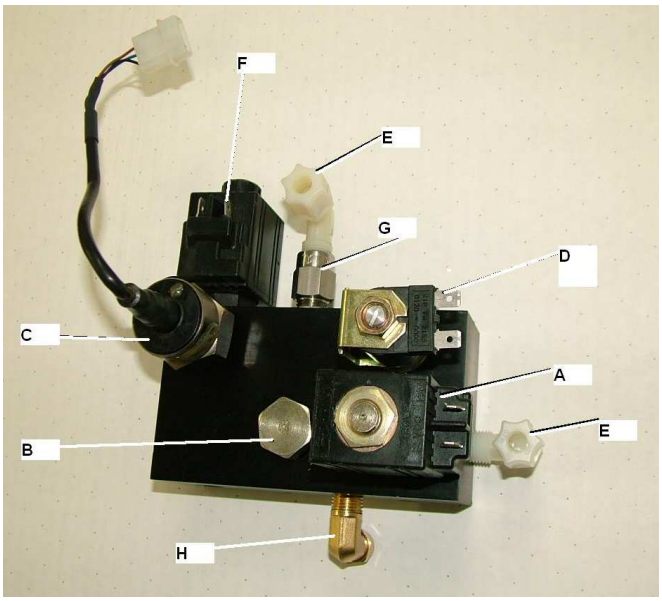


2246-22-11-0 PUMP ASSEMBLY(FUELKARE-1 / 1.5)

12 vdc gear pump with +/- 1 gpm flow rate
175 psi max pressure (magnetic clutch)

CHAPTER 1

COMPONENT DESCRIPTION:



2141-98-13-4 MANIFOLD BLOCK ASSEMBLY (FUELKARE-1.5) BLACK

A) 2136-30-20-3 RETURN VALVE, Normally closed cartridge valve, open during 2 line service, leakdown test and to fill tank.
B) 2140-00-20-1 INTERNAL CHECK VALVE open during diagnostic mode to return fuel to vehicle gas tank.
C) 3109-54-31-2 PRESSURE TRANSDUCER, Measures and monitors pressure 0 – 175 psi.
D) 2136-10-20-3 BY-PASS VALVE, 1/32 orifice opens during purge and to perform 1 line service.
E) 2354-21-10-6 FITTING ¼”MPT X 90 X 5/16” TUBE
F) 2135-30-20-3 PRESSURE VALVE, Normally open cartridge valve closes to perform dead head test.
G) 2140-39-20-1 EXTERNAL CHECK VALVE, Prevents fuel to return to pump.
H) 2354-31-14-1 FITTING, POLY ¼”MPT X 90 X 3/8” HOSE

CHAPTER 1

COMPONENT DESCRIPTION:

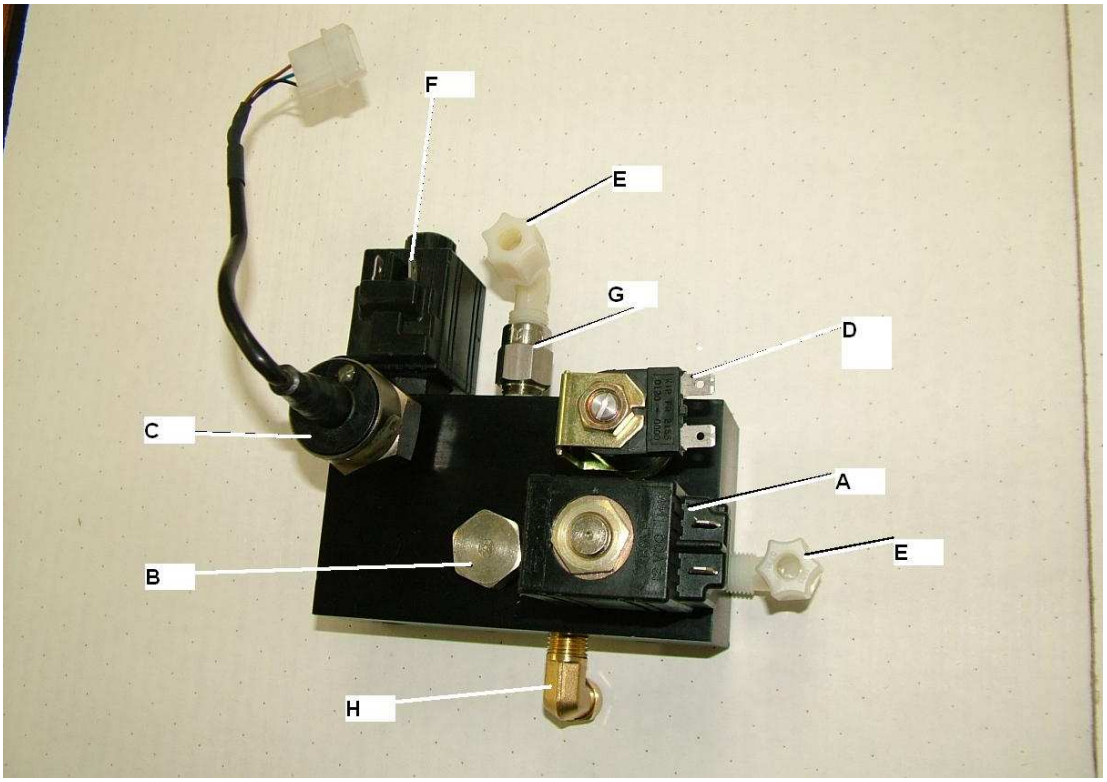
FILTRATION

A) EEFS308A5 3 Micron spin-on filter kit (2 pieces)
This filters all fluid returning from vehicle

B) 0600-01-00-0 Inline fuel filter 3/8”barb x 3/8”barb
This filters all fluid leaving the fuelkares tank.

CHAPTER 2

PARTS & COMPONENTS



MANIFOLD BLOCK ASSEMBLY
FUELKARE-1.5
2141-98-13-4

No.	PARTNUMBER	DESCRIPTION	QTY
A	2136-30-20-3	RETURN VALVE ASSY (FUELKARE ALL)	1
B	2140-00-20-1	CHECK VALVE INTERNAL 5 PSI (FUELKARE-1)S/S	1
C	3109-54-31-2	PRESSURE DRANSDUCER ¼”MPT ASSEMBLY	1
D	2136-10-20-3	BY-PASS VALVE 1/32” ORIFICE (FUELKARE-1)	1
E	2354-21-10-6	FITTING ¼”MPT X 90 X 5/16” HOSE (NYLON)	2
F	2135-30-20-3	PRESSURE VALVE ASSY (FUELKARE ALL)	1
G	2140-39-20-1	CHECK VALVE EXTERNAL ¼”MPT X ¼”FPT(S/S)VITON	1
H	2354-31-14-1	FITTING POLY ¼”MPT X 90 X 3/8” HOSE	1

CHAPTER 2

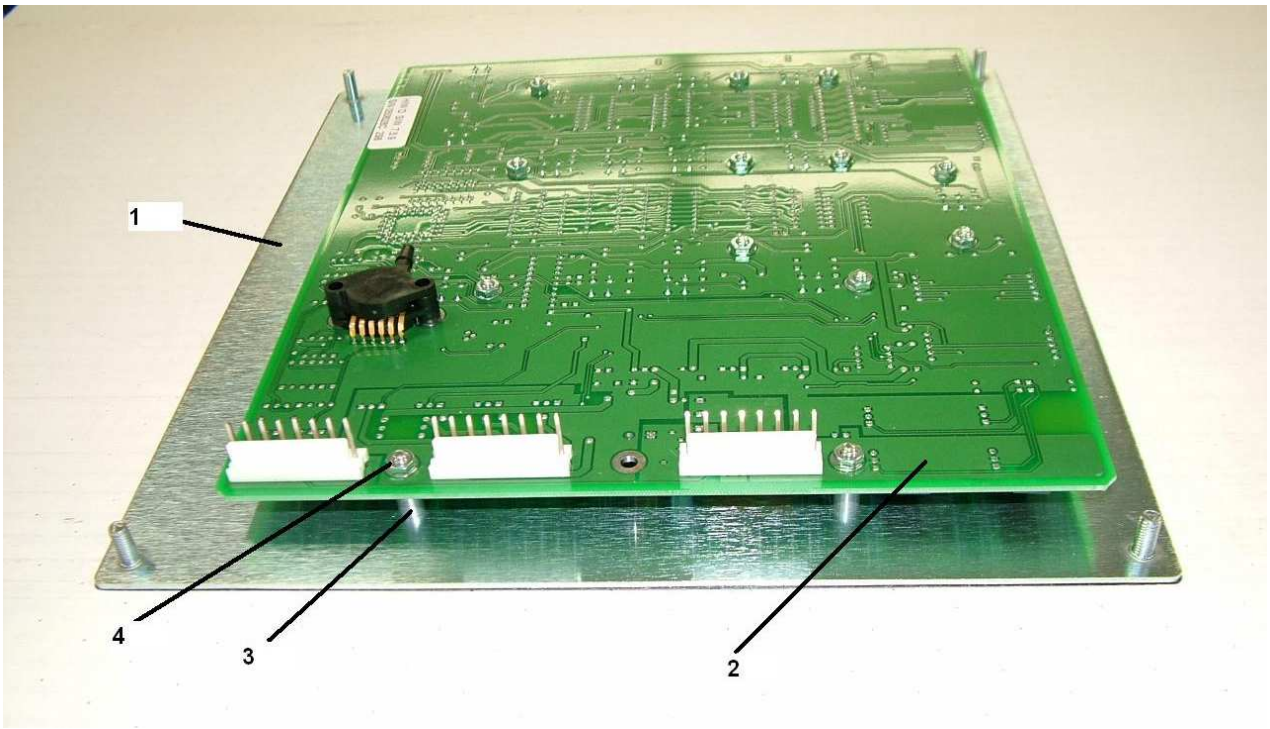
PARTS & COMPONENTS

PUMP ASSEMBLY
FUELKARE SERIES 1 AND 1.5
2246-22-11-0

No.	PART NUMBER	DESCRIPTION	QTY.	
1	2247-22-10-0	PUMP, EXTERNAL GEAR 1/8”FPT X 12VDC(FUEL)	1	
2	2352-21-10-6	FITTING, 1/8”MPT X 90 X 5/16”HOSE(NYLON)	2	

CHAPTER 2

PARTS & COMPONENTS

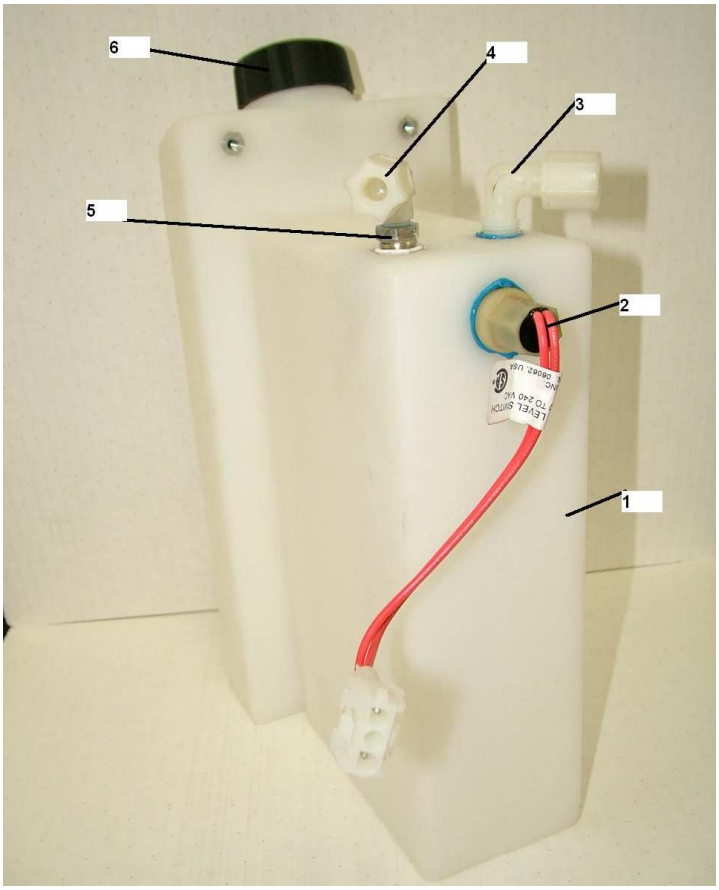


DISPLAY PANEL W/CIRCUIT BOARD ASSEMBLY 3030-01-01-0

No.	PART NUMBER	DESCRIPTION	QTY
1	5135-00-01-2	DISPLAY MOUNTING PANEL W/OVERLAY(FUELKARE)	1
2	3030-01-00-0	CIRCUIT BOARD (FUELKARE)	1
3	1614-12-46-4	STAND-OFF .250”OD X .172”ID X .461”LONG(ALUMINUM)	13
4	1011-99-00-8	NUT 6-32 HEX (ZINC)	13

CHAPTER 2

PARTS & COMPONENTS



TANK, 1 GALLON ASSEMBLY (FUELKARE-1 & 1.5) 2262-44-11-1

No.	PART NUMBER	DESCRIPTION	QTY
1	2262-44-10-1	TANK 1 GALLON (FUELKARE)	1
2	3113-58-50-5	SENSOR LEVEL ½”MPT X 6” LEADS	1
3	2354-21-10-6	FITTING, ¼”MPT X 90 X 5/16”HOSE (NYLON)	1
4	2352-21-10-6	FITTING, 1/8”MPT X 90 X 5/16”HOSE (NYLON)	1
5	2293-00-90-1	TANK TUBE .38” X 9.700” LONG (S/S)	1
6	2291-78-11-4	CAP 1 ¾”ID TANK FUEL	1

CHAPTER 2

PARTS & COMPONENTS

ALPHABETICAL PART LIST

PART NUMBER	DESCRIPTION
3160-68-12-1	AUDIO SIGNAL, 3-28VDC
5120-11-00-2	AXLE (FUELKARE ALL)
3030-00-00-0	CHIP, VER:7.58(FUELKARE-1)
3030-01-00-0	CIRCUIT BOARD (FUELKARE ALL)
3075-12-22-7	CORD/CLAMP ASSEMBLY 12VDC X 12' (RED/BLACK)
1615-03-16-8	COTTERPIN, 1/8"OD X 1 1/4" LONG
3030-01-01-0	DISPLAY & BOARD ASSEMBLY (FUELKARE ALL)
2354-20-10-6	FITTING, 1/4"MPT X 90 X 5/16"HOSE (NYLON)
2352-21-10-6	FITTING, 1/8"MPT X 90 X 5/16"HOSE (NYLON)
0901-54-90-2	HOSE, 1/4"MPT X 90 X 10' PRESSURE ASSEMBLY(RED)HYTRON
0901-54-90-1	HOSE, 1/4"MPT X 90 X 10' RETURN ASSEMBLY(BLACK)HYTRON
0904-53-10-1	HOSE, 10' VACUUM(BLACK) RUBBER
2227-36-32-3	HOUSING, FILTER ASSEMBLY (FUELKARE-1 , 1.5)
3142-10-03-1	INPUT HARNESS "J3" (FUELKARE ALL)
3113-58-50-5	LEVEL SENSOR 1/2"MPT X 6"LEADS
1029-95-00-8	NUT, 1/4"-20 NYLOC HEX (ZINC)
3142-10-02-1	OUTPUT HARNESS "J2" (FUELKARE ALL)
3142-10-01-1	POWER HARNESS "J1"(FUELKARE ALL)
3109-54-31-2	PRESSURE TRANSDUCER 1/4"MPT ASSEMBLY (NICKEL)
2246-22-11-0	PUMP ASSEMBLY (FUELKARE-1 , 1.5) 12VDC
2023-12-10-2	QUICK DISC, BODY S/23 X 1/4"FPT(VITON)NICKEL
2023-13-10-2	QUICK DISC, BODY S/23 X 1/4"MPT(VITON)NICKEL
1029-04-58-3	SCREW, 1/4"-20 X 3/8" BHCS ALLEN (BLACK)
1017-10-56-8	SCREW, 10-32 X 3/8" PANHEAD PHILLIPS
2291-78-11-4	TANK, CAP, 1 3/4"ID (FUELKARE ALL)
2262-44-11-1	TANK, FUEL 1 GALLON ASSEMBLY (FUELKARE-1 , 1.5)
2122-39-40-8	VALVE, BALL 1/4"MPT X 1/4"FPT WITH T-HANDLE (NICKEL)
2136-10-20-3	VALVE, BY-PASS 1/32"ORIFICE (FUELKARE-1, 1.5)
2144-94-10-0	VALVE, COIL 12VDC/14WATT FITS PARKER 08 SERIES
2135-30-20-3	VALVE, PRESSURE ASSEMBLY(FUELKARE ALL)VITON
2136-30-20-3	VALVE, RETURN ASSEMBLY (FUELKARE ALL)VITON
1631-09-61-2	WHEEL, 9"OD X 3/4"WD X 1/2"BORE
1635-44-40-4	WHEEL, CASTER 4"OD X 1 1/4"WD WITH BRAKE

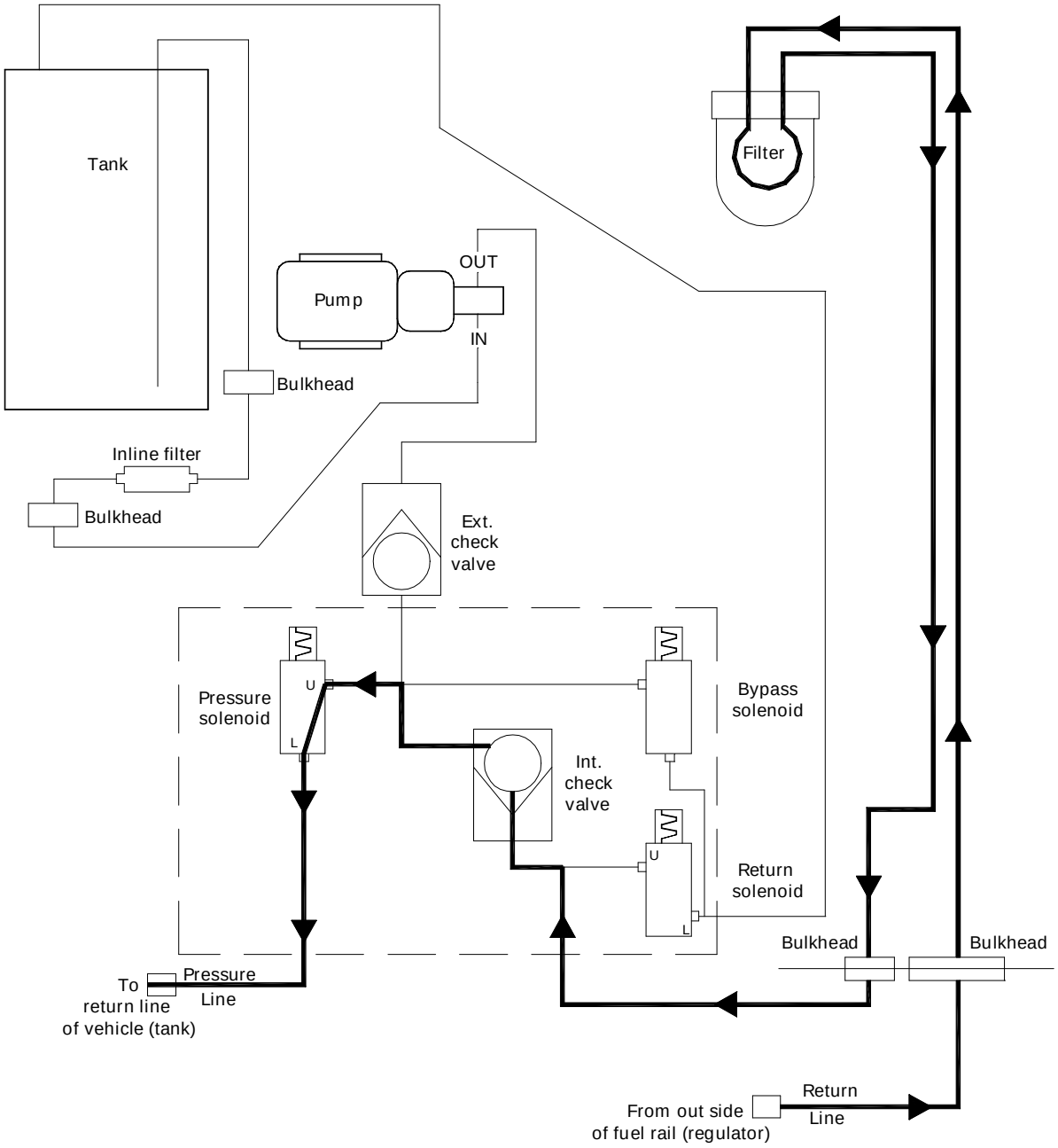
CHAPTER 2

PARTS & COMPONENTS

NUMERICAL PART LIST

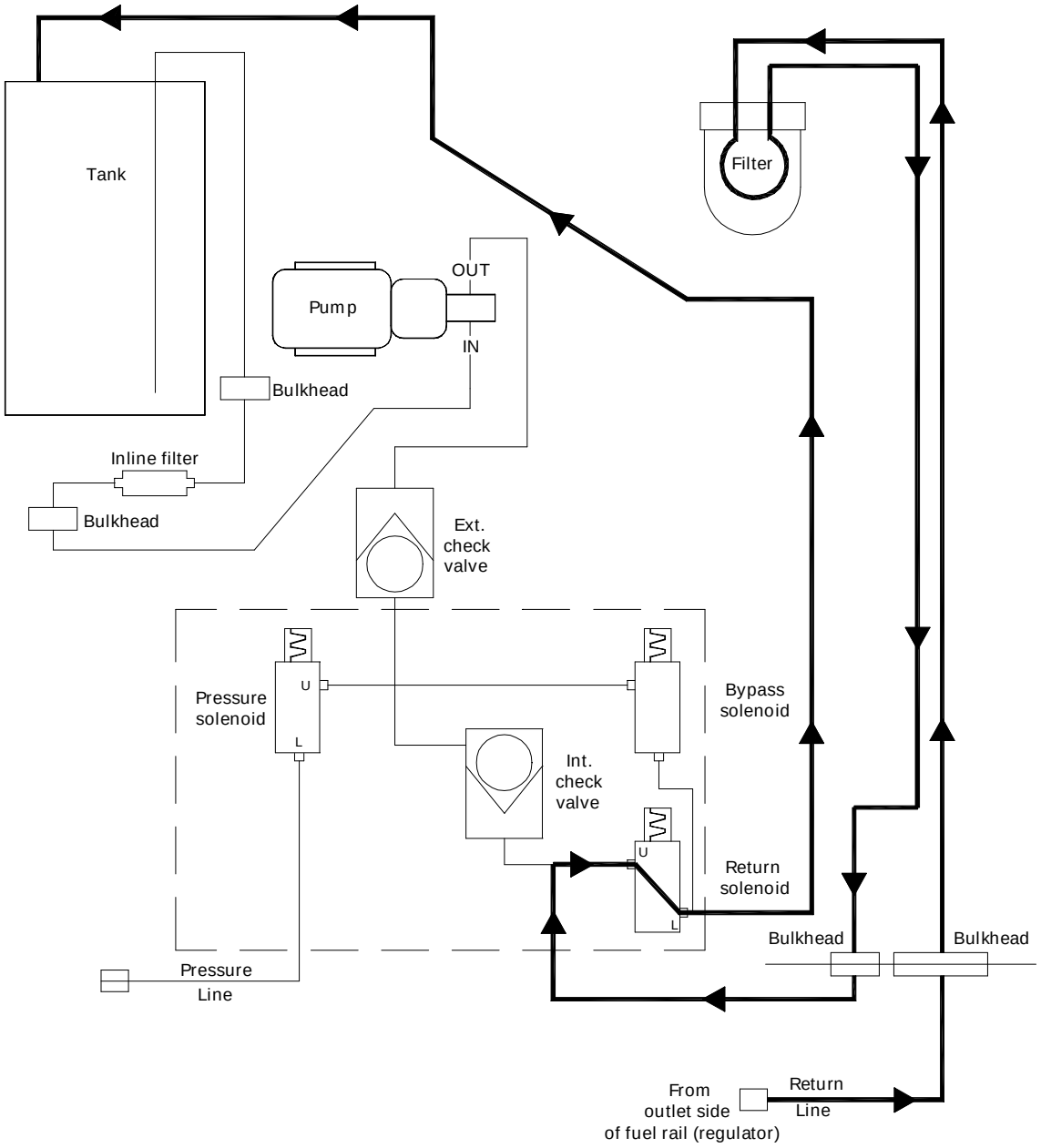
PART NUMBER	DESCRIPTION
0901-54-90-1	HOSE, 1/4"MPT X 90 X 10' RETURN ASSEMBLY(BLACK)HYTRON
0901-54-90-2	HOSE, 1/4"MPT X 90 X 10' PRESSURE ASSEMBLY(RED)HYTRON
0904-53-10-1	HOSE, 10' VACUUM(BLACK) RUBBER
1017-10-56-8	SCREW, 10-32 X 3/8" PANHEAD PHILLIPS
1029-04-58-3	SCREW, 1/4"-20 X 3/8" BHCS ALLEN (BLACK)
1029-95-00-8	NUT, 1/4"-20 NYLOC HEX (ZINC)
1615-03-16-8	COTTERPIN, 1/8"OD X 1 1/4" LONG
1631-09-61-2	WHEEL, 9"OD X 3/4"WD X 1/2"BORE
1635-44-40-4	WHEEL, CASTER 4"OD X 1 1/4"WD WITH BRAKE
2023-12-10-2	QUICK DISC, BODY S/23 X 1/4"FPT(VITON)NICKEL
2023-13-10-2	QUICK DISC, BODY S/23 X 1/4"MPT(VITON)NICKEL
2122-39-40-8	VALVE, BALL 1/4"MPT X 1/4"FPT WITH T-HANDLE (NICKEL)
2135-30-20-3	VALVE, PRESSURE ASSEMBLY(FUELKARE ALL)VITON
2136-10-20-3	VALVE, BY-PASS 1/32"ORIFICE (FUELKARE-1, 1.5)
2136-30-20-3	VALVE, RETURN ASSEMBLY (FUELKARE ALL)VITON
2144-94-10-0	VALVE, COIL 12VDC/14WATT FITS PARKER 08 SERIES
2227-36-32-3	HOUSING, FILTER ASSEMBLY (FUELKARE-1 , 1.5)
2246-22-11-0	PUMP ASSEMBLY (FUELKARE-1 , 1.5) 12VDC
2262-44-11-1	TANK, FUEL 1 GALLON ASSEMBLY (FUELKARE-1 , 1.5)
2291-78-11-4	TANK, CAP, 1 3/4"ID (FUELKARE ALL)
2352-21-10-6	FITTING, 1/8"MPT X 90 X 5/16"HOSE (NYLON)
2354-20-10-6	FITTING, 1/4"MPT X 90 X 5/16"HOSE (NYLON)
3030-00-00-0	CHIP, VER:7.58(FUELKARE-1)
3030-01-00-0	CIRCUIT BOARD (FUELKARE ALL)
3030-01-01-0	DISPLAY & BOARD ASSEMBLY (FUELKARE ALL)
3075-12-22-7	CORD/CLAMP ASSEMBLY 12VDC X 12' (RED/BLACK)
3109-54-31-2	PRESSURE TRANSDUCER 1/4"MPT ASSEMBLY (NICKEL)
3113-58-50-5	LEVEL SENSOR 1/2"MPT X 6"LEADS
3142-10-01-1	POWER HARNESS "J1"(FUELKARE ALL)
3142-10-02-1	OUTPUT HARNESS "J2" (FUELKARE ALL)
3142-10-03-1	INPUT HARNESS "J3" (FUELKARE ALL)
3160-68-12-1	AUDIO SIGNAL, 3-28VDC
5120-11-00-2	AXLE (FUELKARE ALL)

FLOW DIAGRAM



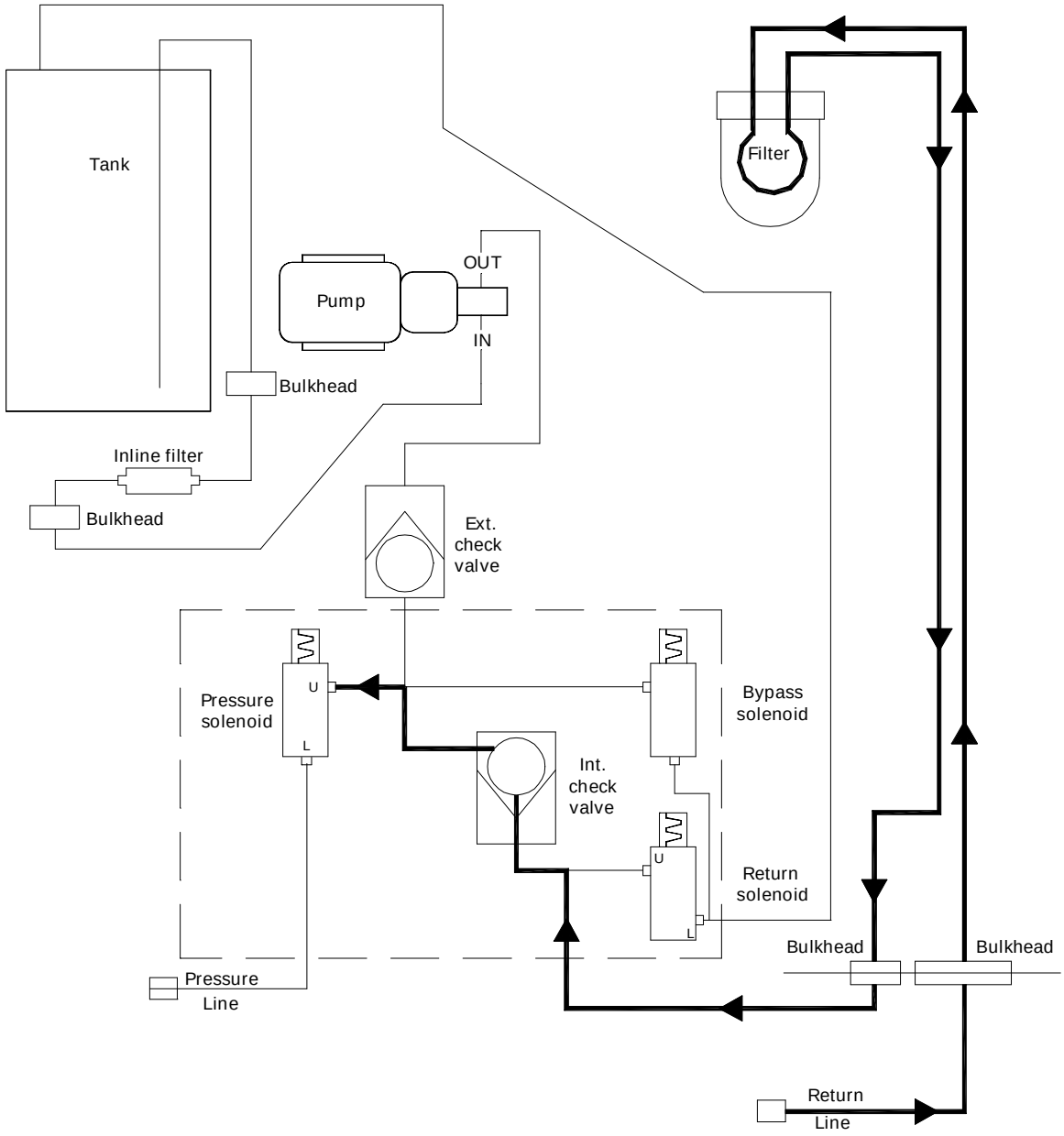
DIAGNOSTIC MODE
ENGINE RUNNING NO KEYS “PRESSED”

FLOW DIAGRAM



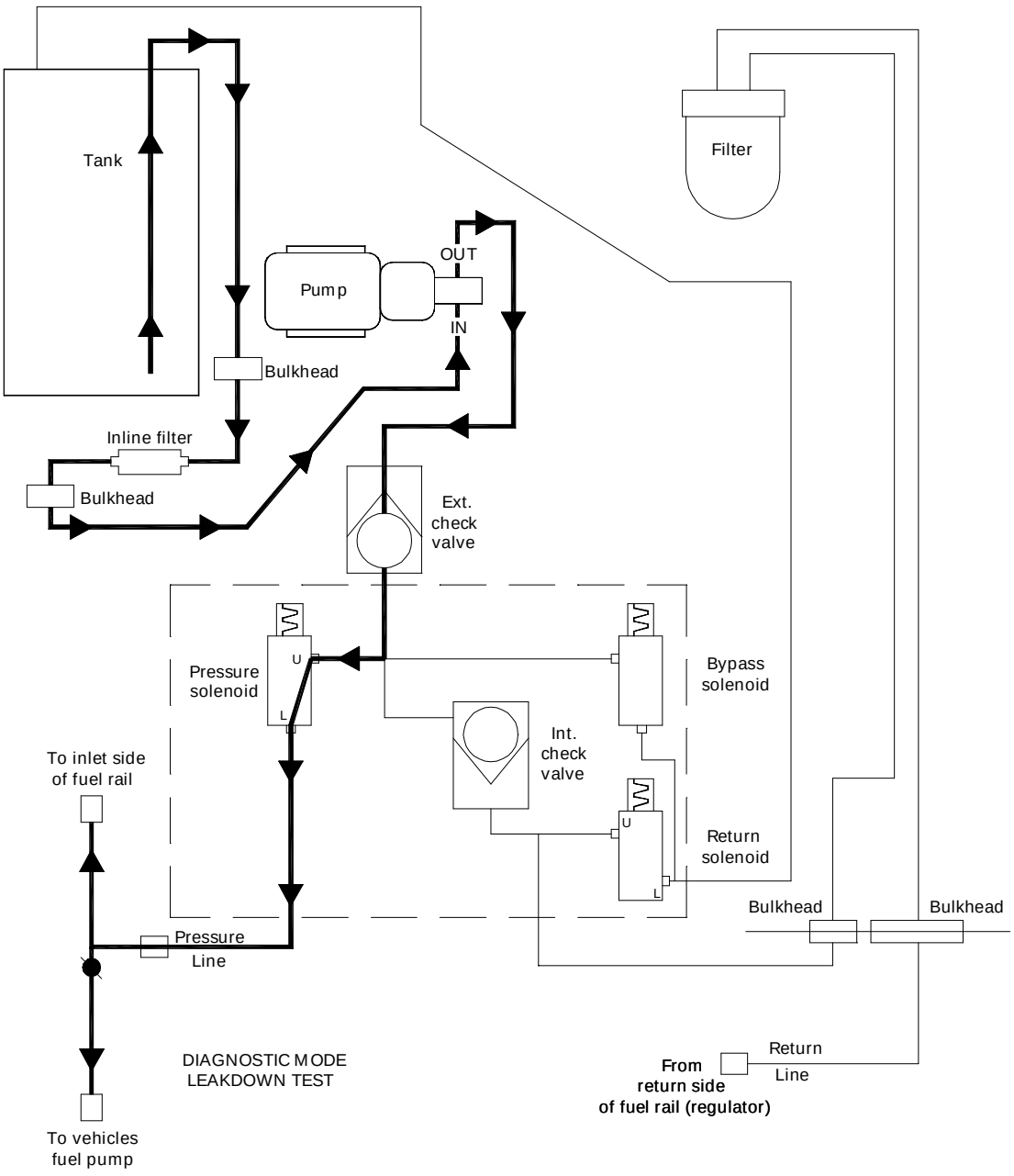
DIAGNOSTIC/FILL MODE
ENGINE RUNNING FILL TANK “PRESSED”

FLOW DIAGRAM



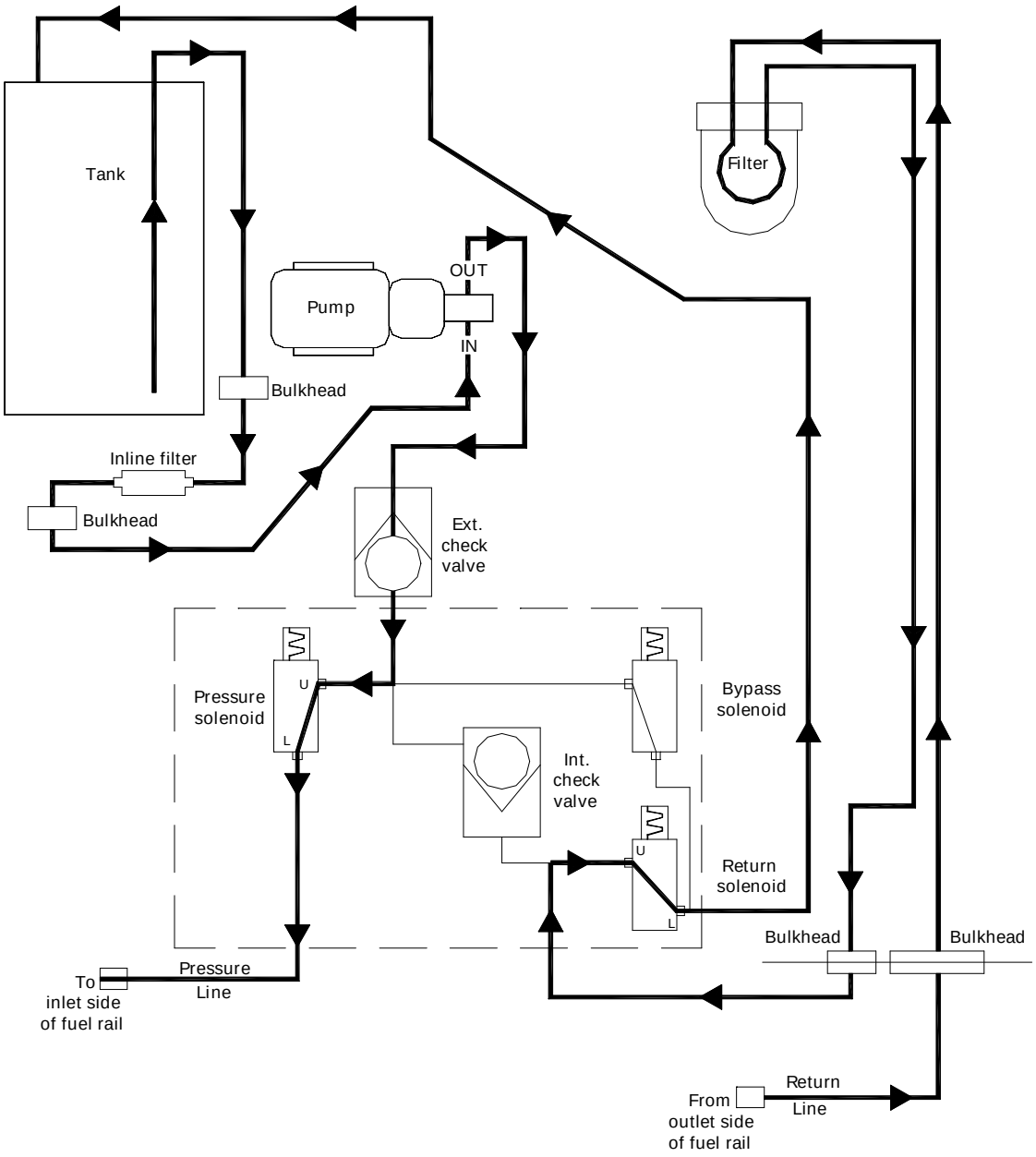
DIAGNOSTIC MODE
ENGINE RUNNING
DEADHEAD KEY “PRESSED”

FLOW DIAGRAM



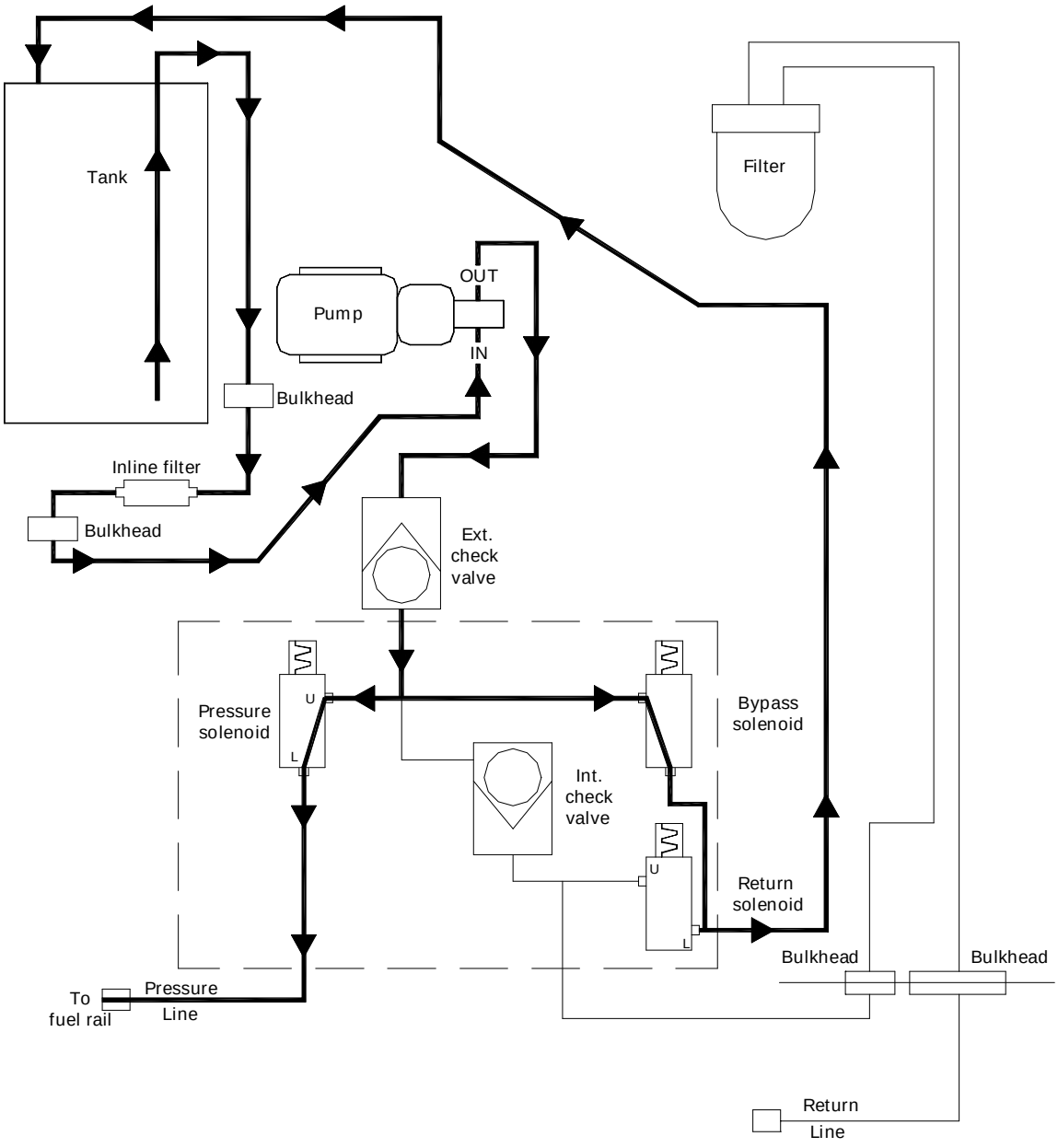
DIAGNOSTIC MODE
LEAKDOWN TEST

FLOW DIAGRAM



2 LINE SERVICE

FLOW DIAGRAM



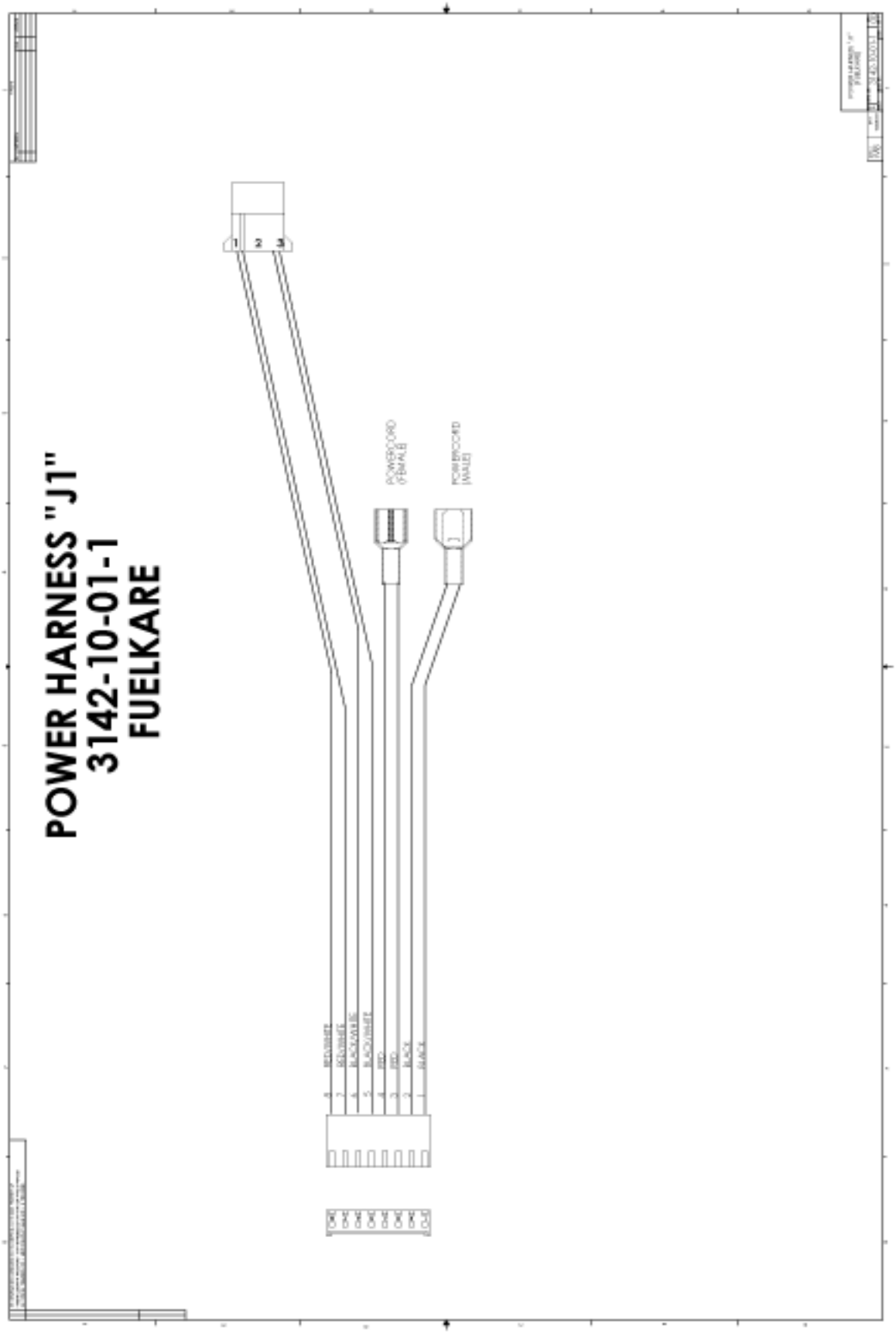
1 LINE SERVICE

CHAPTER 2

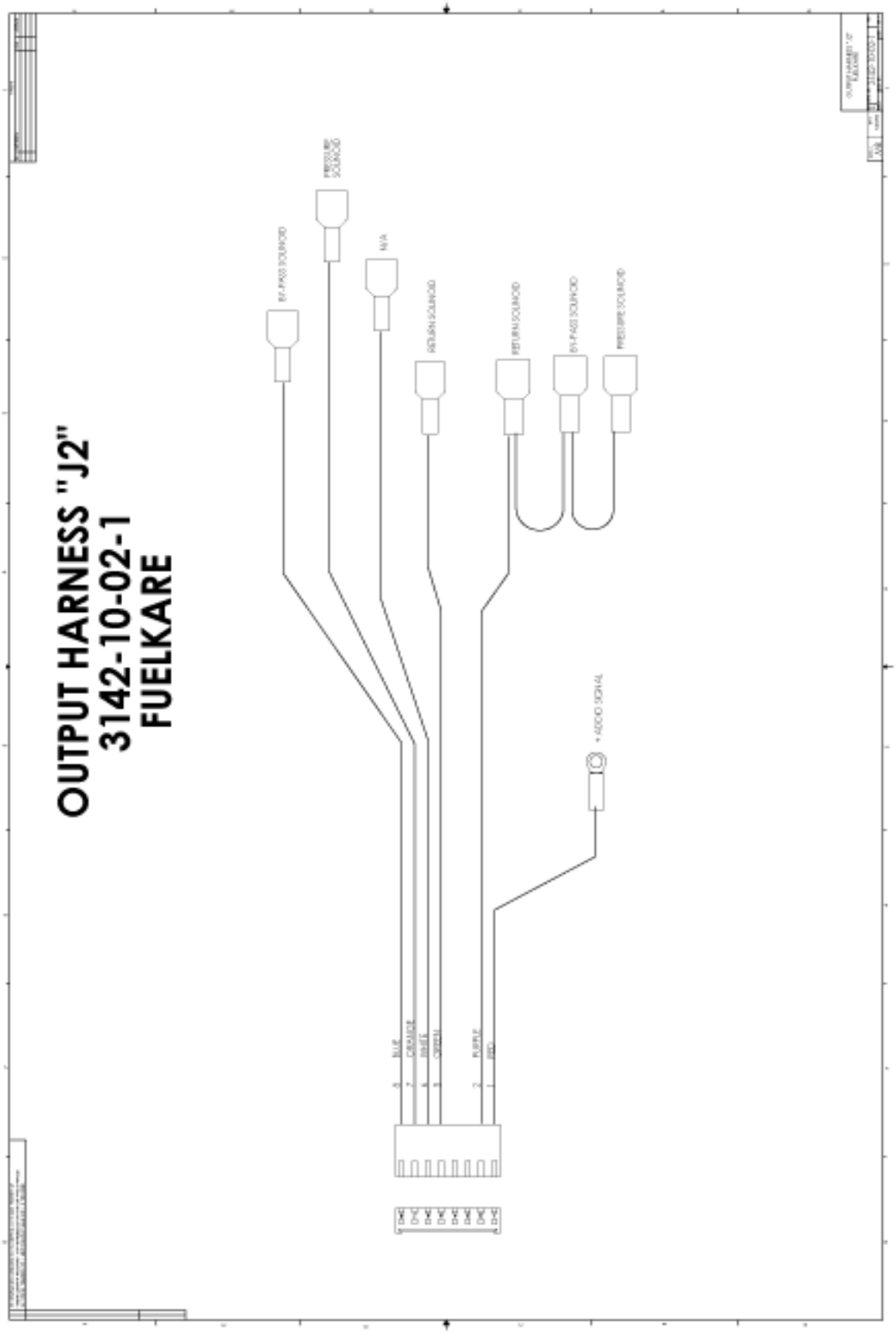
COMPONENT POWER CHART

	RETURN SOLENOID	PRESSURE SOLENOID	BY-PASS SOLENOID	PUMP
FILL TANK FLOW RATE CHECK	**ON**	**OFF**	**OFF**	**OFF**
DEADHEAD PRESSURE CHECK	**OFF**	**ON**	**OFF**	**OFF**
LEAKDOWN PURGE	**OFF**	**OFF**	**ON**	**ON**
LEAKDOWN TEST	**ON**	**OFF**	**OFF**	**ON**
2 LINE SERVICE	**ON**	**OFF**	**OFF**	**ON**
1 LINE SERVICE	**OFF**	**OFF**	**ON**	**ON**

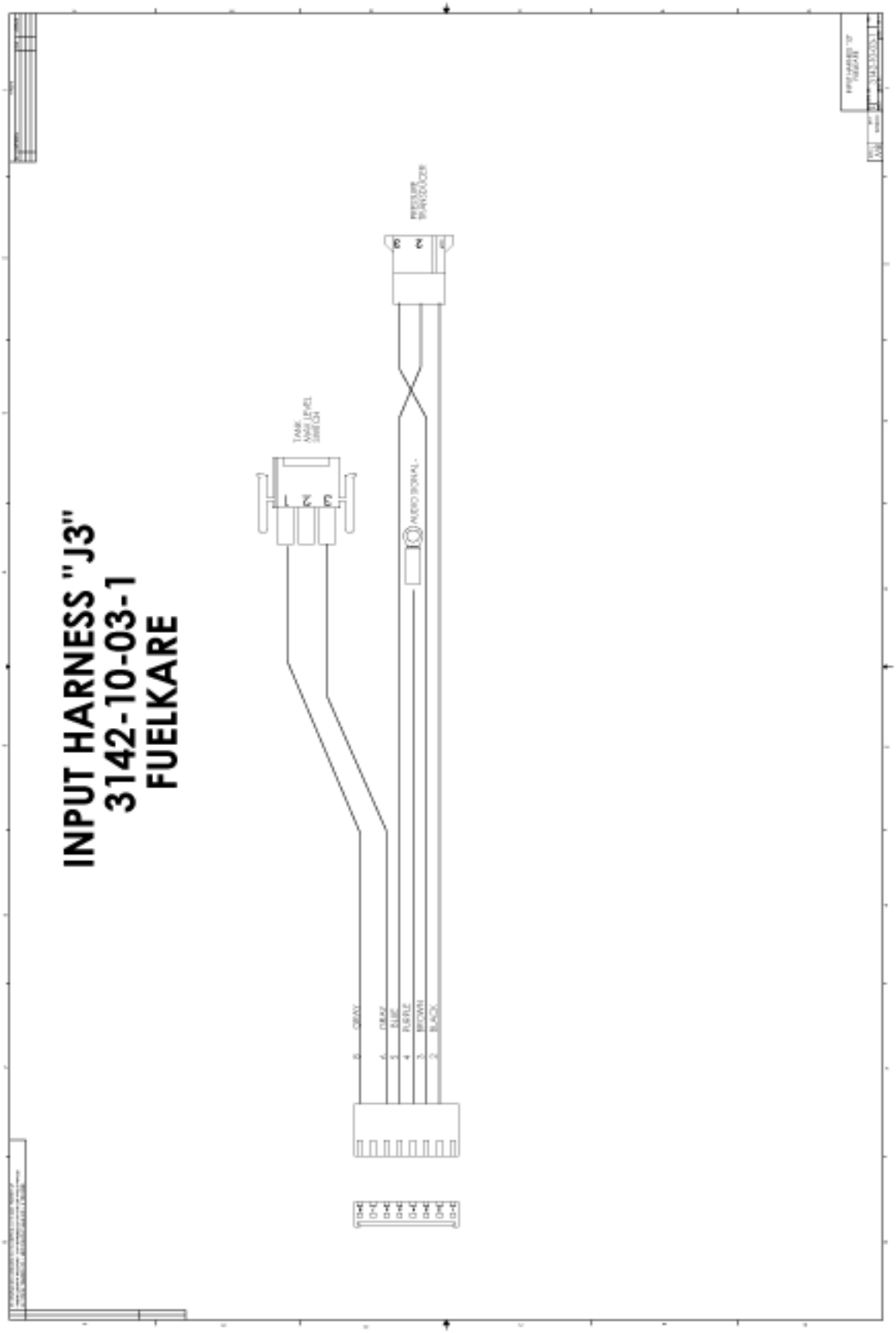
WIRE DIAGRAMS



WIRE DIAGRAMS



WIRE DIAGRAMS



CHAPTER 3

THROUBLE SHOOTING

UNIT WILL NOT POWER UP

1. Verify that power leads are securely connected to a 12VDC power source(car battery)
2. Verify proper connection. Black lead to ground and red lead to positive. Make sure connections are clean.
3. Check for battery power at 'J1' connector pins 1, 2 and 3, 4 red and black wires.
   -If no battery power is detected at 'J1' connector, check internal connection between power cord and 'J1' wire loom, repair or replace as needed.

FAILS TO CALIBRATE AFTER POWER-UP

1. If Fuelkare black and red hoses where connected before power-up, remove hoses from fuel system and connect 2 open end adapters to red and black hose.
   - If still no calibration, using shop air apply short bursts of pressure to red hose this should reset transducer.
   - If still no calibration check connection to 'J3' wire loom
   - If connection is correct, replace pressure transducer.

DOES NOT FILL TANK

1. First time use will take up to 60 seconds (on a properly functioning vehicle's fuel supply system) to prime filter and lines.
2. Verify that hoses and adapters are properly connected to vehicle fuel system.
3. If properly connected to fuel system check return solenoid assembly for 12vdc.
   -If 12VDC is not present, check 'J2' wire loom repair or replace as needed.
   -If 12VDC is present remove return solenoid assembly and apply power to see if plunger retracts.
   -If not push center of plunger several times with Phillips screw driver and clean with compressed air, re-power solenoid assembly and check plunger movement.
   -If plunger moves freely, reinstall and repeat fill tank mode.
   -If plunger does not move freely replace solenoid assembly.

CHAPTER 3

THROUBLE SHOOTING

LOOSES PRESSURE DURING LEAKDOWN MODE

1. Remove Fuelkare red and black hoses from vehicle and press leak down test key, pressure should ramp up to +/- 100 p.s.i. once archieved, the pressure displayed will alternately show baseline and current pressure. Normal acceptable decay is 10% @ 100. psi over 1 minute. If holding pressure problem with vehicle.
   - If not holding pressure, perform the following.
2. Press and release the STOP key to relieve pressure.
3. Install open end adapters to red hose.
4. Remove fuelkare tank cap and insert red hose with adapter in new fluid tank.
5. Remove spin-on filter
6. Using shop air and an appropriate blow gun, blow air into center port of spin-on filter housing until red hose is empty.
7. Using shop air, apply short bursts of pressure to red hose to reseat internal check valve.
8. Remove adapter from red hose and reinstall spin-on filter.
9. Loop black and red hoses using male loop p/n:6016-02-01-1; press and release leak down key to restore cleaning solution to the now cleared pathway through the machine and hoses. When pump stops remove loop from black and red hoses.
10. Re test leak down mode
    -If not holding pressure,
11. Remove rear panel
12. Press leak down key, monitor clear tube between manifold and pump and monitor clear tube between manifold and tank for fluid flow
    -If fluid flows from manifold to pump
13 Unscrew white nylon nut from clear tube on output side of pump
14. Install adapter on red hose and insert hose in new fluid tank
15. Using shop air blow into clear tube until red hose is empty.
16. Take red hose with adapter and apply short bursts of air to reseat external check valve
17. Reattach clear tube to pump and press leak down fluid will circulate through red hose repeat if needed to remove air from system.
18. Remove adapter from red hose.
19. Retest leak down mode
    -If fluid flows from manifold to tank
20. Remove internal check valve, inspect for debris and condition of O-rings
    or replace if needed.

CHAPTER 3

THROUBLE SHOOTING

LOW PRESSURE DURING SERVICE MODE

1. Check inline filter replacement history (+/- 50 services per filter).
2. Remove hoses from vehicle.
3. Install open end adapters to red hose.
4. Insert red hose to new fluid tank.
5. Repower Fuelkare.
6. Once diagnostic / fill cycle led is flashing Press and hold + and – keys until 2 line and 1 line service led start flashing.
7. Press 2 line key
8. Press start soak key and monitor flow through red hose
9. If flow is low or stops with pump still running replace inline filter.

NOTE: Whene replacing inline filter it is recommended to clean line from filter to tank. Remove cap from tank and apply shop air to line, check tank for debris and clean if needed.

HIGH PRESSURE DURING SERVICE

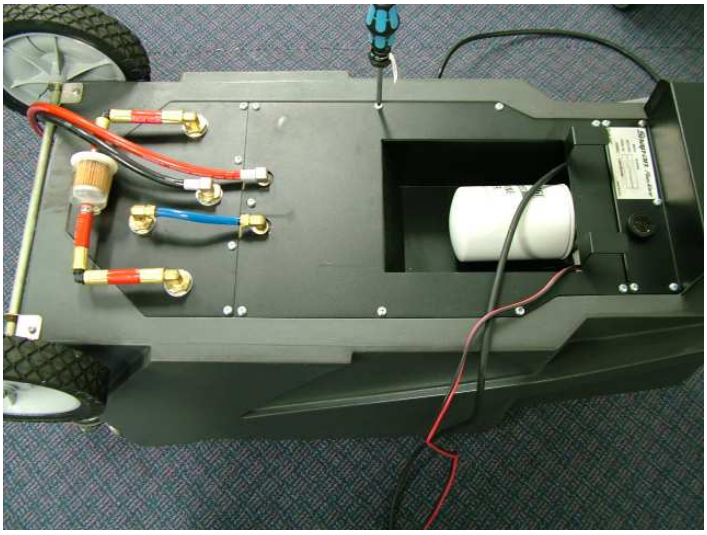
1. Check for kinked hoses.
2. Check if red hose is properly connected to adapter.
3. Change ultra fine spin-on filter.
4. Resume service.

CHAPTER 4

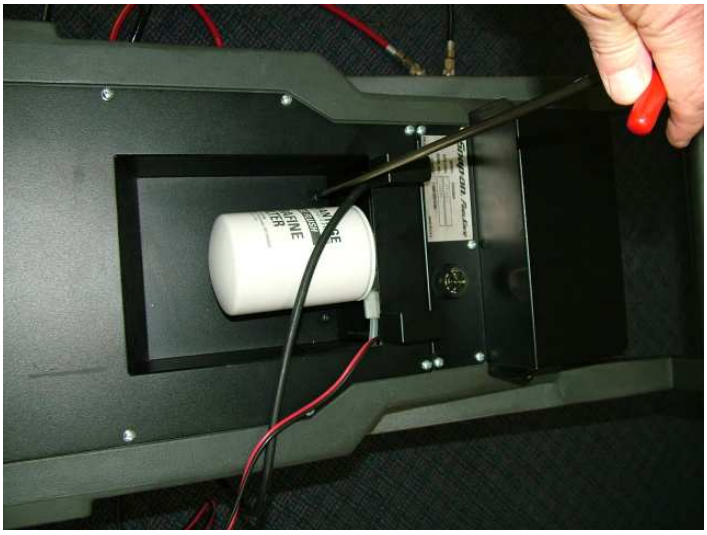
SERVICE PROCEDURES

REPLACING INTERNAL CHECK VALVE

1. Remove the Phillips Head pan screws from the **center** back panel;



2. Remove the two (2) 5/32" Allen Head screws in filter cavity; a 4mm Allen Socket will also fit these 2 screw heads

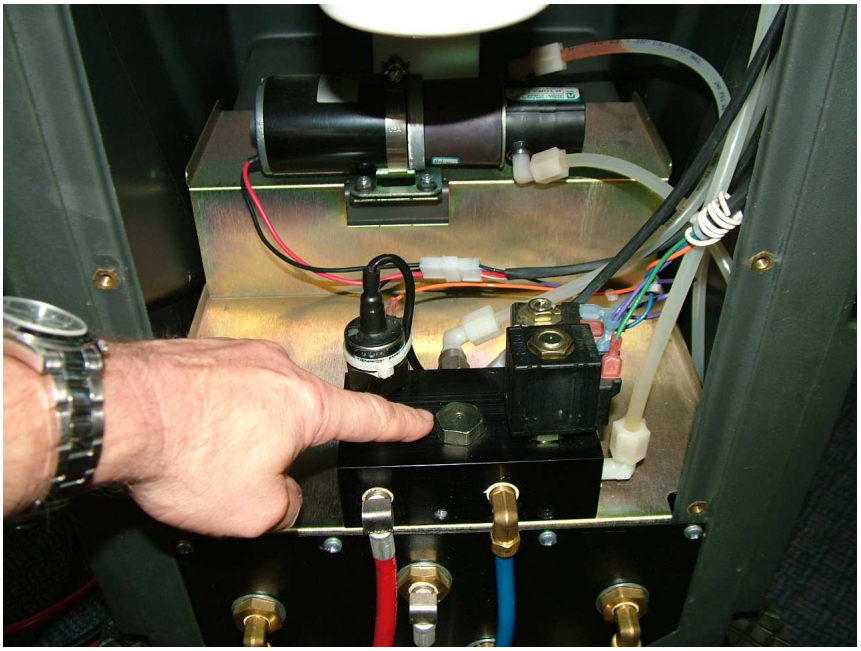


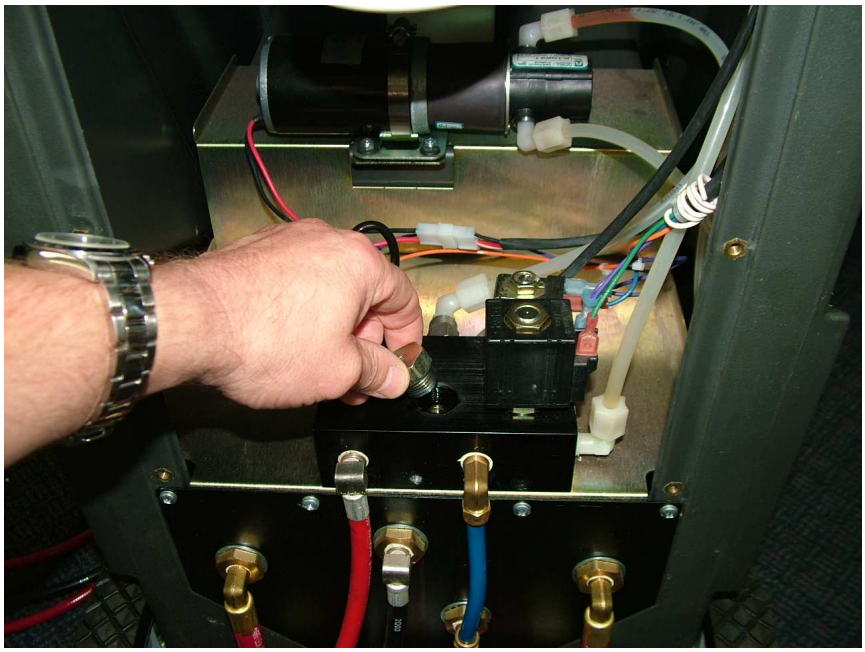
3. Remove the nickel plated hex head bolt threaded into the top of the black anodized Manifold Block (7/8" across the flats);

CHAPTER 4

SERVICE PROCEDURES

REPLACING INTERNAL CHECK VALVE

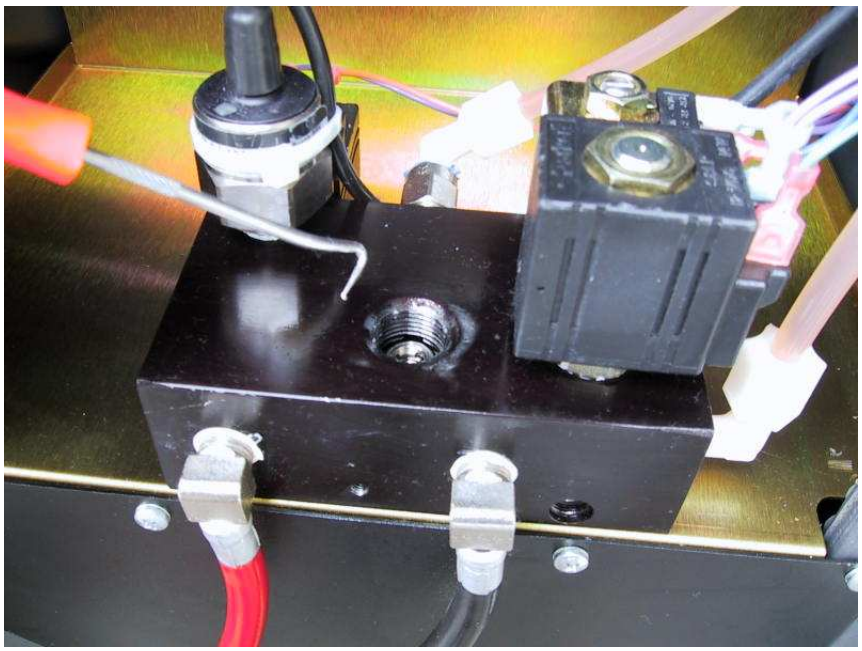


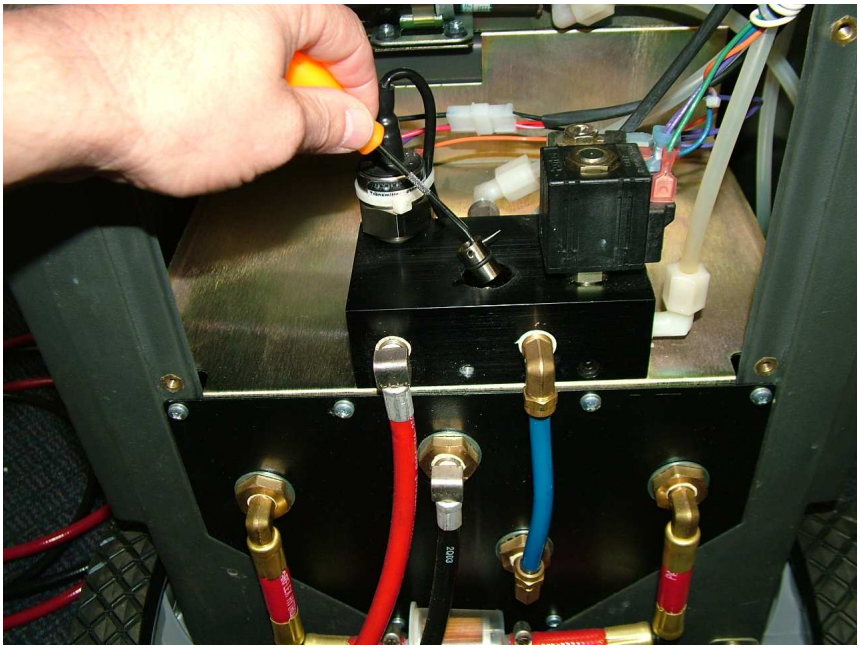


CHAPTER 4

REPLACING INTERNAL CHECK VALVE

4. Take a pick tool and work the check valve from the manifold block (it is held in with an "O-ring" interference fit) by inserting the tip of the tool, alternately, in the offsetting holes in the top of the check valve.





CHAPTER 4

SERVICE PROCEDURES

REPLACING INTERNAL CHECK VALVE

Insure there are no contaminants in the manifold block; insert the new check valve in the manifold block. The correct orientation is with the "holes up" as described in the removal process. Firmly seat to bottom of block and replace the retainer bolt.

This process takes maybe ten minutes and can also be tested by powering up the unit; hooking the red and black hoses together with the 6016-02-01-1 extension (double male) adapter;

Press **+** and **-** buttons simultaneously (Version 7.56 software only) for three seconds to bypass diagnostics;

Press "**Two Line**" button; press "Start Soak" button and watch the air disappear from the plastic hoses inside the machine. Your pressure display will indicate 16 p.s.i. (or thereabout, depending on battery voltage and the resulting pump speed), which is enough pressure to continue the simulation without crimping hoses.

Press the "**Set Time**" button until you round the clock back to 0 minutes, shortly after which the process will time out and stop. Paying attention to the lines inside the machine, you will note that no air reappears and the lines do not "drain down".

Remove the extension adapter from the red and black hoses with a shop towel handy to catch the solution that escapes from the adapter.

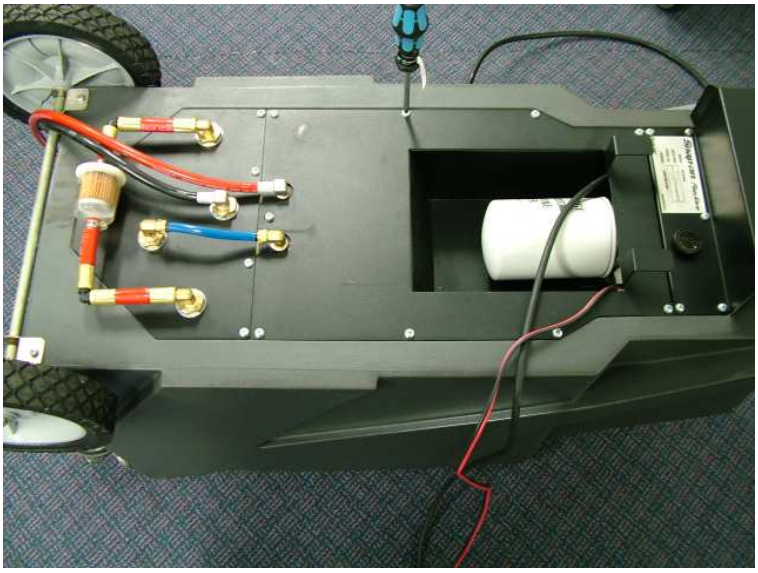
Replace the back cover and retaining screws to complete the process.

CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD

1. Remove rear center panel, 9 Phillips screws.
2. Remove 2 Allen head ¼”-20 screws using 5/32” Allen wrench.

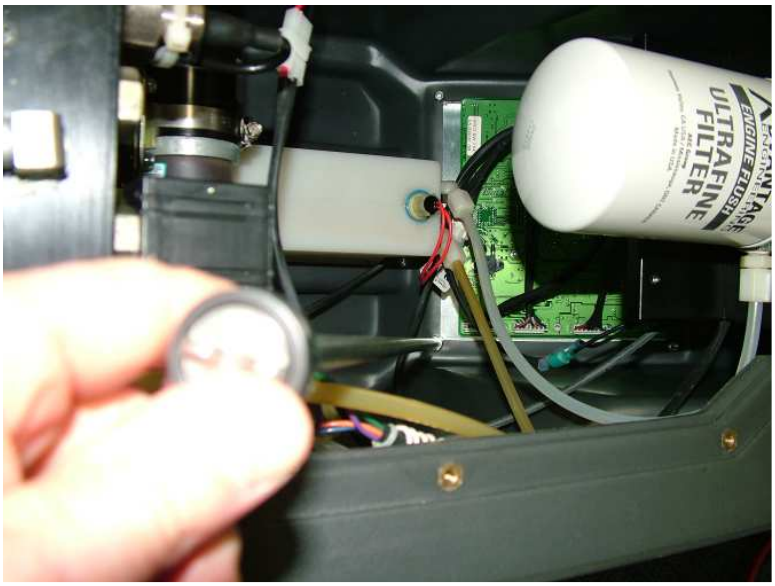


CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD

3. Remove the 4 nyloc nuts securing the front control board assembly using long extension with 3/8” Socket.



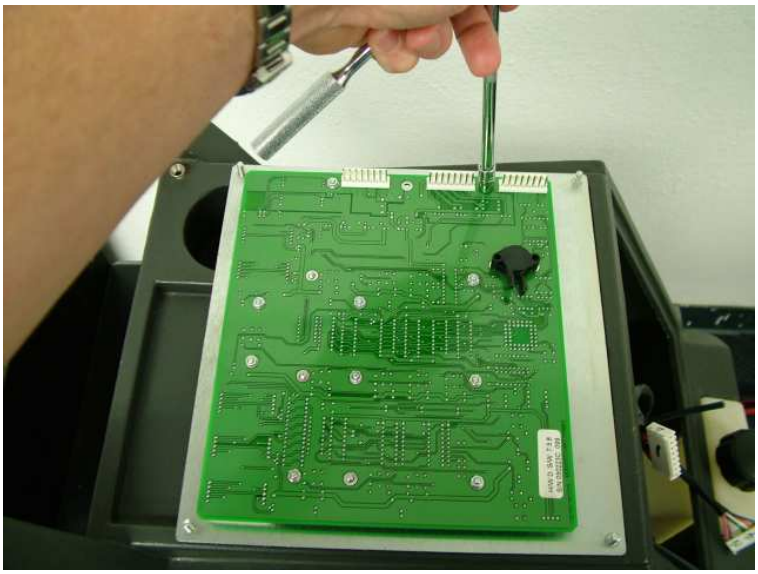
4. Disconnect wire connectors from board, if not marked J1, J2, J3 please mark before removal.

CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD

5. Place board assembly on top of unit and remove screws or nuts to separate circuit board from display panel



6. Replace circuit board

7. Reassemble and test.

CHAPTER 4

SERVICE PROCEDURES

REPLACING PROCESSOR CHIP

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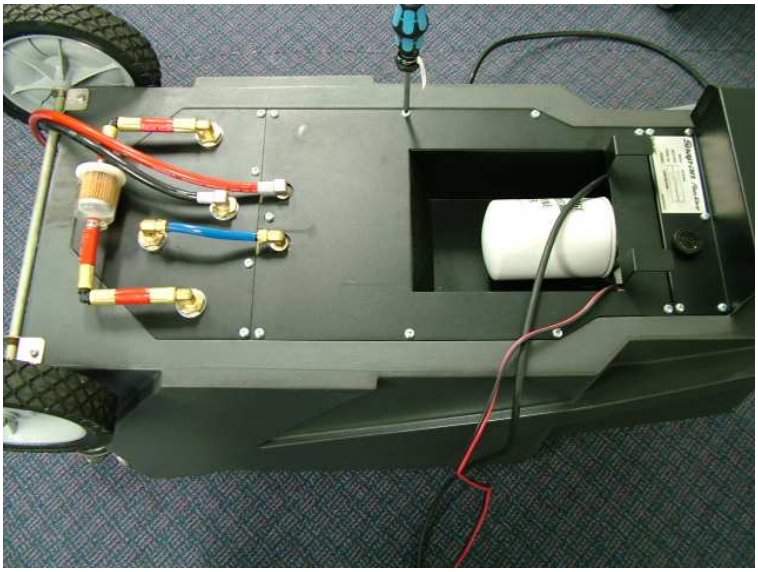

CHAPTER 4

SERVICE PROCEDURES

REPLACING PROCESSOR CHIP

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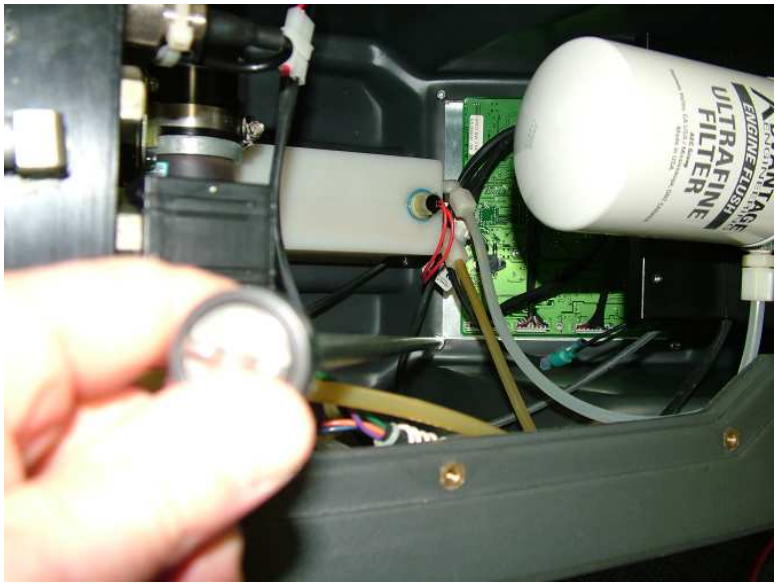

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CHAPTER 4

SERVICE PROCEDURES

REPLACING PROCESSOR CHIP

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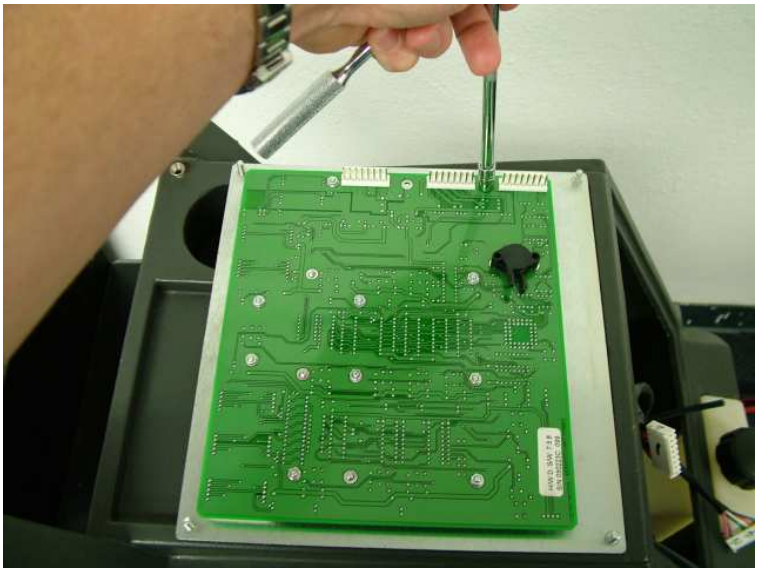
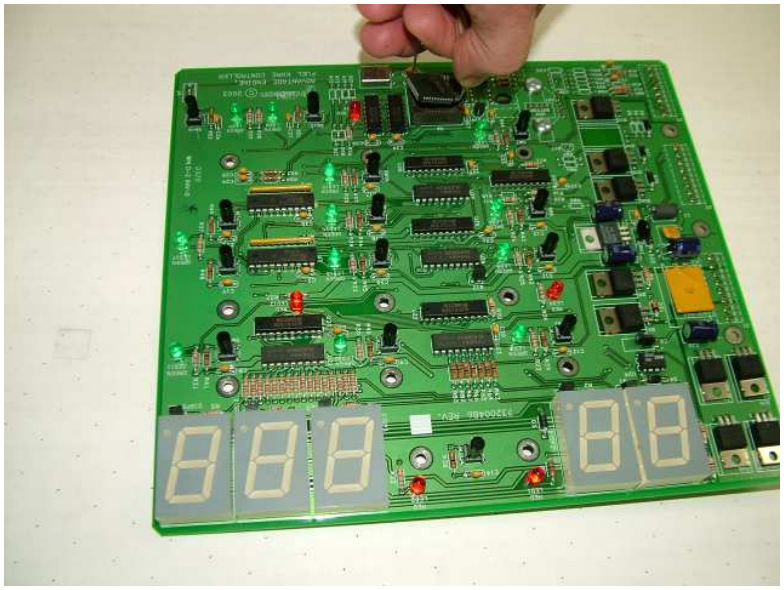


6. Remove processor chip from board using chip puller or tool that came with new chip.

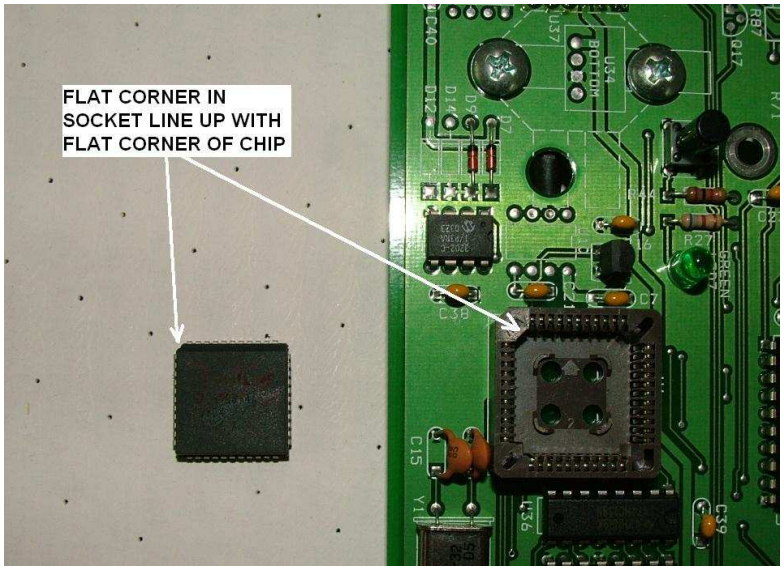


CHAPTER 4

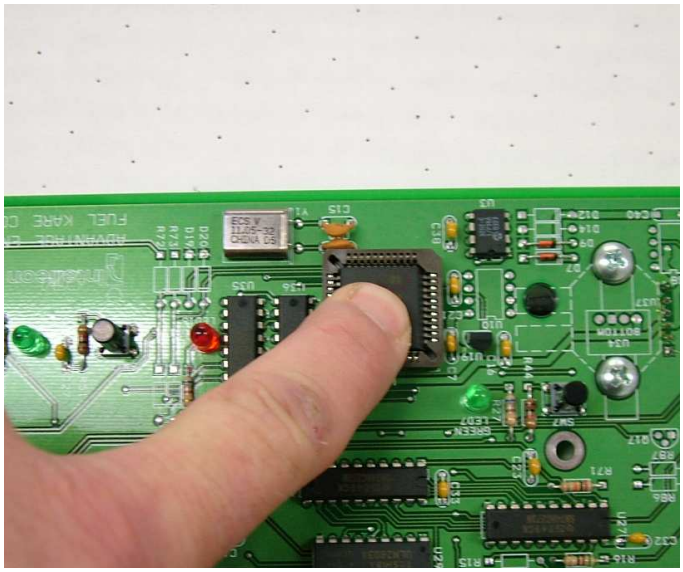
SERVICE PROCEDURES

REPLACING PROCESSOR CHIP

7. **Pay close attention:** Find the flat corner of the new processor chip and flat corner of socket.



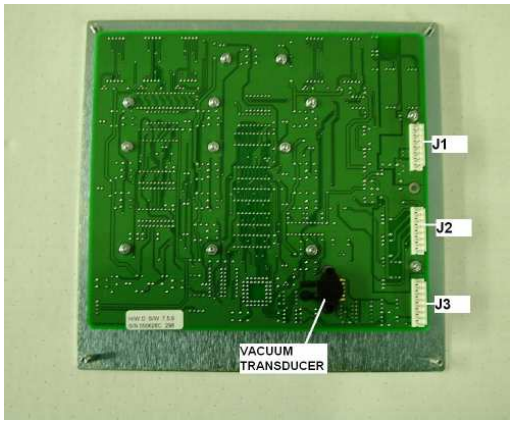
8. Insert new processor chip into socket.



9. Reassemble board to display panel, connect wires to board and test before closing up machine

CHAPTER 1

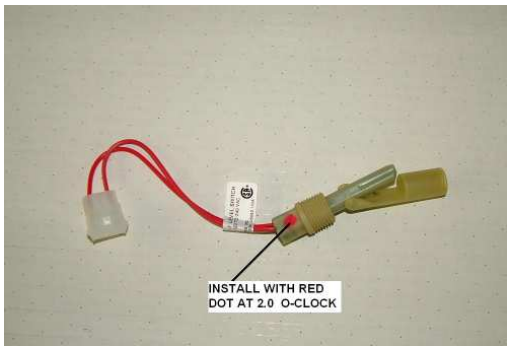
COMPONENT DESCRIPTION:



3030-01-01-0 DISPLAY PANEL W/CIRCUIT BOARD ASSEMBLY

This assembly consists of 2 components.

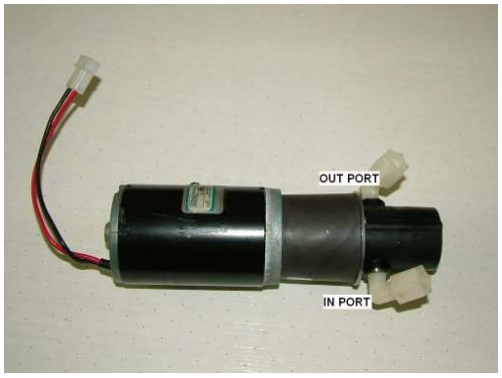
1) 5135-00-01-2 Display mounting panel w/overlay assy
2) 3030-01-00-0 Circuit board receives 12 vdc through wire loom J1 upper 4 pins and powers pump through J1 lower 4 pins. J2 wire loom channels output signals to solenoids and audio signal. J3 wire loom receives input signals from pressure transducer and max level switch.



3113-58-50-8 LEVEL SENSOR ½"NPTM X 6"LEADS

Normally open reed switch with magnetic float that closes the switch in presence of fluid, located near the top of the tank and used to prevent tank overfill.

Note: Install with red dot at 2 o-clock.

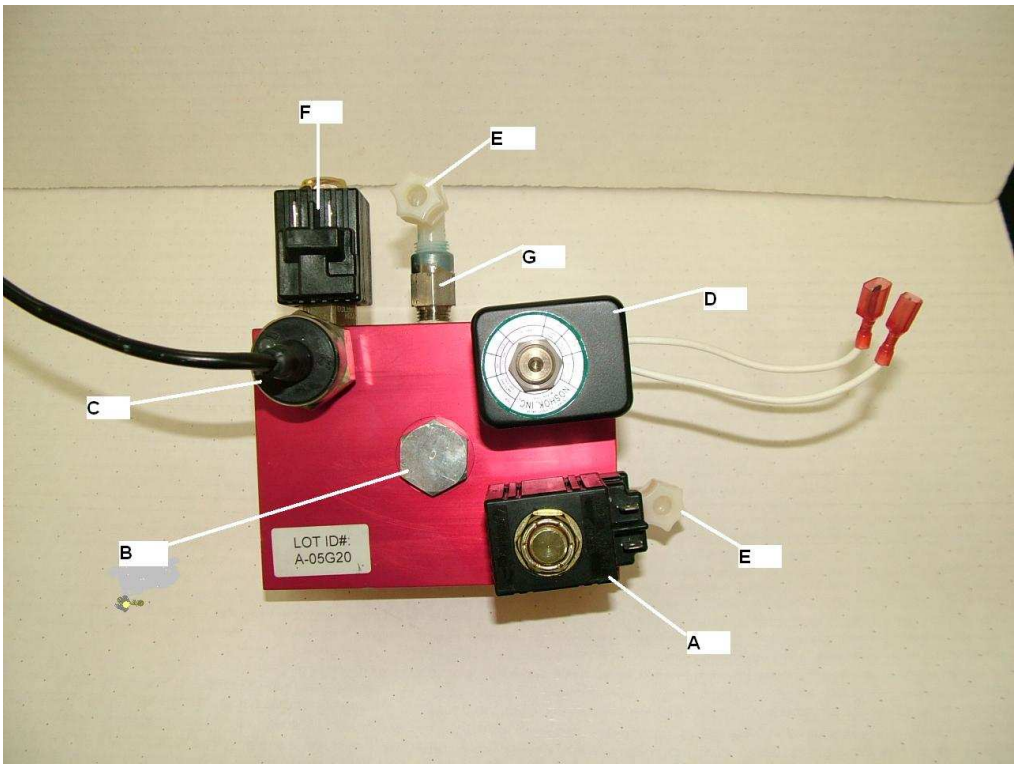


2246-22-11-0 PUMP ASSEMBLY(FUELKARE-1 / 1.5)

12 vdc gear pump with +/- 1 gpm flow rate
175 psi max pressure (magnetic clutch)

CHAPTER 1

COMPONENT DESCRIPTION:



2141-98-13-4 MANIFOLD BLOCK ASSEMBLY (FUELKARE-2) RED

A) 2136-30-20-3 RETURN VALVE, Normally closed cartridge valve, open during 2 line service, leakdown test and to fill tank.
B) 2140-01-20-5 INTERNAL CHECK VALVE open during diagnostic mode to return fuel to vehicle gas tank.
C) 3109-54-31-2 PRESSURE TRANSDUCER, Measures and monitors pressure 0 – 175 psi.
D) 2136-00-21-4 BY-PASS VALVE, 1/32 orifice opens during purge and to perform 1 line service.
E) 2354-21-10-6 FITTING ¼"MPT X 90 X 5/16" TUBE
F) 2135-30-20-3 PRESSURE VALVE, Normally open cartridge valve closes to perform dead head test.
G) 2140-39-20-1 EXTERNAL CHECK VALVE, Prevents fuel to return to pump.

CHAPTER 1

COMPONENT DESCRIPTION:

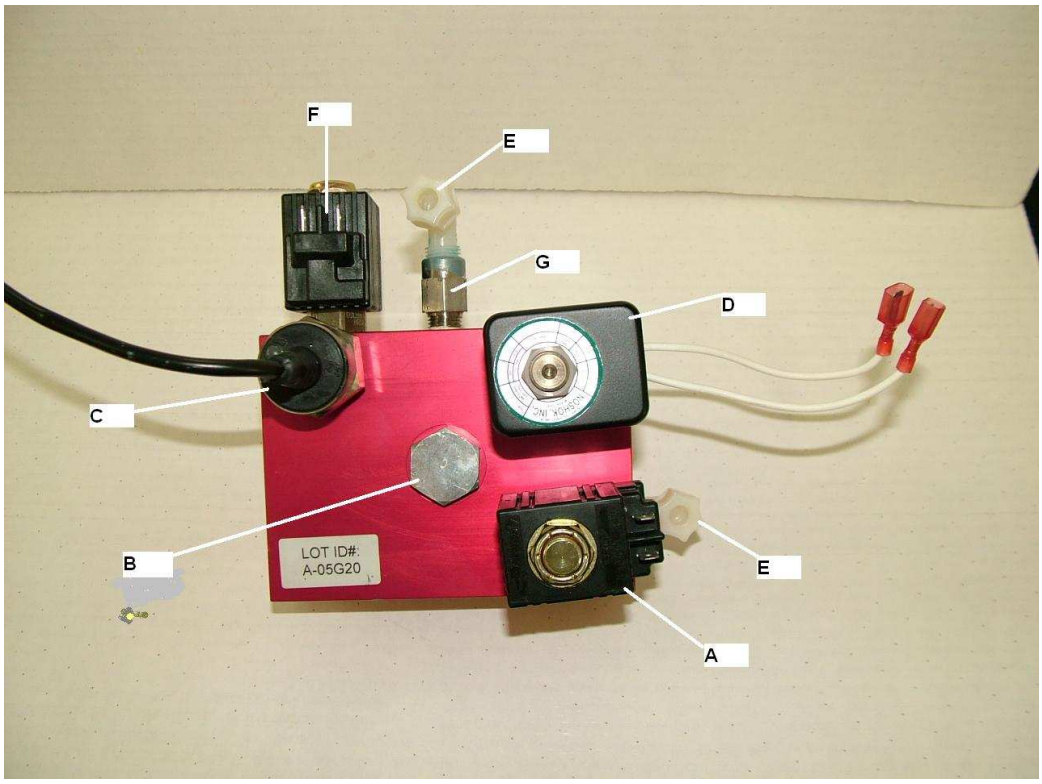
FILTRATION

A) EEFS308A5 3 Micron spin-on filter kit (2 pieces)
This filters all fluid returning from vehicle

B) 0600-01-00-0 Inline fuel filter 3/8”barb x 3/8”barb
This filters all fluid leaving the fuelkares tank.

CHAPTER 2

PARTS & COMPONENTS

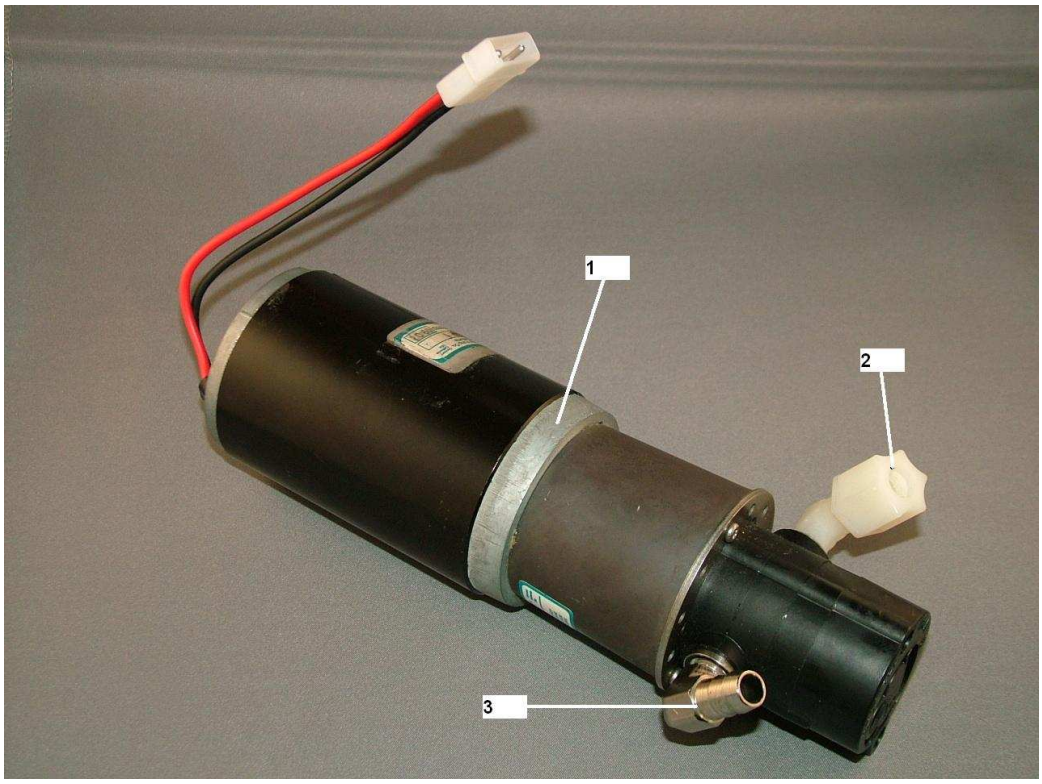


MANIFOLD BLOCK ASSEMBLY
FUELKARE-2
2141-98-22-0

No.	PARTNUMBER	DESCRIPTION	QTY
A	2136-30-20-3	RETURN VALVE ASSY (FUELKARE ALL)	1
B	2140-01-20-5	CHECK VALVE INTERNAL 5 PSI (FUELKARE-1)S/S	1
C	3109-54-31-2	PRESSURE DRANSDUCER ¼”MPT ASSEMBLY	1
D	2136-00-21-4	BY-PASS VALVE 1/32” ORIFICE (FUELKARE-1)	1
E	2354-21-10-6	FITTING ¼”MPT X 90 X 5/16” HOSE (NYLON)	2
F	2135-30-20-3	PRESSURE VALVE ASSY (FUELKARE ALL)	1
G	2140-39-20-1	CHECK VALVE EXTERNAL ¼”MPT X ¼”FPT(S/S)VITON	1

CHAPTER 2

PARTS & COMPONENTS

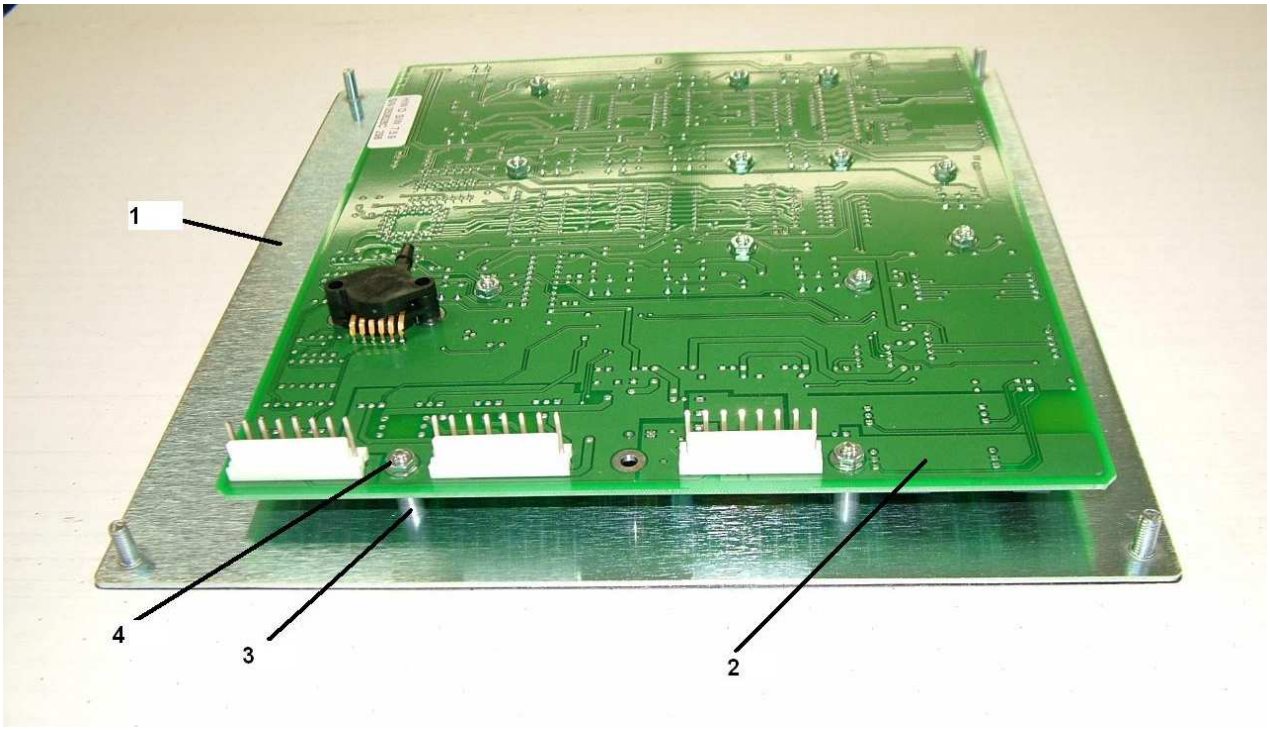


PUMP ASSEMBLY
FUELKARE SERIES 2
2246-22-12-0

No.	PARTNUMBER	DESCRIPTION	QTY
1	2247-22-10-0	PUMP,EXTERNAL GEAR 1/8”FPT X 12VDC(FUEL)	1
2	2352-21-10-6	FITTING, 1/8”MPT X 90 X 5/16 HOSE(NYLON)	1
3	2352-41-14-8	FITTING, 1/8”MPT X 90 X 3/8” BARB (NICKEL)	1

CHAPTER 2

PARTS & COMPONENTS

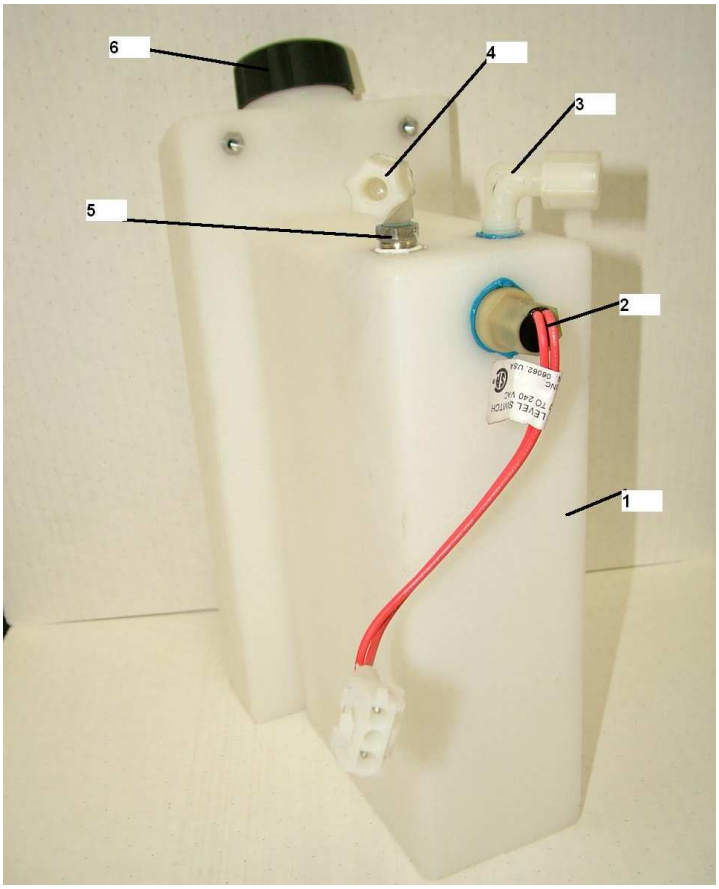


DISPLAY PANEL W/CIRCUIT BOARD ASSEMBLY 3030-01-01-0

No.	PART NUMBER	DESCRIPTION	QTY
1	5135-00-01-2	DISPLAY MOUNTING PANEL W/OVERLAY(FUELKARE)	1
2	3030-01-00-0	CIRCUIT BOARD (FUELKARE)	1
3	1614-12-46-4	STAND-OFF .250”OD X .172”ID X .461”LONG(ALUMINUM)	13
4	1011-99-00-8	NUT 6-32 HEX (ZINC)	13

CHAPTER 2

PARTS & COMPONENTS



TANK, 1 GALLON ASSEMBLY (FUELKARE-2)
2262-44-12-1

No.	PART NUMBER	DESCRIPTION	QTY
1	2262-44-10-1	TANK 1 GALLON (FUELKARE)	1
2	3113-58-50-5	SENSOR LEVEL ½”MPT X 6” LEADS	1
3	2354-21-10-6	FITTING, ¼”MPT X 90 X 5/16”HOSE (NYLON)	1
4	2352-41-14-8	FITTING, 1/8”MPT X 90 X 3/8”BARB (NICKEL)	1
5	2293-00-90-1	TANK TUBE .38” X 9.700” LONG (S/S)	1
6	2291-78-11-4	CAP 1 ¾”ID TANK FUEL	1

CHAPTER 2

PARTS & COMPONENTS

ALPHABETICAL PART LIST

PART NUMBER	DESCRIPTION
3160-68-12-1	AUDIO SIGNAL, 3-28VDC
5120-11-00-2	AXLE (FUELKARE ALL)
3030-00-01-0	CHIP, VER:7.59(FUELKARE-2)
3030-01-00-0	CIRCUIT BOARD (FUELKARE ALL)
3075-12-22-7	CORD/CLAMP ASSEMBLY 12VDC X 12' (RED/BLACK)
1615-03-16-8	COTTERPIN, 1/8"OD X 1 1/4" LONG
3030-01-01-0	DISPLAY & BOARD ASSEMBLY (FUELKARE ALL)
2354-20-10-6	FITTING, 1/4"MPT X 90 X 5/16"HOSE (NYLON)
2352-41-14-8	FITTING, 1/8"MPT X 90 X 3/8” BARB (NICKEL)
0901-54-90-2	HOSE, 1/4"MPT X 90 X 10' PRESSURE ASSEMBLY(RED)HYTRON
0901-54-90-1	HOSE, 1/4"MPT X 90 X 10' RETURN ASSEMBLY(BLACK)HYTRON
0904-53-10-1	HOSE, 10' VACUUM(BLACK) RUBBER
3142-10-03-1	INPUT HARNESS "J3" (FUELKARE ALL)
3113-58-50-5	LEVEL SENSOR 1/2"MPT X 6"LEADS
1029-95-00-8	NUT, 1/4"-20 NYLOC HEX (ZINC)
3142-10-02-1	OUTPUT HARNESS "J2" (FUELKARE ALL)
3142-10-01-1	POWER HARNESS "J1"(FUELKARE ALL)
3109-54-31-2	PRESSURE TRANSDUCER 1/4"MPT ASSEMBLY (NICKEL)
2246-22-12-0	PUMP ASSEMBLY (FUELKARE-2) 12VDC
2023-12-10-2	QUICK DISC, BODY S/23 X 1/4"FPT(VITON)NICKEL
2023-13-10-2	QUICK DISC, BODY S/23 X 1/4"MPT(VITON)NICKEL
1029-04-58-3	SCREW, 1/4"-20 X 3/8" BHCS ALLEN (BLACK)
1017-10-56-8	SCREW, 10-32 X 3/8" PANHEAD PHILLIPS
2291-78-11-4	TANK, CAP, 1 3/4"ID (FUELKARE ALL)
2262-44-12-1	TANK, FUEL 1 GALLON ASSEMBLY (FUELKARE-2)
2122-39-40-8	VALVE, BALL 1/4"MPT X 1/4"FPT WITH T-HANDLE (NICKEL)
2136-00-21-4	VALVE, BY-PASS 1/32"ORIFICE (FUELKARE-2)
2144-94-10-0	VALVE, COIL 12VDC/14WATT FITS PARKER 08 SERIES
2135-30-20-3	VALVE, PRESSURE ASSEMBLY(FUELKARE ALL)VITON
2136-30-20-3	VALVE, RETURN ASSEMBLY (FUELKARE ALL)VITON
1631-09-61-2	WHEEL, 9"OD X 3/4"WD X 1/2"BORE
1635-44-40-4	WHEEL, CASTER 4"OD X 1 1/4"WD WITH BRAKE

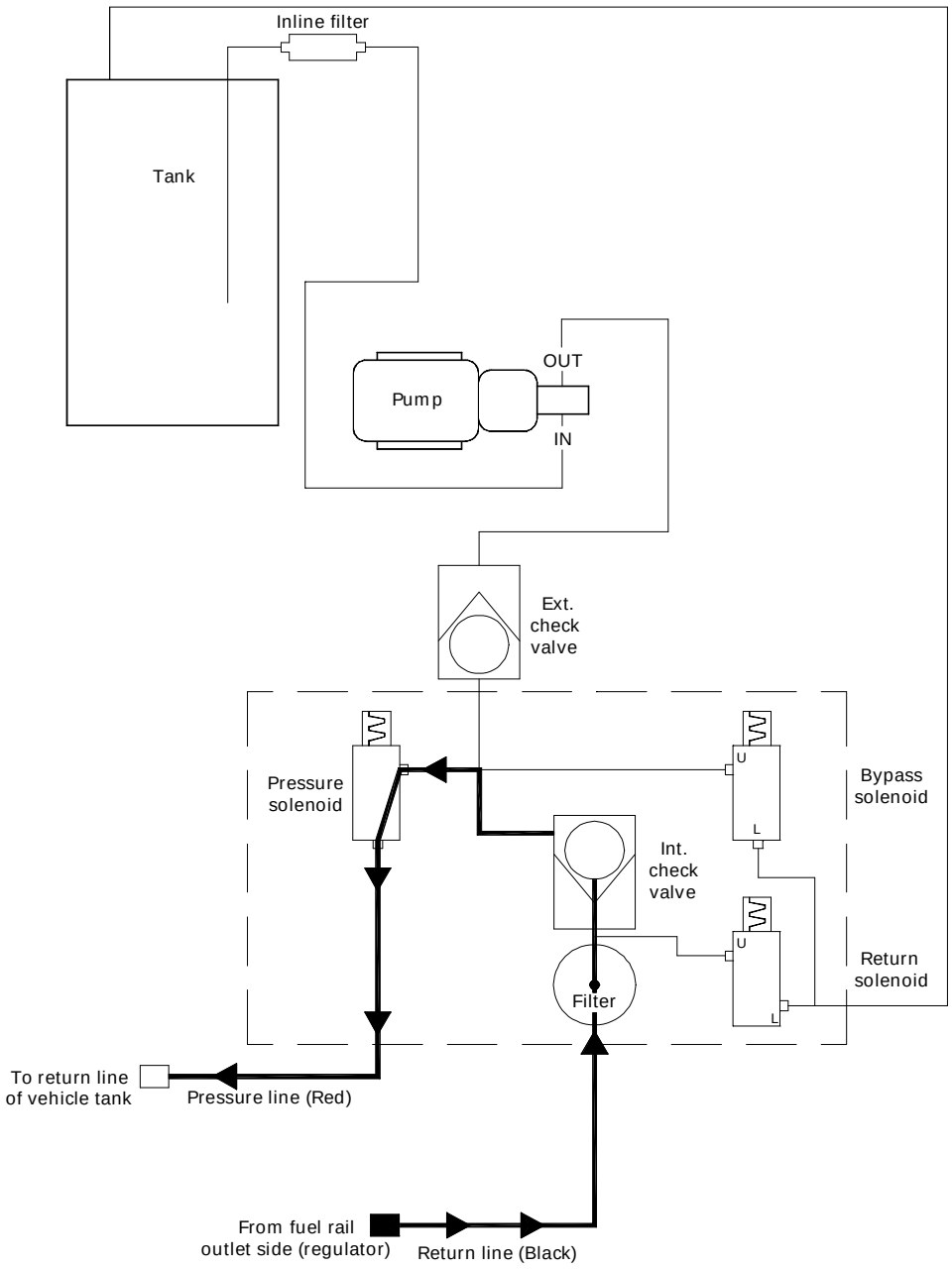
CHAPTER 2

PARTS & COMPONENTS

NUMERICAL PART LIST

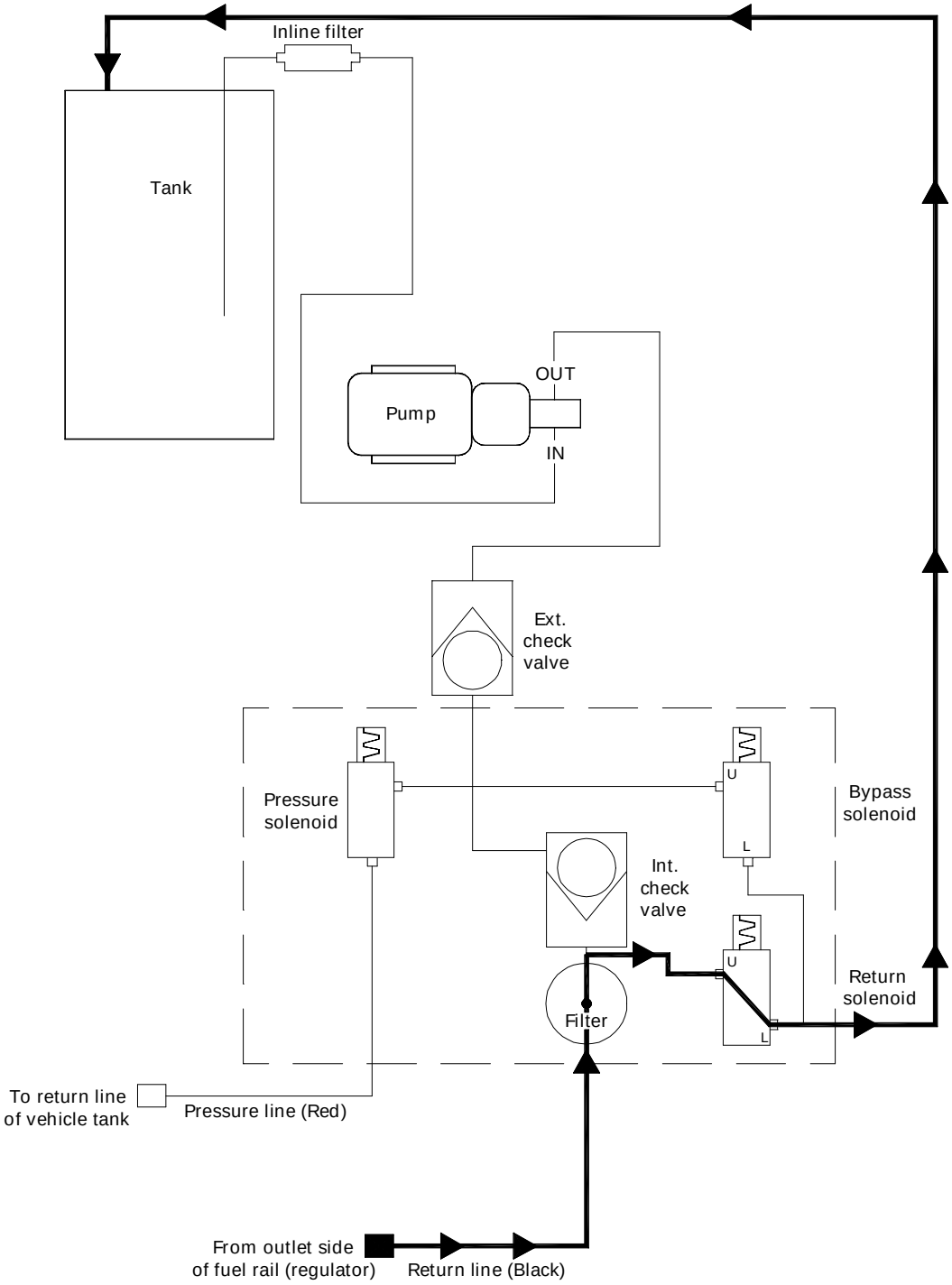
PART NUMBER	DESCRIPTION
0901-54-90-1	HOSE, 1/4"MPT X 90 X 10' RETURN ASSEMBLY(BLACK)HYTRON
0901-54-90-2	HOSE, 1/4"MPT X 90 X 10' PRESSURE ASSEMBLY(RED)HYTRON
0904-53-10-1	HOSE, 10' VACUUM(BLACK) RUBBER
1017-10-56-8	SCREW, 10-32 X 3/8" PANHEAD PHILLIPS
1029-04-58-3	SCREW, 1/4"-20 X 3/8" BHCS ALLEN (BLACK)
1029-95-00-8	NUT, 1/4"-20 NYLOC HEX (ZINC)
1615-03-16-8	COTTERPIN, 1/8"OD X 1 1/4" LONG
1631-09-61-2	WHEEL, 9"OD X 3/4"WD X 1/2"BORE
1635-44-40-4	WHEEL, CASTER 4"OD X 1 1/4"WD WITH BRAKE
2023-12-10-2	QUICK DISC, BODY S/23 X 1/4"FPT(VITON)NICKEL
2023-13-10-2	QUICK DISC, BODY S/23 X 1/4"MPT(VITON)NICKEL
2122-39-40-8	VALVE, BALL 1/4"MPT X 1/4"FPT WITH T-HANDLE (NICKEL)
2135-30-20-3	VALVE, PRESSURE ASSEMBLY(FUELKARE ALL)VITON
2136-00-21-4	VALVE, BY-PASS 1/32"ORIFICE (FUELKARE-2)
2136-30-20-3	VALVE, RETURN ASSEMBLY (FUELKARE ALL)VITON
2144-94-10-0	VALVE, COIL 12VDC/14WATT FITS PARKER 08 SERIES
2246-22-12-0	PUMP ASSEMBLY (FUELKARE-2) 12VDC
2262-44-12-1	TANK, FUEL 1 GALLON ASSEMBLY (FUELKARE-2)
2291-78-11-4	TANK, CAP, 1 3/4"ID (FUELKARE ALL)
2352-41-14-8	FITTING, 1/8"MPT X 90 X 3/8” BARB (NICKEL)
2354-20-10-6	FITTING, 1/4"MPT X 90 X 5/16"HOSE (NYLON)
3030-00-01-0	CHIP, VER:7.59 (FUELKARE-2)
3030-01-00-0	CIRCUIT BOARD (FUELKARE ALL)
3030-01-01-0	DISPLAY & BOARD ASSEMBLY (FUELKARE ALL)
3075-12-22-7	CORD/CLAMP ASSEMBLY 12VDC X 12' (RED/BLACK)
3109-54-31-2	PRESSURE TRANSDUCER 1/4"MPT ASSEMBLY (NICKEL)
3113-58-50-5	LEVEL SENSOR 1/2"MPT X 6"LEADS
3142-10-01-1	POWER HARNESS "J1"(FUELKARE ALL)
3142-10-02-1	OUTPUT HARNESS "J2" (FUELKARE ALL)
3142-10-03-1	INPUT HARNESS "J3" (FUELKARE ALL)
3160-68-12-1	AUDIO SIGNAL, 3-28VDC
5120-11-00-2	AXLE (FUELKARE ALL)

FLOW DIAGRAM



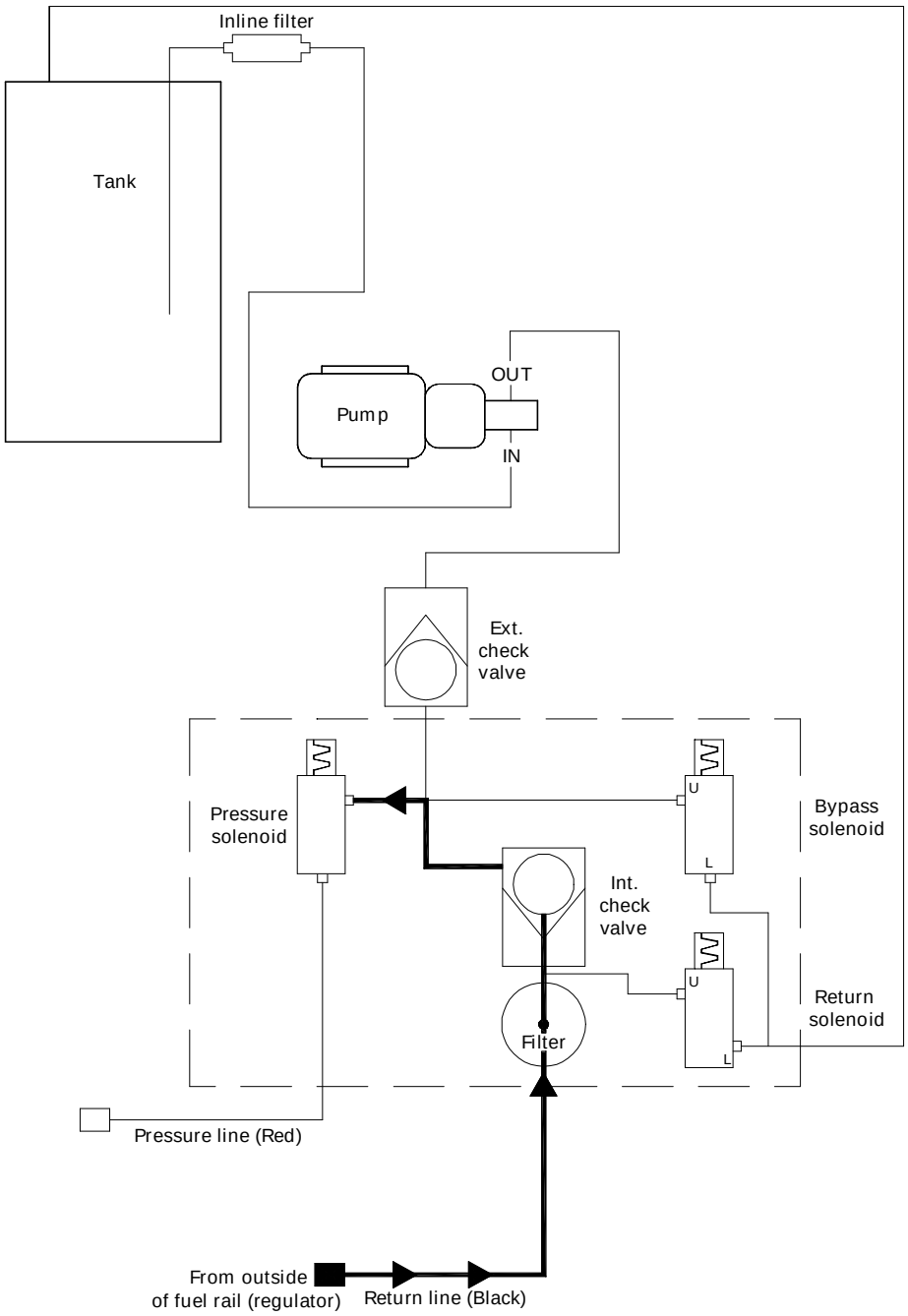
DIAGNOSTIC MODE
ENGINE RUNNING NO KEYS “PRESSED”

FLOW DIAGRAM



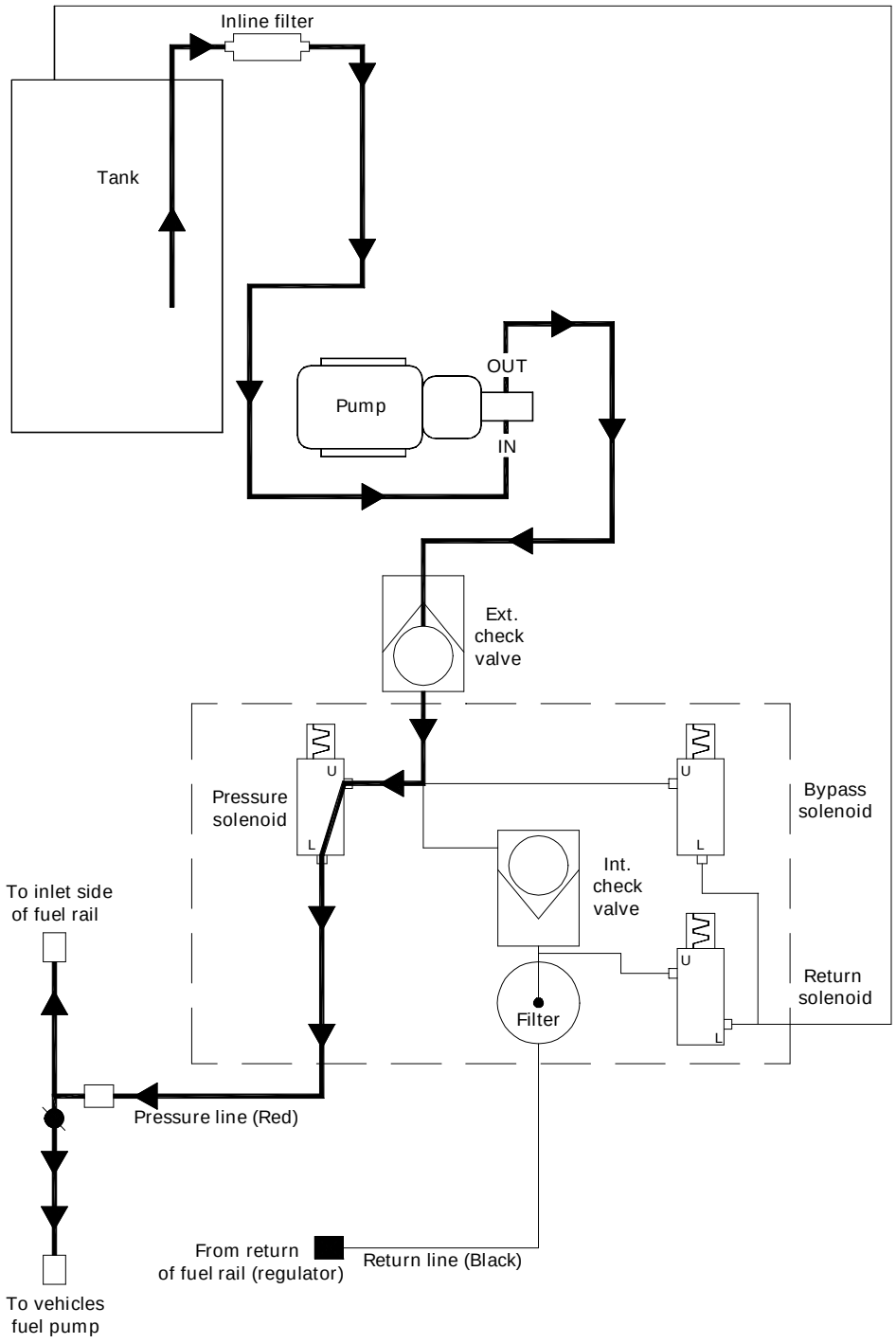
DIAGNOSTIC/FILL MODE
ENGINE RUNNING FILL TANK “PRESSED”

FLOW DIAGRAM



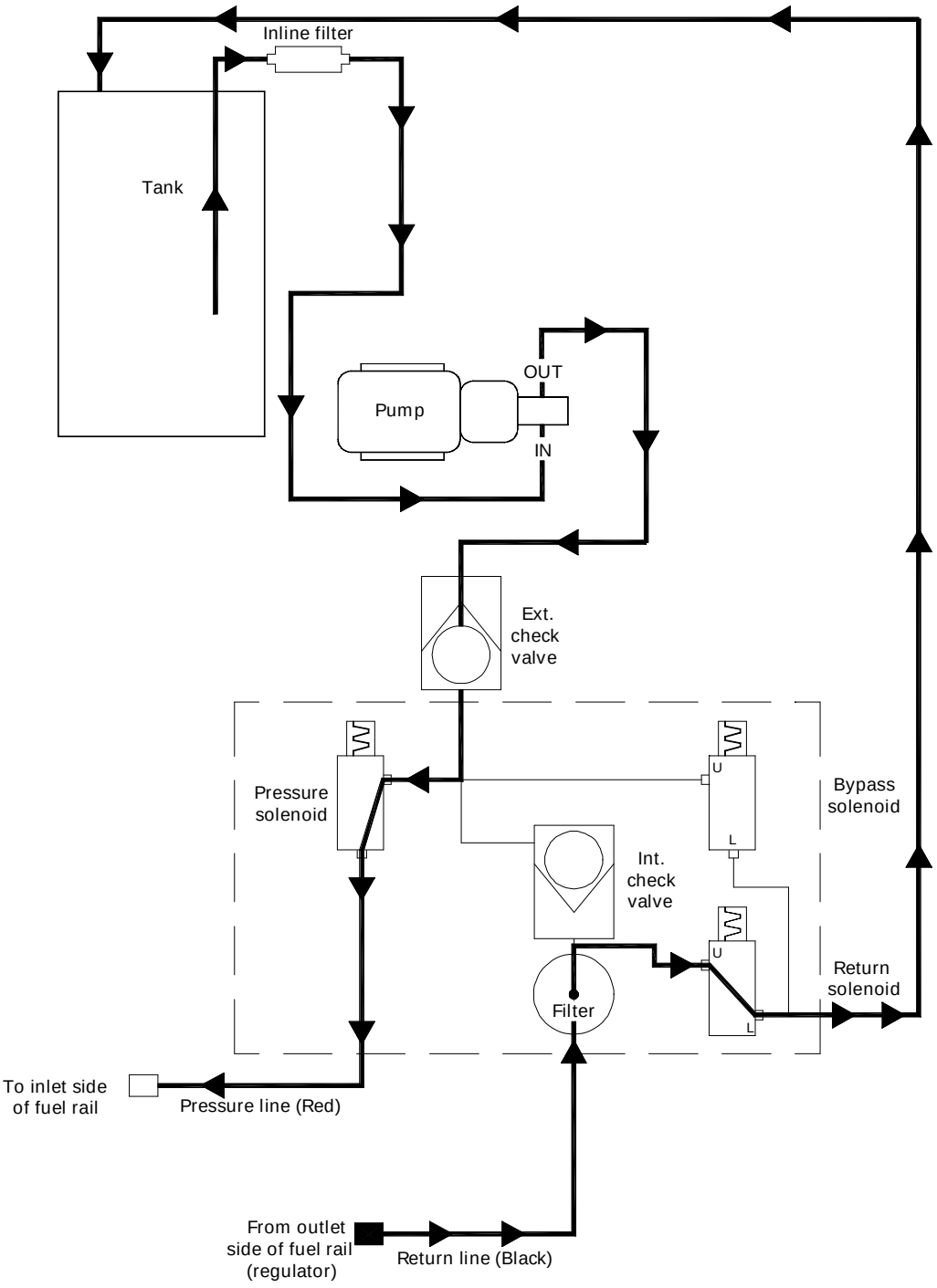
DIAGNOSTIC MODE
ENGINE RUNNING
DEADHEAD KEY “PRESSED”

FLOW DIAGRAM



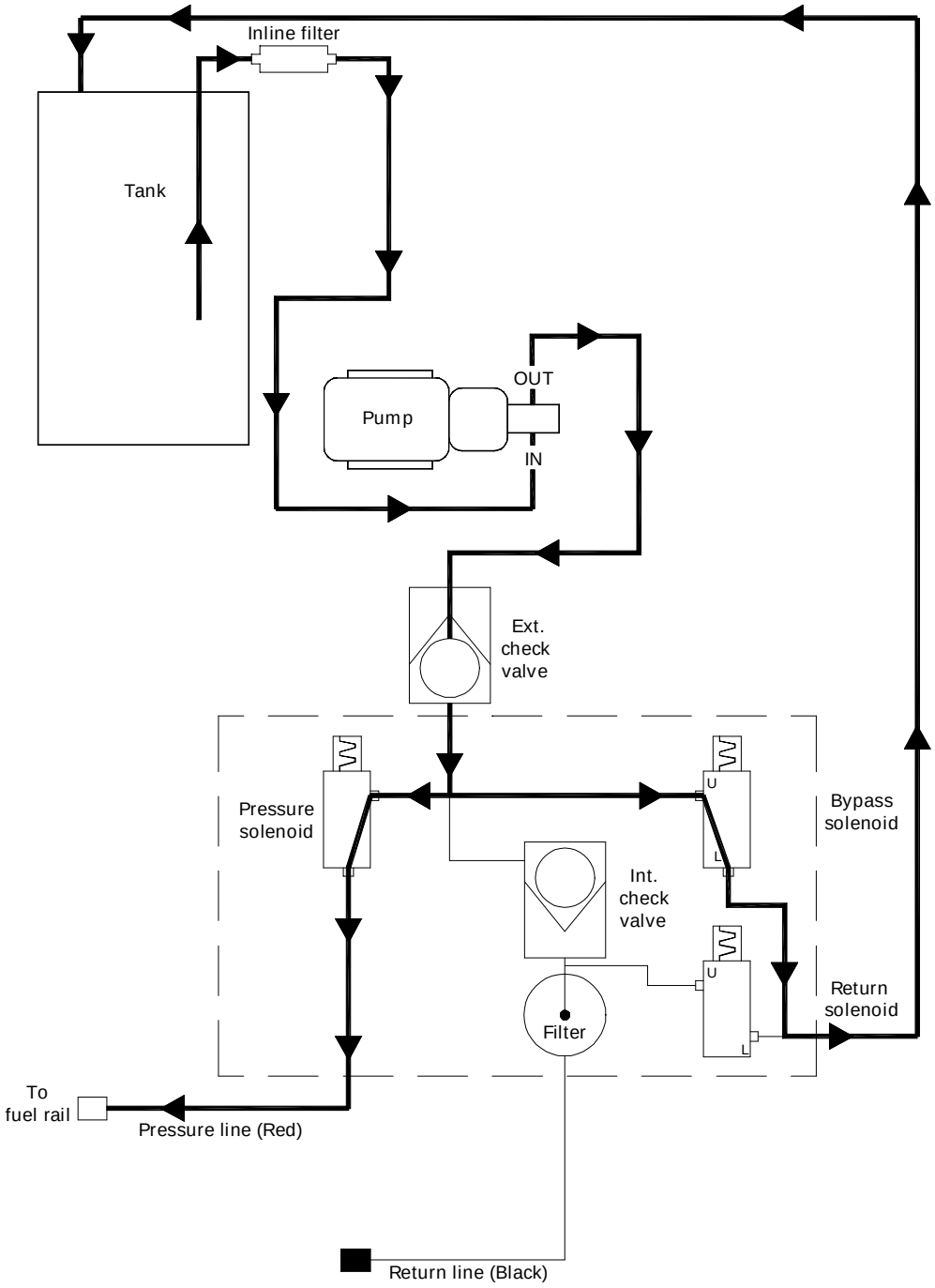
DIAGNOSTIC MODE
LEAKDOWN TEST

FLOW DIAGRAM



2 LINE SERVICE

FLOW DIAGRAM

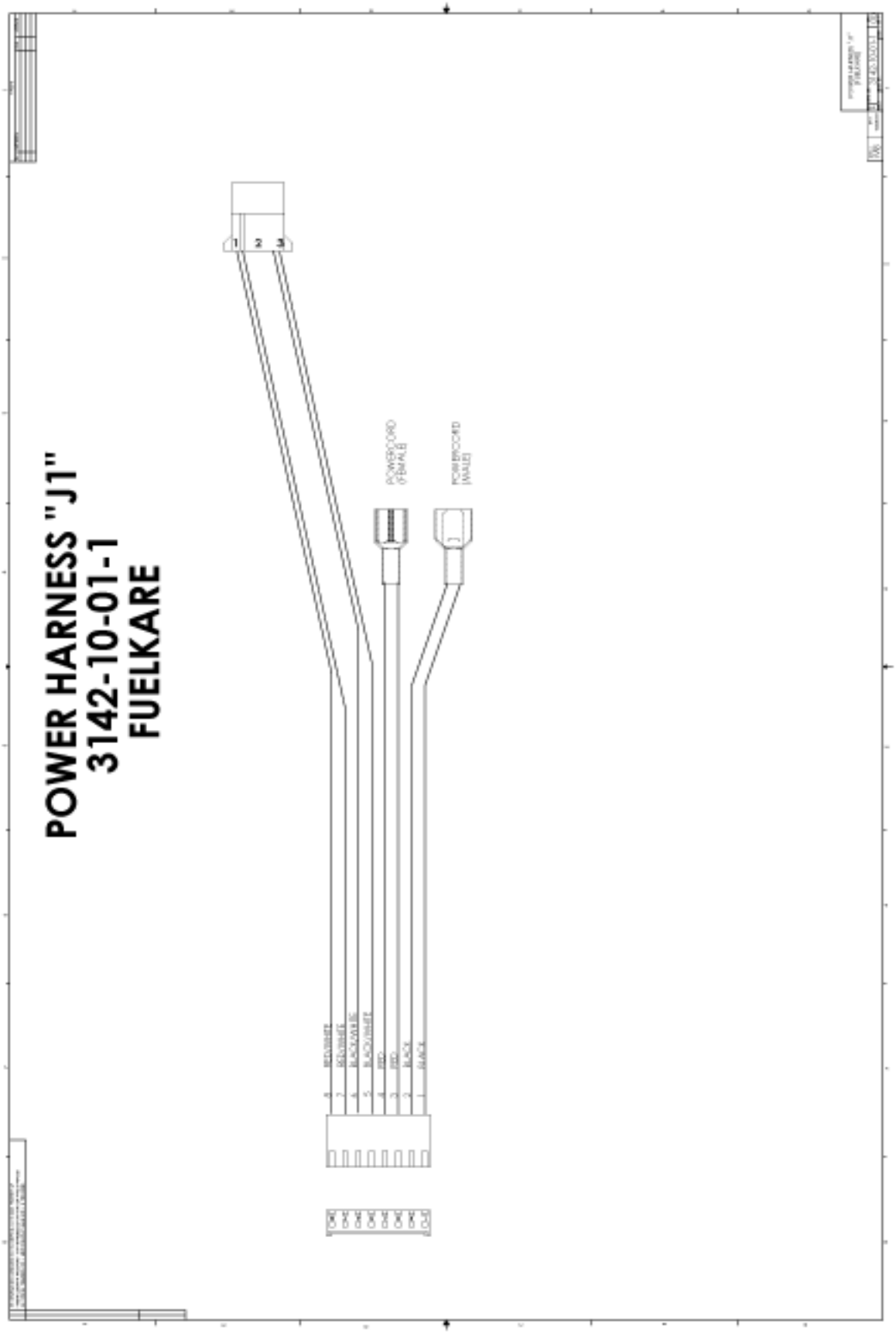


1 LINE SERVICE

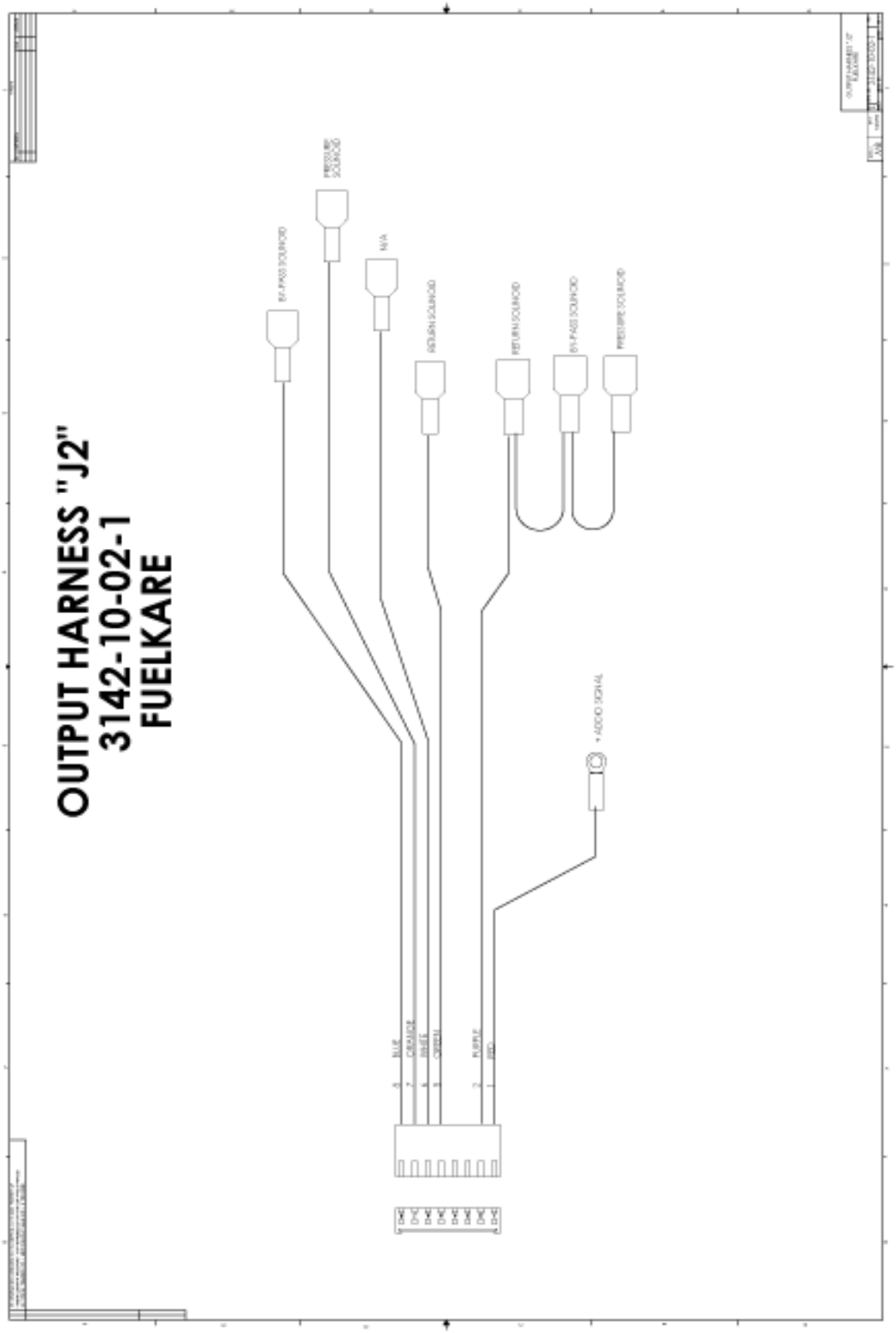
CHAPTER 2

COMPONENT POWER CHART

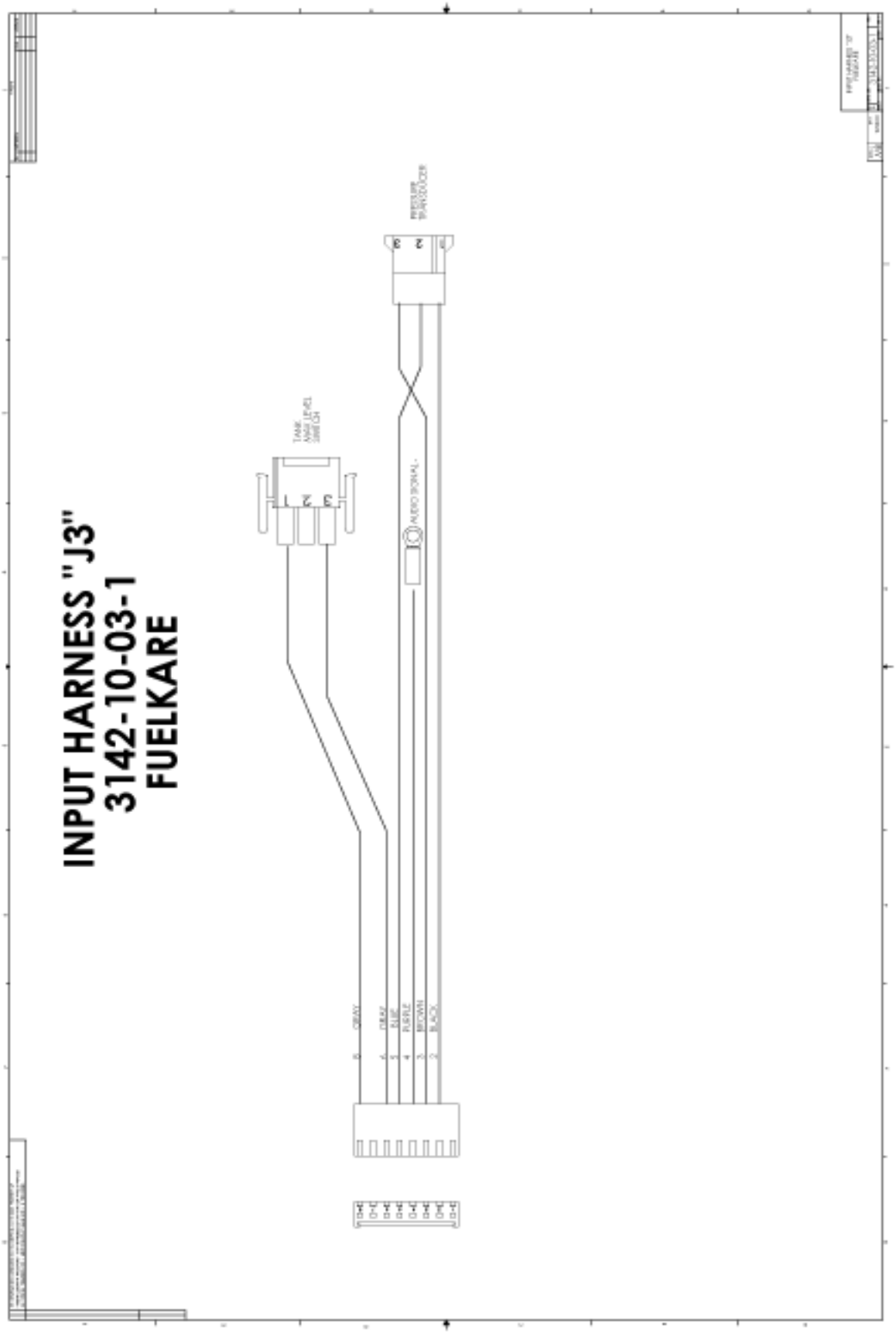
	RETURN SOLENOID	PRESSURE SOLENOID	BY-PASS SOLENOID	PUMP
FILL TANK FLOW RATE CHECK	**ON**	**OFF**	**OFF**	**OFF**
DEADHEAD PRESSURE CHECK	**OFF**	**ON**	**OFF**	**OFF**
LEAKDOWN PURGE	**OFF**	**OFF**	**ON**	**ON**
LEAKDOWN TEST	**ON**	**OFF**	**OFF**	**ON**
2 LINE SERVICE	**ON**	**OFF**	**OFF**	**ON**
1 LINE SERVICE	**OFF**	**OFF**	**ON**	**ON**



WIRE DIAGRAMS



WIRE DIAGRAMS


INPUT HARNESS "J3"
3142-10-03-1
FUELKARE
PRESSURE TRANSDUCER
TANK LEVEL SENSOR
AUDIO SIGNAL -
ORANGE
GRAY
BLUE
PURPLE
BROWN
BLACK

CHAPTER 3

THROUBLE SHOOTING

UNIT WILL NOT POWER UP

1. Verify that power leads are securely connected to a 12VDC power source(car battery)
2. Verify proper connection. Black lead to ground and red lead to positive. Make sure connections are clean.
3. Check for battery power at 'J1' connector pins 1, 2 and 3, 4 red and black wires.
   -If no battery power is detected at 'J1' connector, check internal connection between power cord and 'J1' wire loom, repair or replace as needed.

FAILS TO CALIBRATE AFTER POWER-UP

1. If hoses where connected before power-up, remove hoses from fuel system and connect 2 open end adapters to red and black hose.
   - If still no calibration, using shop air apply short bursts of pressure to red hose this should reset transducer.
   - If still no calibration check connection to 'J3' wire loom
   - If connection is correct, replace pressure transducer.

DOES NOT FILL TANK

1. First time use will take up to 60 seconds to prime filter and lines.
2. Verify that hoses and adapters are properly connected to vehicle fuel system.
3. If properly connected to fuel system check return solenoid assembly for 12vdc.
   -If 12VDC is not present, check 'J2' wire loom repair or replace as needed.
   -If 12VDC is present remove return solenoid assembly and apply power to see if plunger retracts.
   -If not push center of plunger several times with Phillips screw driver and clean with compressed air, re-power solenoid assembly and check plunger movement.
   -If plunger moves freely, reinstall and repeat fill tank mode.
   -If plunger does not move freely replace solenoid assembly.

CHAPTER 3

LOOSES PRESSURE DURING LEAKDOWN MODE

1. Remove Fuelkare black and red hoses from vehicle and press leak down test key, pressure should ramp up to +/- 100 p.s.i. once archieved, the pressure displayed will alternately show baseline and current pressure. Normal acceptable decay is 10 % @ 100 p.s.i. over one minute if holding pressure problem with vehicle.
   - If not holding pressure, perform the following.
2. Install open end adapter to red hose.
3. Remove Fuelkare tank cap and Insert red hose with adapter in new fluid tank.
4. Remove spin-on filter
5. Using shop air and appropriate blow gun, blow air into center port of spin-on filter housing until red hose is empty.
6. Using shop air, apply short bursts of pressure to red hose to reseat internal check valve.
7. Remove adapter from red hose and re-install spin on filter, connect black and red hoses together with male loop adapter p/n: 6016-02-01-1; press and release leak down test key to restore cleaning solution to the now cleared pathway through the machine and hoses. When pump stops remove loop from blck and red hoses.
8. Re test leak down mode.
   -If not holding pressure,
9. Remove rear panel
10. Press leak down key, monitor clear tube between manifold and pump and monitor clear tube between manifold and tank for fluid flow
    -If fluid flows from manifold to pump
11. Unscrew white nylon nut from clear tube on output side of pump
12. Install adapter on red hose and insert hose in new fluid tank
13. Using shop air blow into clear tube until red hose is empty.
14. Take red hose with adapter and apply short bursts of air to reseat external check valve
15. Reattach clear tube to pump and press leak down fluid will circulate through red hose repeat if needed to remove air from system.
16. Remove adapter from red hose.
17. Retest leak down mode
    -If fluid flows from manifold to tank
18. Remove internal check valve, inspect for debris and condition of O-rings
    or replace if needed.

CHAPTER 3

LOW PRESSURE DURING SERVICE MODE

1. Check inline filter replacement history (+/- 50 services per filter).
2. Remove hoses from vehicle.
3. Install open end adapters to red hose.
4. Insert red hose to new fluid tank.
5. Repower Fuelkare.
6. Once diagnostic / fill cycle led is flashing Press and hold + and – keys until 2 line and 1 line service led start flashing.
7. Press 2 line key
8. Press start soak key and monitor flow through red hose
9. If flow is low or stops with pump still running replace inline filter.

NOTE: Whene replacing inline filter it is recommended to clean line from filter to tank. Remove cap from tank and apply shop air to line, check tank for debris and clean if needed.

HIGH PRESSURE DURING SERVICE

1. Check for kinked hoses.
2. Check if red hose is properly connected to adapter.
3. Change ultra fine spin-on filter.
4. Resume service.

CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD FROM TOP

1. Remove top tray, two (2) Phillips screws.

2. Disconnect wire connectors from board, if not marked J1,J2,J3 please mark before removal

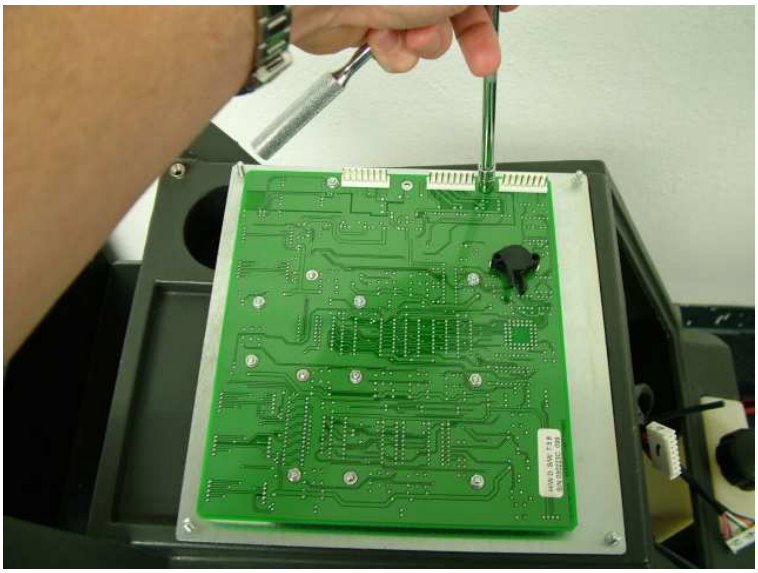
CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD FROM TOP

3. Remove the 4 nyloc nuts securing the control board assembly using 3/8” socket

4. Place board assembly on top of unit and remove screws or nuts to separate circuit board from display panel.



5. Replace circuit board.
6. Reassemble and test.

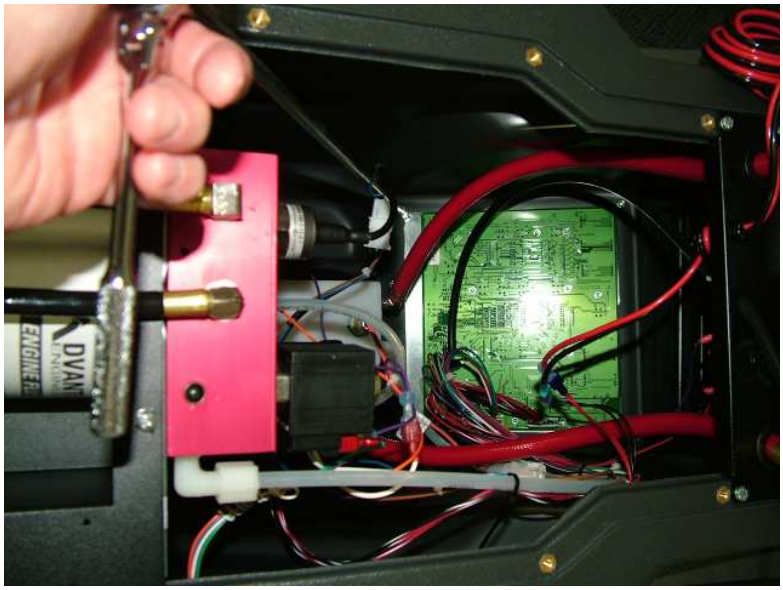
CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD FROM REAR

1. Remove rear center panel, seven (7) Phillips screws.

2. Remove the 4 nyloc nuts securing the front control board assembly using long extension with 3/8” Socket.



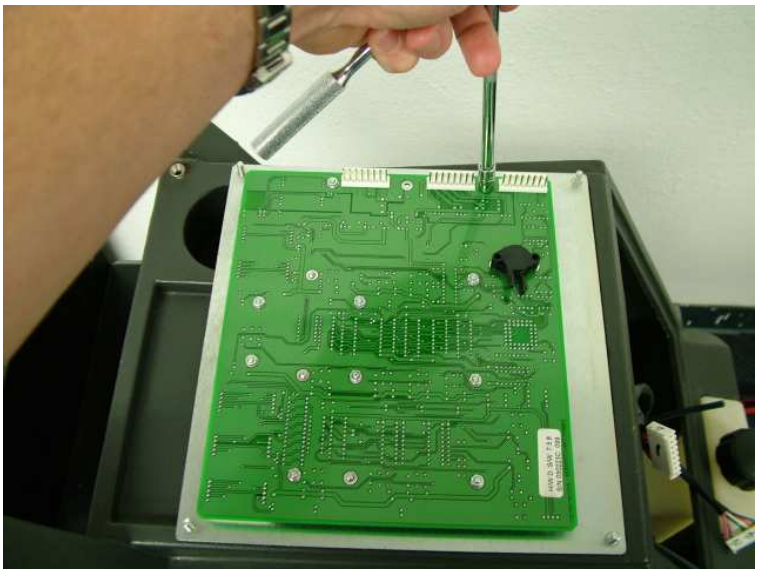
CHAPTER 4

SERVICE PROCEDURES

REPLACING CIRCUIT BOARD FROM REAR

3. Disconnect wire connectors from board, if not marked J1, J2, J3 please mark before removal.

4. Place board assembly on top of unit and remove screws or nuts to separate circuit board from display panel



5. Replace circuit board
6. Reassemble and test.