

INSTRUCTION MANUAL

Serial No. _____

Model No. _____

LSSC-ELECTRIC

Modification Code _____

Part Number - Issue _____



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MODEL LSSC

LOW SUCTION SHUTDOWN CONTROLLER

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MODEL LSSC

LOW SUCTION SHUTDOWN CONTROLLER

GENERAL: The model LSSC shutdown control has been designed to shutdown a Master Diesel or Electric fire pump controller from either an optional pressure switch or an external form 'C' contact supplied by others. The LSSC control will shutdown the fire pump controller regardless of any fire demand or remote start signals which would ordinarily cause the fire pump to run.

INSTALLATION INSTRUCTIONS

MOUNTING: The LSSC panel must be mounted in the vertical position, and in an area free from dripping and spraying water.

SAFETY PRECAUTION: Before any electrical connections are made to panel, make sure the panel fuses are removed.

POWER SUPPLY: Use branch circuit protection on the incoming power source(s).

SEQUENCE OF OPERATION

MODEL 'LSSC' SHUTDOWN CONTROL PANEL

(For Electric Fire Pump Controller Application)

The model 'LSSC' Shutdown Control Panel provides: a) isolated SP.DT. contacts wired to terminals for Fire Pump Controller shutdown circuit and alarms; b) signal lamps to indicate Low Suction Pressure and panel Power On; c) audible alarm; and d) toggles switches for alarm off and manual reset.

In addition, the following optional features may be furnished:

- Option '1' -- Shutdown pressure switch mounted on control panel.
- Option '2' -- Dual Input Power sensing to provide automatic transfer of input voltage from Fire Pump Controller to Separate Reliable Power Source on power failure. This option also provides indicating lamps for "Supply Power Normal" (SL-2) and "Supervisory Power Normal" (SL-4).
- Option '3' -- Repetitive Alarm Signals.
- Option '4' -- Automatic Reset Delay.

SEQUENCE OF OPERATION

----- NO OPTIONS -----

Low Suction Pressure Shutdown:

Customer's shutdown signal contacts wired between terminals 13 & 14 close to energize Low Suction Pressure signal lamp (SL-3) and timer TD1. After timer TD1 completes its timing cycle, contacts TD1-A close to seal-in TD1 electrically. Contacts TD1-C close to energize relay K3 and the audible alarm. Contacts K3C & K3D transfer to initiate Fire Pump Controller shutdown. Contacts K3A & K3B transfer to provide shutdown alarm signal.

Alarm Off:

Actuating the "Alarm Off" toggle switch (SW-1) energizes relay K5. Contacts K5C close to seal-in K5 and contacts K6B open to silence the audible alarm.

Manual Reset:

Actuating the "Manual Reset" toggle switch (SW-2) de-energizes timer TD1 to restore the Shutdown Control Panel to normal shutdown readiness.

SEQUENCE OF OPERATION MODEL 'LSSC' SHUTDOWN CONTROL PANEL
(Continued)

(For Electric Fire Pump Controller Application)

SEQUENCE OF OPERATION

OPTION '1' - PRESSURE SWITCH SHUTDOWN (Factory Installed)

Low Suction Pressure Shutdown:

Option 1 provides a pressure switch mounted on the control panel.

Upon sensing low pressure, the pressure switch closes its contacts (PS) to energize timer TD1 to initiate shutdown in identical sequence as previously described in paragraph "Low Suction Shutdown -- No Options".

Alarm Off & Manual Reset:

Identical to sequence previously described.

SEQUENCE OF OPERATION

OPTION '2' - DUAL INPUT POWER

Dual Input Power:

A failure of power received from the Fire Pump Controller will de-energize relay K1. Contacts K1A & K1B and K1C & K1D transfer to provide panel power from the Separate Reliable Power Source. Contacts K1F close to energize the audible alarm. Contacts K1E open to de-energize the "Supply Power Normal" signal lamp (SL-2).

If the Separate Reliable Power Source fails, relay K2 becomes de-energized. Contacts K2A open to de-energize the "Supervisory Power Normal" signal lamp (SL-4). Contacts K2B close to energize the audible alarm.

Low Suction Shutdown Alarm Off & Manual Reset:

Identical to sequence previously described.

SEQUENCE OF OPERATION MODEL 'LSSC' SHUTDOWN CONTROL PANEL
(Continued)

(For Electric Fire Pump Controller Application)

SEQUENCE OF OPERATION

OPTION '3' - REPETITIVE ALARMS

Low Suction Pressure Shutdown:

Identical to sequence previously described.

Alarm Off:

Actuating the "Alarm Off" switch (SW-1) energizes relay K5 thru closed contacts TD1-C. Contacts K5C close to seal-in relay K5 electrically. Contacts K5B open to de-energize the audible alarm.

If the power supply being received from the Fire Pump Controller fails, then relay K1 becomes de-energized. Contacts K1F close to energize the audible alarm. Actuating the "Alarm off" switch under this condition will energize relay K6. Contacts K6C close to seal-in relay K6 electrically and contacts K6B open to de-energize the audible alarm.

If Option '2' is provided and a Power failure occurs, on the Separate Reliable Source, then relay K2 becomes de-energized. Contacts K2B close to energize the audible alarm. Actuating the "Alarm Off" switch under this condition energizes relay K7. Contacts K7C close to electrically seal-in relay K7. Contacts K7B open to de-energize the audible alarm.

Manual Reset:

Identical to sequence previously described.

SEQUENCE OF OPERATION MODEL 'LSSC' SHUTDOWN CONTROL PANEL
(Continued)

(For Electric Fire Pump Controller Application)

SEQUENCE OF OPERATION

OPTION '4' - AUTOMATIC RESET DELAY

Low Suction Pressure Shutdown:

Customer's shutdown signal contacts (SP.DT.) or, if Option '1' is provided, factory installed pressure switch (SP.DT.) wired between terminals 13 & 14 and 13 & 12 transfer to energize timer TD1 & "Low Suction Pressure" signal lamp (SL-3) and de-energize timer TD2. Contacts TD1-A & TD2-B close to seal-in timer TD1. Shutdown & alarm circuits are now energized in the same sequence as previously described.

Alarm Off & Manual Reset:

Identical to sequences previously described.

Automatic Reset Delay:

Upon the return of normal system pressure, customer's signal contacts (SP.DT.) or, if Option '1' is provided, factory installed pressure (SP.DT.) contacts transfer to energize timer TD2. After timer TD2 completes its timing cycle, contacts TD2-B open to de-energize timer TD1 to restore the Shutdown Control Panel to normal shutdown readiness.

REPLACEMENT PARTS LIST

MODEL 'LSSC' SHUTDOWN CONTROL PANEL (115 VAC)

(For Electric Fire Pump Controller Application)

<u>MCS PART NO.</u>	<u>DESCRIPTION</u>
800435	115 VAC Relay (K1)
800425	115 VAC Relay - 2P.DT. (K2)
800422	24 VDC Relay - 2P.DT. (K3, K5-K7)
304761	24 VDC Time Delay Relay (TD1, TD2)
609410	Diode Module (DM1)
609411	Diode Module (DM2)
400268	Toggle Switch - DP.DT. Mom. (SW1, SW2)
400013	3AG Fuseholder (F1, F2 & F3)
780235	Sonalert Alarm
305340	Lamp Lens - Red (SL3)
305341	Lamp Lens - Grn (SL1 & SL2)
305343	Lamp Lens - Wht (SL4)
401696	Lamp Socket
304815	Transformer (TF1)
400699	Pressure Switch (PS)

SYMBOL LIST FOR MODEL 'LSSC'

(For Electric Fire Pump Controller Application)

SYMBOL

DESCRIPTION

RELAYS

K1	Input (Normal Supply) Power Monitor
K2 (Option 2)	Supervisory Power Monitor Alarm
K3	Shutdown
K5	Shutdown Alarm Silence
K6 (Option 3)	Normal Power Fail Alarm Silence
A to F	Relay Contacts. Each contact carrier the relay coil designation as its prefix.

TIMERS

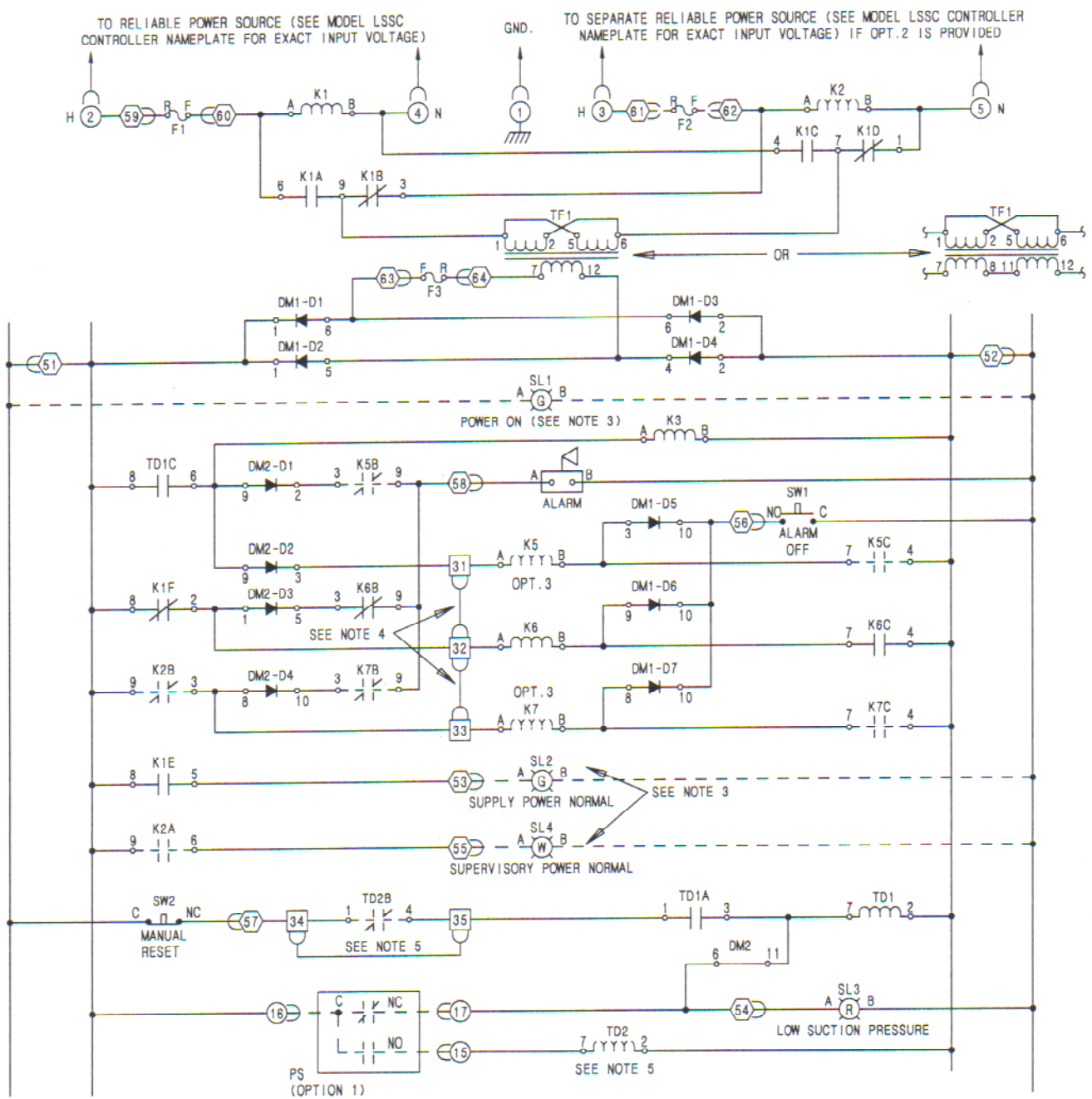
TD1	Shutdown Delay
TD2	Automatic Reset Delay

SIGNAL LIGHTS

SL-1 (Not provided with Option 2)	Power ON - Grn
SL-2 (Option 2)	Supply Power Normal - Grn
SL-3	Low Suction Pressure - Red
SL-4 (Option 2)	Supervisory Power Normal - Wht

MISC. CONTROL COMPONENTS

F1	Fire Pump Controller Power Input Protection Fuse
F2	Supervisory Power Input Protection Fuse
F3	TF1 Secondary (Control Power) Fuse
P.S. (Option 1)	Pressure Switch
SW-1	Alarm Off Switch
SW-2	Manual Reset Switch
TF1	Stepdown Transformer
DM1, DM2	Diode Modules
31 to 36	Factory Wiring Terminals (Option Jumpers)
51 to 56	Factory Wiring Terminals (Door Wiring)
1 to 17	Field Wiring Terminals

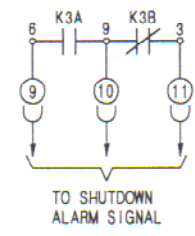
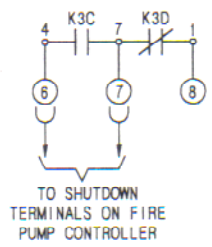


NOTES

1. ALL RELAY CONTACTS ARE SHOWN IN THE DE-ENERGIZED (RELEASED) POSITION.
2. WHEN "PRESSURE SWITCH SHUTDOWN" (OPTION 1) IS FURNISHED, THE PRESSURE SWITCH IS PROVIDED.
3. WHEN "DUAL INPUT POWER" (OPTION 2) IS FURNISHED, F2, RELAY K2 & SIGNAL LAMPS SL2 & SL4 ARE PROVIDED. LAMP SL1 IS REMOVED.
4. WHEN "REPETITIVE ALARM SIGNALS" (OPTION 3) IS FURNISHED, JUMPERS ON TERMINALS 31-32 & 32-33 ARE REMOVED AND RELAYS K5 & K7 ARE PROVIDED.
5. WHEN "AUTOMATIC RESET DELAY" (OPTION 4) IS FURNISHED, JUMPER ON TERMINALS 34-35 IS REMOVED AND TIMER TD2 IS PROVIDED.

THIS DRAWING APPLIES TO LSSC CONTROLS WITH ANY OR ALL OF THE FOLLOWING OPTIONS:

1. PRESSURE SWITCH SHUTDOWN
2. DUAL INPUT POWER
3. REPETITIVE ALARM SIGNALS
4. AUTOMATIC RESET DELAY



SCHEMATIC DIAGRAM LSSC SHUTDOWN CONTROL FOR ELECTRIC CONTROLLERS	
MASTER CONTROL SYSTEMS INC. LAKE BLUFF, ILLINOIS U.S.A.	
USED ON	RE-PLOT 11 Sept 00
DRN. KWM	DES.
APP.	DATE 30 DEC. 97
DWG. 7764	ISS. 1 SHEET 1 OF 1

EXTERNAL WIRING-MODEL LSSC

ISSUE

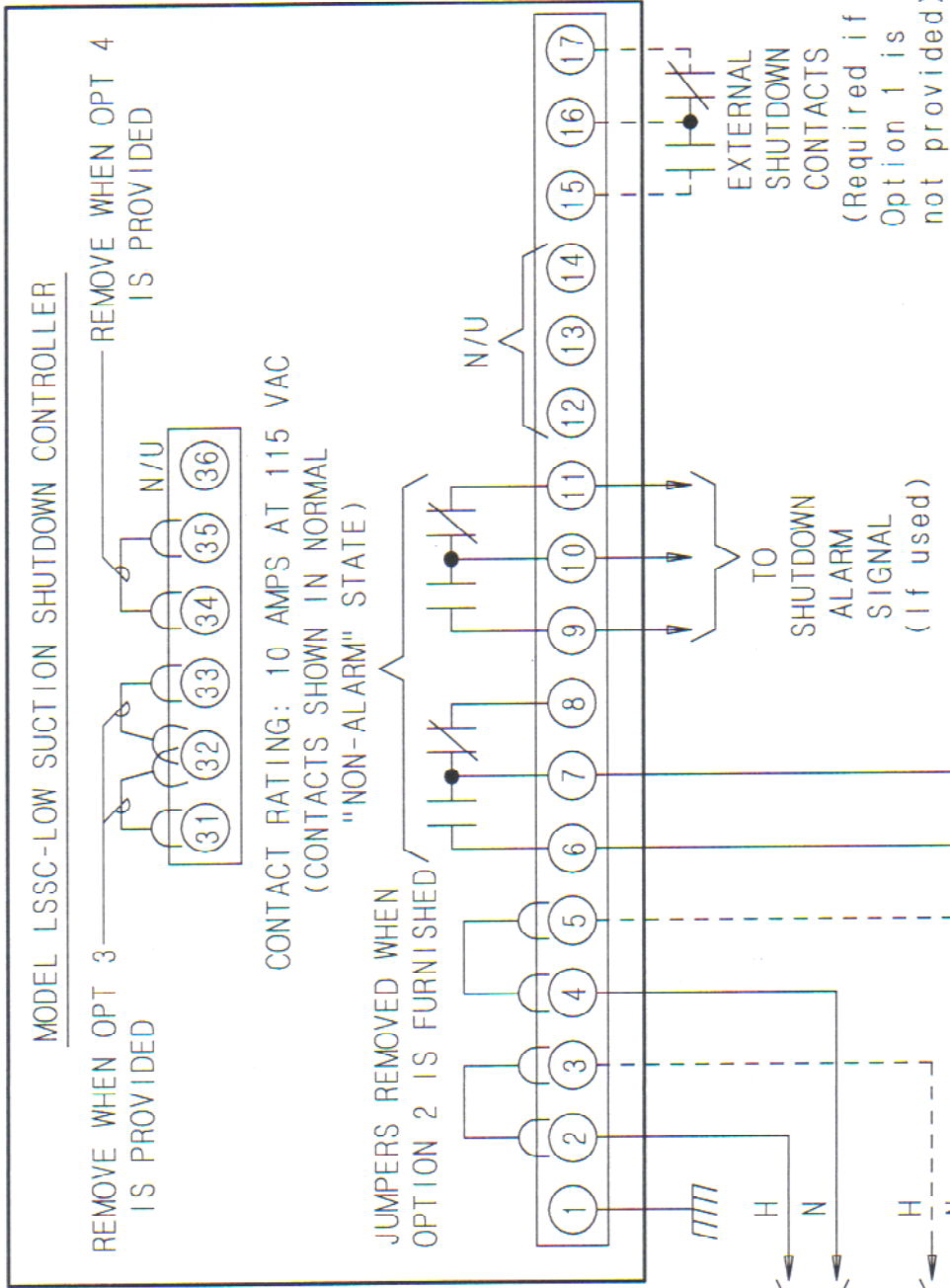
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SUMMARY

Add EC/MC Terminal Numbers / JEM 5-28-04

This drawing applies to series LSSC Low Suction Shutdown Controller with any or all of the following optional features:

1. PRESSURE SWITCH SHUTDOWN
2. DUAL INPUT POWER
3. REPETITIVE ALARM SIGNAL
4. AUTOMATIC RESET RELAY



EXTERNAL WIRING	
MODEL LSSC WITH	
ELECTRIC CONTROLLER	
MASTER CONTROL SYSTEMS INC. LAKE BLUFF, ILLINOIS U.S.A.	
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