

SAN/0499-82  
MDC G9705

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10 MWe Solar Thermal  
Central Receiver Pilot Plant

SOLAR FACILITIES DESIGN INTEGRATION

*STMP0 #239  
EXTRA Q.L.S.*

**PLANT MAINTENANCE/TRAINING MANUAL  
(RADL ITEM 2-37)  
SECTION 6 — CONTROL AND DATA SYSTEMS  
BOOK 1 OF 3**

**September 1982**

WORK PERFORMED UNDER CONTRACT  
DE-AC03-79SF10499

MCDONNELL DOUGLAS ASTRONAUTICS COMPANY  
5301 BOLSA AVENUE  
HUNTINGTON BEACH, CA 92647



**U.S. Department of Energy**



Rockwell International  
Rocketdyne Division



**Solar Energy**

**10 MWe Solar Thermal  
Central Receiver Pilot Plant  
Solar Facilities Design Integration**

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**PLANT MAINTENANCE/TRAINING MANUAL  
(RADL ITEM 2-37)  
SECTION 6 — CONTROL AND DATA SYSTEMS, BOOK 1 OF 3**

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**September 1982**

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**MCDONNELL DOUGLAS ASTRONAUTICS COMPANY  
5301 BOLSA AVENUE  
HUNTINGTON BEACH, CA 92647**

**PREPARED FOR THE  
U.S. DEPARTMENT OF ENERGY  
SOLAR ENERGY  
UNDER CONTRACT DE-AC03-79SF10499**

UPDATE FOR  
PLANT MAINTENANCE/TRAINING MANUAL

(RADL ITEM 2-37)  
SECTION 6 - CONTROL AND DATA SYSTEMS

Instructions:

1. This update is issued to incorporate corrections and additions to the preface, table of contents, index-tab pages and to incorporate additional information for paragraphs 6.1, 6.2, 6.3, 6.6, 6.7, 6.8, 6.9, 6.10, and 6.13. When the following instructions are followed parts of the July 1981 two (2) book issue of Section 6 will be incorporated into the September 1982 three (3) book issue of Section 6. The three (3) book September 1982 issue for Section 6 of RADL 2-37 is composed by completing the steps itemized below as follows: Book 1, Steps 2 through 6; Book 2, Steps 7 through 12; and Book 3, Steps 13 through 16.
2. Begin with Book 1 of the July 1981 issue at one side and Book 1 of the September 1982 issue at the other side.
3. Please remove the ACCO fastener from these two books.
4. From the July 1981 issue remove the preface, index-tab pages for paragraphs 6.3 and 6.4, and text pages for paragraph 6.4 and place these items in their appropriate place in the September 1982 issue.
5. Please replace the ACCO fastener in the newly composed September 1982 Book 1.
6. The remains of the Book 1 July 1981 issue may be disposed of.
7. Next place Book 2 of the July 1981 issue at one side and Book 2 of the September 1982 issue at the other side.
8. Please remove the ACCO fasteners from these two books.

9. From the July 1981 issue remove the preface, index-tab page and the text pages for paragraph 6.5, and the index-tab pages for paragraphs 6.6, 6.7 and 6.8.
10. Place these items in their appropriate place in the September 1982 issue.
11. Please replace the ACCO fastener in the newly composed September 1982 Book 2.
12. Now from the remains of the July issue of Book 2 remove and set aside the text pages from paragraphs 6.11 and 6.12. These pages are to be incorporated into Book 3 in the following steps.
13. Please remove the ACCO fastener from the September 1982 book 3.
14. Place the text pages for paragraphs 6.11 and 6.12 (which were set aside above in Step 12) in their appropriate places in Book 3.
15. Please replace the ACCO fastener in the newly composed September 1982 Book 3.
16. The remains of the July 1981 Book 2 may be disposed of.
17. This update is now completed.

## PREFACE

This document is provided by the McDonnell Douglas Astronautics Company (MDAC) in accordance with Department of Energy Contract Number DE-AC03-79SF10499, Reports and Deliverables List Item 2-37. The material presented here is intended for training and maintenance usage by Southern California Edison Operations Personnel.

Specific notes on the organization and content of the document are as follows:

1. This document is organized in major sections that reflect the top level breakdown of the Master Equipment List as defined in RADL Item 2-19. This is in contrast to the subsystem approach used in designing the plant, however, is consistent with the Southern California Edison operating plant equipment lists.

- Section 1 - Rotating Apparatus
- Section 2 - Stationary Apparatus
- Section 3 - Electrical Apparatus
- Section 4 - Valves
- Section 5 - Instrumentation
- Section 6 - Control and Data Systems
- Section 7 - Collector System
- Section 8 - Special Heliostat Instrumentation and Meteorological Measurements Equipment
- Section 9 - Heating Ventilating and Air Conditioning
- Section 10 - Facilities

2. Assignments to categories are made on the basis of the lowest level tag numbers. For example, maintenance information for the thermal storage extraction pump skid assembly (SA-309) is not listed in the stationary apparatus section, but broken down to the generic categories as defined by the tag number; i.e., pumps (Section 1.2), air operated stop valves (Section 4.2), pressure transmitter (Section 5.2), etc.

3. The Process Instrumentation Section (Section 5.0) is organized on the basis of sensor type as defined by the first letter of the designating tag number. It contains sensor-related information only. Signal conditioning equipment is treated in Section 6.0.

4. The information on the Collector System, which was provided by the Martin Marietta Corp. (MMC) and the major items of the Electrical Power Generation System equipment, provided by Southern California Edison is not provided herein. However, the various sections were structured for their inclusion where applicable.

Technical questions concerning this RADL Item should be directed to Mr. R. G. Riedesel at (714) 896-3357 or Mr. R. J. Perkins at (714) 896-3073.

## TABLE OF CONTENTS

- 1.0 Rotating Apparatus
  - 1.1 Turbine-Generator
  - 1.2 Pumps
  - 1.3 Fans
  - 1.4 Air Compressor
  - 1.5 Blowers
  - 1.6 Centrifuges
  
- 2.0 Stationary Apparatus
  - 2.1 Heat Exchangers
  - 2.2 Receiver Panels
  - 2.3 Tanks, Vessels, and Receivers (Air or GN<sub>2</sub>)
  - 2.4 Deaerator
  - 2.5 Condenser (turbine-generator)
  - 2.6 Desuperheaters
  - 2.7 Filters and Strainers
  - 2.8 Demineralizers
  - 2.9 Heaters
  - 2.10 Dryers
  - 2.11 Separators
  - 2.12 Ullage Gas Supply and Conditioning
  - 2.13 Auxiliary Boilers
  - 2.14 Sewage Treatment Plant
  - 2.15 Expansion Joints
  - 2.16 Orifice Plates
  
- 3.0 Electrical Apparatus
  - 3.1 Transformers
  - 3.2 Motor Control Centers
  - 3.3 Substations
  - 3.4 Junction Boxes
  - 3.5 Switchgear
  - 3.6 Power Panels
  - 3.7 Cables
  
- 4.0 Valves
  - 4.1 Modulating Control and Related Solenoid Valves
  - 4.2 Air Operated Stop and Related Solenoid Valves
  - 4.3 Motor Operated Valves (MOV)
  - 4.4 Other Solenoid Valves
  - 4.5 Safety-Relief Valves
  - 4.6 Check and Stop Check Valves
  - 4.7 Manual Valves
  - 4.8 Pressure Regulator
  - 4.9 Rupture Discs
  - 4.10 Traps

## 5.0 Process Instrumentation

- 5.1 (T) Temperature
- 5.2 (P) Pressure and Differential Pressure
- 5.3 (F) Flowrate
- 5.4 (L) Level
- 5.5 (W) Weight/Force
- 5.6 (A) Analysis
- 5.7 (I) Current
- 5.8 (E) Voltage
- 5.9 (J) Power
- 5.10 (Y) Heat
- 5.11 (S) Speed/Frequency
- 5.12 (C) Conductivity
- 5.13 (Z) Position
- 5.14 (O) Deflection
- 5.15 (X) Vibration

## 6.0 Control and Data Systems

- 6.1 Subsystem Distributed Process Control (SDPC)
- 6.2 Control Console (CON)
- 6.3 Interlock Logic System (ILS)
- 6.4 Signal Conditioning Unit (SCU)
- 6.5 Red-Line Unit (RLU)
- 6.6 Data Acquisition System (DAS)
- 6.7 Data Acquisition Remote Multiplexer System (DARMS)
- 6.8 Operational Control System (OCS)
- 6.9 Beam Characterization System (BCS)
- 6.10 Special HelioStat Instrumentation and Meteorological Measurement System (SHIMMS)
- 6.11 Solid State Relays
- 6.12 T.C. Reference Junctions
- 6.13 MCS Timing System

## 7.0 Collector System

- 7.1 HelioStat Assembly
- 7.2 HelioStat Drive System
- 7.3 HelioStat Pedestal Assembly
- 7.4 HelioStat Controller (HC)
- 7.5 HelioStat Field Controller (HFC)
- 7.6 Computer Control System

## 8.0 Special HelioStat Instrumentation and Meteorological Measurements Systems Equipment

- 8.1 Meteorological Equipment
- 8.2 Special HelioStat Instrumentation

## 9.0 Heating, Ventilating, and Air Conditioning

- 9.1 Material Data
- 9.2 Thermal Storage Control Buildings Cooling
- 9.3 Thermal Storage Electrical Equipment Building Cooling
- 9.4 Thermal Storage Control Building Heating

10.0 Facilities

- 10.1 Fire Protection
- 10.2 Elevator
- 10.3 Buildings
- 10.4 Electronics Enclosures
- 10.5 Receiver Tower
- 10.6 Pipe Rack



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**6.1 SUBSYSTEM DISTRIBUTED PROCESS CONTROL  
(SDPC)**

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## 6.1 SUBSYSTEM DISTRIBUTED PROCESS CONTROL (SDPC)

The SDPC consists of all the components of paragraphs 6.2, and 6.3. See section CI 3 of the Solar I Training Manual, SAN/0499-80, MDC G9382 for the general description. Beckman Instruments, Inc. Instruction Manuals, Operating Procedures, and "AS BUILT" documentation provide the detailed information on this subsystem.

### 6.1.1 Periodic Maintenance

Standard periods for the following maintenance items shall be as follows:

- (a) Air filters - Replace or clean - 60 days
- (b) Muffin fans - verify operational - 30 days
- (c) Vacuum clean console/bays - 6 months
- (d) Lubrication - per manufacturer's instruction manual
- (e) Power supplies - verify per manufacturer's instruction manual
- (f) Disk drives - per manufacturer's instruction manual
- (g) Trend recorders - per manufacturer's instruction manual
- (h) Logger/printers - per manufacturer's instruction manual
- (i) MODICON 584 PC CMDS Battery Pack - verify operational - "ON" - daily
- (j) MODICON 584 PC CMOS Battery Pack - replace per manufacturer's instruction manual
- (k) Air Conditioners - per manufacturer's instruction manual

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**6.2 CONTROL CONSOLE (CON)**

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6.2 CONTROL CONSOLE  
(CON)

62-1

<u>Equipment Number</u>	<u>Description</u>	<u>Maintenance Section</u>	<u>Dwg. Number</u>
CON 701	Control Console - Collector Subsystem Section	6.2.1	ID44805
CON 702	Control Console - Receiver Subsystem Section	6.2.1	ID44766
CON 703	Control Console - Operations Control Sys. Section	6.2.1	ID44766
CON 704	Control Console - TSS & EPGS Section	6.2.1	ID44766
CON 705	Control Console - Turbine System	6.2.1	ID44766
CON 706	R. S. Logger	6.2.1	ID44164
CON 707	TSS Logger	6.2.1	ID44164
CON 708	EPGS Logger	6.2.1	ID44164

## 6.2 CONTROL CONSOLE

### 6.2.1 CONTROL CONSOLE (CON) (Units CON 701 through CON 708)

#### 6.2.1.1 Identification Tag No.

#### Description

CON 701	Control Console Collector Subsystem Section
CON 702	Control Console Receiver Subsystem Section
CON 703	Control Console - Operations Control Sys. Section
CON 704	Control Console TSS & EPGS Section
CON 705	Control Console - Turbine Systems
CON 706	Receiver Subsystem - Logger
CON 707	TSS - Logger
CON 708	EPGS - Logger

#### 6.2.1.2 Description

See the following documents:

SAN/0499-80 MDC G9382	Solar One Training Material Sections CI-2 and CI-3
Beckman Dwg.	SPS-610617 Installation Drawing MV8000 Console
Beckman Dwg.	730293 Diagram Interconnect (Solar)
Beckman Dwg.	730000 Console Assy. (Solar)
Beckman Dwg.	730298 Diagram Pictorial Wiring - Hiway Structures
Beckman	Instruction Manuals

#### 6.2.1.3 Prescribed Service

N/A

#### 6.2.1.4 Vendor

Beckman Instruments, Inc.  
Process Instruments Division  
2500 Harbor Boulevard  
Fullerton, California 92634  
Telephone: (714) 773-8751

#### 6.2.1.5 Special Cautions

1. Do not remove circuit boards with power on.
2. Handle circuit boards with accepted methods for MOS electronic circuit components.
3. Lock the CCM data bus or position the keyboard keylock to "Station Locked" if working on "Non Configuration Element" when rest of system active, e.g. - HTP, PGP, Logger/Printer.

#### 6.2.1.6 Periodic Service

See paragraph 6.1.1

#### 6.2.1.7 Parts List

<u>Item</u>	<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	1	730000	Console Assy, Solar
2	38	730117	Cable Assy, Hiway Interface
3	4	W190-100	Cable Assy MODBUS Interface
4	16	730145	Cable MCS to SDPC

(See Beckman "AS BUILT" documentation for detailed parts, installation and interconnection).

#### 6.2.1.8 Special Tools

Beckman P/N 888090 Operator Station ISC 8001 Extender Card  
Beckman P/N 888091 Multibus Extender Card  
Beckman P/N 888082 IPAC 86 Pin Extender Card  
Beckman P/N 888093 IPAC 44 Pin Extender Card

#### 6.2.1.9 Maintenance Instructions

See Beckman Instruction Manuals for location of switches, breakers, fuses, indicators, fans, filters, circuit cards, voltage test points, adjustments, and lubrication points.

#### 6.2.1.10 Acceptance Tests

N/A

6.3-1

<u>Equipment Number</u>	<u>Description</u>	<u>Maintenance Section</u>	<u>Dwg Number</u>
ILS 601	ILS MUX	6.3.1	ID44164
ILS 602	ILS MUX	6.3.1	ID44164
ILS 603	ILS PLC	6.3.1	ID44164
ILS 604	ILS PLC	6.3.1	ID44164
ILS 101	ILS Remote Unit (Wall)	6.3.2.1	ID44164
ILS 201	ILS Cabinet (Wall)	6.3.2.2	ID44164
ILS 301	ILS Cabinet (Wall)	6.3.2.3	ID44164
ILS 401	ILS Cabinet (Wall)	6.3.2.4	ID44164
ILS 402	ILS Cabinet (Wall)	6.3.2.4	ID44164
ILS 403	ILS Cabinet (Wall)	6.3.2.4	ID44164
ILS 501	ILS Cabinet (Wall)	6.3.2.5	ID44164



<u>Equipment Number</u>	<u>Description</u>	<u>Maintenance Section</u>	<u>Dwg. Number</u>
SDP 101	SDPC-MVCU	6.3.2.1	ID44164
SDP 102	SDPC-MVCU	6.3.2.1	ID44164
SDP 103	SDPC-MVCU	6.3.2.1	ID44164
SDP 104	SDPC-MVCU	6.3.2.1	ID44164
SDP 105	SDPC-MVCU	6.3.2.1	ID44164
SDP 106	SDPC-Multiplexer	6.3.2.1	ID44164
SDP 107	SDPC-MVCU Termination (Wall)	6.3.2.1	ID44164
SDP 108	SDPC-MVCU Termination (Wall)	6.3.2.1	ID44164
SDP 109	SDPC-MVCU Termination (Wall)	6.3.2.1	ID44164
SDP 110	SDPC-MVCU Termination (Wall)	6.3.2.1	ID44164
SDP 201	SDPC-MVCU	6.3.2.2	ID44164
SDP 202	SDPC-MVCU	6.3.2.2	ID44164
SDP 203	SDPC-MVCU	6.3.2.2	ID44164
SDP 204	SDPC-Multiplexer	6.3.2.2	ID44164
SDP 205	SDPC MVCU Termination Cabinet	6.3.2.2	ID44164
SDP 301	SDPC-MVCU	6.3.2.3	ID44164
SDP 302	SDPC-MVCU	6.3.2.3	ID44164
SDP 303	SDPC-MVCU	6.3.2.3	ID44164
SDP 304	SDPC-Multiplexer	6.3.2.3	ID44164
SDP 305	SDPC-Termination Cabinet	6.3.2.3	ID44164
SDP 401	SDPC-MVCU	6.3.2.4	ID44164
SDP 402	SDPC-MVCU	6.3.2.4	ID44164
SDP 403	SDPC-MVCU	6.3.2.4	ID44164
SDP 404	SDPC-Multiplexer	6.3.2.4	ID44164
SDP 405	SDPC-MVCU Termination Cabinet	6.3.2.4	ID44164
SDP 406	Termination Rack	6.3.2.4	ID44164

### 6.3 INTERLOCK LOGIC SYSTEM

#### 6.3.1 MAIN INTERLOCK LOGIC SYSTEM (Units ILS601 thru ILS 604)

6.3.1.1 <u>Identification Tag No.</u>	<u>Description</u>
ILS 601	Four Bay Rack Assy
ILS 602	Main Interlocking Logic
ILS 603	System (ILS)
ILS 604	

#### 6.3.1.2 Description

See the following documents:

SAN/0499-80 MDC G9382	Solar One Training Manual Sections CI 2, CI 2, CI 4, CI 5
Beckman Dwg.	SPS-610617 Installation Dwg. - MV8000 Console
Beckman Dwg.	730000 Console Assy. Solar
Beckman Dwg.	730298 Diagram Pictorial Wiring Hiway Structures
Beckman Dwg.	730109 4 Bay Rack Assy, Main interlocking Logic System (ILS)
Beckman Dwg.	730546 584 Structures Dwg.
IPAC	Instruction Book for Series 1500 Remote Process I/O Terminal
Gould	MODICON P190 Programmer Users Manual
Gould	MODICON 584 Programmable Controller Users Manual
Gould	MODICON 184/384 Manual Sections B, C

#### 6.3.1.3 Prescribed Service

N/A

#### 6.3.1.4 Vendor

Beckman Instruments, Inc.  
Process Instruments Division  
2500 Harbor Boulevard  
Fullerton, Ca. 92634  
Telephone: (714) 773-8751

#### 6.3.1.5 Special Conditions

1. Do not remove circuit boards with power on (MODICON B232 and B233 I/O modules may be removed or installed with power on).
2. Handle circuit boards with accepted methods for MOS electronic circuit components.

#### 6.3.1.6 Periodic Service

See paragraph 6.1.1

#### 6.3.1.7 Parts List

Beckman - Main Interlock Logic System (Units 601 thru 604)

<u>Item</u>	<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	1	730109	4 Bay Rack Assy Main Interlock Logic System (ILS)
2	1	730150	Panel Assy, Switch Single
3	1	730151	Panel Assy, Switch Dual
4	1	730625	Cable P190 MV8000 Printer
5	12	730148	Cable Assy, Dedicated Switch Panel

(See Beckman "AS BUILT" documentation for detailed parts, installation and interconnection).

Gould MODICON - Programming Accessories

<u>Item</u>	<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	1	P190-112	Multifamily Programmer
2	1	T584-001	584 Programmer Tape
3	1	T584-002	584 Utility Tape

(Ref: Beckman Dwg. 771720, Deliverables Programming Accessories)

6.3.1.8 Special Tools

Beckman P/N 888092 IPAC 86 Pin Extender Card

Beckman P/N 888093 IPAC 44 Pin Extender Card

6.3.1.9 Maintenance Instructions

See Beckman Instruction Manuals, IPAC Instruction Manuals, and Gould-MODICON Instruction Manuals for location of switches, breakers, fuses, indicators, fans, filters, circuit cards, modules, voltage test points, adjustments, and lubrication points.

6.3.1.10 Acceptance nests

N/A

## 6.3.2 REMOTE INTERLOCK LOGIC SYSTEM

### 6.3.2.1 Remote Station 1 (Units SDP101 thru SDP 110, ILS 101)

6.3.2.1.1 <u>Identification Tag No. 1</u>	<u>Description</u>
SDP 101	Enclosure Assy
SDP 102	
SDP 103	
SDP 104	
SDP 105	
SDP 106	
SDP 107	Remote Station 1 MVCU Termination Box 1-1
SDP 108	Remote Station 1 MVCU Termination Box 1-2
SDP 109	Remote Station 1 MVCU Termination Box 1-3
SDP 110	Remote Station 1 MVCU Termination Box 1-4
ILS 101	Box Assy, Interlock Logic System (ILS)

### 6.3.2.1.2 Description

See the following documents:

SAN/0499-80 MDC G 9382	Solar One Training Manual Sections CI 1, CI 2, CI 3, CI 4, CI 5
IPAC	Instruction Book for Series 1500 Remote Process I/O Terminal
Gould	MODICON P190 Programmer Users Manual
Gould	MODICON 584 Programmable Controller Users Manual
Gould	MODICON 184/384 Manual Sections B, C
Beckman	Instruction Manual Sections 7-01, 8-03 8-05, 8-09
Beckman	Technical Data Sheet TOP 8-05
Beckman	Operator Interface Unit Technical Data

#### 6.3.2.1.3 Prescribed Service

N/A

#### 6.3.2.1.4 Vendor

Beckman Instruments, Inc.  
Process Instruments Division  
2500 Harbor Boulevard  
Fullerton, California 92634  
Telephone: (714) 773-8751

#### 6.3.2.1.5 Special Cautions

1. Do not remove circuit boards with power on.
  - a. (MODICON I/O Modules B232, B233, B246, B266 may be removed or installed with power "ON").
  - b. (MVCU Analog Conditioning Module I/O circuit boards may be removed or installed with power on if the power switch on the circuit board is pushed to "OFF" position.)
2. Handle circuit boards with accepted methods for MOS electronic circuit components.

#### 6.3.2.1.6 Periodic Service

See paragraph 6.1.1

### 6.3.2.1.7 Parts List

Beckman SDPC Remote Station 1 Units SDP 101 thru 110. ILS 101 and OPIU

<u>Item</u>	<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	1	730105	Enclosure Assy Remote Station 1
2	1	730130	Remote Station 1: MVCU Termination Box 1-1
3	1	730130	Remote Station 1: MVCU Termination Box 1-2
4	1	730130	Remote Station 1: MVCU Termination Box 1-3
5	1	730130	Remote Station 1: MVCU Termination Box 1-4
6	1	730110	Box Assy, Interlock Logic System (ILS)
7	18	645149	Harness Assy - Interconnect 25 ft.
8	19	645150	Harness Assy - Interconnect 50 ft.
9	1	6456820	Operator Interface Unit
10	1	730299	Cable Assy, OPIU

(See Beckman "AS BUILT" documentation for detailed parts, installation and interconnection)

### 6.3.2.1.8 Special Tools

Beckman P/N 888091 Multibus Extender Card

Beckman P/N 888092 IPAC 86 Pin Extender Card

Beckman P/N 888093 OPAC 44 Pin Extender Card

### 6.3.2.1.9 Maintenance Instructions

See Beckman Instruction Manuals, IPAC Instruction Manuals, and Gould - MODICON Instructions Manuals for location of switches, breakers, fuses, indicators, fans, filters, circuit cards, modules, voltage test points, adjustments, and lubricant points.

6.3.2.2 Remote Station 2 (Units SDP 201 thru SDP 205 and ILS 201)

6.3.2.2.1 Identification

<u>Tag No.</u>	<u>Description</u>
SDP 201	Enclosure Assy Remote Station 1
SDP 202	
SDP 203	
SDP 204	
SDP 205	Enclosure Assy, MVCU Termination - RS 2
ILS 201	Box Assy, Interlock Logic System (ILS)

6.3.2.2.2 Description

Same as paragraph 6.3.2.1.2

6.3.2.2.3 Prescribed Service

N/A -

6.3.2.2.4 Vendor

Same as paragraph 6.3.2.1.4

6.3.2.2.5 Special Cautions

Same as paragraph 6.3.2.1.5

6.3.2.2.6 Periodic Service

See paragraph 6.1.1



#### 6.3.2.2.7 Parts List

Beckman SDPC Remote Stn 2, Units SDP 201 thru SDP 205, ILS 201, and OPIU.

<u>Item</u>	<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	1	730106	Enclosure Assy, Remote Station 2
2	1	730100	Enclosure Assy, MVCU Termination RS2
3	1	730111	Box Assy, Interlock Logic System (ILS)
4	9	645148	Harness Assy - Interconnect 10 ft.
5	6	645149	Harness Assy - Interconnect 25 ft.
6	1	646820	Operator Interface Unit
7	1	730299	Cable Assy, OPIU

(See Beckman "AS BUILT" documentation for detailed parts, installation and interconnection).

#### 6.3.2.2.8 Special Tools

Same as Paragraph 6.3.2.1.8

#### 6.3.2.2.9 Maintenance Instructions

Same as Paragraph 6.3.2.1.9

#### 6.3.2.2.10 Acceptance Tests

N/A

6.3.2.3 Remote Station 3 (Units SDP 301 thru SDP 305, and ILS 301)

6.3.2.3.1 Identification

<u>Tag No.</u>	<u>Description</u>
SDP 301	Enclosure Assy Remote
SDP 302	Station 3
SDP 303	
SDP 304	
SDP 305	Enclosure Assy, MVCU Termination - RS 3
ILS 301	Box Assy, Interlock Logic System (ILS)

6.3.2.3.2 Description

Same as Paragraph 6.3.2.1.2

6.3.2.3.3 Prescribed Service

N/A

6.3.2.3.4 Vendor

Same as Paragraph 6.3.2.1.4

6.3.2.3.5 Special Cautions

Same as Paragraph 6.3.2.1.5

6.3.2.3.6 Periodic Service

See Paragraph 6.1.1

#### 6.3.2.3.7 Parts List

Beckman SDPC Remote Stn 3, Units SDP 201 thru SDP 205, ILS 201, and OPIU

<u>Item</u>	<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	1	730107	Enclosure Assy, Remote Station 3
2	1	730101	Enclosure Assy, MVCU Termination - RS3
3	1	730112	Box Assy Interlock Logic System (ILS)
4	10	645148	Harness Assy - Interconnect 10 ft.
5	6	645149	Harness Assy - Interconnect 25 ft.

(See Beckman "AS BUILT" documentation for detailed parts, installation and interconnection).

#### 6.3.2.3.8 Special Tools

Same as Paragraph 6.3.2.1.8

#### 6.3.2.3.9 Maintenance Instructions

Same as Paragraph 6.3.2.1.9

#### 6.3.2.3.10 Acceptance Tests

N/A

6.3.2.4 Remote Station 4 (Units SDP 401 thru SDP 406 ILS 401, ILS 402, and ILS 403)

6.3.2.4.1 Identification

<u>Tag No.</u>	<u>Description</u>
SDP 401	Enclosure Assy, Remote Station 4
SDP 402	
SDP 403	
SDP 404	
SDP 405	
SDP 406	Enclosure Assy, MVCU Termination - RS 4
ILS 401	Box Assy, Interlock Logic System (ILS)
ILS 402	Box Assy, Interlock Logic System (ILS)
ILS 403	Box Assy, Interlock Logic System (ILS)

6.3.2.4.2 Description

Same as Paragraph 6.3.2.1.2

6.3.2.4.3 Prescribed Service

N/A

6.3.2.4.4 Vendor

Same as Paragraph 6.3.2.1.4

6.3.2.4.5 Special Cautions

Same as Paragraph 6.3.2.1.5

6.3.2.4.6 Periodic Service

See Paragraph 6.1.1

#### 6.3.2.4.7 Parts List

Beckman SDPC Remote Stn 4, Units SDP 401 thru SDP 406, ILS 401, ILS 402, and ILS 403

<u>Item</u>	<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	1	730108	Enclosure Assy, Remote Stn 4
2	1	730102	Enclosure Assy, MVCU Termination RS-4
3	1	730113	Box Assy Interlock Logic System (ILS)
4	1	730114	Box Assy Interlock Logic System (ILS)
5	1	730115	Box Assy Interlock Logic System (ILS)
6	19	645150	Harness Assy - Interconnect 50 ft.

(See Beckman "AS BUILT" documentation for detailed parts, installation, and interconnection)

#### 6.3.2.4.8 Special Tools

Same as Paragraph 6.3.2.1.8

#### 6.3.2.4.9 Maintenance Instructions

Same as Paragraph 6.3.2.1.9

#### 6.3.2.4.10 Acceptance Tests

N/A

6.3.2.5 Remote Station 5 (Unit ILS 501)

6.3.2.5.1 Identification

<u>Tag No.</u>	<u>Description</u>
ILS 501	Box Assy Interlock Logic System (ILS)

6.3.2.5.2 Description

See the following documents:

SAN/0499-80 MDC G9382	Solar One Training Manual Sections CI 4, CI 5
Gould	MODICON P190 Programmer Users Manual
Gould	MODICON 584 Programmable Controller Users Manual
Gould	MODICON 185/384 Manual Sections B, C

6.3.2.5.3 Prescribed Service

N/A

6.3.2.5.4 Vendor

Same as 6.3.2.1.4

6.3.2.5.5 Special Cautions

None

6.3.2.5.6 Periodic Service

See Paragraph 6.1.1

#### 6.3.2.5.7 Parts List

Beckman SDPC Remote Stn 5 Unit ILS 501

<u>Item</u>	<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	1	730116	Box Assy, Interlock Logic System (ILS) (See Beckman "AS BUILT" documentation for detailed parts, installation, and interconnection).

#### 6.3.2.5.8 Special Tools

None

#### 6.3.2.5.9 Maintenance Instructions

See Beckman Instruction Manuals, and Gould MODICON Instruction Manuals for location of switches, breakers, fuses, indicators, fans, circuit modules, voltage test points and adjustments.

#### 6.3.2.5.10 Acceptance Tests

N/A