



GROVE[®]
CRANE

A GROVE WORLDWIDE COMPANY

**PARTS AND
INSTALLATION
MANUAL**

**CM20
LMI SYSTEM**

9-333-102682

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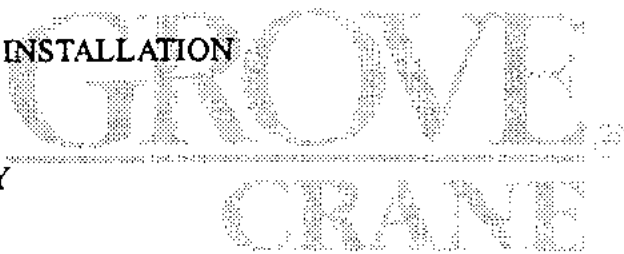
BILL OF MATERIAL

DECAL INSTALLATION

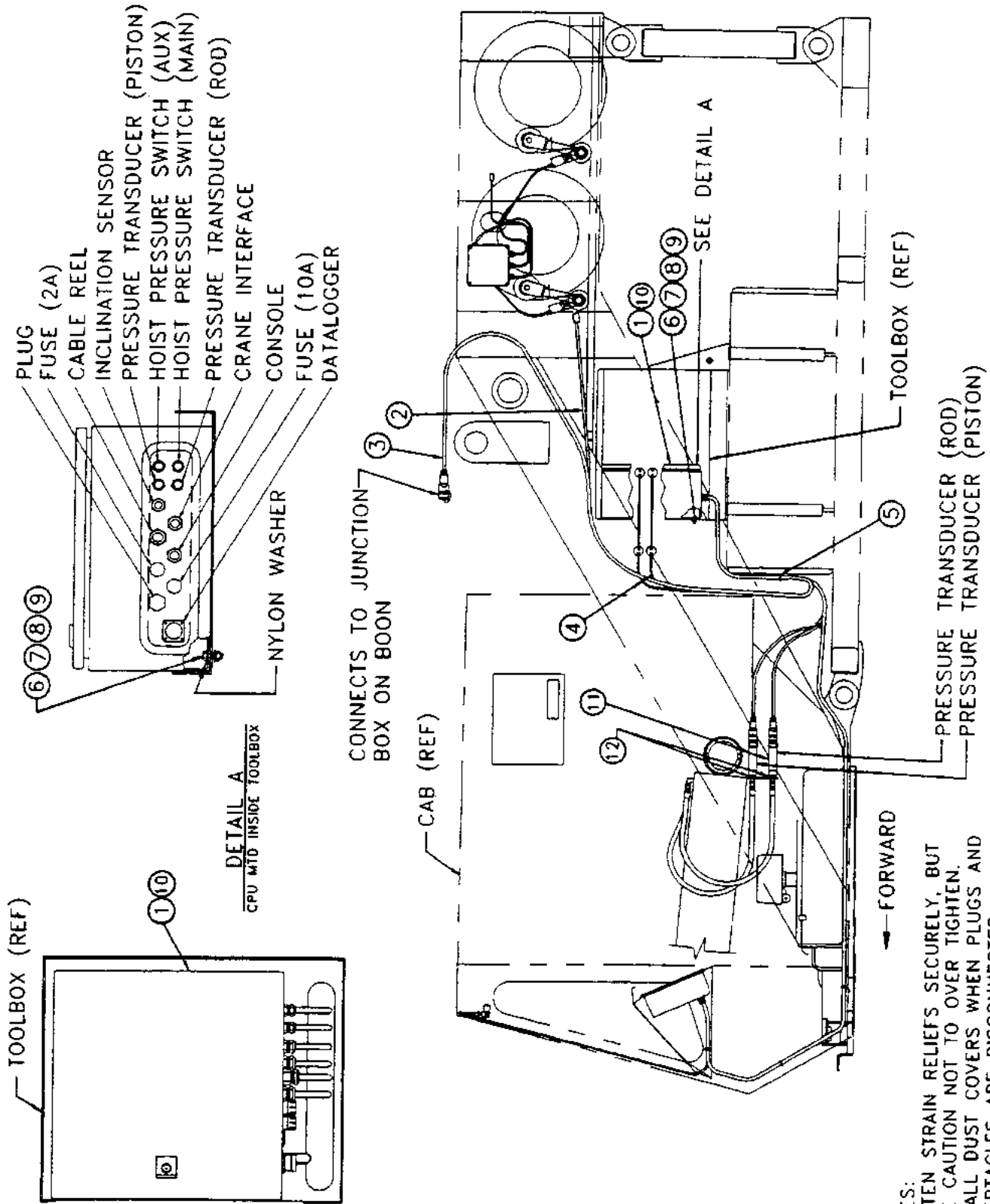
ENGLISH

SPANISH

FRENCH



WORLDWIDE COMPANY



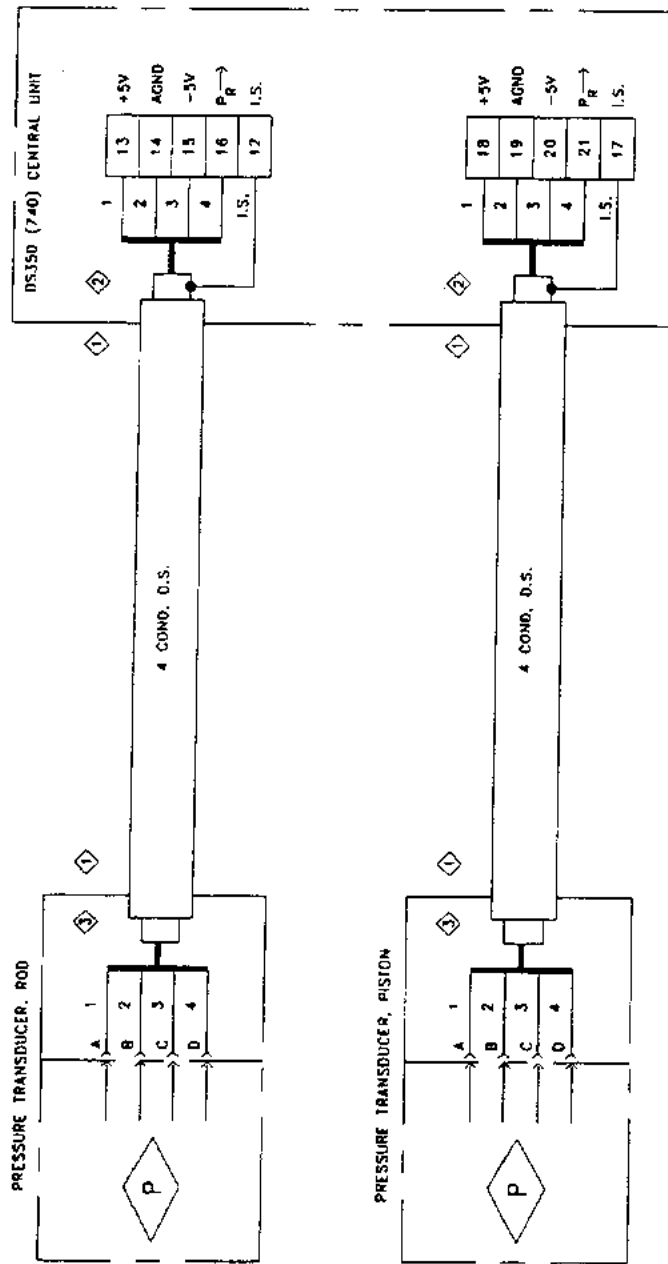
NOTES:
 TIGHTEN STRAIN RELIEFS SECURELY, BUT TAKE CAUTION NOT TO OVER TIGHTEN.
 INSTALL DUST COVERS WHEN PLUGS AND RECEPTACLES ARE DISCONNECTED.

LMI SUPERSTRUCTURE INSTALLATION

GROVE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1 +	9-333-102705	1	CENTRAL UNIT - DS350 ASSEMBLY				
2	9-333-101745	1	CABLE, ELEC. 4 X 1.5 S.S.				
3	9-333-102706	1	CABLE ASSEMBLY, 14-COND. B.S. W/ 14-PIN FEM. PLUG				
4	9-333-101742	1	CABLE, ELEC. 2 X 0.5 S.S.				
5	7-850-000102	20	STRAP 1/4" X 12"				
6	7-115-150850	4	BOLT, HEX 5/16"-18 NC X 1" - GRD 5				
7	7-450-150141	4	WASHER 5/16" NARROW				
8	7-450-150050	4	LOCKWASHER 5/16" NED				
9	9-333-102646	4	NUT, HEX				
10	9-333-102023	1	TIMER, MODULE				
11	9-333-101469	2	TRANSDUCER, PRESSURE				
12	9-333-101472	2	SEAL, CUTTING				

+ SEE FURTHER BREAKDOWN THIS GROUP

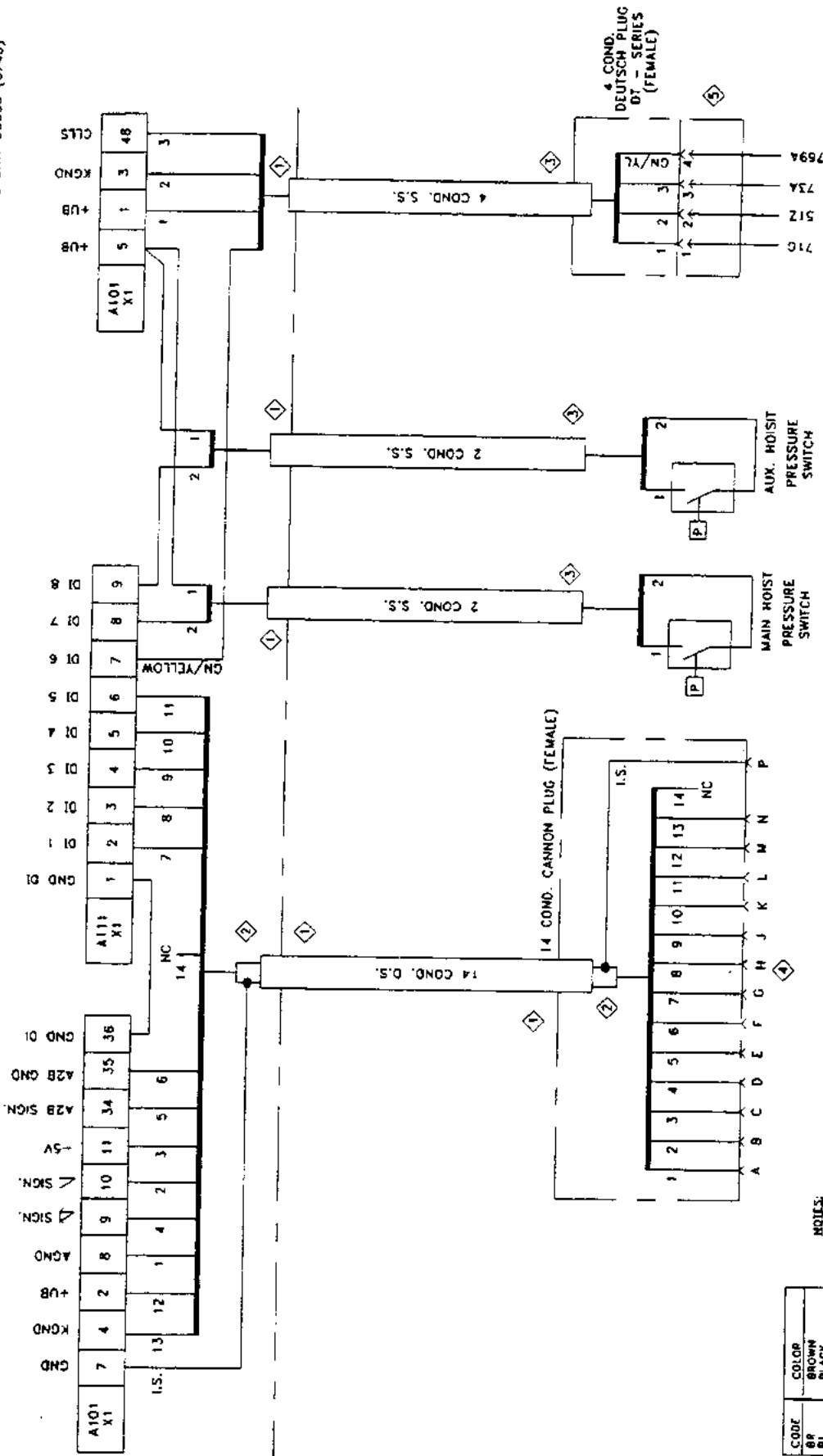


CODE	COLOR
BR	BROWN
BL	BLACK
WY	WHITE/YELLOW
WC	WHITE/GRAY
WB	WHITE/BLUE
WR	WHITE/RED
WP	WHITE/PINK
WBL	WHITE/BLACK
WBR	WHITE/BROWN
W	WHITE
GN	GREEN
B	BLUE
R	RED
WGN	WHITE/GREEN
C	GRAY
I.S.	INNER SHIELD

- ① OUTER SHIELD GROUNDED AT STRAIN RELIEF INSERT.
- ② INNER SHIELD INSULATED AND CONNECTED AS SHOWN.
- ③ INNER SHIELD CUT AND TAPED.

PRESSURE TRANSDUCER CONNECTION

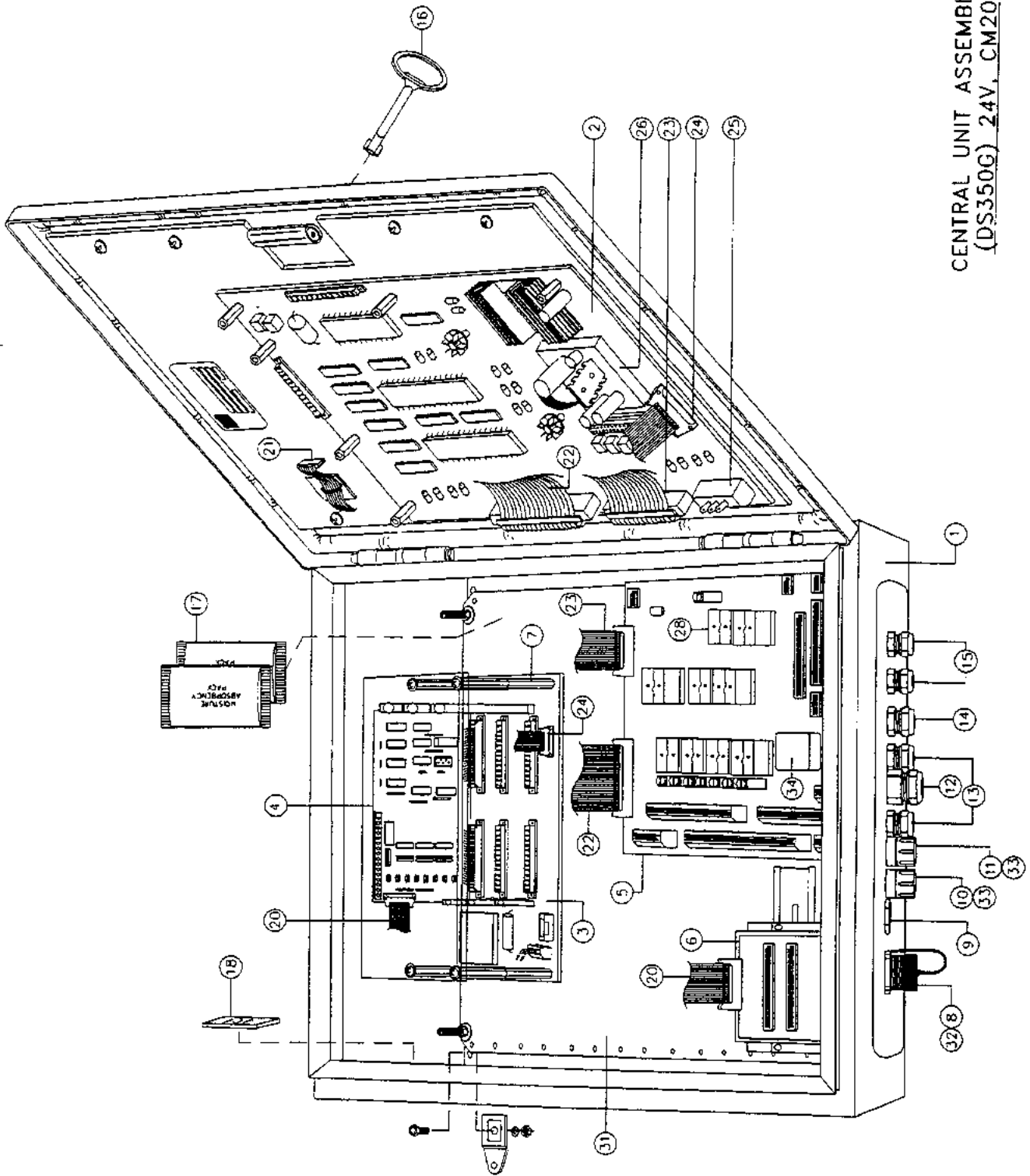
CENTRAL UNIT DS350 (0740)



CODE	COLOR
BR	BROWN
BL	BLACK
YL	YELLOW
MG	WHITE/GRAY
WB	WHITE/BLUE
WR	WHITE/RED
WP	WHITE/PINK
WBL	WHITE/BLACK
WBR	WHITE/BROWN
P	PINK
W	WHITE
GN	GREEN
B	BLUE
R	RED
WCH	WHITE/GREEN
G	GRAY
I.S.	INNER SHIELD

- NOTES:
- ① OUTER SHIELD GROUNDED AT STRAIN RELIEF INSERT.
 - ② INNER SHIELD INSULATED AND CONNECTED AS SHOWN.
 - ③ OUTER SHIELD CUT AND INSULATED.
 - ④ CONNECTS TO BOOM BASE JUNCTION BOX.
 - ⑤ GROVE CONNECTOR FOR LMH / CRANE INTERFACE.
- 71G = +UB
 512 = KOND
 73A = CLLS
 789A = TRACK " EXTENDED SIGN.

CENTRAL UNIT DS350 WIRING SCHEMATIC

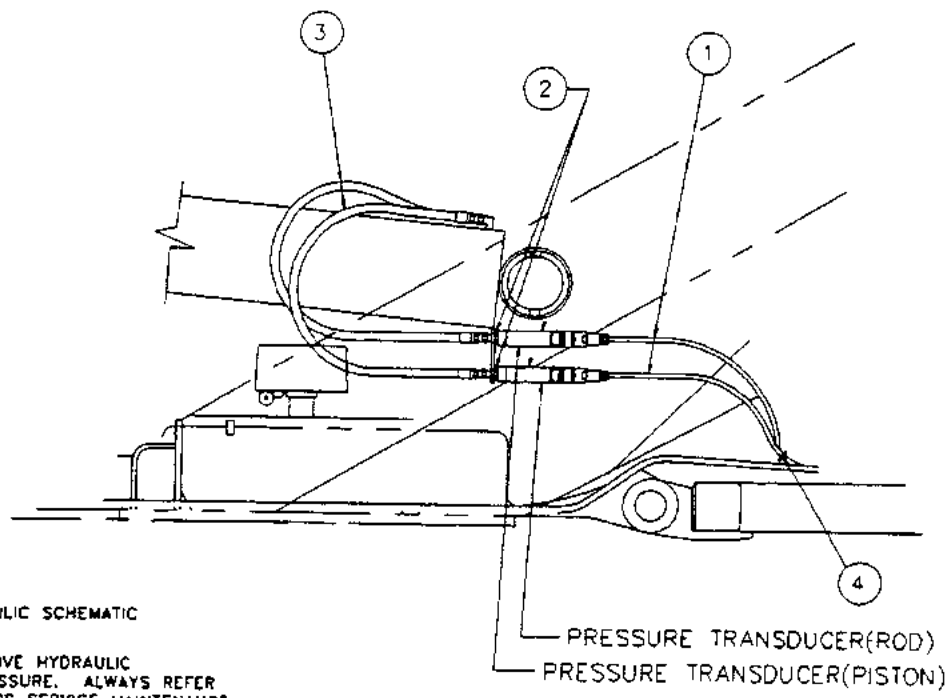
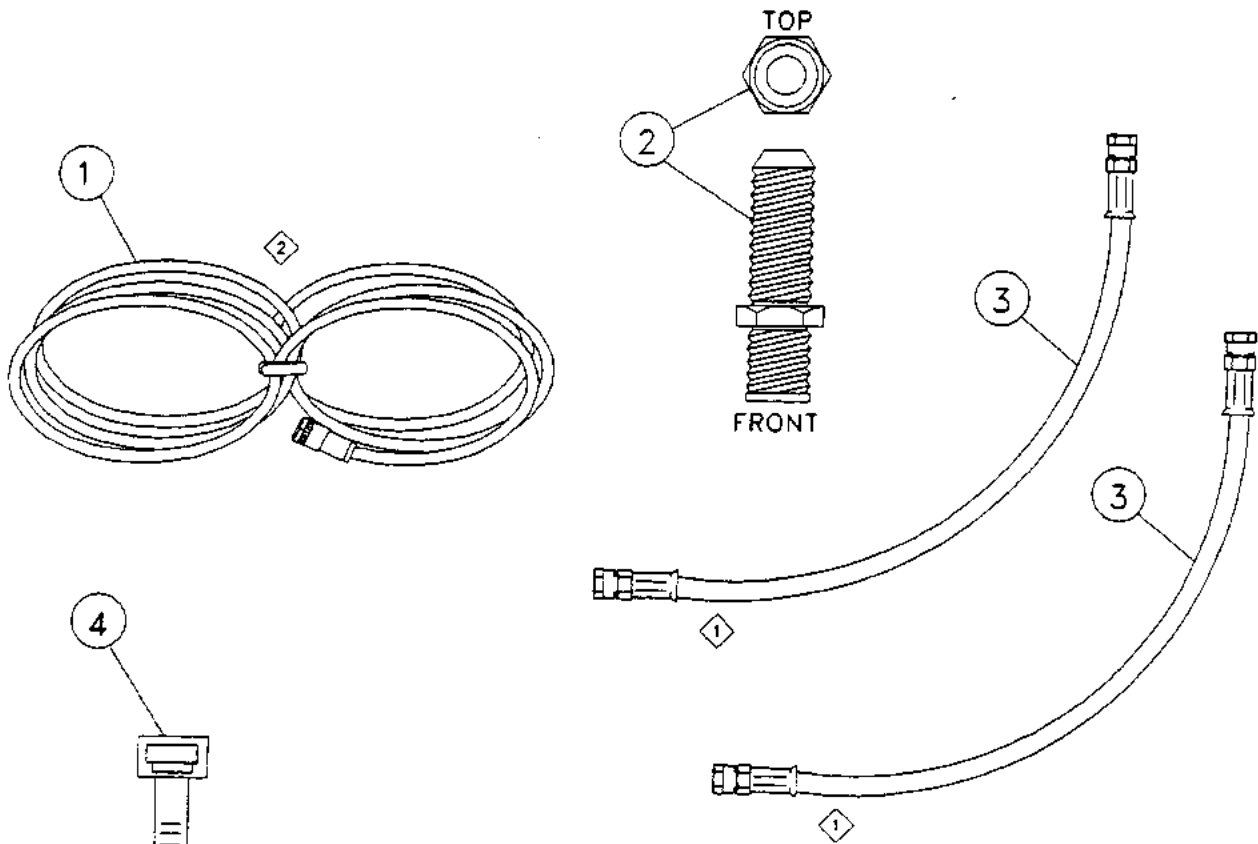


CENTRAL UNIT ASSEMBLY
(DS350G) 24V, CM20

CENTRAL UNIT - DS350 ASSEMBLY

GROVE

NO.	PART NO.	QTY DESCRIPTION	NO.	PART NO.	QTY DESCRIPTION
	9-333-102705	COMPLETE ASSY			
1	9-333-102738	1 HOUSING			
2	9-333-102806	1 BOARD, MAIN			
3	9-333-102739	1 BOARD, MOTHER			
4	9-333-102740	1 BOARD, TERMINAL			
5	9-333-990001	1 BOARD, TERMINAL			
6	9-333-102742	1 BOARD			
7	9-333-102743	4 STANDOFF			
8	9-333-103132	1 CONNECTOR, CANNON			
9	9-333-101443	1 PLUG, HOLE			
10	7-482-000019	1 FUSE, 10 AMP			
11	9-333-101667	1 FUSE, AMP 2			
12	9-333-102746	1 STRAIN RELIEF, PG13.5			
13	9-333-102747	2 STRAIN RELIEF, PG13.5			
14	9-333-102748	1 STRAIN RELIEF, PG 11			
15	9-333-102749	4 STRAIN RELIEF, PG 9			
16	9-333-102930	4 KEY, CENTRAL UNIT - CM20			
	9-333-102930	1 KEY, CENTRAL UNIT - CM20			
17	9-333-101918	2 DESSICANT PACK, MOISTURE ABSORBING			
18	7-296-000004	1 INHIBITOR, CORROSION - VAPOR CONTROL			
20	9-333-102752	1 CABLE, CONNECTING			
21	9-333-102753	1 CABLE, CONNECTING			
22	9-333-101595	1 CABLE, CONNECTING 40 CORE			
23	9-333-101594	1 CABLE, CONNECTING 26 CORE			
24	9-333-102756	1 CABLE, CONNECTOR			
25	9-333-103133	1 CONNECTOR 3-PIN, MATHBOARD			
26	9-333-103134	1 POWER SUPPLY - DC/DC CONVERTER, MATHBOARD			
28	9-333-101596	4 RELAY			
31	9-333-102741	1 PLATE, MOUNTING			
32	9-333-102612	1 COVER, DUST			
33	9-333-101666	2 HOLDER, FUSE			
34	9-333-101597	1 RELAY, SHUT-OFF			



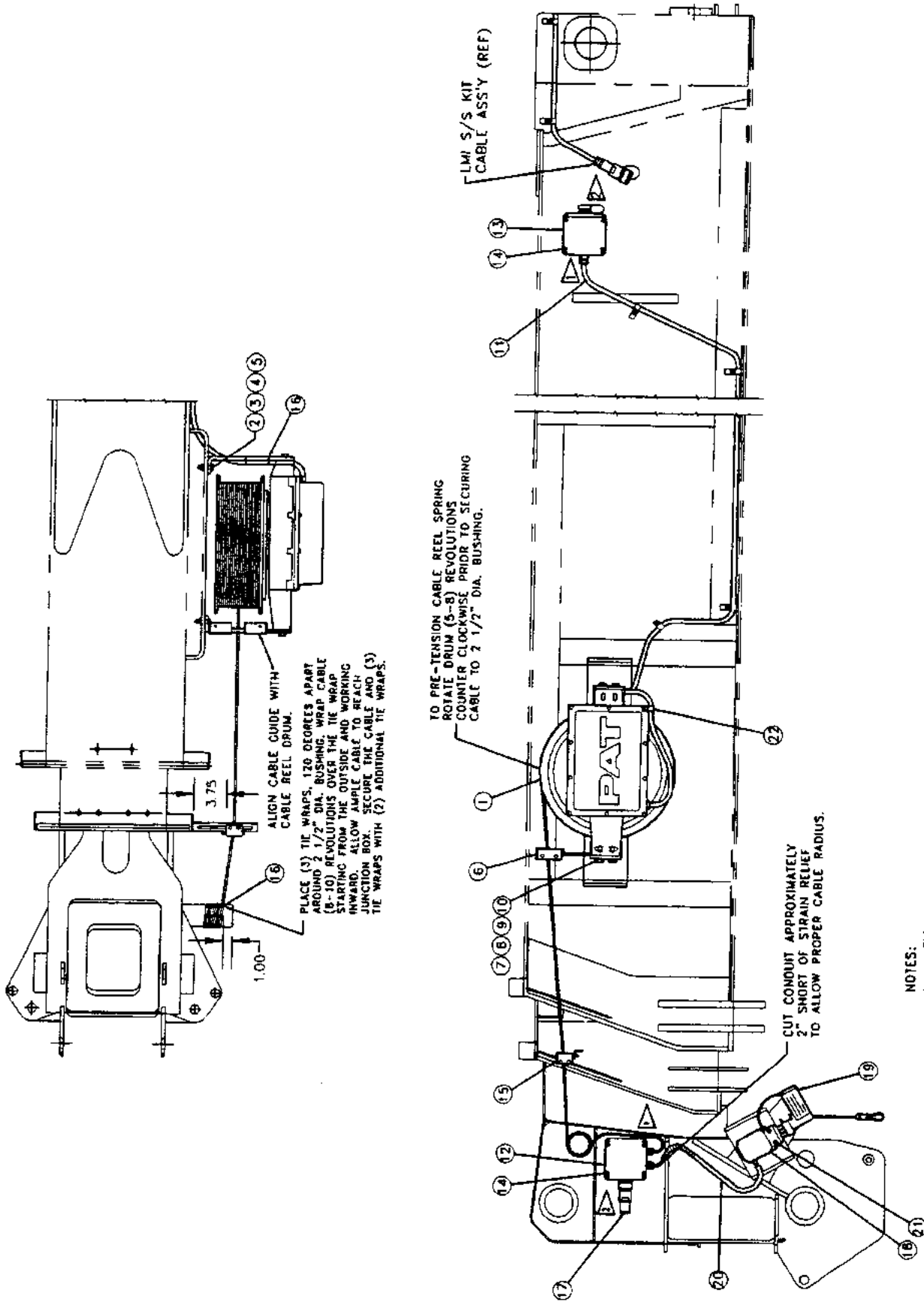
NOTES:

① REFER TO GROVE HYDRAULIC SCHEMATIC FOR CONNECTION.

WARNING: DO NOT REMOVE HYDRAULIC COMPONENTS UNDER PRESSURE. ALWAYS REFER TO CRANE MANUFACTURERS SERVICE MAINTENANCE INSTRUCTIONS AND DOCUMENTATION!

② REFER TO ELECTRICAL DIAGRAM FOR CONNECTION.

NO.	PART NO.	QTY DESCRIPTION	NO.	PART NO.	QTY DESCRIPTION
1	9-333-101483	2 CABLE, ELEC. 4 COND. D. S. 4 PIN FEMALE PLUG			
2	9-333-101471	2 FITTING			
3	9-333-102427	2 NOSE ASSY			
4	7-850-000102	8 STRAP 1/4" X 12"			

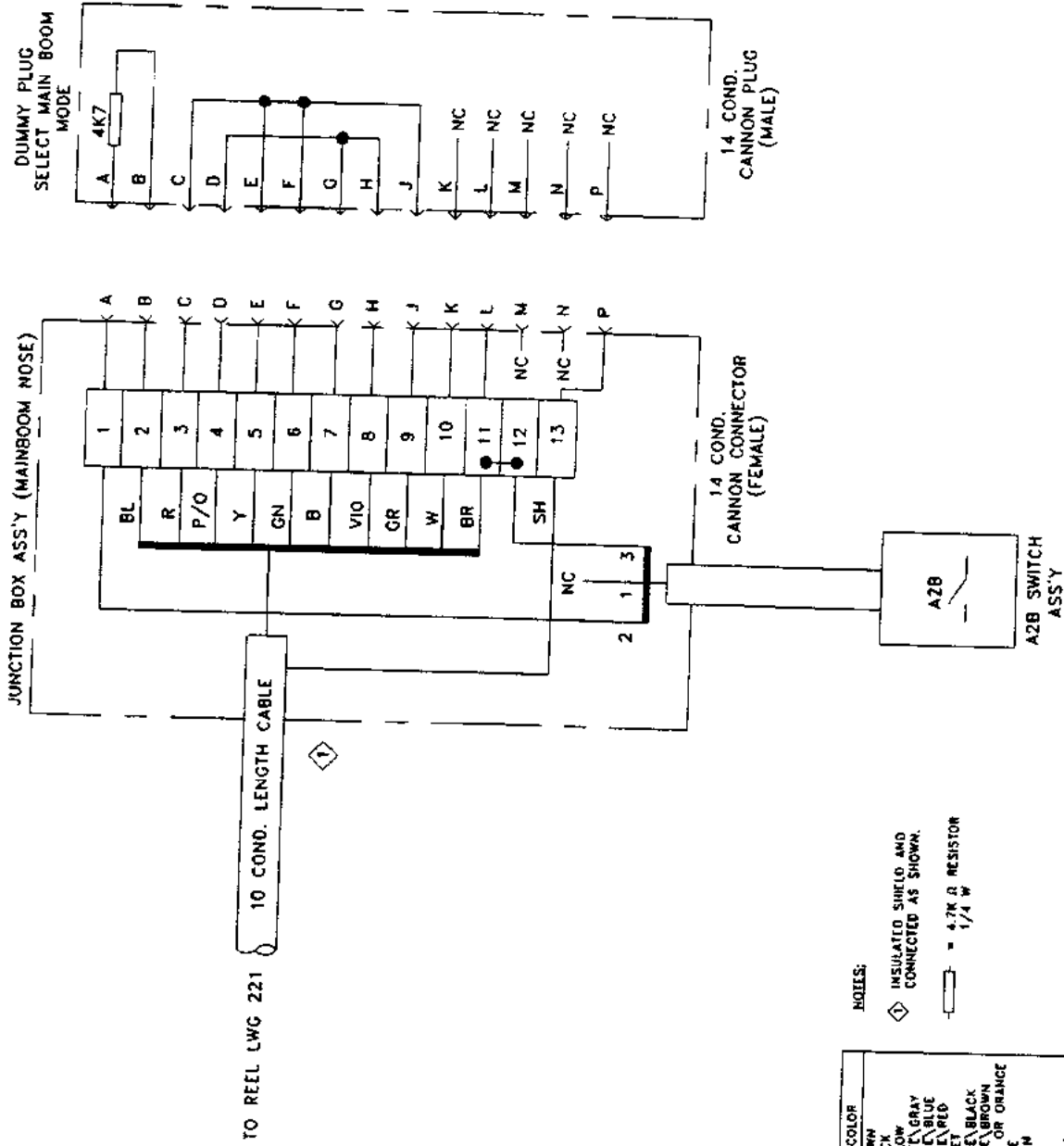


- NOTES:
- 1 TIGHTEN STRAIN RELIEF SECURELY, BUT TAKE CAUTION NOT TO OVER TIGHTEN.
 - 2 INSTALL DUST COVERS WHEN PLUGS AND RECEPTACLES ARE DISCONNECTED.

A2B SYSTEM INSTALLATION

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1 +	9-333-101534	1	CABLE REEL ASSEMBLY				
2	9-333-102634	4	SCREW, HEX HEAD				
3	7-660-160000	4	NUT, HEX 3/8"-16 NC - GRD A				
4	7-950-160141	8	WASHER 3/8" NARROW				
5	7-950-160050	4	LOCKWASHER 3/8" REG				
6	9-333-102635	1	GUIDE, CABLE				
7	7-112-141250	2	BOLT, HEX 1/4"-20 NC X 1 1/2"-GRD 2				
8	7-950-140141	2	WASHER 1/4" NARROW				
9	7-950-140050	2	LOCKWASHER 1/4" REG				
10	7-660-140000	2	NUT, HEX 1/4"-20 NC - GRD A				
11	9-333-102516	1	CABLE, 14 X 0.5 DS (CUT TO LENGTH)				
12 +	9-333-102636	1	JUNCTION BOX ASSEMBLY				
13 +	9-333-102637	1	JUNCTION BOX ASSEMBLY				
14	9-333-102586	8	SCREW				
15	9-333-101435	1	CABLE GUIDE ASSY				
16	7-850-000102	7	STRAP 1/4" X 12"				
17	9-333-102638	1	CONNECTOR				
18	9-333-102230	1	SWITCH, A-2B WITH RETAINER CRIMP				
19 +	9-333-102633	1	A2B RETAINER FLAG ASSEMBLY				
20	9-333-102235	1	CONDUIT 10 FEET (MUST CUT TO LENGTH)				
21	7-110-151205	2	CAPSCREW 5/16" - 18 NC X 1 1/2"				
22	9-333-101839	1	CLAMP 9/16"				

+ SEE FURTHER BREAKDOWN THIS GROUP

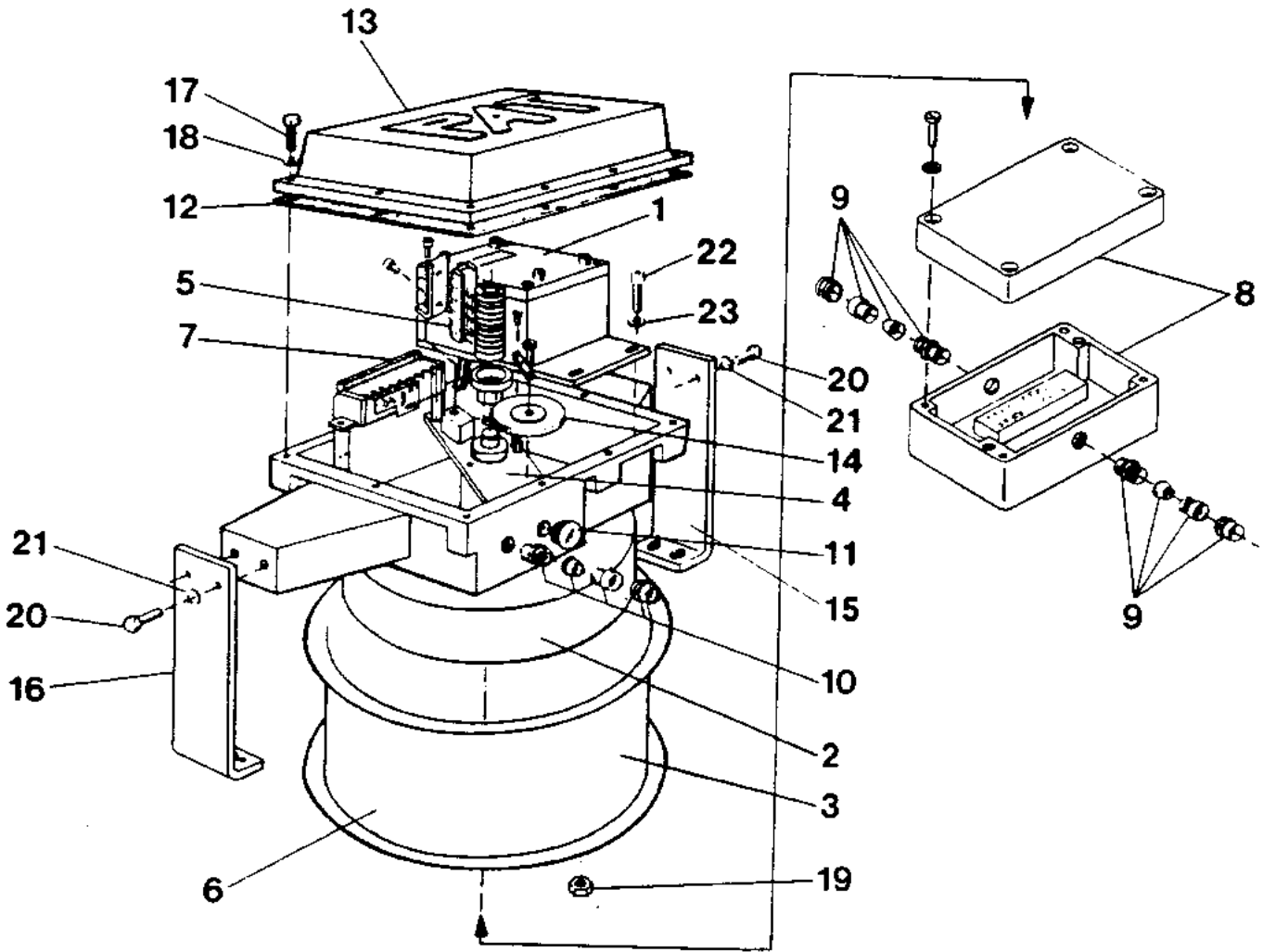


MAIN BOOM NOSE WIRING SCHEMATIC

CODE	COLOR
BR	BROWN
BL	BLACK
Y	YELLOW
WG	WHITE GRAY
WB	WHITE BLUE
WR	WHITE RED
VIO	VIOLET
WBL	WHITE BLACK
WBR	WHITE BROWN
P/O	PINK OR ORANGE
W	WHITE
GN	GREEN
B	BLUE
R	RED
WCR	WHITE GREEN
GR	GRAY
SH	SHIELD

NOTES:
 ◊ INSULATED SHIELD AND CONNECTED AS SHOWN.
 = 4.7K Ω RESISTOR
 = 1/4 W

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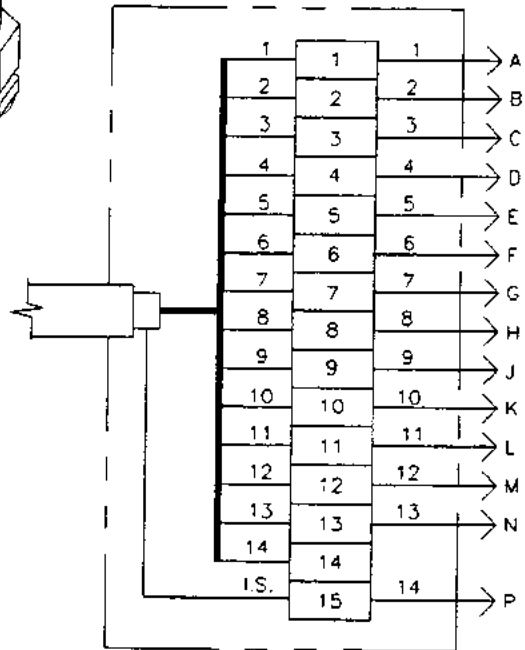
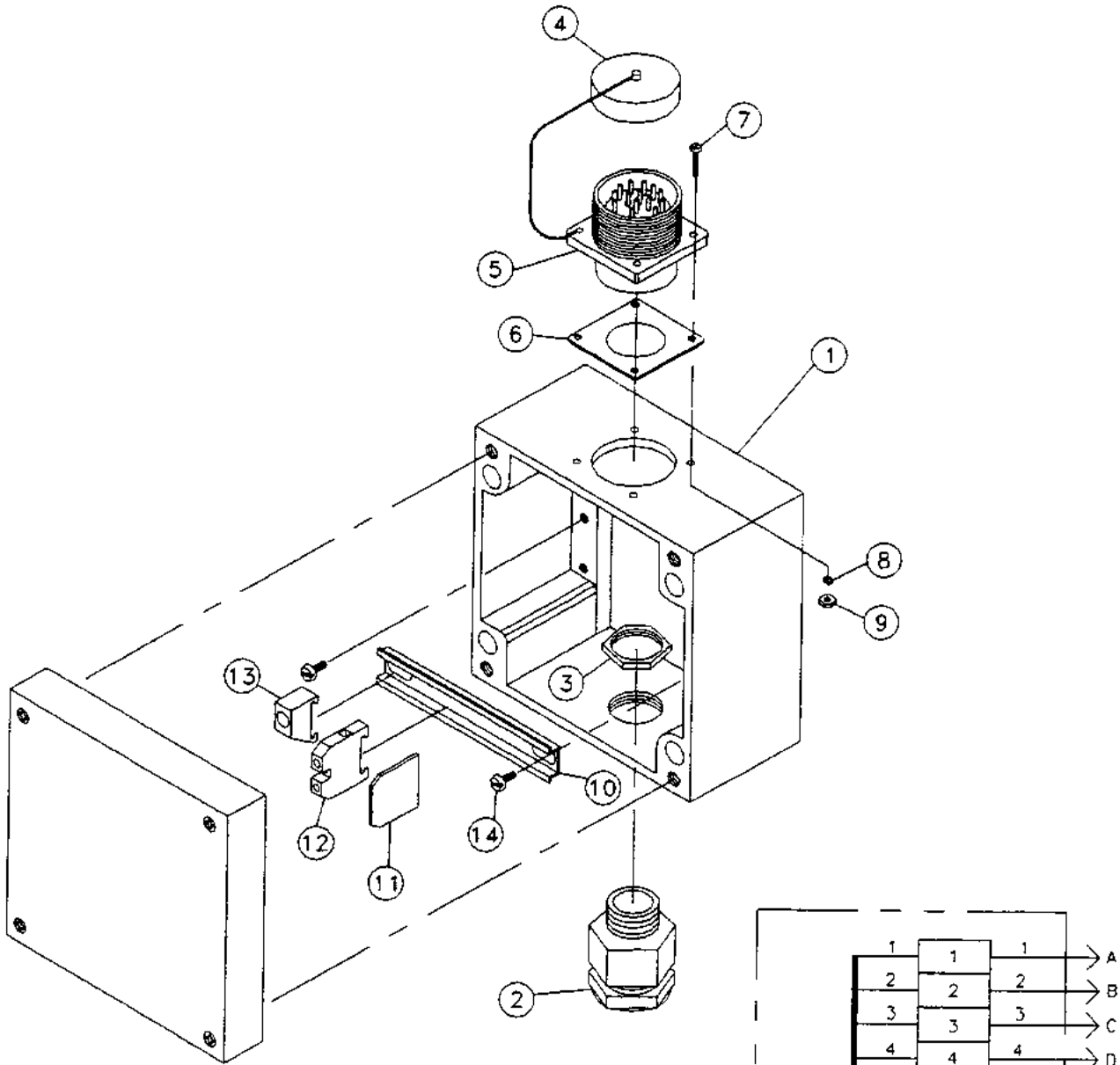


PAT SYSTEM INSTALLATION

GROUI

CABLE REEL ASSEMBLY

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
	9-333-101534		COMPLETE ASSY				
1	9-333-101454	1	SENSOR, ANGLE (HG103)				
2	9-333-101623	1	SPRING ASSY				
3	9-333-101774	1	REEL, CABLE				
4	9-333-101617	1	POTENTIOMETER AND CIRCUIT BOARD ASSY				
5	9-333-101775	1	SLIP RING UNIT				
6	9-333-101776	1	CABLE, LENGTH SENSOR				
7	9-333-101777	1	STRIP, TERMINAL				
8	9-333-101778	1	BOX, JUNCTION				
9	9-333-101779	3	STRAIN RELIEF				
10	9-333-101440	1	STRAIN RELIEF				
11	9-333-101732	1	PLUG, NOLE				
12	9-333-101565	1	SEAL, COVER				
13	9-333-101564	1	COVER, HOUSING				
14	9-333-101780	1	WHEEL, GEAR				
15	9-333-102182	1	BRACKET				
16	9-333-102183	1	BRACKET				
17	9-333-101566	10	SCREW, COVER				
18	9-333-101567	10	WASHER				
19	9-333-101568	4	NUT, HEX				
20	9-333-101559	4	SCREW				
21	9-333-101560	4	LOCKWASHER				
22	9-333-101561	2	SCREW				
23	9-333-101562	2	WASHER				



WIRING DETAIL

NOTES:

I.S. = INNER SHIELD

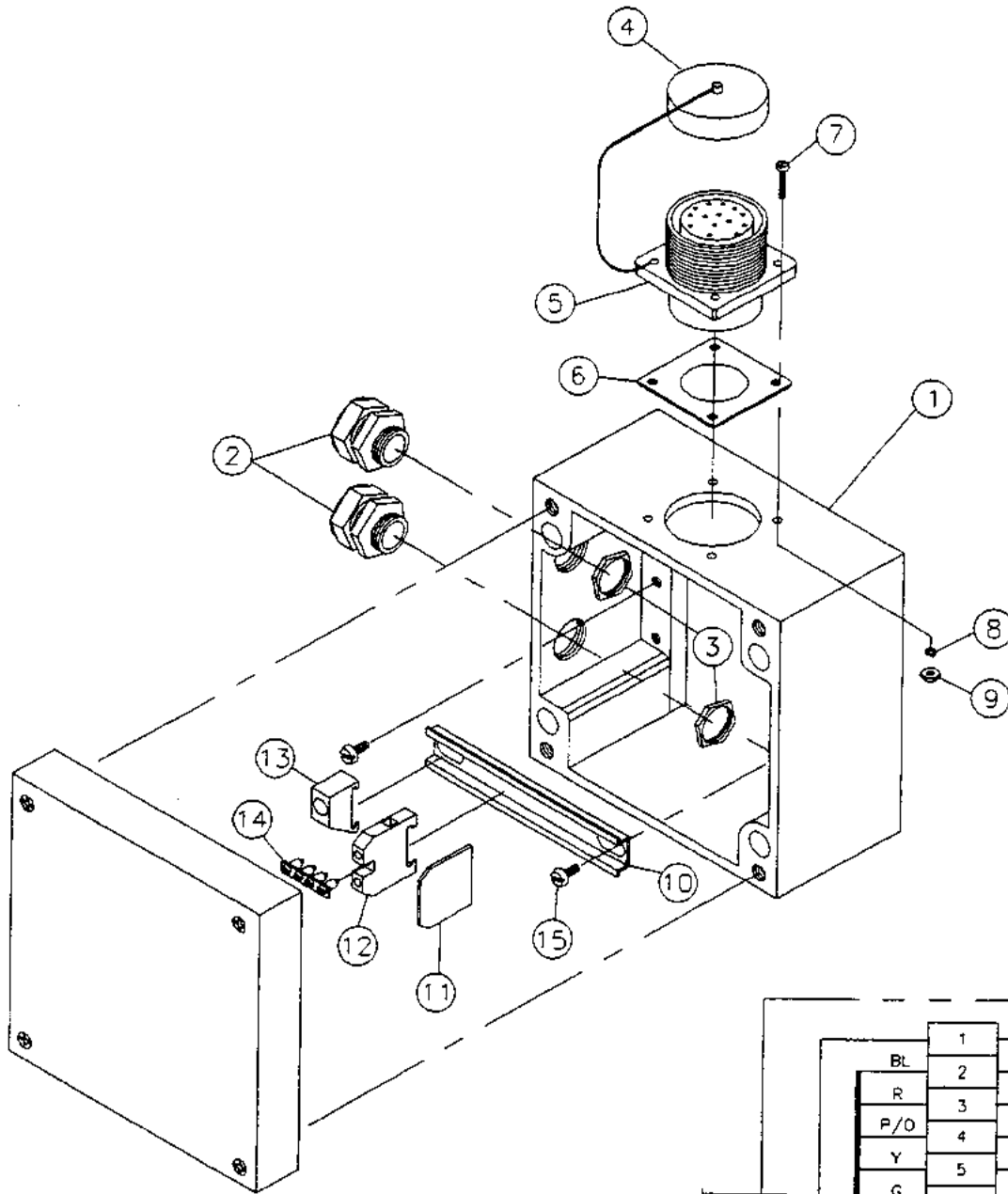
① OUTER SHIELD CONNECTED TO STRAIN RELIEF INSERT.

② INSULATE INNER SHIELD AND CONNECT AS SHOWN.

JUNCTION BOX ASSEMBLY (120MM X 122MM X 80MM)

GROUE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
	9-333-102636		COMPLETE ASSY				
1	9-333-102716	1	JUNCTION BOX, 120MM X 122MM X 80MM				
2	9-333-101735	1	STRAIN RELIEF GREY - WHITE INSERT PG13.5				
3	9-333-101547	1	LOCKNUT PG 13.5				
4	9-333-102268	1	CAP, DUST				
5	9-333-102715	1	CANNON CONNECTOR, 14-PIN MALE RECEPTACLE				
6	9-333-102668	1	GASKET				
7	9-333-102669	4	SCREW M4				
8	9-333-102266	4	LOCKWASHER M4				
9	9-333-102480	4	NUT M4				
10	9-333-102677	1	Mounting RAIL, TERMINAL STRIP				
11	9-333-102664	1	END PLATE, TERMINAL STRIP				
12	9-333-102663	15	BLOCK, TERMINAL STRIP				
13	9-333-102665	1	END BRACKET, TERMINAL STRIP				
14	9-333-102671	2	SCREW, 6MM X 8MM				

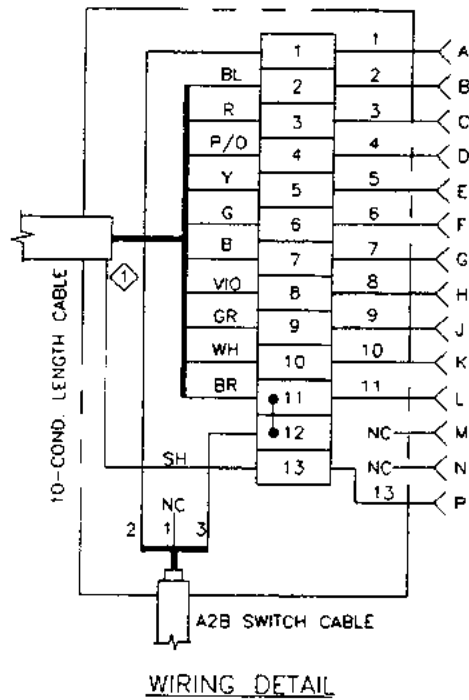


COLOR CODE	
BR	BROWN
BL	BLACK
WH	WHITE
GR	GRAY
G	GREEN
B	BLUE
R	RED
P/O	PINK OR ORANGE
Y	YELLOW
VIO	VIOLET
SH	SHIELD

NOTES:

① INSULATE SHIELD AND CONNECT AS SHOWN.

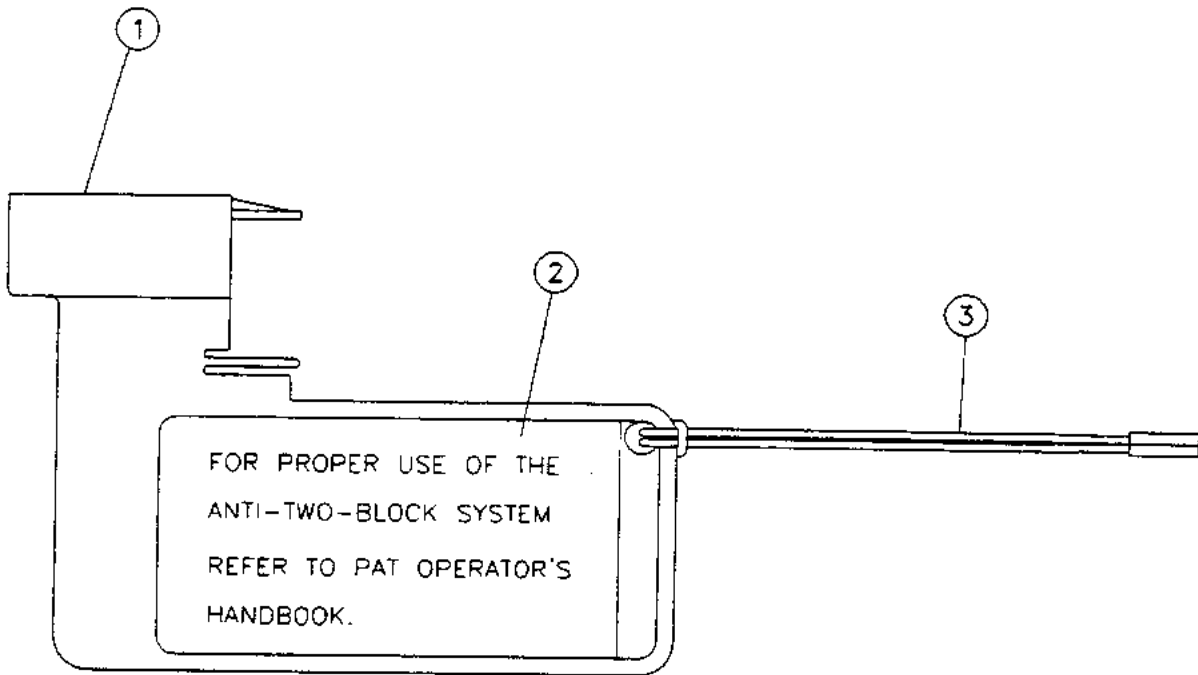
NC = NOT CONNECTED



JUNCTION BOX ASSEMBLY

GROVE

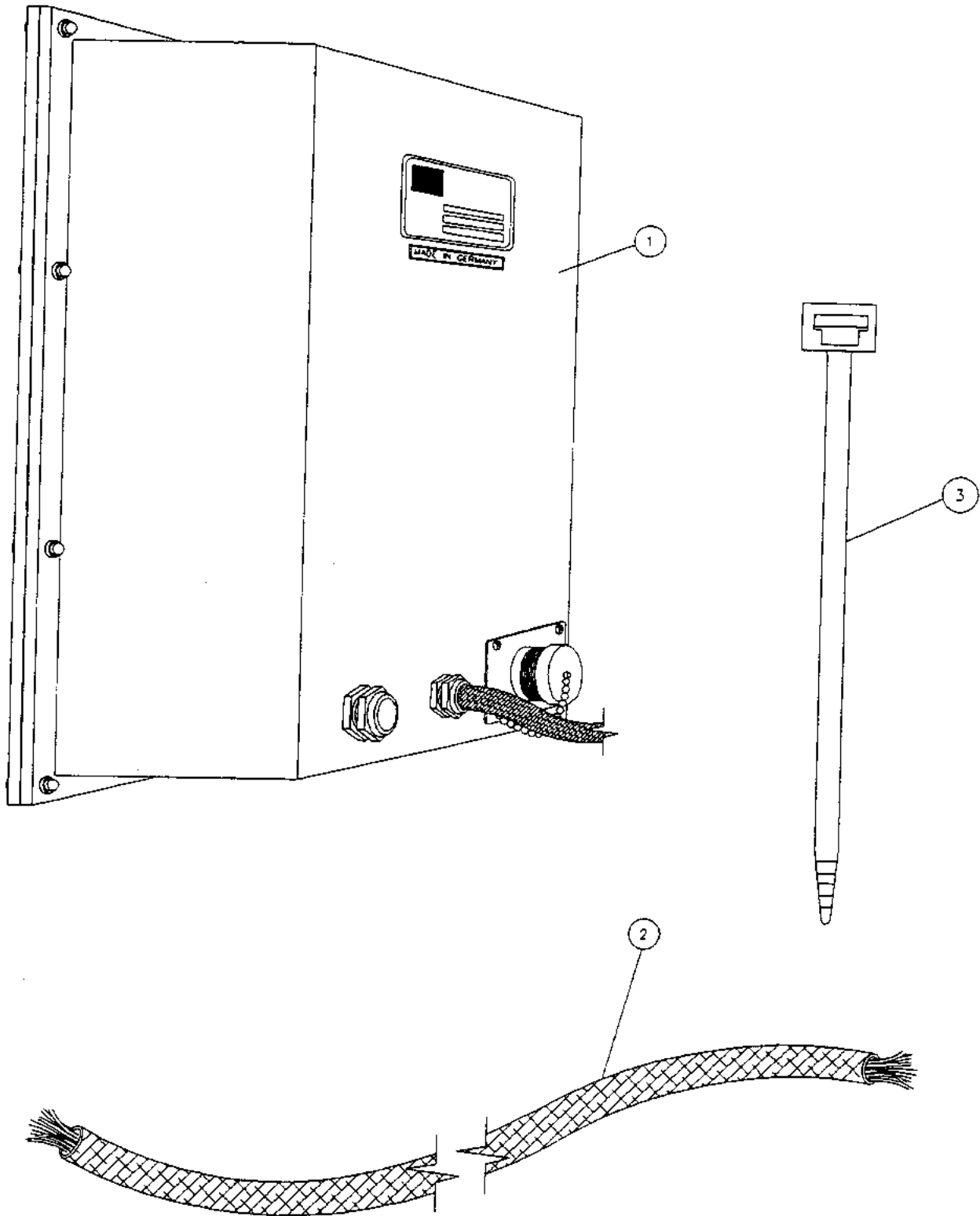
NO.	PART NO.	QTY DESCRIPTION	NO.	PART NO.	QTY DESCRIPTION
	9-333-102637	COMPLETE ASSY			
1	9-333-102716	1 JUNCTION BOX, 120MM X 122MM X 80MM			
2	9-333-102674	2 STRAIN RELIEF, PG9			
3	9-333-101984	2 LOCKNUT PG9			
4	9-333-102268	1 CAP, DUST			
5	9-333-102267	1 SOCKET - 14 PIN			
6	9-333-102668	1 GASKET			
7	9-333-102669	4 SCREW M4			
8	9-333-102266	4 LOCKWASHER M4			
9	9-333-102480	4 NUT M4			
10	9-333-102677	1 MOUNTING RAIL, TERMINAL STRIP			
11	9-333-102664	1 END PLATE, TERMINAL STRIP			
12	9-333-102663	13 BLOCK, TERMINAL STRIP			
13	9-333-102665	1 END BRACKET, TERMINAL STRIP			
14	9-333-102717	1 JUMPER BAR ASSEMBLY, 2-POLE			
15	9-333-102671	2 SCREW, 6MM X 8MM			



A2B RETAINER FLAG ASSEMBLY

GROVE

NO.	PART NO.	QTY DESCRIPTION	NO.	PART NO.	QTY DESCRIPTION
	9-333-102633	COMPLETE ASSY			
1	9-333-102373	1 FLAG, RETAINER			
2	9-333-102618	1 DECAL, A2B			
3	9-333-102232	1 LANYARD			

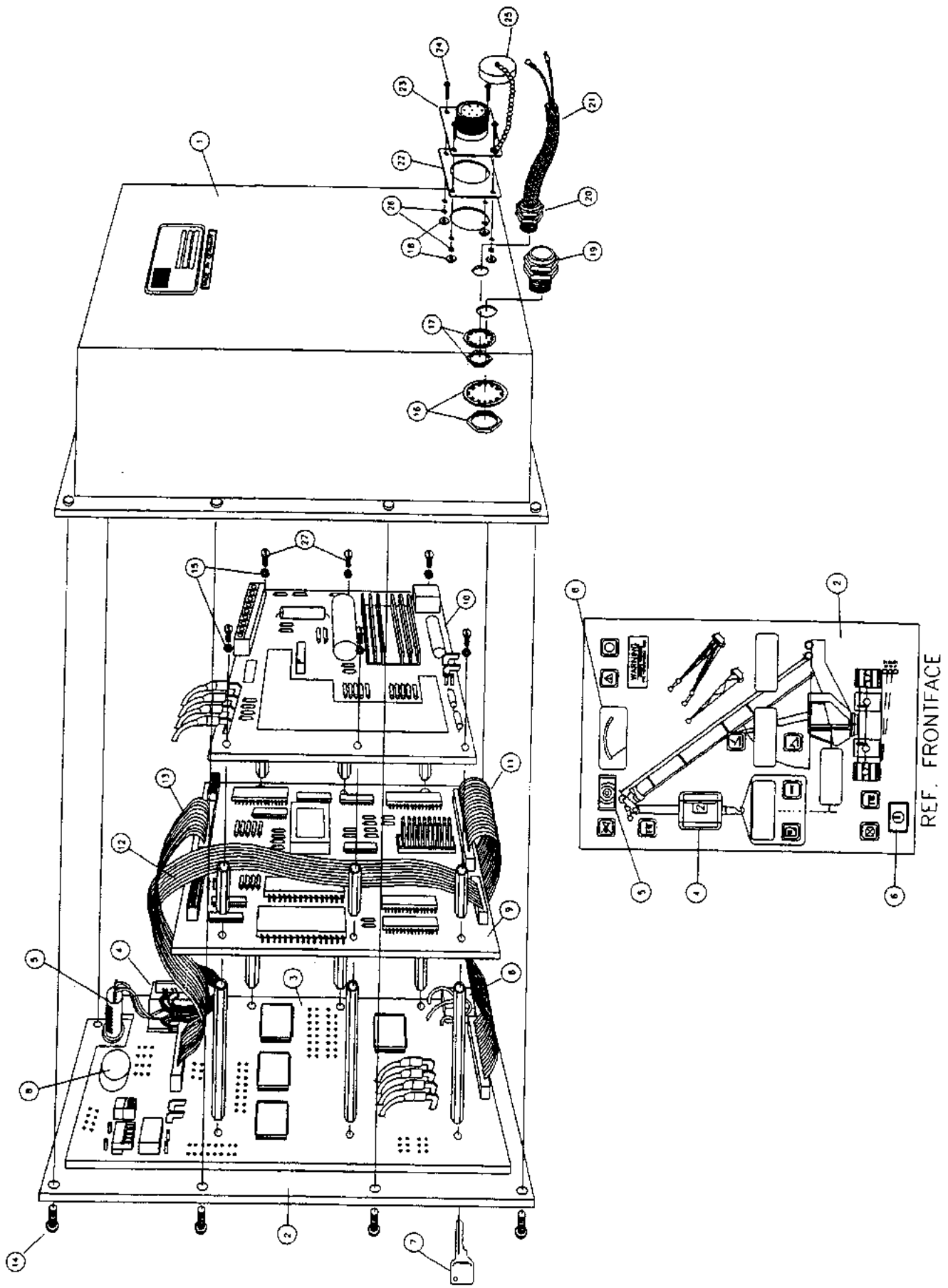


CABIN INSTALLATION - LMI

GROVE

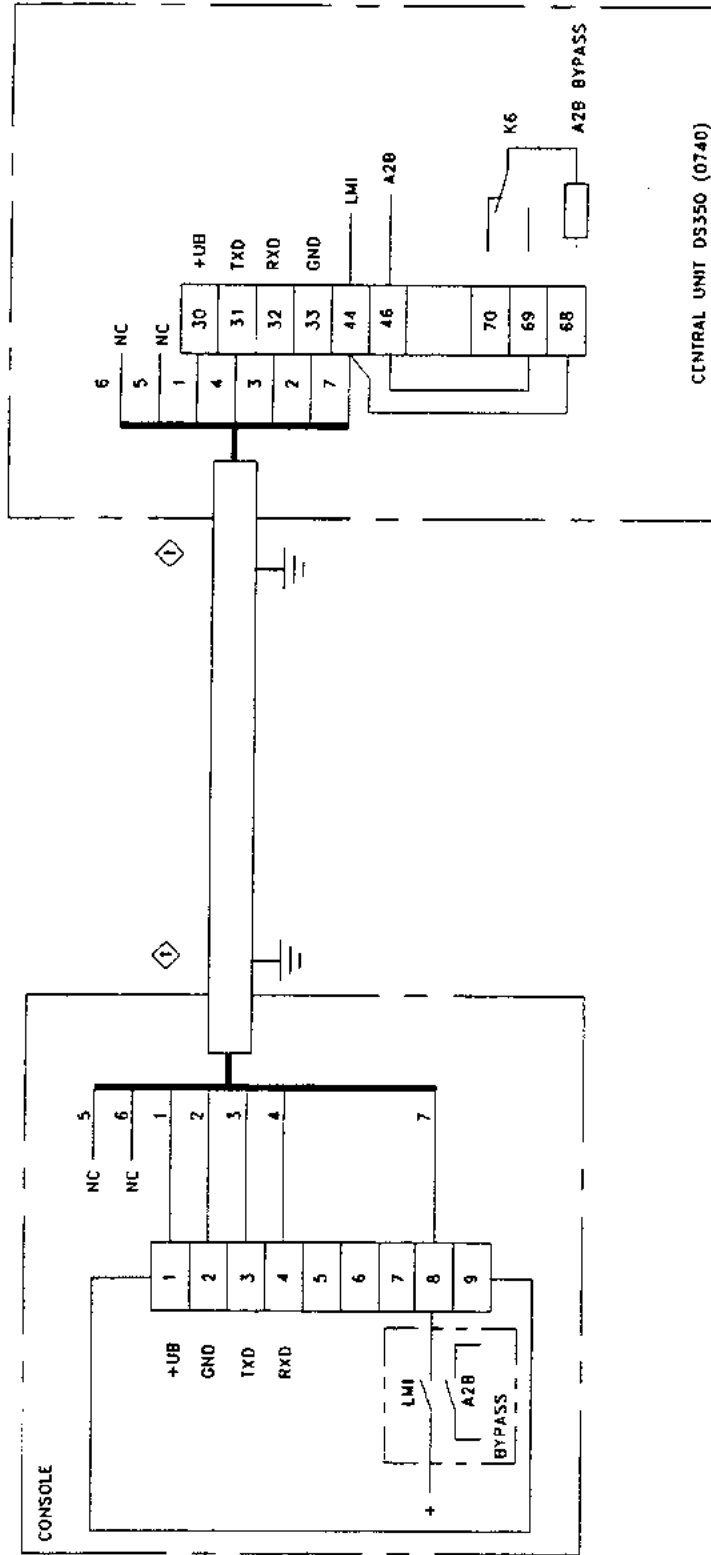
NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1 +	9-333-102710	1	CONSOLE - DS350 AUTOMATED LMI				
2	9-333-101748	1	CABLE, ELEC. 7 X 0.5 S. S.				
3	7-850-000102	10	STRAP 1/4" X 12"				

+ SEE FURTHER BREAKDOWN THIS GROUP



REF. FRONT FACE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
	9-333-102710		COMPLETE ASSY				
1	9-333-102350	1	HOUSING, CONSOLE				
2	9-333-102718	1	FRONTFACE				
3	9-333-102719	1	BOARD, TERMINAL				
4	9-333-102720	1	SWITCH, SELECTOR				
5	9-333-101674	1	BUZZER				
6	9-333-102074	1	SWITCH, KEY				
7	9-333-102721	1	KEY, OVERRIDE				
8	9-333-102722	1	DISPLAY, LOAD				
9	9-333-102723	1	BOARD, TERMINAL				
10	9-333-102724	1	BOARD, COMPUTER				
11	9-333-102725	1	CABLE, RIBBON				
12	9-333-102726	1	CABLE, RIBBON				
13	9-333-102727	1	CABLE, RIBBON				
14	9-333-102728	8	SCREWS				
15	9-333-102729	6	WASHERS				
16	9-333-102730	1	REDUCER				
17	9-333-102731	1	REDUCER				
18	9-333-102732	4	NUTS				
19	9-333-102733	1	STRAIN RELIEF				
20	9-333-101995	1	STRAIN RELIEF BLACK INSERT - PG9				
21	9-333-101743	1	CABLE, ELEC. 2 X 0.5 S. S.				
22	9-333-102361	1	GASKET				
23	9-333-102362	1	CONNECTOR - 7 PIN				
24	9-333-102734	4	SCREWS				
25	9-333-102735	1	COVER, DUST				
26	9-333-102736	4	LOCKWASHER				
27	9-333-102737	6	SCREWS				



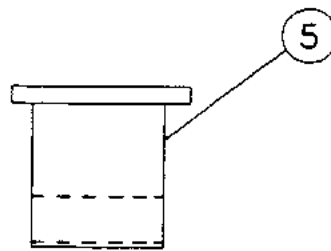
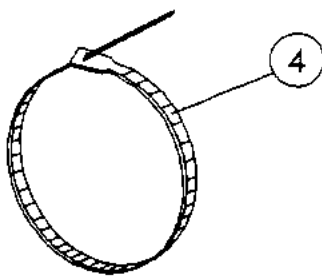
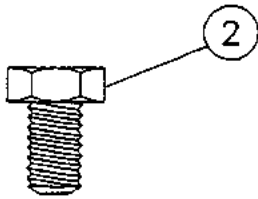
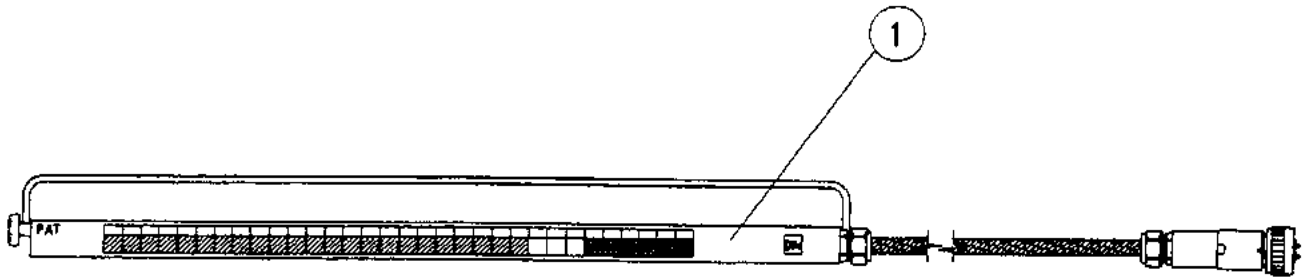
CODE	COLOR
BR	BROWN
BL	BLACK
WT	WHITE \ YELLOW
WG	WHITE \ GRAY
WB	WHITE \ BLUE
WR	WHITE \ RED
WP	WHITE \ PINK
WBK	WHITE \ BLACK
WBR	WHITE \ BROWN
P	PINK
W	WHITE
W	GREEN
CM	BLUE
B	RED
R	WHITE \ GREEN
WGN	GRAY
C	INNER SHIELD
I.S.	

NOTES:

◇ OUTER SHIELD GROUNDED WITH STRAIN RELIEF INSERT.

CONSOLE CONNECTION ELECTRICAL WIRING

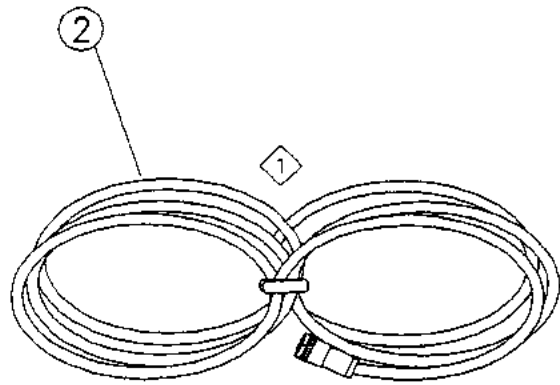
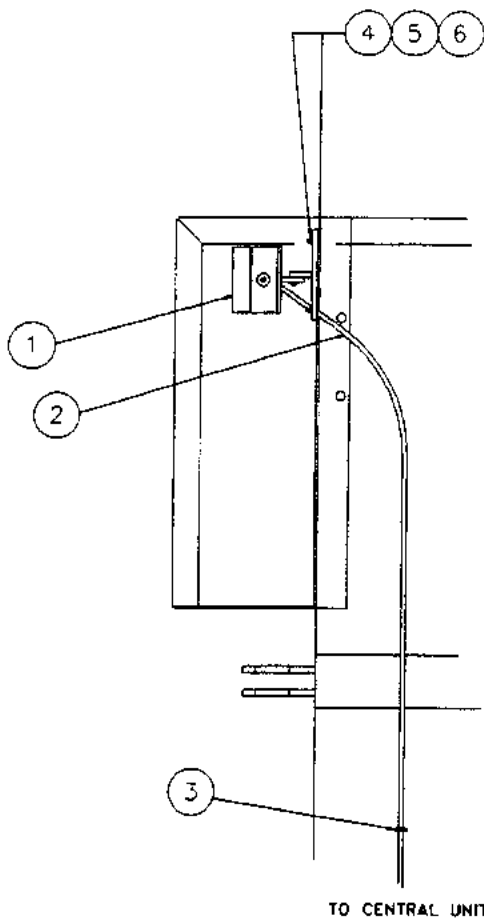
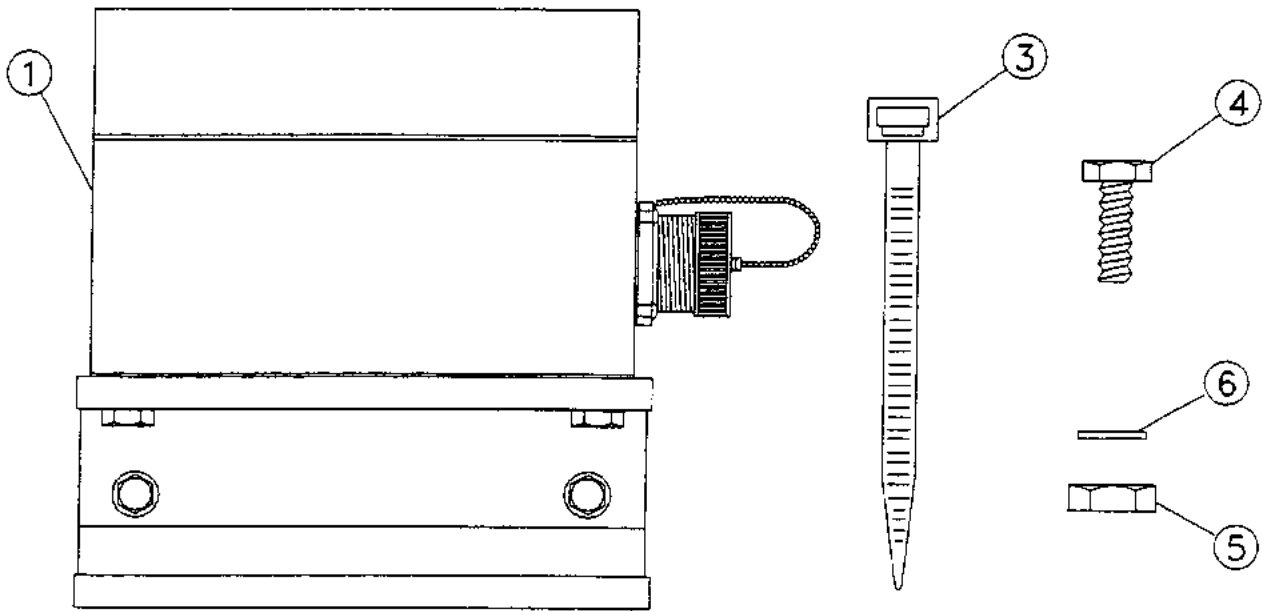
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LIGHT BAR INSTALLATION - LMI

GROVE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102339	1	LIGHTBAR				
2	7-112-140650	2	BOLT, HEX 1/4"-20 NC X 3/4" - GRD 2				
3	7-950-140050	2	LOCKWASHER 1/4" REG				
4	7-850-000102	5	STRAP 1/4" X 12"				
5	9-333-102483	2	NUT 1/4"-20				



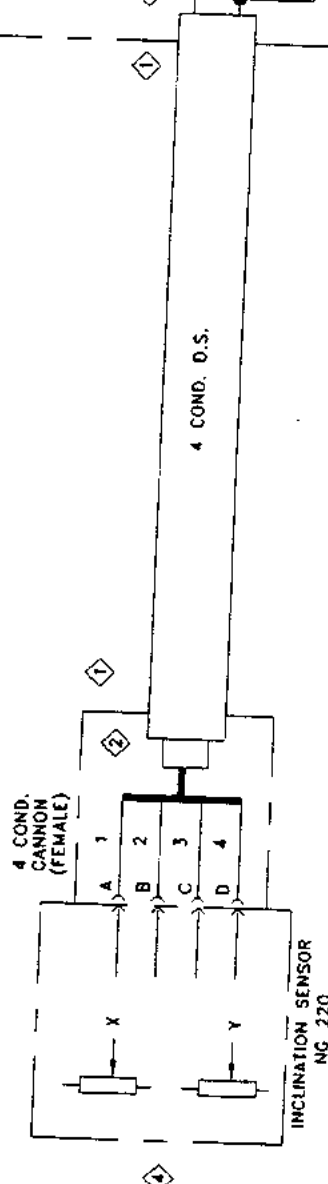
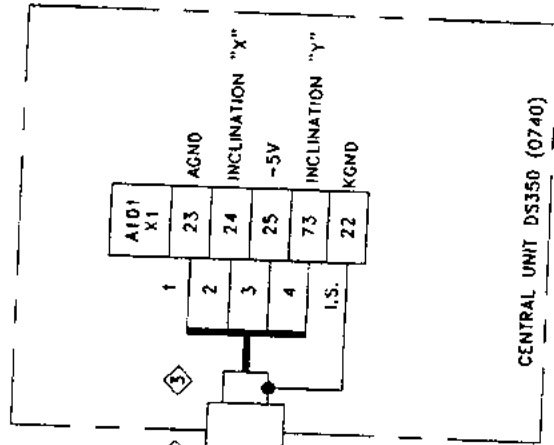
NOTES:

◇ REFER TO ELECTRICAL DIAGRAM FOR CONNECTION.

INCLINATION SENSOR INSTALLATION - LMI

GROVE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102696	1	SENSOR, INCLINATION, NG220				
2	9-333-101483	1	CABLE, ELEC. 4 COND. D.S. 4 PIN FEMALE PLUG				
3	7-850-000102	8	STRAP 1/4" X 12"				
4	7-860-140000	3	NUT, HEX 1/4"-20 NC - GRD B				
5	7-950-140141	11	WASHER 1/4" NARROW				
6	7-950-140050	3	LOCKWASHER 1/4" REG				



4 COND. D.S.

4 COND. CANNON (FEMALE)

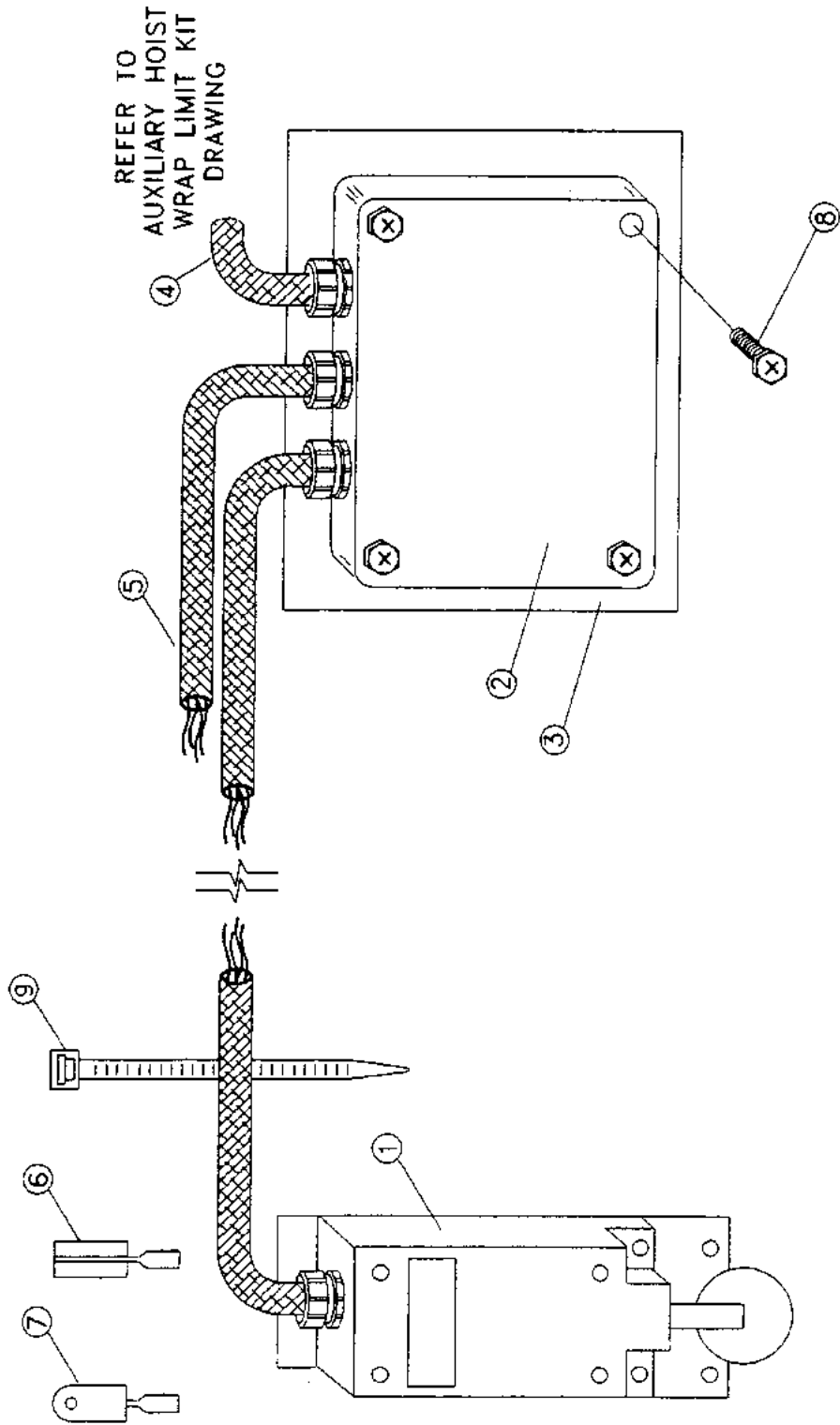
CODE	COLOR
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BL	BLACK
MY	YELLOW
MO	WHITE/GRAY
WB	WHITE/BLUE
WR	WHITE/RED
WP	WHITE/PINK
WBL	WHITE/BLACK
WBR	WHITE/BROWN
P	PINK
W	WHITE
CH	GREEN
B	BLUE
R	RED
WCH	WHITE/GREEN
C	GRAY
I.S.	INNER SHIELD

NOTES:

- ① OUTER SHIELD CONNECTED TO STRAIN RELIEF INSERT.
- ② INNER SHIELD TO BE CUT AND INSULATED.
- ③ INNER SHIELD TO BE INSULATED AND CONNECTED AS SHOWN.
- ④ ADJUST INCLINATION SENSOR TO MATCH WITH INCLINATION OF TURNTABLE. REFER TO ADJUSTMENT INSTRUCTIONS [INSTALLATION DRAWING]

INCLINATION SENSOR (NG 220) WIRING

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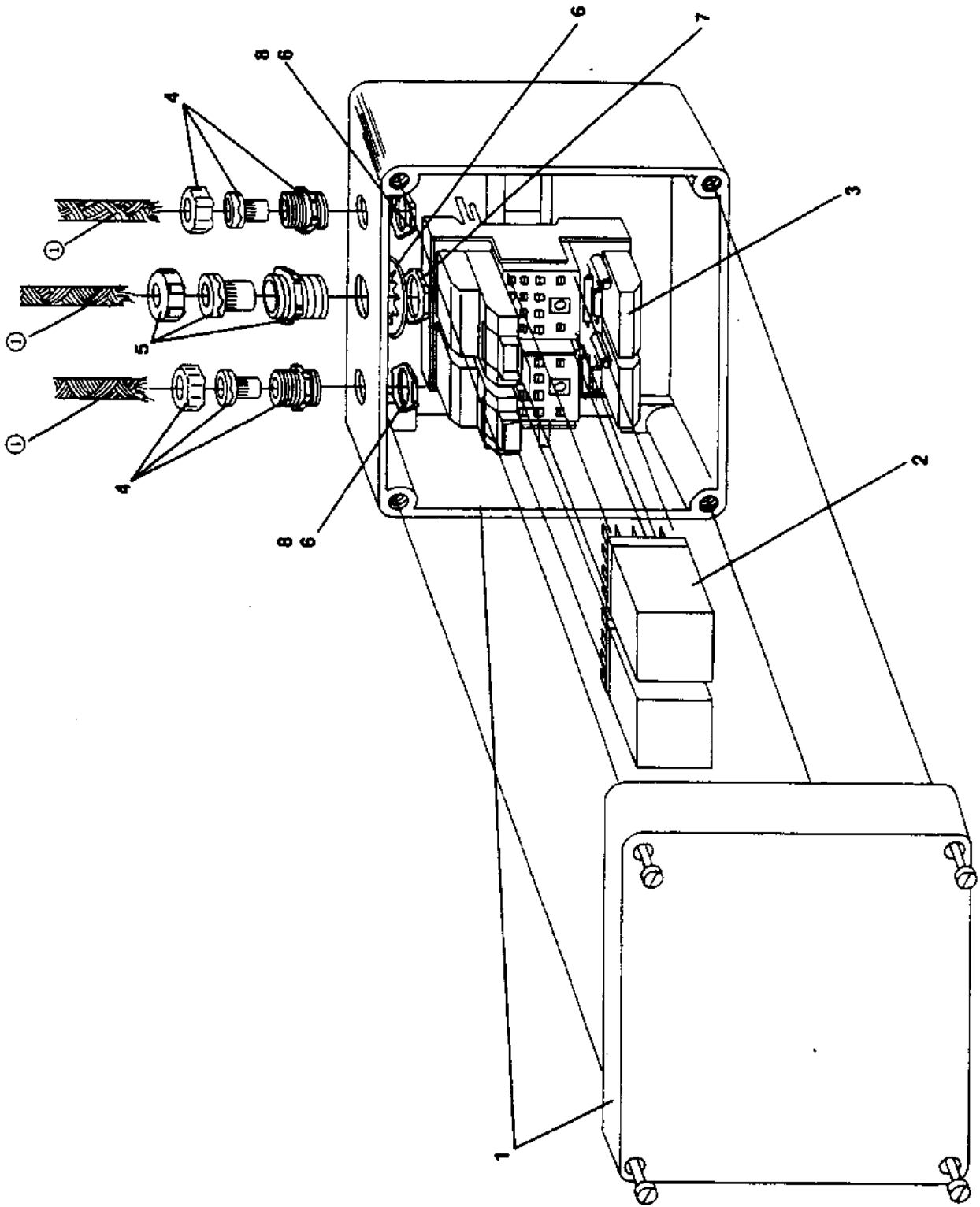


3RD WRAP LIMIT INSTALLATION - MAIN HOIST

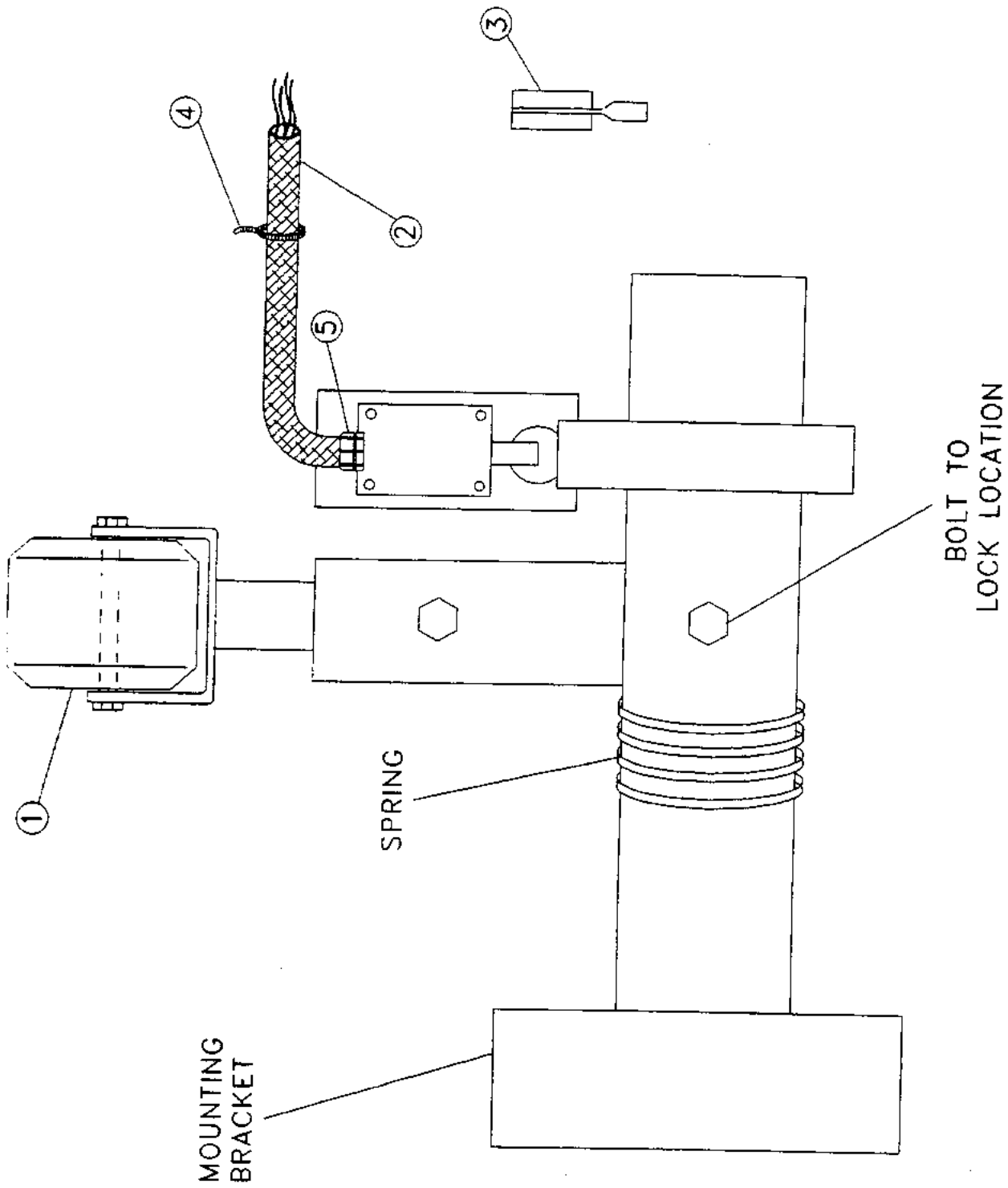
GROVE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1 +	9-333-102644	1	3RD WRAP DEVICE (SPECIAL)				
2 +	9-333-102343	1	CONTROL UNIT ASSY - MND 100				
3	9-333-102344	1	PLATE, MTG				
4	9-333-101743	1	CABLE, ELEC. 2 X 0.5 S.S.				
5	9-333-101749	1	CABLE, ELEC. 7 X 0.5 S.S.				
6	9-333-102376	3	CLIP				
7	9-333-101473	2	FASTON, MALE				
8	7-110-140805	4	CAPSCREW 1/4"-20 NC X 1"				
9	7-850-000102	5	STRAP 1/4" X 12"				

+ SEE FURTHER BREAKDOWN THIS GROUP



NO.	PART NO.	QTY DESCRIPTION	NO.	PART NO.	QTY DESCRIPTION
	9-333-102343	COMPLETE ASSY			
1	9-333-102345	1 HOUSING			
2	9-333-102346	2 RELAY			
3	9-333-102347	2 RELAY, MODULE			
4	9-333-101995	2 STRAIN RELIEF BLACK INSERT - PG9			
5	9-333-101440	1 STRAIN RELIEF RED INSERT - PG13.5			
6	9-333-101560	3 LOCKWASHER - #12			
7	9-333-101547	1 LOCKNUT PG 13.5			
8	9-333-101984	2 LOCKNUT PG9			

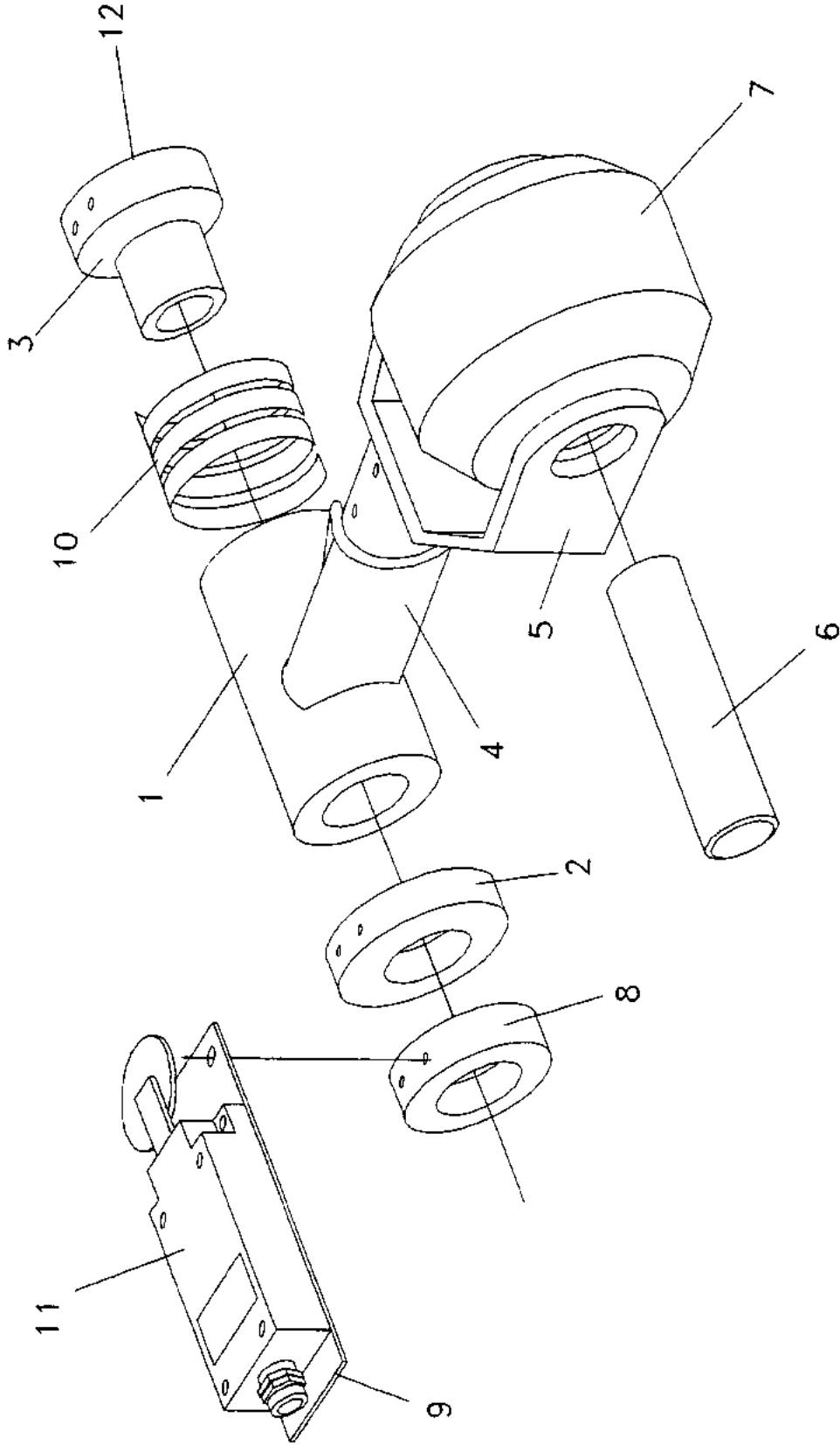


3RD WRAP LIMIT INSTALLATION - AUX. HOIST

GROVE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102644	1	3RD WRAP DEVICE (SPECIAL)				
2	9-333-101743	1	CABLE, ELEC. 2 X 0.5 S. S.				
3	9-333-102376	3	CLIP				
4	7-050-000102	5	STRAP 1/4" X 12"				
5	9-333-101599	1	STRAIN RELIEF GREEN INSERT - PG11				

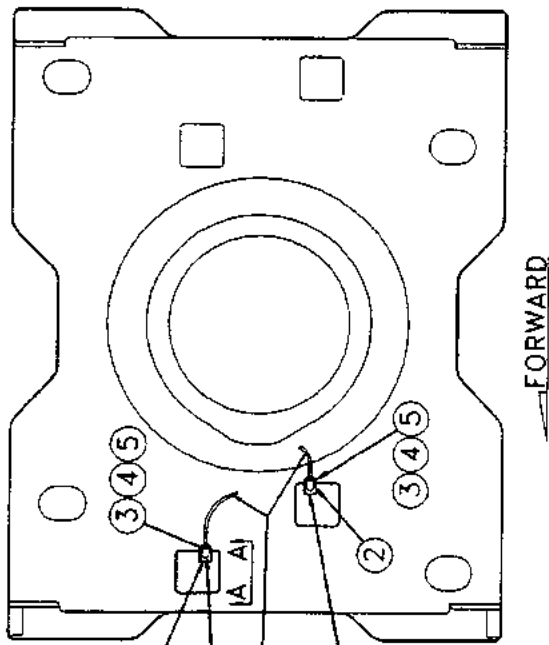
+ SEE FURTHER BREAKDOWN THIS GROUP



3RD WRAP DEVICE (SPECIAL)

GROVE

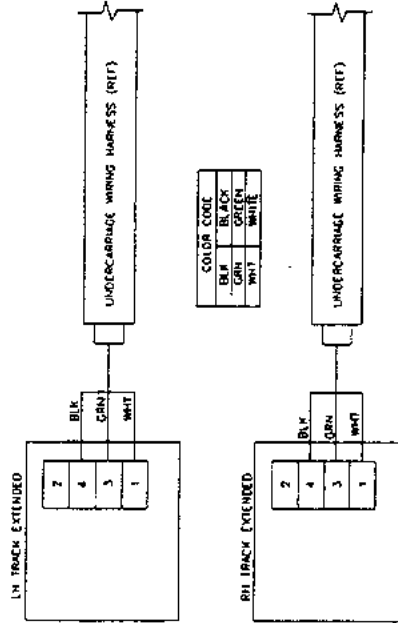
NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
	9-333-102644		3RD WRAP DEVICE (SPECIAL)				
1	9-486-990228	1	ARM				
2	9-486-990229	1	CAM				
3	9-486-990230	1	CLAMP				
4	9-486-990231	1	SHAFT				
5	9-486-000232	1	HOLDER, SHEAVE				
6	9-333-102233	1	STRAIN RELIEF YELLOW INSERT - PG9				
7	9-486-990234	1	ROLLER				
8	9-486-990235	1	COLLAR				
9	9-486-990236	1	ANGLE				
10	9-486-990237	1	SPRING				
11	9-486-000238	1	SWITCH				
12	9-486-000239	1	BEARING				



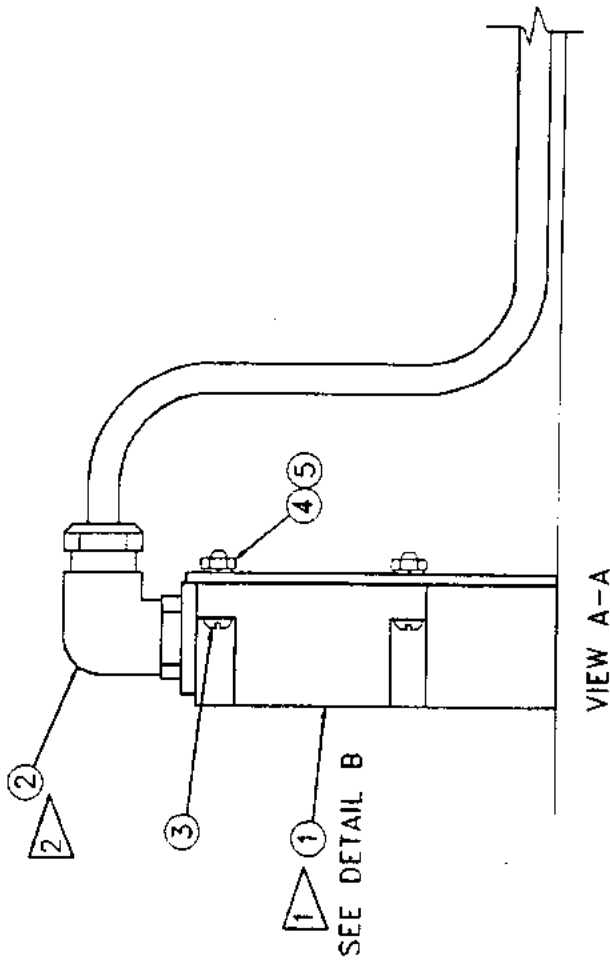
SEE DETAIL B (1)

CABLES PART OF UNDERCARRIAGE WIRING HARNESS (REF//)

SEE DETAIL B (1)



DETAIL B



VIEW A-A

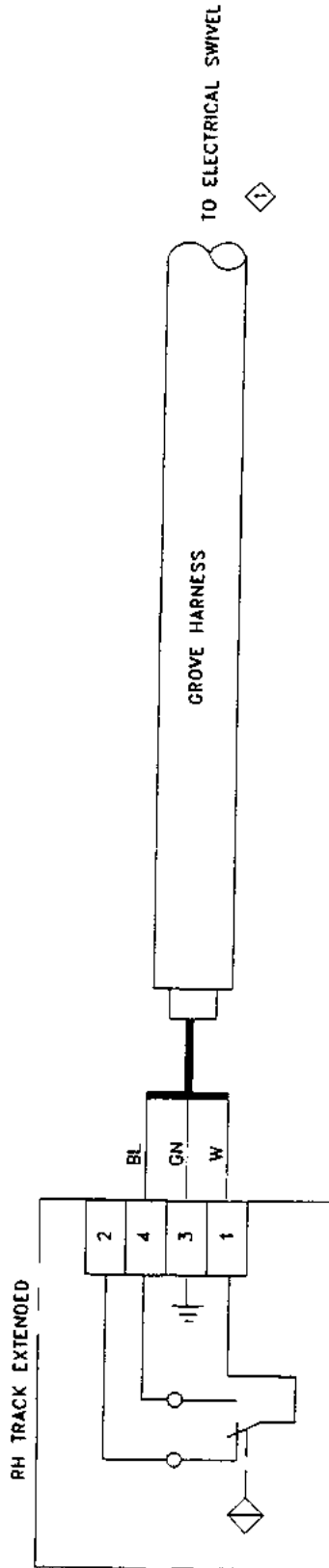
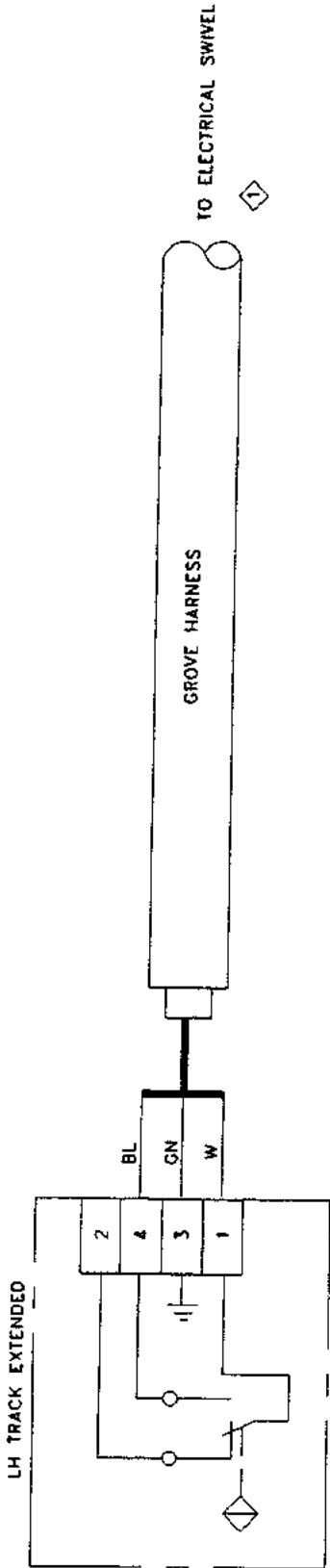
CRAWLER EXTENSION INSTALLATION

NOTES:

1 ADJUST HEAD ON PROXIMITY SWITCHES (ITEM 1) SO THEY POINT TO TARGET AREA.

2 TIGHTEN STRAIN RELIEFS SECURELY, BUT TAKE CAUTION NOT TO OVER TIGHTEN.

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102701	2	SWITCH, PROXIMITY (20MM) NON-FERROUS SENSING				
2	9-333-102702	2	STRAIN RELIEF, PG 13 X 90 DEG. RED GRONNET				
3	9-333-102692	8	SCREW, M10-24 X 3/4 ROUND HEAD MACHINE				
4	7-660-101100	8	NUT, HEX 10-24 NC - GRD A				
5	7-450-100050	8	LOCKWASHER M10 REG				

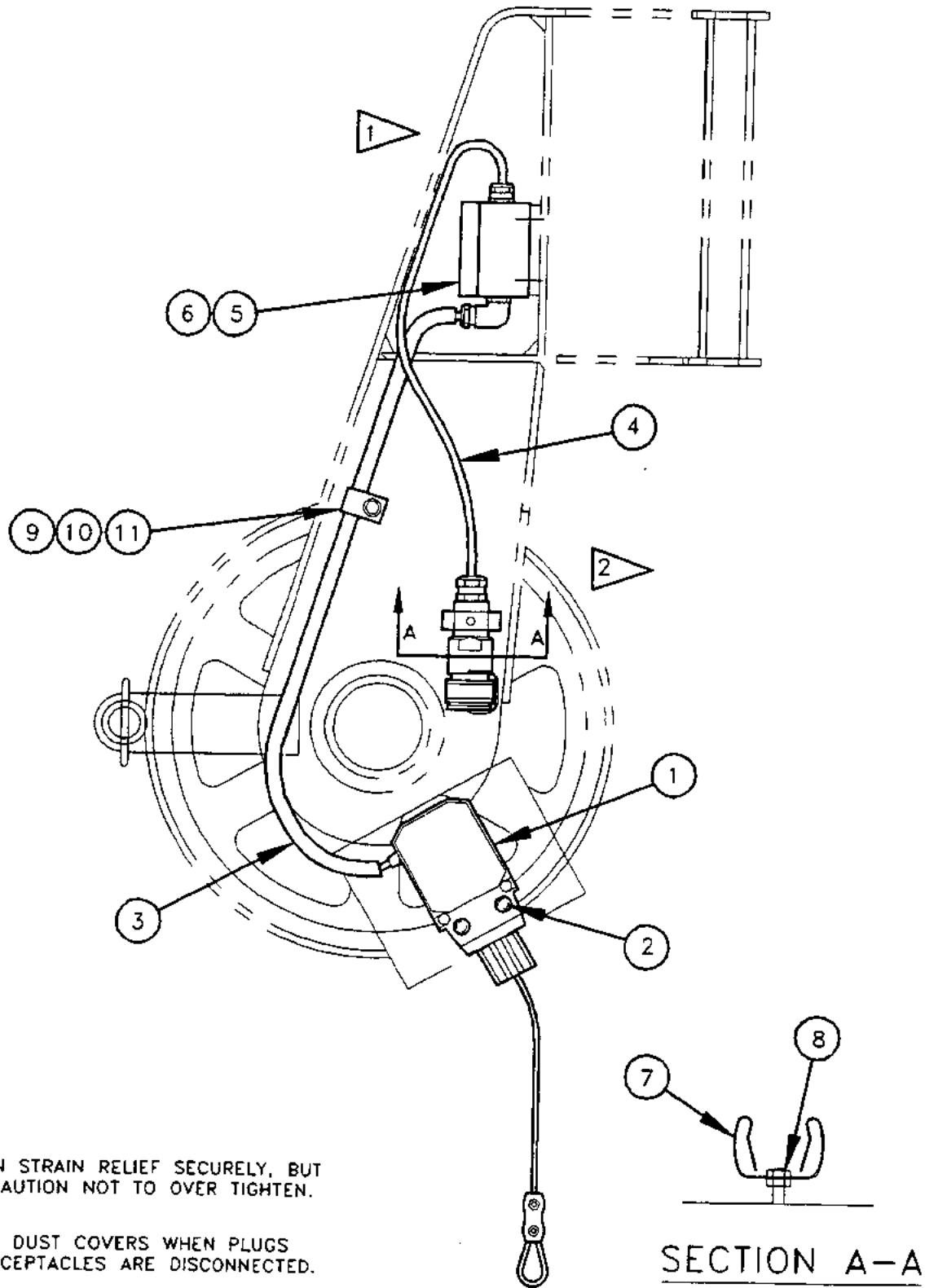


CODE	COLOR
BR	BROWN
BL	BLACK
WY	WHITE/YELLOW
WG	WHITE/GRAY
WB	WHITE/BLUE
WR	WHITE/RED
WP	WHITE/PINK
WBK	WHITE/BLACK
WBR	WHITE/BROWN
P	PINK
W	WHITE
GN	GREEN
B	BLUE
R	RED
WGN	WHITE/GREEN
C	GRAY
I.S.	INNER SHIELD

◇ REFER TO GROVE ELECTRICAL DRAWINGS.

PROXIMITY SWITCH WIRING (TRACKS EXTENDED)

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NOTES:

- 1 TIGHTEN STRAIN RELIEF SECURELY, BUT TAKE CAUTION NOT TO OVER TIGHTEN.
- 2 INSTALL DUST COVERS WHEN PLUGS AND RECEPTACLES ARE DISCONNECTED.

SECTION A-A

AUX. BOOM NOSE

AUXILIARY BOOM NOSE INSTALLATION - LMI

GROVE

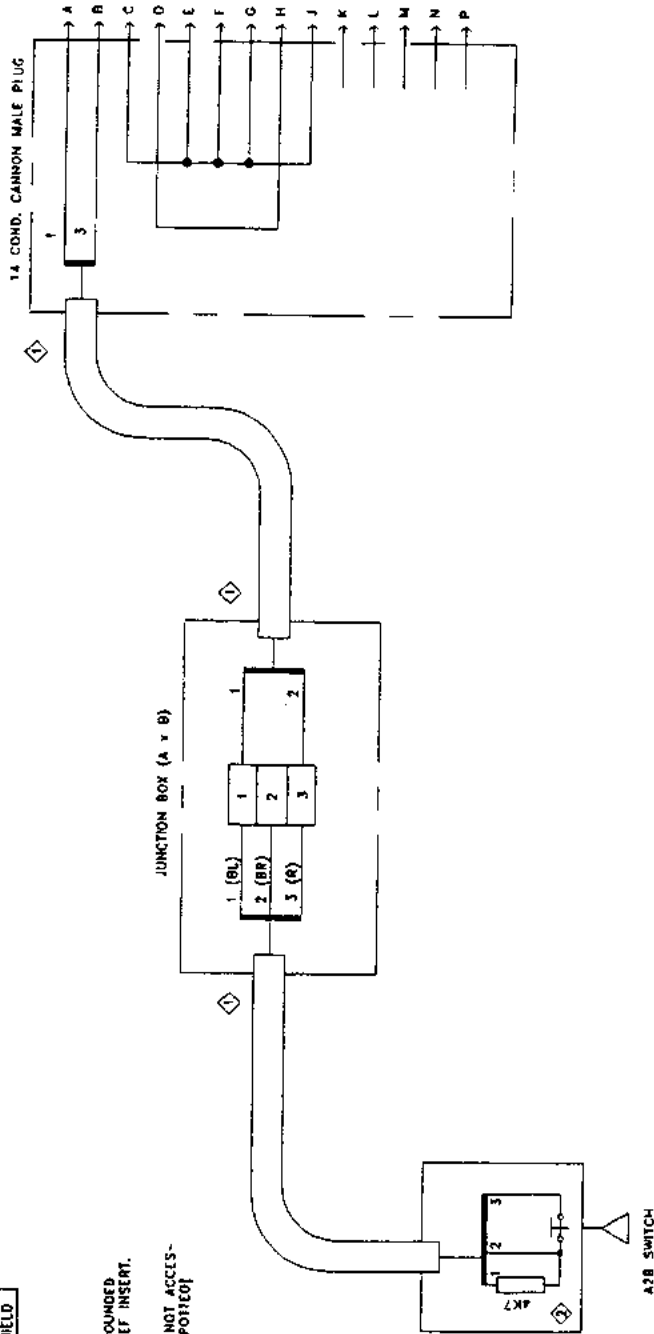
NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102238	1	SWITCH, #28 W/O CRIMP				
2	7-110-151205	2	CAPSCREW 5/16" - 18 NC X 1 1/2"				
3	9-333-102235	1	CONDUIT 10 FEET <MUST CUT TO LENGTH>				
4	9-333-102695	1	CABLE ASSEMBLY, 2-COND SS W/ 14-PIN MALE PLUG				
5 +	9-333-102686	1	JUNCTION BOX ASSEMBLY (80MM X 75MM) W/ PG9 + 11				
6	9-333-102687	2	SCREW, #8-32 X 3/4 HEX SOCKET CAP				
7	9-333-102688	1	GRIPPER CLIP, #22				
8	7-660-140000	3	NUT, HEX 1/4"-20 NC - GRD A				
9	9-333-101839	1	CLAMP 9/16"				
10	7-950-140141	1	WASHER 1/4" NARROW				
11	7-950-140050	1	LOCKWASHER 1/4" REG				

+ SEE FURTHER BREAKDOWN THIS GROUP

CODE	COLOR
BR	BROWN
BL	BLACK
WY	WHITE/YELLOW
WG	WHITE/GRAY
WB	WHITE/BLUE
WR	WHITE/RED
WP	WHITE/PINK
WBK	WHITE/BLACK
WBR	WHITE/BROWN
P	PINK
W	WHITE
GN	GREEN
B	BLUE
R	RED
WGN	WHITE/GREEN
C	CAMP
I.S.	INNER SHIELD

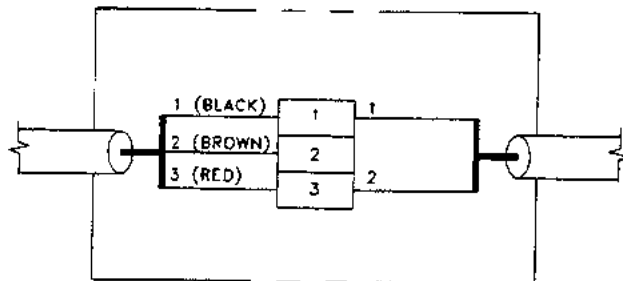
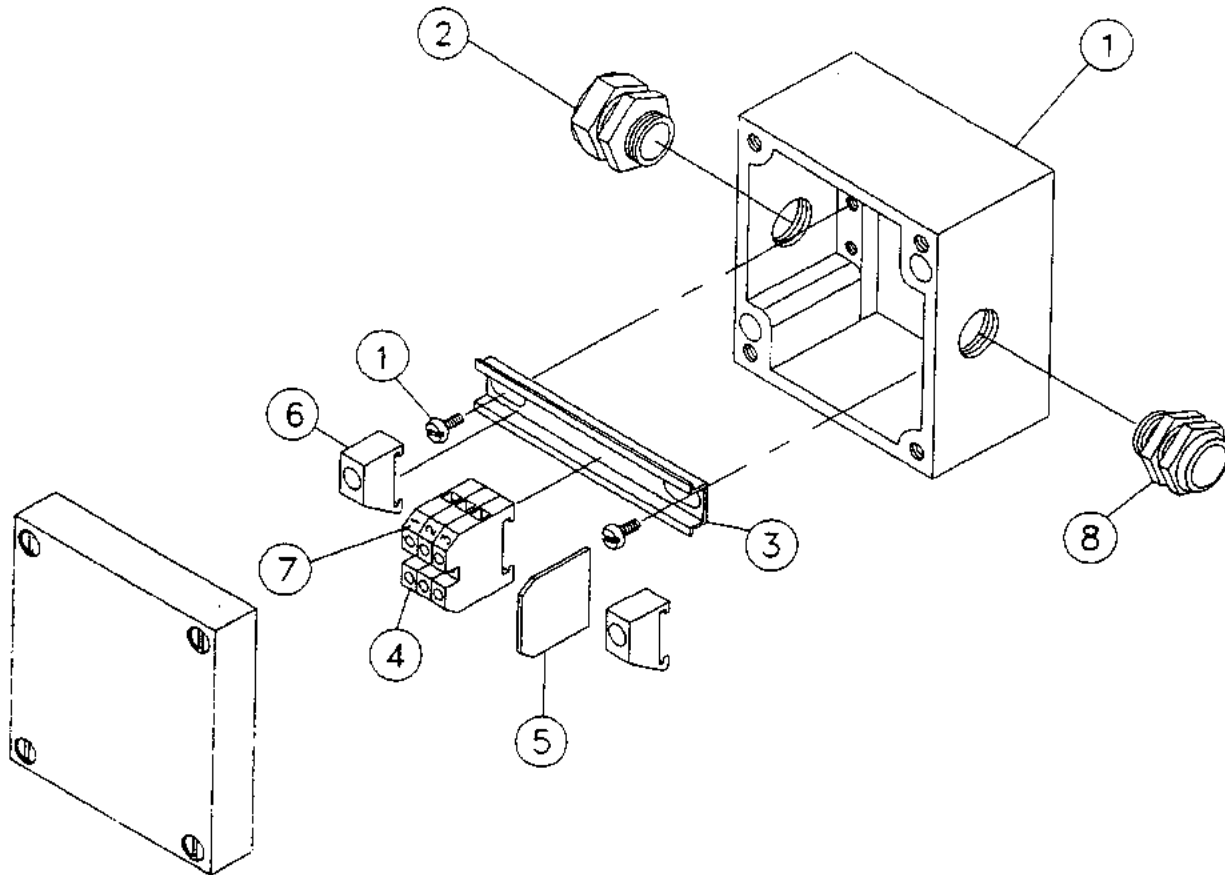
NOTES:

- ① OUTER SHIELD GROUNDED WITH STRAIN RELIEF INSERT.
- ② SWITCH ELEMENT NOT ACCESSIBLE [SWITCH POTTED]



AUX. BOOM NOSE WIRING SCHEMATIC

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NOTES:



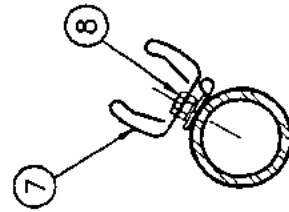
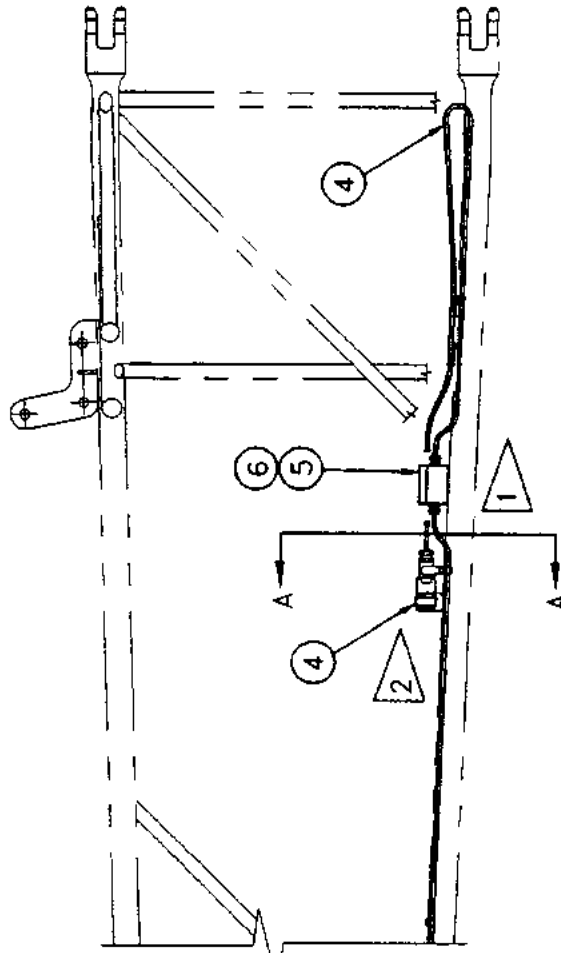
OUTER SHIELD CONNECTED TO STRAIN RELIEF.

WIRING DETAIL

JUNCTION BOX ASSEMBLY (80MM X 75MM) W/ PG9 & 11

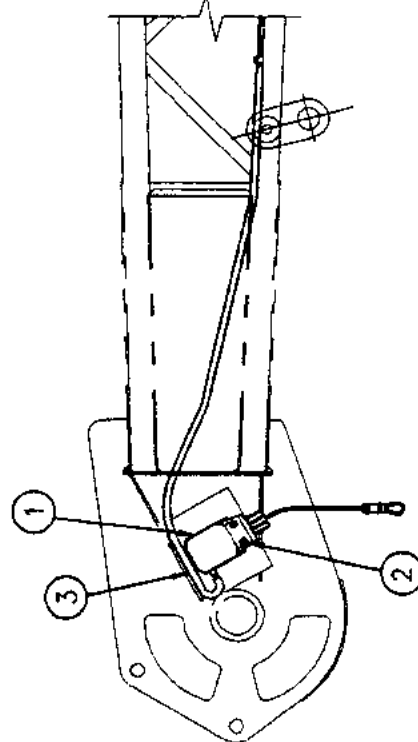
GROVE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
	9-333-102686		COMPLETE ASSY				
1	9-333-102758	1	JUNCTION BOX, ROSE 80MM X 75MM X 57MM				
2	9-333-102674	1	STRAIN RELIEF, PG9				
3	9-333-102759	1	MOUNTING RAIL				
4	9-333-102663	3	BLOCK, TERMINAL STRIP				
5	9-333-102664	1	END PLATE, TERMINAL STRIP				
6	9-333-102665	2	END BRACKET, TERMINAL STRIP				
7	9-333-102666	1	TAGS, TERMINAL STRIP				
8	9-333-102672	1	STRAIN RELIEF				



SECTION A-A

FIXED S/A BOOM EXTENSION



NOTES:

- TIGHTEN STRAIN RELIEF SECURELY, BUT TAKE CAUTION NOT TO OVER TIGHTEN.
- INSTALL DUST COVERS WHEN PLUGS AND RECEPTACLES ARE DISCONNECTED.



FIXED SWINGAWAY EXTENSION INSTALLATION - LMI

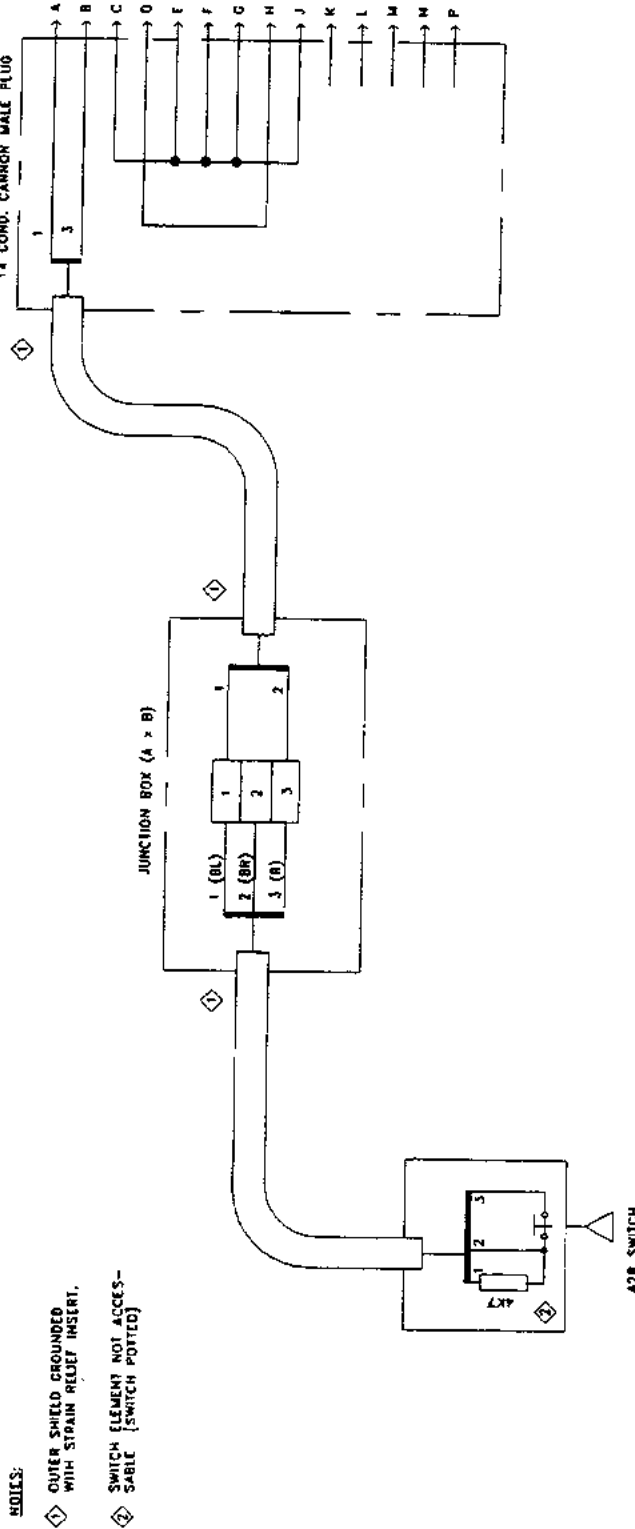
GROVE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102238	1	SWITCH, #2B W/O CRIMP				
2	7-110-151205	2	CAPSCREW 5/16" - 18 NC X 1 1/2"				
3	9-333-102235	1	CONDUIT 10 FEET (MUST CUT TO LENGTH)				
4	9-333-102685	1	CABLE ASSEMBLY, 2-COND SS W/ 14-PIN MALE PLUG				
5 +	9-333-102686	1	JUNCTION BOX ASSEMBLY (30MM X 75MM) W/ PG9 + 11				
6	9-333-102687	2	SCREW, #8-32 X 3/4 HEX SOCKET CAP				
7	9-333-102688	1	GRIPPER CLIP, #22				
8	7-660-140000	1	NUT, HEX 1/4"-20 NC - GRD A				

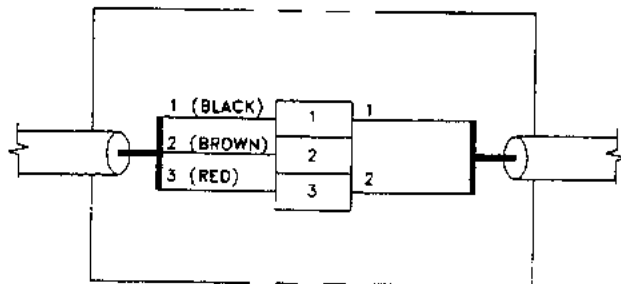
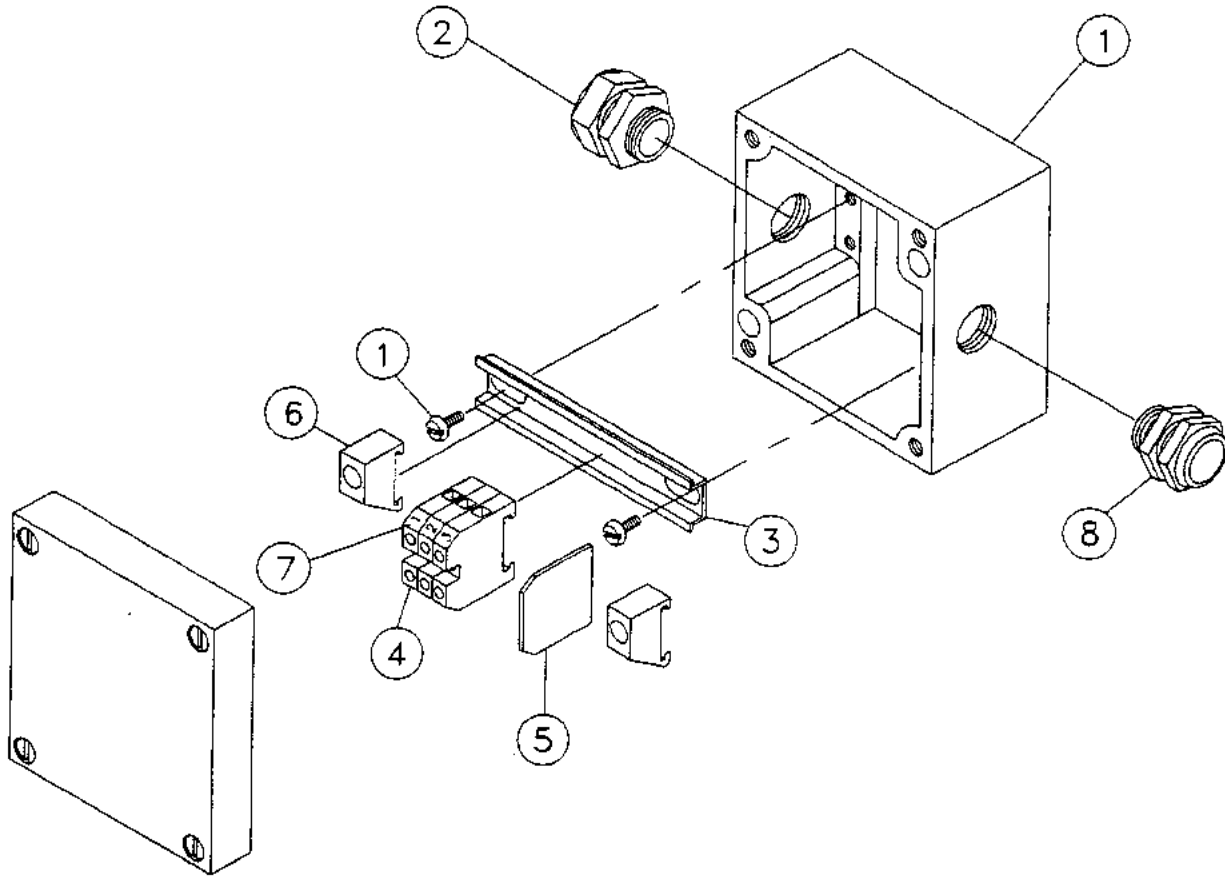
+ SEE FURTHER BREAKDOWN THIS GROUP

FIXED SWINGAWAY EXTENSION WIRING SCHEMATIC

CODE	COLOR
RR	BROWN
BL	BLACK
WY	WHITE/YELLOW
WG	WHITE/GRAY
WB	WHITE/BLUE
WP	WHITE/PINK
WBK	WHITE/BLACK
P	PINK
W	WHITE
GN	GREEN
B	BLUE
R	RED
WGH	WHITE/GREEN
G	GRAY
I.S.	INNER SHIELD



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NOTES:

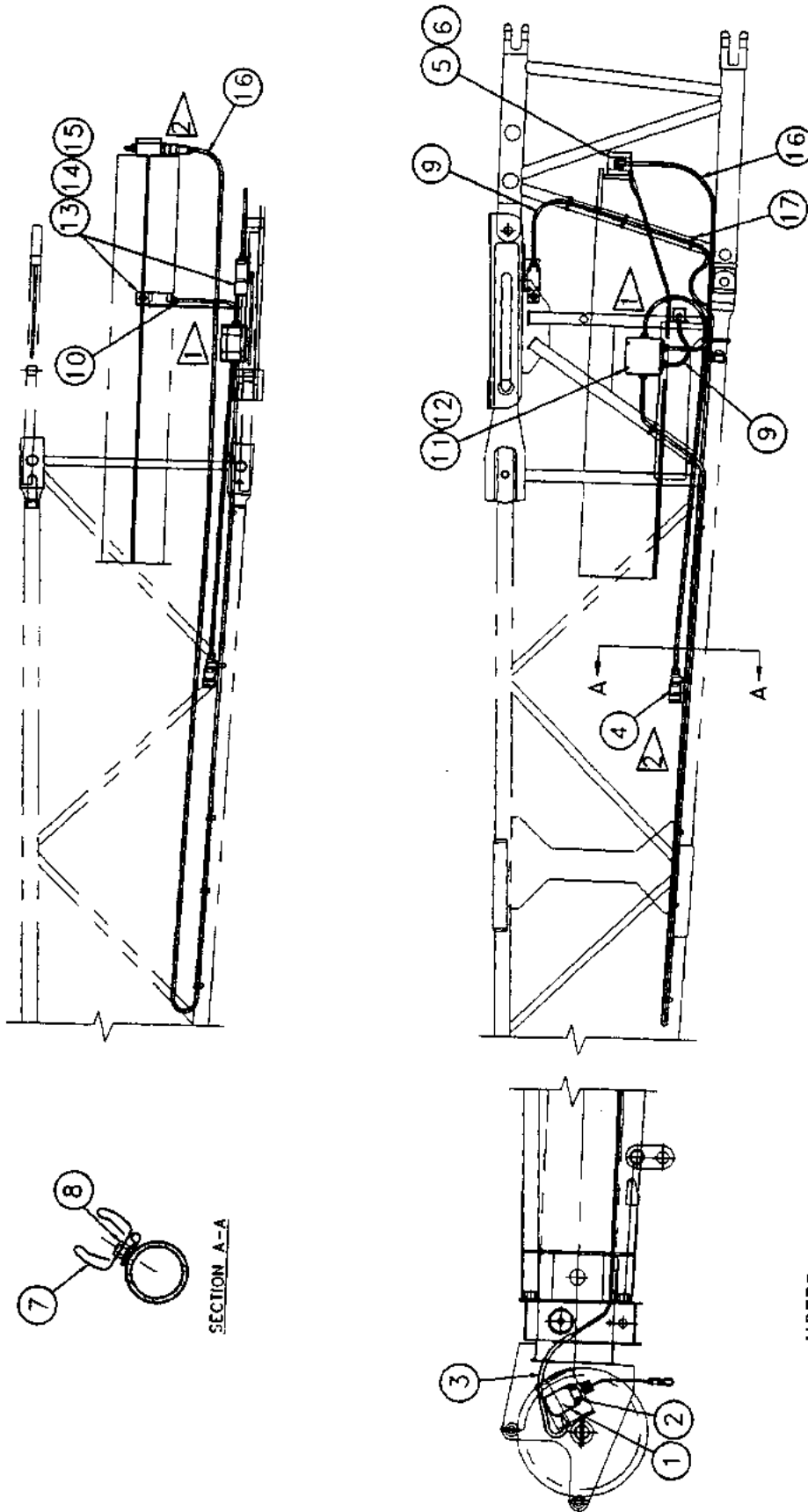
1 OUTER SHIELD CONNECTED TO STRAIN RELIEF.

WIRING DETAIL

JUNCTION BOX ASSEMBLY (80MM X 75MM) W/ PG9 & 11

GROVE

NO.	PART NO.	QTY DESCRIPTION	NO.	PART NO.	QTY DESCRIPTION
	9-333-102686	COMPLETE ASSY			
1	9-333-102758	1 JUNCTION BOX, ROSE 80MM X 75MM X 57MM			
2	9-333-102674	1 STRAIN RELIEF, PG9			
3	9-333-102759	1 MOUNTING RAIL			
4	9-333-102663	3 BLOCK, TERMINAL STRIP			
5	9-333-102664	1 END PLATE, TERMINAL STRIP			
6	9-333-102665	2 END BRACKET, TERMINAL STRIP			
7	9-333-102666	1 TAGS, TERMINAL STRIP			
8	9-333-102672	1 STRAIN RELIEF			



TELE-OFFSET S/A BOOM EXTENSION

NOTES:

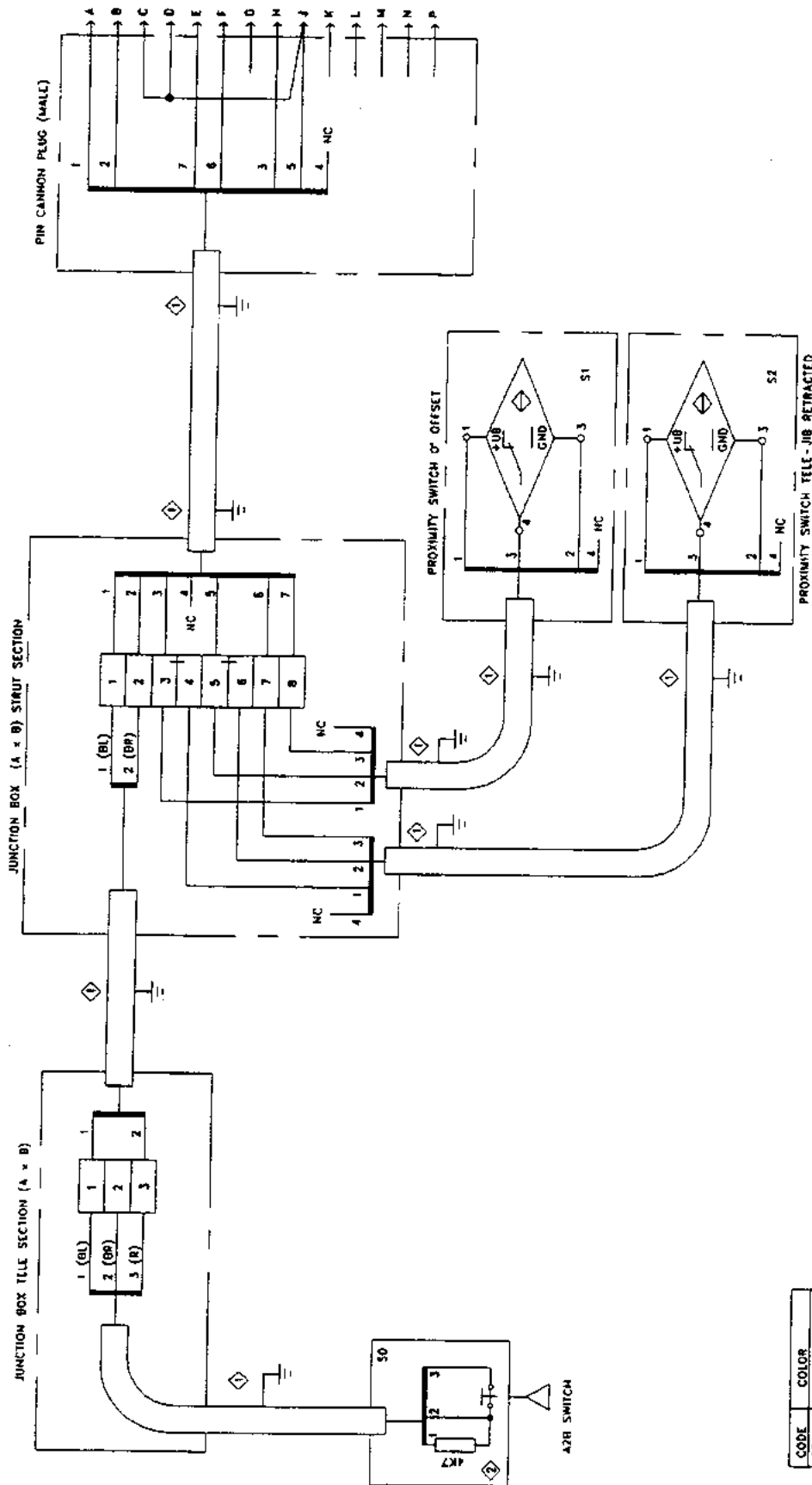
- 1 TIGHTEN STRAIN RELIEF SECURELY, BUT TAKE CAUTION NOT TO OVER TIGHTEN.
- 2 INSTALL DUST COVERS WHEN PLUGS AND RECEPTACLES ARE DISCONNECTED.

TELE-OFFSET EXTENSION INSTALLATION - LMI

GROVE

NO.	PART NO.	QTY DESCRIPTION	NO.	PART NO.	QTY DESCRIPTION
1	9-333-102238	1 SWITCH, #2B W/O CRIMP			
2	7-110-151205	2 CAPSCREW 5/16" - 18 NC X 1 1/2"			
3	9-333-102235	1 CONDUIT 10 FEET (MUST CUT TO LENGTH)			
4	9-333-102689	1 CABLE ASSEMBLY, 1-COND. DS W/ 14-PIN MALE PLUG			
5	+9-333-102690	1 JUNCTION BOX ASSEMBLY (80MM X 75MM)			
6	9-333-102687	2 SCREW, #8-32 X 3/4 HEX SOCKET CAP			
7	9-333-102688	1 GRIPPER CLIP, #22			
8	7-660-140000	1 NUT, HEX 1/4"-20 NC - GRD R			
9	9-333-101745	1 CABLE, ELEC. 4 X 1.5 S. S.			
10	9-333-101440	2 STRAIN RELIEF RED INSERT - PG13.5			
11	+ 9-333-102693	1 JUNCTION BOX ASSEMBLY (120MM X 120MM)			
12	9-333-102586	4 SCREW			
13	9-333-102691	2 SWITCH, PROXIMITY, 30MM			
14	9-333-102692	8 SCREW, #10-24 X 3/4 ROUND HEAD MACHINE			
15	7-950-100050	8 LOCKWASHER #10 REG			
16	9-333-102694	1 CABLE, ASSEMBLY, 2-COND SS W/ 2-PIN FEMALE PLUG			
17	7-850-000102	6 STRAP 1/4" X 12"			

+ SEE FURTHER BREAKDOWN THIS GROUP



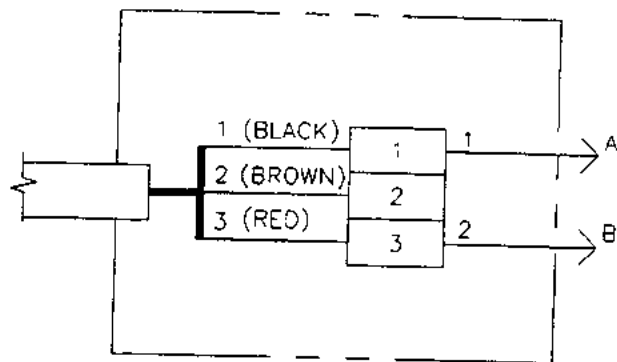
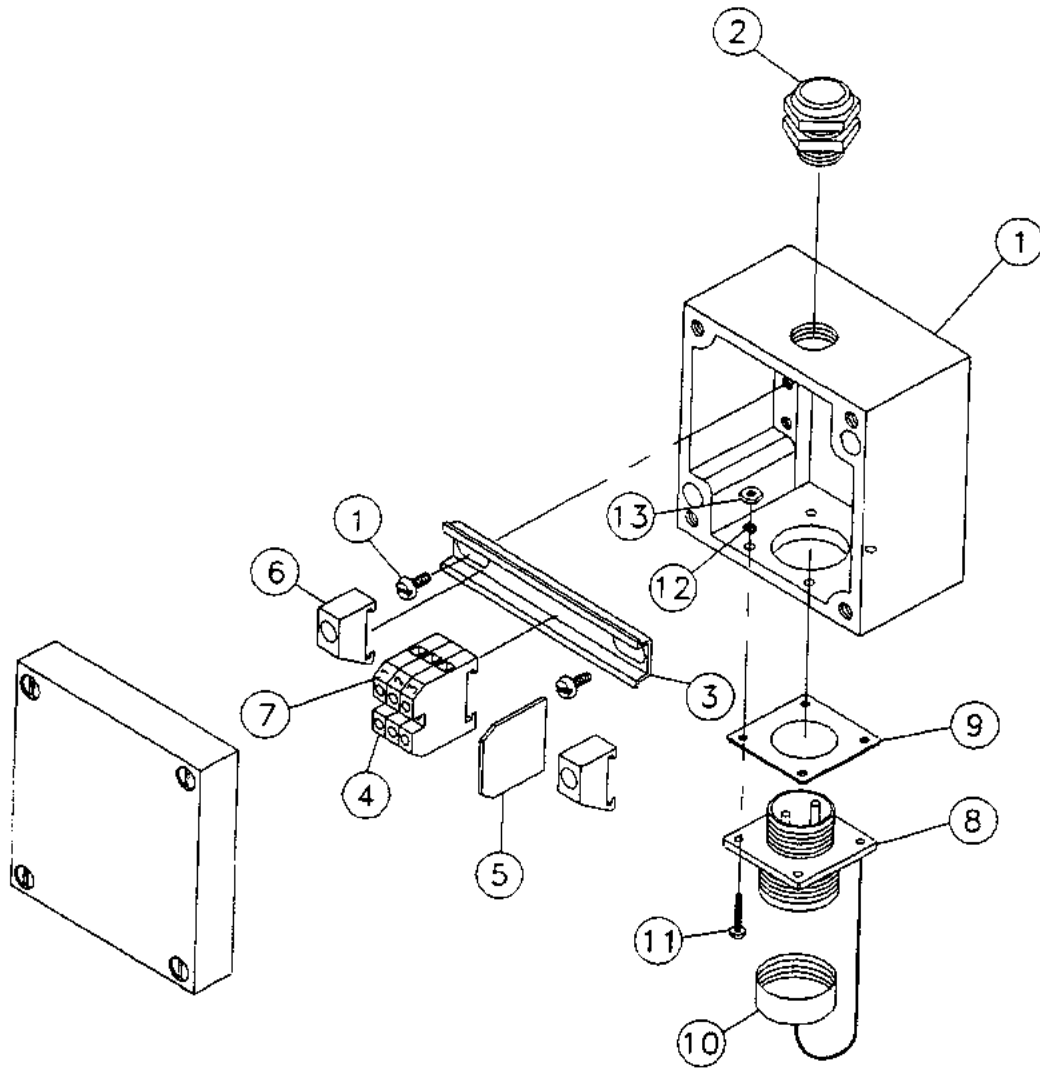
CODE	COLOR
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BL	BLACK
BY	WHITE/YELLOW
WG	WHITE/GRAY
WB	WHITE/BLUE
WR	WHITE/RED
WP	WHITE/PINK
WBL	WHITE/BLACK
WBR	WHITE/BROWN
P	PINK
W	WHITE
GN	GREEN
B	BLUE
R	RED
WGN	WHITE/GREEN
G	GRAY
I.S.	INNER SHIELD

NOTES:

- ◇ OUTER SHIELD GROUNDED WITH STRAIN RELIEF INSERT.
- ◇ SWITCH ELEMENT NOT ACCESSIBLE. [SWITCH POTTED]

TELE-OFFSET SWINGAWAY EXTENSION WIRING SCHEMATIC

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NOTES:

① OUTER SHIELD CONNECTED TO STRAIN RELIEF.

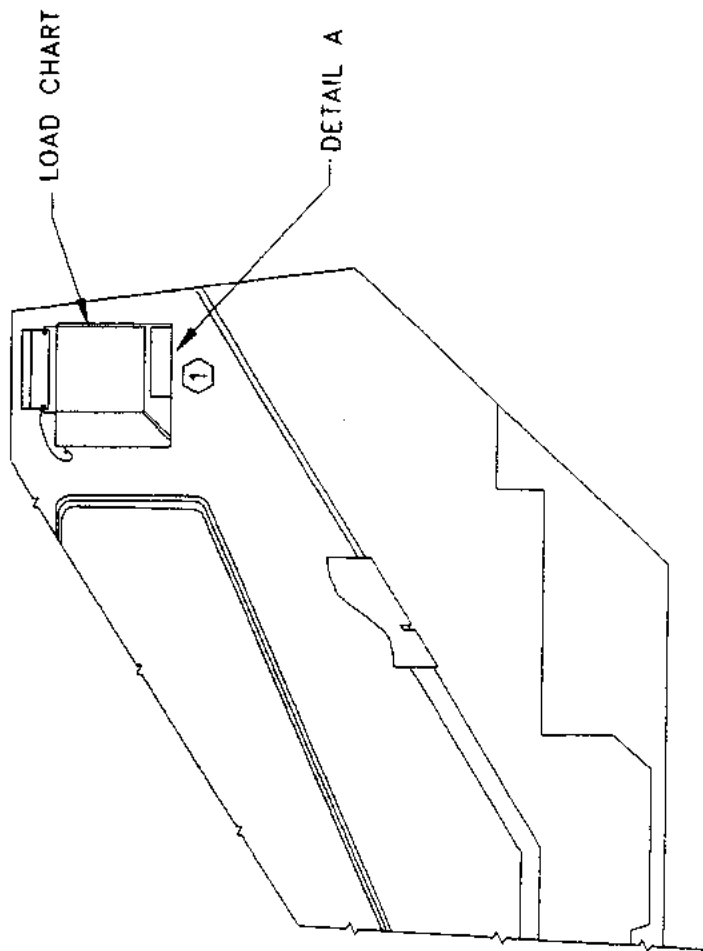
WIRING DETAIL

JUNCTION BOX ASSEMBLY (80MM X 75MM)

GROVE

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
	9-333-102690		COMPLETE ASSY				
1	9-333-102758	1	JUNCTION BOX, ROSE 80MM X 75MM X 51MM				
2	9-333-102674	1	STRAIN RELIEF, PG9				
3	9-333-102759	1	MOUNTING RAIL				
4	9-333-102663	3	BLOCK, TERMINAL STRIP				
5	9-333-102664	1	END PLATE, TERMINAL STRIP				
6	9-333-102665	2	END BRACKET, TERMINAL STRIP				
7	9-333-102666	1	TAGS, TERMINAL STRIP				
8	9-333-102760	1	CONNECTOR, CADDON 2-PIN MALE RECEPTACLE				
9	9-333-102482	1	GASKET				
10	9-333-102612	1	DUST COVER				
11	9-333-102669	4	SCREW M4				
12	9-333-102266	4	LOCKWASHER M4				
13	9-333-102480	4	NUT M4				

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PARTIAL VIEW R.H. SIDE CAB-INSIDE

DECAL INSTALLATION LOCATION

NOTES:

- ① TO BE INSTALLED ON THE BOTTOM RIGHT HAND CORNER OF THE LOAD CHART HOLDER.

THIS MACHINE IS EQUIPPED WITH A DS 350 SERIES LOAD MOMENT INDICATING SYSTEM MANUFACTURED BY PIETZSCH AUTOMATISIERUNGSTECHNIK GMBH, GERMANY. THE LOAD MOMENT SYSTEM COMPLIES WITH SAE J159, APR 85. STUDY PAT OPERATOR'S MANUAL CAREFULLY BEFORE OPERATING THIS CRANE.

024-000-120-017

1

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102120	1	DECAL - SAE INFO DS350G (ENGLISH)				

Esta grúa está equipada con un sistema indicador del momento de carga de la serie DS 350 fabricada por la casa PIETZSCH Automatisierungstechnik GmbH, RFA. El sistema indicador del momento de carga cumple con las exigencias de SAE J159 de abril de 1985. Se le ruego leer cuidadosamente el manual de servicio PAT antes de manejar la grúa.

024-000-120-022



1

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102487	1	DECAL - SAE INFO DS350G SPANISH				

Votre grue est équipée d'un système contrôleur d'état de charge de la série DS 350 fabriquée par l'Ets. PIETZSCH Automatisierungstechnik GmbH, RFA. Le système contrôleur d'état de charge répond aux exigences de SAE J159, avril 1985. Veuillez lire soigneusement le mode d'emploi PAT avant d'exploiter votre grue.

024-000-120-024

1

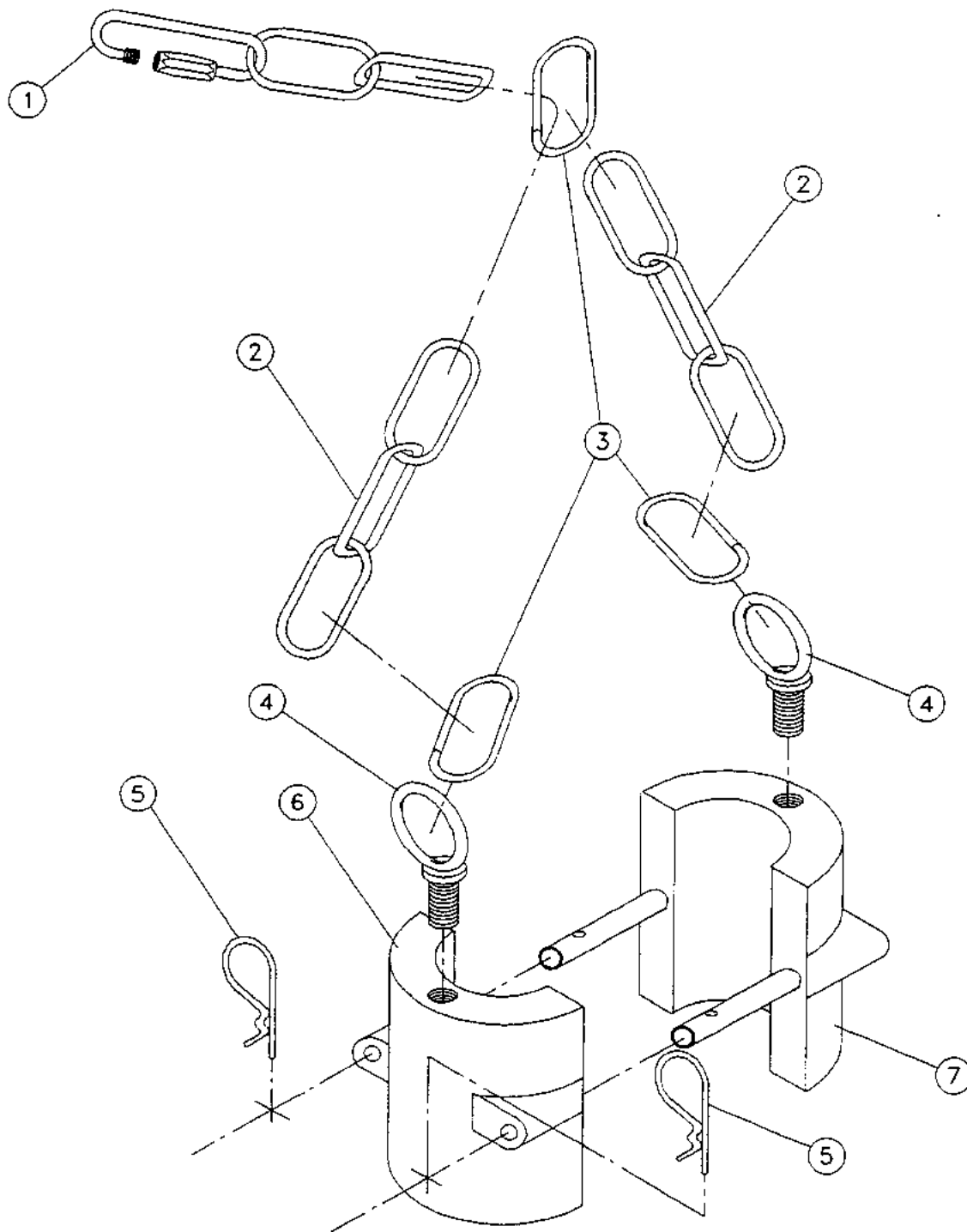
NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102488	1	DECAL - SAE INFO DS350G FRENCH				

Dieser Kran ist mit einem Lastmomentbegrenzungssystem der Serie DS 350 der Fa. PIETZSCH Automatisierungstechnik GmbH, BRD, ausgerüstet. Das Lastmomentbegrenzungssystem entspricht SAEJ159 vom April 1985. Bitte lesen Sie das Bedienungshandbuch der Fa. PAT sorgfältig durch, bevor Sie den Kran in Betrieb setzen.

024-000-120-026

1

NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
1	9-333-102489	1	DECAL - SAE INFO DS350G GERMAN				



NO.	PART NO.	QTY	DESCRIPTION	NO.	PART NO.	QTY	DESCRIPTION
	3-486-0-00212		COMPLETE ASSY				
1	9-333-101840	1	CLEVIS				
2	9-333-101921	1	CHAIN ASSY				
3	9-333-101922	3	CLAMP, CHAIN				
4	9-333-101923	2	EYEBOLT				
5	9-333-101916	2	PIB, COTTER				
6	9-333-101924	1	WEIGHT, FEMALE				
7	9-333-101925	1	WEIGHT, MALE				

7/11

~~09410~~

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