



Grand Blanc Weld Tooling Center

Program	System	Job	System Description
GMX-511	5526	22014	BodySide Inner - Asm (Mainline)
Tool Number	Cell	Tool Description	
FA-040_R02B03			

Design Source

HMS

Tool Type

Coordinator

BROWN ANTHONY

Controls Engineer

Nastovski

Phone

810-602-9938

Q/L

0

Q/R

1

Q/S

0

Buy Off

CST

0.20

Mech Due

Mech Received

PC BOM Due

PC BOM Received

WD Due

WD Received

4/25/2008 12:00:00 AM

Document

CR_GMX-511_5526_FA-040_R02B03_22014__OS1_A

Jobs List

Notes

-

Failure



GBWTC CHANGE ORDER LOG SHEET (COLS)

INFORMATION IS SUBJECT TO REVIEW AND AUDIT BY GENERAL MOTORS

IDENTIFICATION SECTION:

Build Facility Name: Grand Blanc WTC COLS SUBMITTAL VERSION: A
Program Name: GMX-511
System ID: 5526 Job Number: 22014

TOOL NUMBER	TOOL DESCRIPTION	MODEL YEAR
FA040_R02B03	Welding Robot	2010
Incorrect robot drawing package posted. Correct robot drawing package should be WDS-G06-CARRY_SPOT_SGMDTD_RevE(2007-11-19)_en.pdf. Cancel all BOM items from originally posted drawing package.		
REASON CODE: (Choose <u>One</u>):	☐ CD - CONTROLS DESIGN CHANGE ☐ MD - MECHANICAL DESIGN CHANGE ☐ RD - ROBOTIC DESIGN CHANGE ☐ WD - WELD DESIGN CHANGE ☐ DC - DESIGN /SPEC CHANGE ☐ PC - PRODUCT CHANGE	☒ CE - CONTROLS DESIGN ERROR ☐ ME - MECHANICAL DESIGN ERROR ☐ RE - ROBOTIC DESIGN ERROR ☐ WE - WELD DESIGN ERROR

AUTHORIZATION SECTION:

Impact to Ship Date?	Supplier Estimated Cost*	WTC Estimated Cost *	Final Cost ** (PR Amount)
☐ YES, New Date _____ GM Engineer _____ Supplier	Supplier Signature _____ Title _____ Date _____ Agree to Proceed - "Content Only" GM BIW Engineer <u>Karen Thomson</u> Date <u>25-Apr-08</u> Phone <u>248-343-9578</u> GM CRW Engineer <u>Zoran Nastovski</u> Date <u>25-Apr-08</u> Phone <u>810-602-9938</u>	Does GM Estimator need to review WTC Estimated Cost? ☐ Yes ☐ No If "Yes", Forward to GM Estimating	Supplier Signature _____ Title _____ Date _____ GM BIW Engineer or GM Estimator Signature Title _____ Date _____
☒ NO, Ship Date is NOT Affected _____ Supplier			

Authorization to Proceed with Work

GM Worldwide Purchasing Signature _____ Date _____ Title _____	Phone _____ Fax # _____	Content ☐ Only Final ☐ Cost
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**** NOTICE TO SUPPLIER: ****

THIS COLS DOES NOT AUTHORIZE YOU TO INVOICE FOR THIS WORK. BILLING MUST BE WITHHELD UNTIL A PURCHASE ORDER ALTERATION IS RECEIVED INCORPORATING THIS WORK IN THE PURCHASE ORDER.

READY FOR CONSTRUCTION

CR_GMX-511_5526_FA-040_R02B03_22014__OS1_A

QZRCHC



CHANGE ORDER LOG SHEET (COLS) PROCESS

1. Fill out the COLS sections that are in lite blue shading.

- ☐ Top, Identification Section Facility Name, Program Name, System ID, COLS Submittal Version (Letter that will be used in POST) and Job Number.
- ☐ TOOL NUMBER, DESCRIPTION and MODEL YEAR.
- ☐ ROOT CAUSE and CHANGE SUMMARY section describes the changes to the drawings and or BOM.
- * Reason Code section describes why the COL's is required.
- ☐ AUTHORIZATION SECTION:
 - o IMPACT TO SHIP DATE, CCRW Engineer name (Only if this COLS will impact the schedule, such as delivery of furnished items or designs).
 - o SUPPLIER ESTIMATED COST (Build Source Name to be filled out by Build Source).
 - o In the SUPPLIER ESTIMATED SECTION the CCRW engineer will fill out their name and the BIW execution engineers name for that zone.

2. Submission of a COLS will be by the WEB POST method.

- ☐ Zip the COLS up with the drawings and sequence of the affected tool. When submitting the COLS in WEB POST, you will assign a revision letter to your submission. This letter is not the drawing revision letter, but the Grand Blanc COLS submission letter.

EXAMPLE:

If you have only submitted the original drawing set, your revision letter would be A, and if you were required to submit another COLS after REVISION A then it would be B etc. The WEB POST program will display the last COLS letter submitted as the default. You will then index to the next available letter for submission.

BILL OF MATERIAL

CONTROLS, CONVEYORS, ROBOTICS & WELDING

PACKAGE DESCRIPTION			PROGRAM	SYSTEM/TOOL NO.	LAST REVISION E
ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS					CCRW BODY DESIGN
GM Engineering Manager GARY GREEN	Lid			System Layout Number	Station Number *R*
GM Engineer HARDWARE TEAM	Plant			Lid Description	Zone Letter *
Design Leader JIM TUCKER	Checker				

DESCRIPTION OF CHANGES		BY:
CHANGED GCCL RELEASE TO "GCCL_200608".		BCS
REMOVED ITEM		
REMOVED ITEM		
UPDATED FURNISHED ITEMS 'F' TO 'REF'.		MCM
UPDATED FURNISHED ITEMS 'F' TO 'REF'.		
UPDATED FURNISHED ITEMS 'F' TO 'REF'.		
UPDATED FURNISHED ITEMS 'F' TO 'REF'.		
UPDATED FURNISHED ITEMS 'F' TO 'REF'.		
UPDATED FURNISHED ITEMS 'F' TO 'REF'.		
UPDATED FURNISHED ITEMS 'F' TO 'REF'.		
UPDATED TO GCCL_200612.		CJE
ADDED ITEM.		
ADDED ITEM.		
ADDED ITEM.		
ADDED ITEM.		
ADDED ITEM.		
ADDED ITEM.		
ADDED ITEM.		
ADDED ITEM.		
ADDED ITEM.		
ADDED ITEM.		
PART NUMBER WAS BVG-3/4C.		
PART NUMBER WAS .75 BSPP-351M (150 MESH).		
ADDED ITEM.		
- UPDATED PARTS TO 'GCCL_200703'.		CJE

BOM NAME: WDS-G06-CARRY_SPOT_SGMDTD-BOM		
Shown On		
S-G06-CARRY_SPOT_SGM		
Release Date: 2006-08-22		

REVISION	DATE	ITEM #
A	10/2/2006	
		11671
		11672
B	1/23/2007	18621
		18624
		19151
		19203
		19350
		80041
		80051
C	3/29/2007	
		11672
		18500
		31224
		31310
		70360
		70361
		75806
		75808
		80001
		80020
		80023
		80041
		80051
		85201
D	4/25/2007	

BILL OF MATERIAL
CONTROLS, CONVEYORS, ROBOTICS & WELDING

LAST REVISION E				
PACKAGE DESCRIPTION		PROGRAM	SYSTEM/TOOL NO.	DESIGN SOURCE
ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS				CCRW BODY DESIGN
GM Engineering Manager GARY GREEN		Lid	System Layout Number	Station Number *R*
GM Engineer HARDWARE TEAM		Plant	Lid Description	Zone Letter *
Design Leader JIM TUCKER		Checker		
DESCRIPTION OF CHANGES				
BY:				
- REPLACED ITEM 11670.				
- REPLACED ITEM 11672.				
- UPDATED PARTS TO 'GCCL_200709'.				
- PRUCHASE CODE WAS P3.				
- PURCHASE CODE WAS P3.				
- REPLACED ITEM 31310 (SMC, AN202-02, SILENCER 1/4").				
- REPLACED ITEM 85201 (PARKER, 8VG4P-1/2LOCK, 1/2" BALL VALVE)				

BOM NAME: WDS-G06- CARRY_SPOT_SGMDTD- BOM	
Shown On	
S-G06-CARRY_SPOT_SGM	
Release Date:	2006-08-22

REVISION	DATE	ITEM #
		11671
		11673
E	11/19/2007	
		19141
		19144
		31300
		33002

EPLAN export GCCL FORM LAST REVISED: 1/28/2008

BOM NAME: WDS-G06-CARRY SPOT SGMDTD-BOM			CCRW		SYSTEM/TOOL NO.:		ZONE		RELEASED DATE 2006-08-22	
PACKAGE DESCRIPTION: ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS			BILL OF MATERIAL				*		LAST REVISION E	
SOURCE LEGEND			GM ENGINEER: HARDWARE TEAM						CONVERSION DATA LEGEND	
M - Construction Source Make Item E - Furnished By GM REF - Purchased by others (NO SUBSTITUTION) E1 - Panel Builder Purchase Listed Items, GM Selected Item (NO SUBSTITUTION) E2 - Panel Builder Purchase Item With CRRW Approval			P1 - Integrator Purchase Listed Items, GM Selected Item (NO SUBSTITUTION) - NORMAL LEAD P2 - Integrator Purchase Listed Items, Substitution Allowed With CRRW Approval P3 - Integrator Purchase Listed Items, GM Selected Item (NO SUBSTITUTION) - POINT OF USE P4 - Integrator Purchase Listed Items, GM Selected Item (NO SUBSTITUTION) - LONG LEAD						RW - REMORK D - DELETE CO - CARRYOVER N - NEW PART RL - RELOCATE SS - SEE SPECIAL INSTRUCTIONS	
BOM REV	ITEM #	QUANTITY	PART DESCRIPTION	MANUFACTURER(S)	PART #(S)	GM CODE #	SOURCE	CON	COMMENTS / **	ITEM REV
	11671	1	TIP DRESS ARMORSTART WITH GLAND PLATE AND FOUR PIN RECEPTACLE FOR 24 VDC POWER AND 25 mm KNOCK-OUT FOR POWER FEED - NO MOTOR CABLE INCLUDED	ROCKWELL	280D-F12Z-10C-GRW-3-P1		P1			2007-06
	11673	1	MICRO CORD ADAPTER 3 PIN TO 4 PIN FOR OUTPUT OF ARMORTART TIP DRESS APPLICATION TO SMC BLOW OFF VALVE. CABLE LENGTH 0.6M (2FT)	ROCKWELL	1000-280-GMPLT-1	0009-CMNL	P1			2007-06
	18500	1	CORD, ASSEMBLY, MICRO 4 PIN DC SINGLE KEY, TPE, MALE-IN-LINE/ FEMALE; 22 AWG, 4A, 250V, XXX METER (XXXFT), PLACEHOLDER FOR: 18500 .5M 18501 1M 18502 1.5M 18503 2M 18504 3M 18505 4M 18506 5M 18508 6M	WOODHEAD	884030K05Mxxx		P3			2006-12
	18621	2	CORD, ASSEMBLY, MINI 4 PIN, TPE, MALE-IN-LINE/ FEMALE, 1 METER (3.28 FT), 16 AWG, 8A, 600V.	WOODHEAD	114030K12M010	0119-AXJT	REF		FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	18624	1	CORD, ASSEMBLY, MINI 4 PIN, TPE, MALE-IN-LINE/ FEMALE, 4 METER (13.12 FT), 16 AWG, 8A, 600V.	WOODHEAD	114030K12M040	0119-AXJX	REF		FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	18628	1	CORD, ASSEMBLY, MINI 4 PIN, TPE, MALE-IN-LINE/ FEMALE, 12 METER (38.88 FT), 16 AWG, 8A, 600V	WOODHEAD	114030K12M120	0119-AXK2	P1			
	19141	2	CABLE, DEVICENET, TEE, GRAY, 5 PIN, MALE/FEM/FEM, 8A, 300 VAC	WOODHEAD	DN3020		P1			
	19144	1	CABLE, AUXILIARY POWER, TEE, YELLOW, 4 PIN MALE-IN-LINE/FEM/FEM, 8A, 600V	WOODHEAD	DNETAUXPT		P1		ONE ADDITIONAL PART FURNISHED WITH ROBOT FUNCTION PACKAGE.	2006-06
	19151	2	RESISTOR, TERMINATOR, DEVICENET MINI MALE 1/4 WATT, 121(OHM)	WOODHEAD	DN100	0978-0055	REF		FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	19203	1	CABLE, DEVICENET TRUNK, THICK, MINI 5 PIN - MALE-IN-LINE/ FEMALE - 4 METER (13.12 FT), 8A, 300 VAC	WOODHEAD	DN11A-M040	0119-AK6K	REF		FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	19207	1	CABLE, DEVICENET TRUNK, THICK, MINI 5 PIN - MALE-IN-LINE/ FEMALE - 12 METER (39.37 FT), 8A, 300 VAC	WOODHEAD	DN11A-M120	0119-AMPK	P1			
	19350	1	CABLE, DEVICENET DROP, THIN, MINI 5 PIN, MALE-IN-LINE/ FEMALE, 0.5 METER (1.64 FT), 3A, 300 VAC	WOODHEAD	DND11A-M005	0119-C0X2	REF		FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	19354	1	CABLE, DEVICENET DROP, THIN, MINI 5 PIN, MALE-IN-LINE/ FEMALE, 4 METER (13.12 FT), 3A, 300 VAC	WOODHEAD	DND11A-M040	0119-AKRX	P3			
	31224	1	TIP DRESS BLOW-OFF 2 PORT 24 VDC WITH 4 PIN CONNECTOR	SMC	VXD2130-DUK01008		P1			
	31300	1	SILENCER, 10-32 IN OR M5 MALE THREAD	SMC	AN120-M5		P1			2006-04
	33002	1	VALVE, BALL, 1/2 IN. - RP (G) THREAD, W/ EXHAUST AND LOCKING HANDLE	RUB	S93D00		P1			2007-09
	70360	A/R	STANDARD TIP DRESS PACKAGE - CARRIED GUN	SEMTORQ	AD5 GM-01	0278 06JG	REF		FURNISHED WITH TIP DRESS PACKAGE.	
	75806	A/R	TAGS, 3 X 26 SLIDE TRACK, SILVER, FOR USE W/ LAMCOID VALVE TAGS	ROYAL OAK	RO 37-26-S		P2			
	75807	A/R	TAGS, CORD/CABLE, TEXT - 3 LINES (15 CHARACTER PER LINE)	CUSTOM	GENERIC TAG		M			
	75808	A/R	TAGS, VALVE, TEXT - 75mm x 25mm, WITH 4mm (0.15") (16pt) FONT, BLACK TEXT ON WHITE BACKGROUND	CUSTOM	GENERIC TAG		M			

1. RELEASE TYPE: _____	ALT #: _____	2. RELEASE #: (Req'd. for Alt. or Closure) _____	3. RELEASE # DATE: _____
4. REQUESTED BY: _____	5. REQUESTER'S PHONE NUMBER: _____		6. DATE REQUESTED: _____
7. REQUIRED DELIVERY DATE: _____	8. LID NUMBER: _____		9. PROJECT NUMBER: _____
10. ACCOUNT CLASSIFICATION NUMBER: (26 Digits) _____			
a. Loc/Gen Ledger _____		b. Burden/Dept. _____	c. Sub Account _____
11. WORK ORDER: (2 Letters Plus 9 Digits) _____		12. SL NUMBER _____	
Car Grp. _____		Number _____	

13. FINANCIAL CLASSIFICATION _____

14. PROJECT PURPOSE/DESCRIPTION:		
PROGRAM: _____	EGM: _____ GARY GREEN _____	WD #: 6-CARRY_SPOT_SGMDTD-BI
PLANT: _____	ZONE/SYSTEM: _____ *	CELL/STATION: _____ *R*
REASON FOR ALTERATION: _____		

15. REQUESTED SUPPLIER:	
NAME: - _____	CONTACT: - _____
ADDRESS: - _____	PHONE #: - _____
CITY/STATE: - _____	BLANKET P.O.#: - _____

16. SHIPPING INSTRUCTIONS:	
NAME: - _____	PHONE #: - _____
ADDRESS: - _____	CITY/STATE: - _____
ZIP CODE: - _____	ATTENTION OF: - _____

17. APPROVALS:	
EGM SIGNATURE: _____	FINANCIAL APPROVAL: _____
2ND APPROVAL: _____	FINANCIAL APPROVAL: _____
REQUEST / REF. NO.:	PROGRAM APPROVAL: _____

TOTALS: CURRENT COST: \$0.00	ALTERATION COST: \$0.00	TOTAL COST: -
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CR_GMX-511_5526_FA-040_R02B03_22014_OSI_A

ROBOT CARRIED SPOT WELDER - MFDC
WITH SERVO TRANSGUN AND TIP DRESS

WDS-G06-CARRY_SPOT_SGMDTD



LAST PART SELECTED WITH : GCCL_200709

DRAWING PACKAGE REVISION LEVEL: E

	CCRW-STANDARD	GM ENGINEER: HARDWARE TEAM	DESIGN SOURCE: CCRW BODY DESIGN	DESIGN LEADER: JIM TUCKER	PROGRAMS:	PACKAGE	ROBOT CARRIED SPOT WELDER - MFDC	SYSTEM/TOOL NO:	RELEASE DATE:	REVISION	SECTION	SHEET
						DESCRIPTION:	WITH SERVO TRANSGUN AND TIP DRESS		2006-08-22	LETTER: E	LETTER:	NUMBER:
THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.						SHEET	TITLE AND REFERENCE SHEET	DRAWING NUMBER:	DATE:	2007-11-19	A	1 OF 3
						DESCRIPTION:		WDS-G06-CARRY SPOT SGMDTD				

THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO
USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.

STATUS: RELEASED

PROJECT NAME: WDS-G06-CARRY_SPOT_SGMDTD_RevE(2007-11-19)

SAVE DATE: 2007-11-19

SECTION		REV	SHEET	DESCRIPTION
A	REFERENCE	E	1	TITLE AND REFERENCE SHEET
		E	2	TABLE OF CONTENTS
		E	3	MASTER CHANGE SHEET
C	INTERCONNECT	E	1	INTERCONNECTION DIAGRAM
E	MAGNETICS	C	1	TIP DRESS WIRING
G	PNEUMATIC	E	1	TIP DRESS BLOWOFF CIRCUIT
I	WATER	E	1	WATER DIAGRAM
W	WELDING	E	1	WELDER CONTROL LAYOUT
YA	BILL OF MATERIALS	E	1	BOM CHANGE SHEET: WDS-G06-CARRY_SPOT_SGMDTD-BOM
		E	2	WDS-G06-CARRY_SPOT_SGMDTD-BOM

SECTION	REV	SHEET	DESCRIPTION
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	CCRW-STANDARD	GM ENGINEER: HARDWARE TEAM	DESIGN SOURCE: CCRW BODY DESIGN	DESIGN LEADER: JIM TUCKER	PROGRAMS:	PACKAGE DESCRIPTION: ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS	SYSTEM/TOOL NO:	RELEASE DATE: 2006-08-22	REVISION LETTER: E DATE: 2007-11-19	SECTION LETTER: A	SHEET NUMBER: 2 OF 3
						SHEET DESCRIPTION: TABLE OF CONTENTS					

THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.

STATUS: RELEASED

PROJECT NAME: WDS-G06-CARRY_SPOT_SGMDTD_RevE(2007-11-19)

SAVE DATE: 2007-11-19

REV	SHEET AFFECTED	CHANGE DESCRIPTION	DATE	CHANGE CODE	CHANGED BY
A	A1	- UPDATED PROJECT TO IEC SYMBOLS. INCLUDING SHEETS C1, E1, AND W1. - DRAWING PACKAGE REVISION LEVEL WAS "REL". - LAST PART SELECTED WITH WAS "GCCL_200606".	2006-10-02	C	BCS
	A2	- UPDATED TABLE OF CONTENTS.			
	A3	- UPDATED REVISION NOTES.			
	C1	- REMOVED ITEM NUMBERS 11671 AND 11672.			
B	A1	- DRAWING PACKAGE REVISION LEVEL WAS 'A'.	2007-01-23	C	MCM
	A2	- UPDATED TABLE OF CONTENTS.			
	A3	- UPDATED REVISION NOTES.			
	C1	- CABLE ** R* D2 T12.** R* TD1 WAS SHOWN AS ** R* 12.** R* TD1.DN.			
C	A1	- DRAWING PACKAGE REVISION LEVEL WAS 'B'. - LAST PART SELECTED WITH WAS 'GCCL_200608'.	2007-03-29	C	CJE
	A2	- UPDATED TABLE OF CONTENTS.			
	A3	- UPDATED REVISION NOTES.			
	C1	- ADDED ** R* VB1 BLOWOFF VALVE, CABLES AND OUT1 RECEPTACLE TO STARTER-1. - ** R* M1 CONNECTION TO ** R* TD1 WAS A CORD GRIP. - ITEM NUMBER 80023 WAS 80021. - ADDED ITEM NUMBER 80020. - ADDED ** R* TO T12. - CABLE ** R* D2 ** R* T12.** R* TD1 WAS ** R* D2 T12.** R* TD1. - CABLE ** R* D2 T11.** R* T12 WAS ** R* D2 T11-T12.			
	E1	- ADDED PIN CONNECTIONS TO STARTER-1. - ADDED MOTOR FIELD CONNECTOR PIN CHART.			
	G1	- ADDED SHEET.			
	I1	- TUBING TO ** R* TR01 WAS SHOWN AS 12 MM. - TUBING TO WG01 WAS SHOWN AS 12 MM. - W1 SUPPLY AND RETURN WAS CONNECTED AFTER WS1.			
	W1	- REMOVED INVERTED AND ADDED A CIRCUIT BREAKER.			
D	A1	- DRAWING PACKAGE REVISION LEVEL WAS 'C'. - LAST PART SELECTED WITH WAS 'GCCL_200612'.	2007-04-25	C	CJE
	A2	- UPDATED TABLE OF CONTENTS.			
	A3	- UPDATED REVISION NOTES.			
	C1	- ** R* TD1 ITEM NUMBER 11671 WAS 11670. - CABLE ** R* TD1.OUT1.** R* VB1 ITEM NUMBER 11673 WAS 11672.			
E	A1	- DRAWING PACKAGE REVISION LEVEL WAS 'D'. - LAST PART SELECTED WAS 'GCCL_200703'.	2007-11-19	C	CJE
	A2	- UPDATED TABLE OF CONTENTS.			
	A3	- UPDATED REVISION NOTES.			
	C1	- ROBOT SHOULDER RECEPTACLES WERE SHOWN AS DS3 AND DP3. - ROBOT CONTROLLER RECEPTACLES ARM1 AND ARP1 WERE SHOWN AS ARMA AND ARPA.			

REV	SHEET AFFECTED	CHANGE DESCRIPTION	DATE	CHANGE CODE	CHANGED BY
E		- REMOVED ** R* FROM T12 AND UPDATED CABLE TAGS ACCORDINGLY.	2007-11-19	C	CJE
	G1	- 6 MM TUBE WAS 10 MM TUBE.			
	I1	- ADDED TUBING SIZE TO WG01 AND TR01 TUBES.			
	W1	- ROBOT CONTROLLER WAS SHOWN AS ** R* W1.			

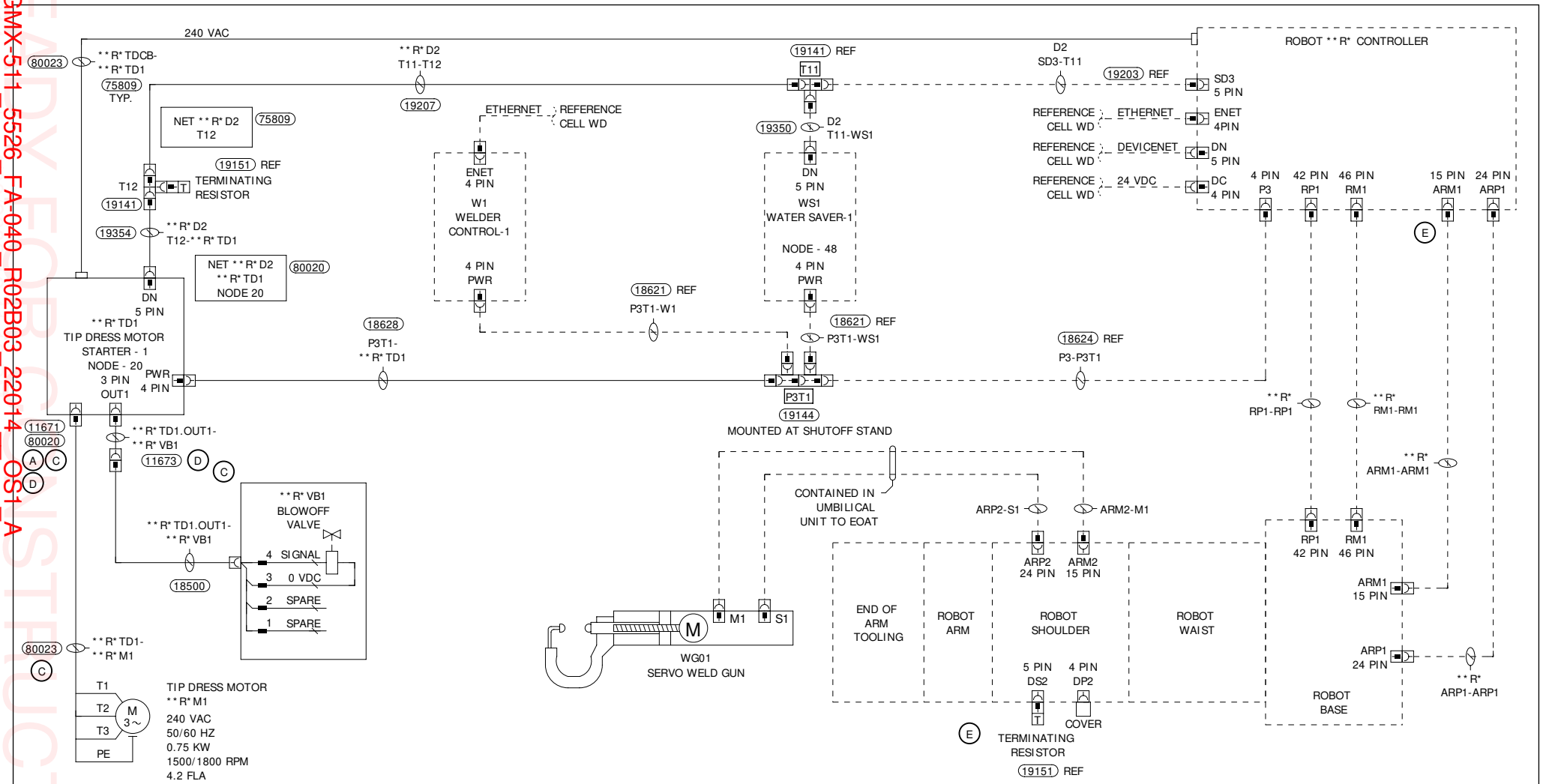
CHANGE CODE	
PR	PRODUCT CHANGE
R	PLANT REQUEST
MP	MECHANICAL PROCESS CHANGE
CP	CONTROL PROCESS CHANGE
M	MECHANICAL DESIGN CHANGE
C	CONTROL DESIGN CHANGE
F	FLOOR AND BUILD CHANGE

	CCRW-STANDARD	GM ENGINEER: HARDWARE TEAM	DESIGN SOURCE: CCRW BODY DESIGN	DESIGN LEADER: JIM TUCKER	PROGRAMS:	PACKAGE DESCRIPTION:	ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS	SYSTEM/TOOL NO:	RELEASE DATE: 2006-08-22	REVISION LETTER: E DATE: 2007-11-19	SECTION LETTER: A	SHEET NUMBER: 3 OF 3
						SHEET DESCRIPTION:	MASTER CHANGE SHEET					

THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.

STATUS: RELEASED

PRODUCTION



NOTE:
1. TERMINATING RESISTORS FURNISHED WITH ROBOT. RELOCATE AS SHOWN.
2. **R* IS A GENERIC PLACEHOLDER FOR TAGGING DEVICES AND CORDS. EQUIPMENT INTEGRATION SOURCE SHALL CREATE TAGS USING SPECIFIC ROBOT NAME INSTEAD OF PLACEHOLDER.

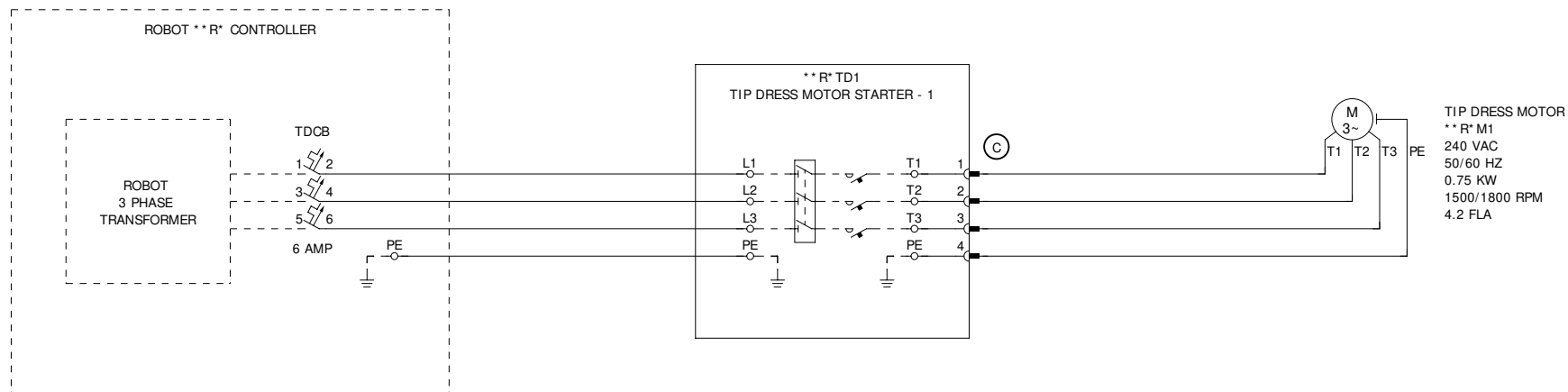
	CCRW-STANDARD	GM ENGINEER: HARDWARE TEAM	DESIGN SOURCE: CCRW BODY DESIGN	DESIGN LEADER: JIM TUCKER	PROGRAMS:	PACKAGE DESCRIPTION: ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS	SYSTEM/TOOL NO:	RELEASE DATE: 2006-08-22	REVISION LETTER: E DATE: 2007-11-19	SECTION LETTER: C	SHEET NUMBER: 1 OF 1
				SHEET DESCRIPTION: INTERCONNECTION DIAGRAM		DRAWING NUMBER: WDS-G06-CARRY SPOT_SGMDTD					
		THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.									

STATUS: RELEASED

PROJECT NAME: WDS-G06-CARRY_SPOT_SGMDTD_RevE(2007-11-19)

SAVE DATE: 2007-11-19

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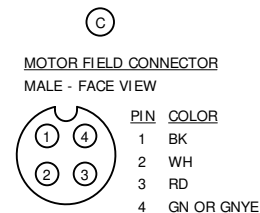


AB ARMORSTART PARAMETER SETTINGS FOR TIP DRESS MOTOR STARTER

PARAMETER	DESCRIPTION	VALUE
10	AUTOBAUD ENABLE	1
11	CONSUMED I/O ASSEMBLY	160
12	PRODUCED I/O ASSEMBLY	120
13	PROD ASSY WORD 0	5
14	PROD ASSY WORD 1	4
15	PROD ASSY WORD 2	104
16	PROD ASSY WORD 3	0
106	FLA SETTING	3.2

MAC ID SET TO 20 - TIP DRESS 1

NOTE: ALL OTHER PARAMETERS SET TO FACTORY DEFAULTS



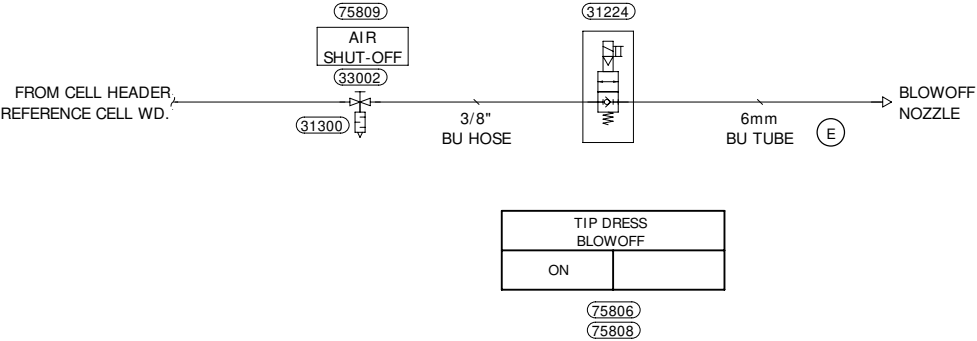
	CCRW-STANDARD	GM ENGINEER:	DESIGN SOURCE:	DESIGN LEADER:	PROGRAMS:	PACKAGE DESCRIPTION:	ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS	SYSTEM/TOOL NO:	RELEASE DATE:	REVISION LETTER:	SECTION LETTER:	SHEET NUMBER:	
		HARDWARE TEAM	CCRW BODY DESIGN	JIM TUCKER									
		THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.					SHEET DESCRIPTION:	TIP DRESS WIRING	DRAWING NUMBER:	DATE:			
							WDS-G06-CARRY SPOT SGMDTD	2007-03-29		E	1 OF 1		

STATUS: RELEASED

PROJECT NAME: WDS-G06-CARRY_SPOT_SGMDTD_RevE(2007-11-19)

SAVE DATE: 2007-11-19

- NOTE:
- 1. VALVE STACK MUST BE ASSEMBLED AS SHOWN OR TOOL WILL NOT OPERATE AND/OR MAJOR DAMAGE MAY OCCUR.
 - 2. USE 16mm OUTSIDE DIAMETER FLEXIBLE TUBING TO ALL CYLINDERS UNLESS OTHERWISE SPECIFIED.



	CCRW-STANDARD	GM ENGINEER:	DESIGN SOURCE:	DESIGN LEADER:	PROGRAMS:	PACKAGE	ROBOT CARRIED SPOT WELDER - MFDC	SYSTEM/TOOL NO:	RELEASE DATE:	REVISION	SECTION	SHEET
		HARDWARE	CCRW BODY			DESCRIPTION:	WITH SERVO TRANSGUN AND TIP DRESS	LETTER:	LETTER:	NUMBER:		
		TEAM	DESIGN	JIM TUCKER				E	G	1		
THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.						SHEET	TIP DRESS BLOWOFF CIRCUIT	DRAWING NUMBER:	2006-08-22	DATE:		OF
						DESCRIPTION:		WDS-G06-CARRY SPOT SGMDTD	2007-11-19			1

THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.

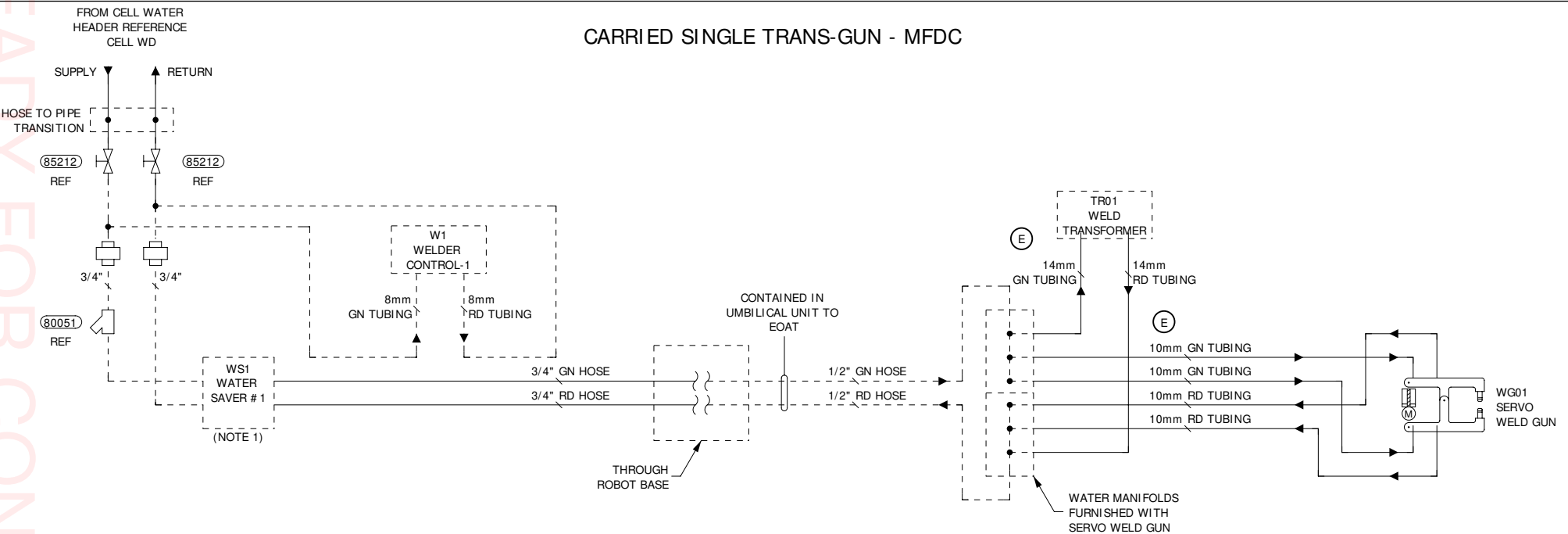
STATUS: RELEASED

PROJECT NAME: WDS-G06-CARRY_SPOT_SGMDTD_RevE(2007-11-19)

SAVE DATE: 2007-11-19

CR_GMX-511_5526_FA-040_R02B03_22014_OS1_A

CARRIED SINGLE TRANS-GUN - MFDC



LEGEND			
	WATER "Y" FITTING		PRESSURE GUAGE
	VISUAL FLOW INDICATOR		2 WAY BALL VALVE
	REMOVABLE PLUG		FLOW SWITCH

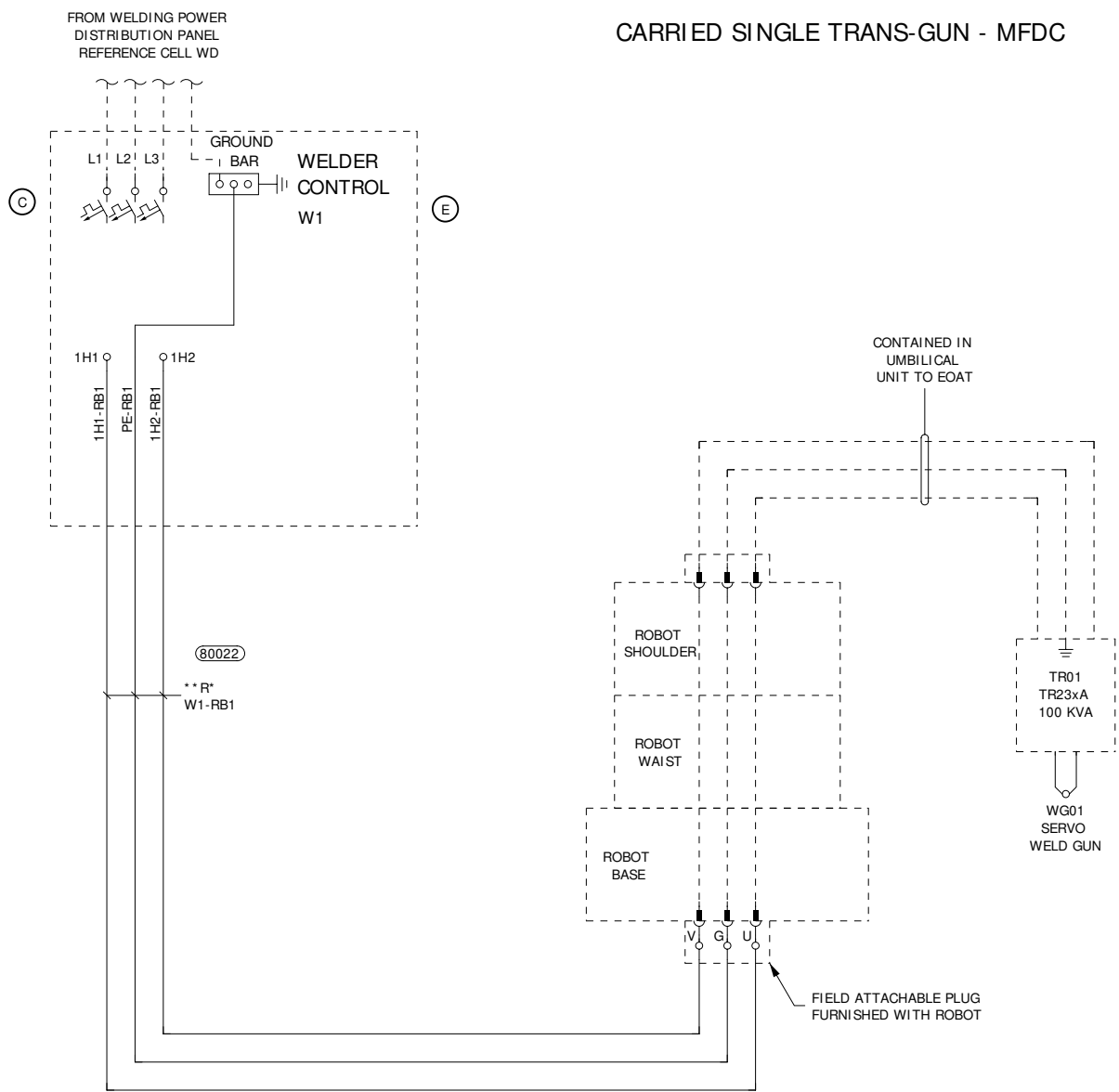
- NOTE:
1. DE-ENERGIZING WATER SAVER WILL INTERRUPT WATER FLOW.
 2. UNLESS NOTED OTHERWISE, "TUBING" REFERS TO FLEXIBLE TUBING. TUBING DIMENSIONS REFER TO OUTSIDE DIAMETER. SEE G00B-1 SPECIFICATION FOR DETAILED REQUIREMENTS.

	CCRW-STANDARD	GM ENGINEER:	DESIGN SOURCE:	DESIGN LEADER:	PROGRAMS:	PACKAGE	ROBOT CARRIED SPOT WELDER - MFDC	SYSTEM/TOOL NO:	RELEASE DATE:	REVISION	SECTION	SHEET
		HARDWARE	CCRW BODY			DESCRIPTION:	WITH SERVO TRANSGUN AND TIP DRESS	LETTER:	LETTER:	NUMBER:		
		TEAM	DESIGN	JIM TUCKER				E				
THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.						SHEET	WATER DIAGRAM	DRAWING NUMBER:	DATE:	2007-11-19	I	1 OF 1
						DESCRIPTION:		WDS-G06-CARRY SPOT SGMDTD				

STATUS: RELEASED

PROJECT NAME: WDS-G06-CARRY_SPOT_SGMDTD_RevE(2007-11-19)

SAVE DATE: 2007-11-29



- NOTES:
- TRANSFORMERS:
 - TR231A TURNS RATIO = 55:1
 - TR232A TURNS RATIO = 72:1
 - TR233A TURNS RATIO = 87:1
 - THE TOTAL LENGTH OF THE CABLE FROM THE WELD CONTROLLER TO THE ROBOT BASE MUST NOT EXCEED 36 M. FOR LONGER CABLES, A TOOL SPECIFIC WD MUST BE CREATED THAT SHOWS LARGER CABLES PER GCCH-1 WITH AN ADDITIONAL WELD DISTRIBUTION BOX.
 - REFERENCE ROBOT GRS-4, SECTION B1 FOR I/O MAPPING.

	CCRW-STANDARD	GM ENGINEER:	DESIGN SOURCE:	DESIGN LEADER:	PROGRAMS:	PACKAGE	ROBOT CARRIED SPOT WELDER - MFDC	SYSTEM/TOOL NO:	RELEASE DATE:	REVISION	SECTION	SHEET		
		HARDWARE	CCRW BODY	JIM		DESCRIPTION:	WITH SERVO TRANSGUN AND TIP DRESS						LETTER:	NUMBER:
		TEAM	DESIGN	TUCKER									E	
THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICES AND SUPPLIES.														
SHEET						DRAWING NUMBER:								
DESCRIPTION:						WDS-G06-CARRY SPOT SGMDTD								
						DATE:								
						2007-11-19								
						W								
						1 OF 1								

STATUS: RELEASED

PROJECT NAME: WDS-G06-CARRY_SPOT_SGMDTD_RevE(2007-11-19)

SAVE DATE: 2007-11-19

REV	ITEM NUMBER	CHANGE DESCRIPTION	DATE	CHANGE CODE	CHANGED BY

CHANGE CODE	
PR	PRODUCT CHANGE
R	PLANT REQUEST
MP	MECHANICAL PROCESS CHANGE
CP	CONTROL PROCESS CHANGE
M	MECHANICAL DESIGN CHANGE
C	CONTROL DESIGN CHANGE
F	FLOOR AND BUILD CHANGE

	CCRW-STANDARD	GM ENGINEER: HARDWARE TEAM	DESIGN SOURCE: CCRW BODY DESIGN	DESIGN LEADER: JIM TUCKER	PROGRAMS:	PACKAGE DESCRIPTION: ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS	SYSTEM/TOOL NO:	RELEASE DATE: 2006-08-22	REVISION LETTER: E	SECTION LETTER:	SHEET NUMBER:
THIS MATERIAL IS THE PROPERTY OF GENERAL MOTORS CORPORATION. NO RIGHTS ARE GRANTED TO USE SUCH MATERIAL FOR ANY PURPOSE OTHER THAN THE FURNISHING OF SERVICE AND SUPPLIES.						SHEET DESCRIPTION: BOM CHANGE SHEET: WDS-G06-CARRY_SPOT_SGMDTD-BOM	DRAWING NUMBER: WDS-G06-CARRY SPOT_SGMDTD	DATE: 2007-11-19	YA	1	OF 2

CR_GMX-511_5526_FA-040_R02B03_22014_OSt_A

BOM NAME: WDS-G06-CARRY_SPOT_SGMDTD-BOM		SOURCE LEGEND	F - FURNISHED BY GM REF - PURCHASED BY OTHERS (NO SUBSTITUTION) M - CONSTRUCTION SOURCE MAKE ITEM E1 - PANEL BUILDER PURCHASE LISTED ITEMS: GM SELECT ITEM (NO SUBSTITUTION) E2 - PANEL BUILDER PURCHASE ITEM WITH CORW APPROVAL	CODES BELOW ARE FOR INTEGRATOR PURCHASE LISTED ITEMS: P1 - GM SELECT ITEM (NO SUBSTITUTION) - NORMAL LEAD P2 - SUBSTITUTION ALLOWED WITH CORW APPROVAL P3 - GM SELECT ITEM (NO SUBSTITUTION) - POINT OF USE P4 - GM SELECT ITEM (NO SUBSTITUTION) - LONG LEAD

BOM REV	ITEM#	QTY.	PART DESCRIPTION	MANUFACTURER	PART NUMBER	GM CODE NR.	SOURCE	COMMENTS	ITEM REV.
	11671	1	TIP DRESS ARMORSTART WITH GLAND PLATE AND FOUR PIN RECEPTACLE FOR 24 VDC POWER AND 25 mm KNOCK-OUT FOR POWER FEED - NO MOTOR CABLE INCLUDED	ROCKWELL	280D-F12Z-10C-GRW-3-P1		P1		2007-06
	11673	1	MICRO CORD ADAPTER 3 PIN TO 4 PIN FOR OUTPUT OF ARMORTART TIP DRESS APPLICATION TO SMC BLOW OFF VALVE. CABLE LENGTH 0.6M (2FT)	ROCKWELL	1000-280-GMPLT-1	0009-CMNL	P1		2007-06
	18500	1	CORD, ASSEMBLY, MICRO 4 PIN DC SINGLE KEY, TPE, MALE-IN-LINE/ FEMALE, 22 AWG, 4A, 250V, XXX METER (XXXFT), PLACEHOLDER FOR: 18500 .5M 18501 1M 18502 1.5M 18503 2M 18504 3M 18505 4M 18506 5M 18508 6M	WOODHEAD	884030K05Mxxx		P3		2006-12
	18621	2	CORD, ASSEMBLY, MINI 4 PIN, TPE, MALE-IN-LINE/ FEMALE, 1 METER (3.28 FT), 16 AWG, 8A , 600V,	WOODHEAD	114030K12M010	0119-AXJT	REF	FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	18624	1	CORD, ASSEMBLY, MINI 4 PIN, TPE, MALE-IN-LINE/ FEMALE, 4 METER (13.12 FT), 16 AWG, 8A , 600V,	WOODHEAD	114030K12M040	0119-AXJX	REF	FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	18628	1	CORD, ASSEMBLY, MINI 4 PIN, TPE, MALE-IN-LINE/ FEMALE, 12 METER (38.88 FT), 16 AWG, 8A , 600V	WOODHEAD	114030K12M120	0119-AXK2	P1		
	19141	2	CABLE, DEVICENET, TEE, GRAY, 5 PIN, MALE/FEM/FEM, 8A, 300 VAC	WOODHEAD	DN3020		P1		
	19144	1	CABLE, AUXILIARY POWER, TEE, YELLOW, 4 PIN MALE-IN-LINE/ FEM/FEM, 8A, 600V	WOODHEAD	DNETAUXPT		P1	ONE ADDITIONAL PART FURNISHED WITH ROBOT FUNCTION PACKAGE.	2006-06
	19151	2	RESISTOR, TERMINATOR, DEVICENET MINI MALE 1/4 WATT, 121(OHM)	WOODHEAD	DN100	0978-0055	REF	FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	19203	1	CABLE, DEVICENET TRUNK, THICK, MINI 5 PIN - MALE-IN-LINE/ FEMALE - 4 METER (13.12 FT), 8A, 300 VAC	WOODHEAD	DN11A-M040	0119-AK6K	REF	FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	19207	1	CABLE, DEVICENET TRUNK, THICK, MINI 5 PIN - MALE-IN-LINE/ FEMALE - 12 METER (39.37 FT), 8A, 300 VAC	WOODHEAD	DN11A-M120	0119-AMPK	P1		
	19350	1	CABLE, DEVICENET DROP, THIN, MINI 5 PIN, MALE-IN-LINE/ FEMALE, 0.5 METER (1.64 FT), 3A, 300 VAC	WOODHEAD	DND11A-M005	0119-C0X2	REF	FURNISHED WITH ROBOT FUNCTION PACKAGE.	
	19354	1	CABLE, DEVICENET DROP, THIN, MINI 5 PIN, MALE-IN-LINE/ FEMALE, 4 METER (13.12 FT), 3A, 300 VAC	WOODHEAD	DND11A-M040	0119-AKRX	P3		
	31224	1	TIP DRESS BLOW-OFF 2 PORT 24 VDC WITH 4 PIN CONNECTOR	SMC	VXD2130-DUK01008		P1		
	31300	1	SILENCER, 10-32 IN OR M5 MALE THREAD	SMC	AN120-M5		P1		2006-04
	33002	1	VALVE, BALL, 1/2 IN. - RP (G) THREAD, W/ EXHAUST AND LOCKING HANDLE	RUB	S93D00		P1		2007-09
	70360	0 A/R	STANDARD TIP DRESS PACKAGE - CARRIED GUN	SEMTORQ	AD5 GM-01	0278 06JG	REF	FURNISHED WITH TIP DRESS PACKAGE.	
	75806	0 A/R	TAGS, 3 X 26 SLIDE TRACK, SILVER, FOR USE W/ LAMCOID VALVE TAGS	ROYAL OAK	RO 37-26-S		P2		
	75807	0 A/R	TAGS, CORD/CABLE, TEXT - 3 LINES (15 CHARACTER PER LINE)	CUSTOM	GENERIC TAG		M		
	75808	0 A/R	TAGS, VALVE, TEXT - 75mm x 25mm, WITH 4mm (0.15") (16pt) FONT, BLACK TEXT ON WHITE BACKGROUND	CUSTOM	GENERIC TAG		M		
	75809	0 A/R	TAGS, DEVICE LABEL, TEXT - 50mm x 25mm, WITH 4mm (0.15") (16pt) FONT, BLACK TEXT ON WHITE BACKGROUND, MAXIMUM 4 LINES.	CUSTOM	GENERIC TAG		M		
	80001	0 A/R	AIR BLOW OFF NOZZLE KIT	SEMTORQ	AM-540	0456 0VN0	REF	FURNISHED WITH TIP DRESS PACKAGE.	
	80020	1	MINI FIELD CONNECTOR, 4 POLE STRAIGHT MALE, PG16 CABLE GLAND, 0.394: - 0.472"/10-12 MM CABLE DIAMETER RANGE	LUMBERG	RSC40/13.5		P1		
	80022	0 A/R	CABLE, WELD, CLASS 3, 600 VOLT, 35 SQ MM OR 2 AWG, 3 CONDUCTOR (2 CURRENT + 1 GROUND), TC OPEN WIRE, CONDUCTOR COLOR CODE PER GM REQUIREMENTS. ORDER BY LENGTH.	AMERCABLE	WPCS-2XX2X2X		P2		
	80023	0 A/R	CABLE, POWER, 600 VOLT, 10 AMP, 1.5 SQ MM OR 16 AWG, 4 CONDUCTOR (3 CURRENT + 1 GROUND), TC OPEN WIRE, FLEX TYPE. CONDUCTOR COLOR CODE PER GM REQUIREMENTS. ORDER BY LENGTH.	TPC OR EQUIVALENT	87198		P2		
	80051	1	Y-STRAINER, 3/4 INCH - BSPP, BRONZE, 150 MICRON SCREEN	MUELLER	.75 BSPP-351M (150 MICRON SCREEN)		REF	FURNISHED WITH ROBOT FUNCTION PACKAGE. PRELIMINARY PART NUMBER.	
	85212	2	NICKEL PLATED BRASS BALL VALVE WITH LOCKABLE HANDLE NON-VENTED, 3/4"	PARKER	BVG4-3/4LOCK		REF	FURNISHED WITH ROBOT FUNCTION PACKAGE. PRELIMINARY PART NUMBER.	

	CCRW-STANDARD	GM ENGINEER: HARDWARE TEAM	DESIGN SOURCE: CCRW BODY DESIGN	DESIGN LEADER: JIM TUCKER	PROGRAMS:	PACKAGE DESCRIPTION: ROBOT CARRIED SPOT WELDER - MFDC WITH SERVO TRANSGUN AND TIP DRESS	SYSTEM/TOOL NO:	RELEASE DATE: 2006-08-22	REVISION LETTER: E DATE: 2007-11-19	SECTION LETTER: YA	SHEET NUMBER: 2 OF 2
						SHEET DESCRIPTION: WDS-G06-CARRY_SPOT_SGMDTD-BOM					

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