



130 Family of Seismic Recorders

Cable Drawings

Refraction Technology™



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REF TEK

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As a valued user of REF TEK equipment we would like to provide the best support possible by keeping you up to date with our product updates.

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Once we register your contact we will only send necessary notifications via email. The same notifications will be shown on our website's www.reftek.com/support page

Thanks,

Your REF TEK support team

Revision History:

Rev	Date	Reason for change	Affected Pages
0.1	7/05/03	Initial release	All
B	8/4/03	Created separate book	All
C	9/2/03	Added 130-8874 series sensor cables	Section 1-2
	9/9/03	Added ANSS Internal cables drawings	Section 1-3
	10/21/05	Added GPS extender cable option	Section 1-1
D	2/9/06	Added 130-8206 Ruggedized Palm cable Figure 1-25	1-31
	12/07/07	Added 130-8005A and 130-8006A inter-connect cables for new Rt506J and RT526H	1-2 and 1-3

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130-01 Internal Cables

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Section 1

130-01 Internal Cables

1.1 130-01 Internal Cables

Refer to the table below for the internal cable assemblies for the 130 DAS family

Cable	Description	Connection
130-8005	Internal Disk Interconnect cable for board revisions prior to RT506J and RT526H boards	RT506 CPU to RT526 Well Board
130-8006	Internal Status cable for board revisions prior to RT506J and RT526H boards	RT506 CPU to RT526 Well Board
130-8005A	Internal Disk Interconnect cable for rev "J" and later revision (CPU board) to (Well board)	RT506 CPU to RT526 Well Board
130-8006A	Internal Status cable for rev "J" and later revisions) (CPU board) to (Well Board)	RT506 CPU to RT526 Well Board

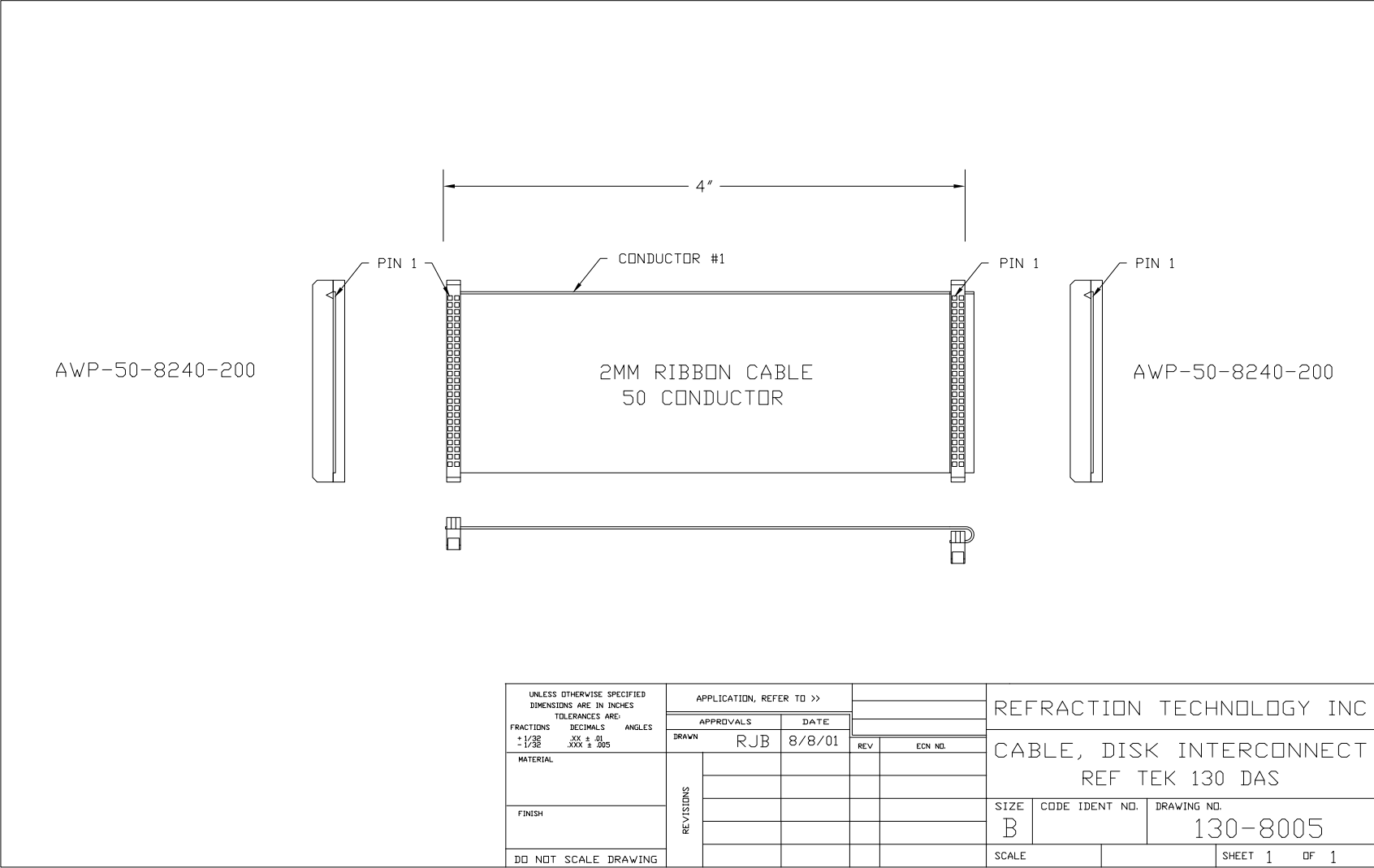


Figure 1 - 1 130-8005 - Internal Disk Interconnect

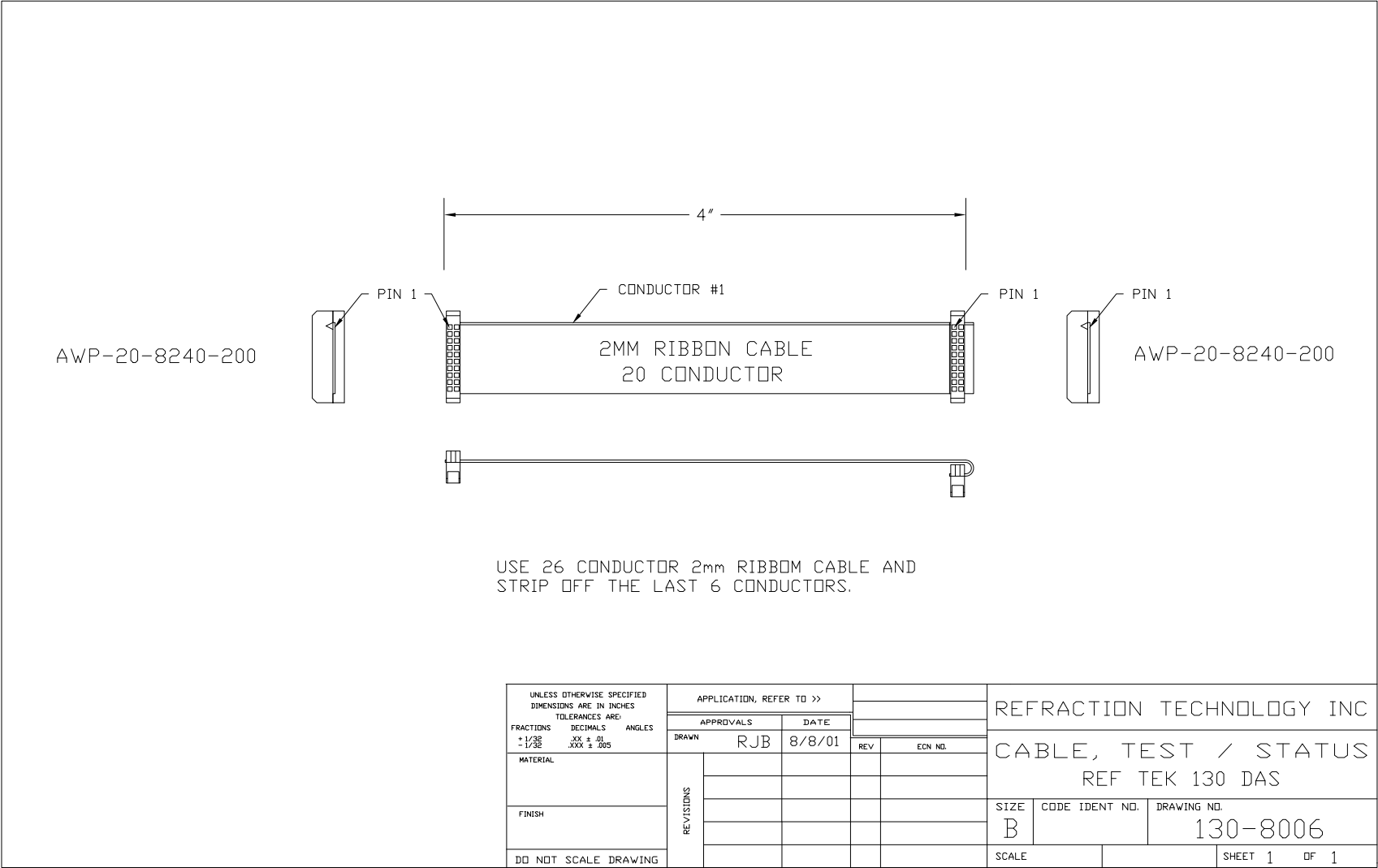


Figure 1 - 2 130-8006 - Status

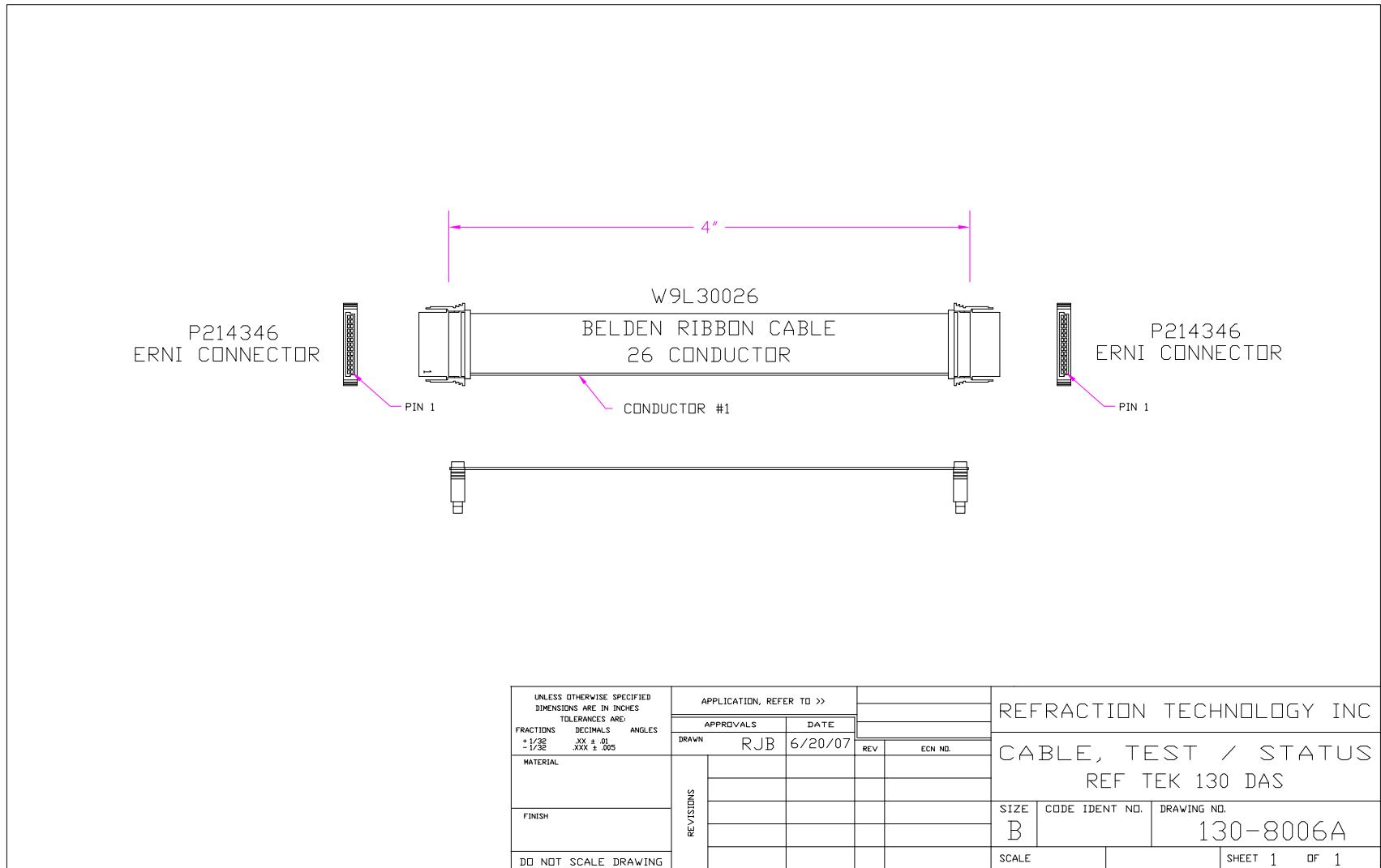


Figure 1 - 4 130-8006A Internal Status cable

1.2 130 Family External Cables

REF TEK does not normally supply the channel input connector cable assemblies; but the PT06SE14-19P mating half of the standard connector can be supplied together with the cable pinout data. The user can then fabricate a cable to meet local requirements.

Refer to the table below for optional DAS typical connector assembly details and cable diagrams of the more frequently used cables.

Cable	Description	Connection
130-8004	130 (Y-Cable) to Serial (DCE) and Ethernet RJ45 cable 25-pin - Serial (DCE)	Ethernet connects to hub or network connection. Serial connects to (DCE) equipment.
130-8004A	130 (Y-Cable) to Serial (DCE) and Ethernet RJ45 cable 9-pin - Serial (DCE)	Ethernet connects to hub or network connection. Serial connects to (DCE) equipment.
130-8004B	130 (Y-Cable) to Serial (DCE) and Ethernet RJ45 cable 25-pin - Serial (DCE) with trigger	Ethernet connects to hub or network connection. Serial connects to (DCE) equipment (w/ trigger).
130-8004C	130 (Y-Cable) to Serial (DCE) and Ethernet RJ45 cable 9-pin - Serial (DCE) with trigger	Ethernet connects to hub or network connection. Serial connects to (DCE) equipment (w/ trigger).
130-8004D	Ethernet/PC	
130-8014	130 (Y-Cable) to Serial (DTE) and Ethernet RJ45 cable	Ethernet connects to hub or network connection. Serial connects to DTE equipment
130-8015	GPS to DAS cable	Connects to DAS-GPS
130-8018	DAS Command and Control Port to PC cable	Connects to PC serial port
130-8019	Ethernet cable	Connects to hub or network
130-8023	Ethernet Crossover	Connect directly to PC or laptop ethernet port
130-8024	130 (Y-Cable) to Serial (DCE) and Ethernet RJ45 cable Ethernet and Black Box Modem	Ethernet connects to hub or network connection. Serial connects to (DCE) equipment
130-8025	PDA cable	130 to PDA
130-8026	DAS Net to Freewave (DB-9)	Connects to Freewave
130-8039	12V Power cable for DAS	12V Supply
130-8039A	12V Power cable for 130-SM	12V Supply
130-8075	12V Power cable for DAS and 130-ED	12V supply
130-8080	Extender to extender cable	130-GPS
130-8103	PDA CLIE™ cable	130 to CLIE PDA
130-8137	130-SM modem cable	Phone line
130-8154	130-Modem cable	130 to 130-Modem cable

Cable	Description	Connection
130-8206	Ruggedized PDA cable	130 to Ruggedized Palm
130-8811	Splitter box to S-13 Sensor	130 to 3 S-13 Sensors

Cable	Optional Sensor Cables	Connection
130-8830	CMG-5T Seismometer cable	130 DAS channel connector
130-8841	131A Sensor cable	130 DAS channel connector
130-8850	KS-2000 Sensor cable	130 DAS channel connector
130-8871	STS-2 Seismometer cable	130 DAS channel connector
130-8874	CMG/PUBB Sensor cable	130 DAS channel connector
130-8874A	CMG-40 w/ +12V and -12V Output	130 DAS channel connector
130-8874B	CMG/PUBB Sensor cable for CMG-3T	130 DAS channel connector
130-8885	S13J Sensor cable	130 DAS channel connector
130-8892	L-4C-3D Seismometer cable	130 DAS channel connector
130-8895	FBA11 Accelerometer cable	130 DAS channel connector

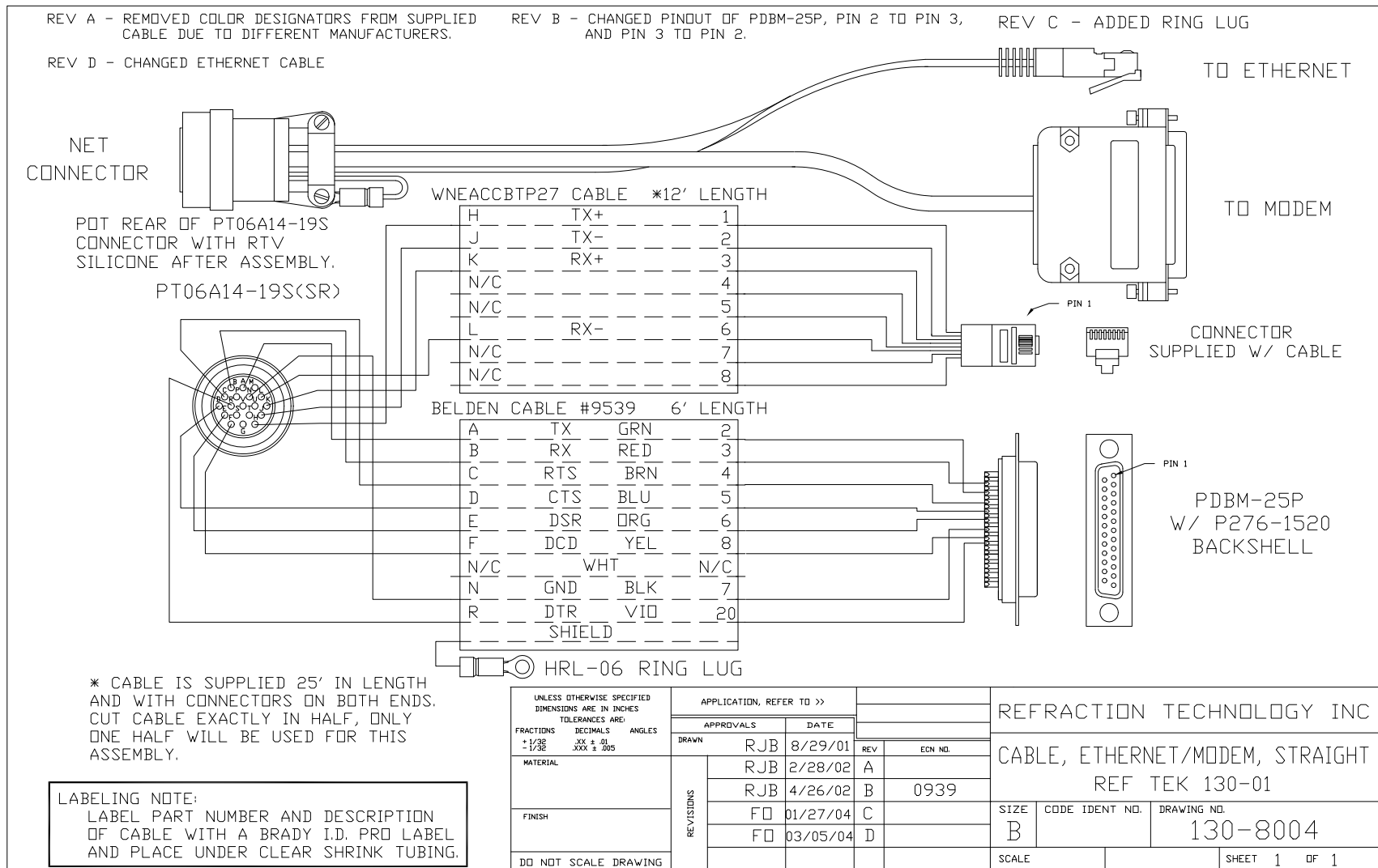


Figure 1 - 5 130-8004 - Ethernet/Modem

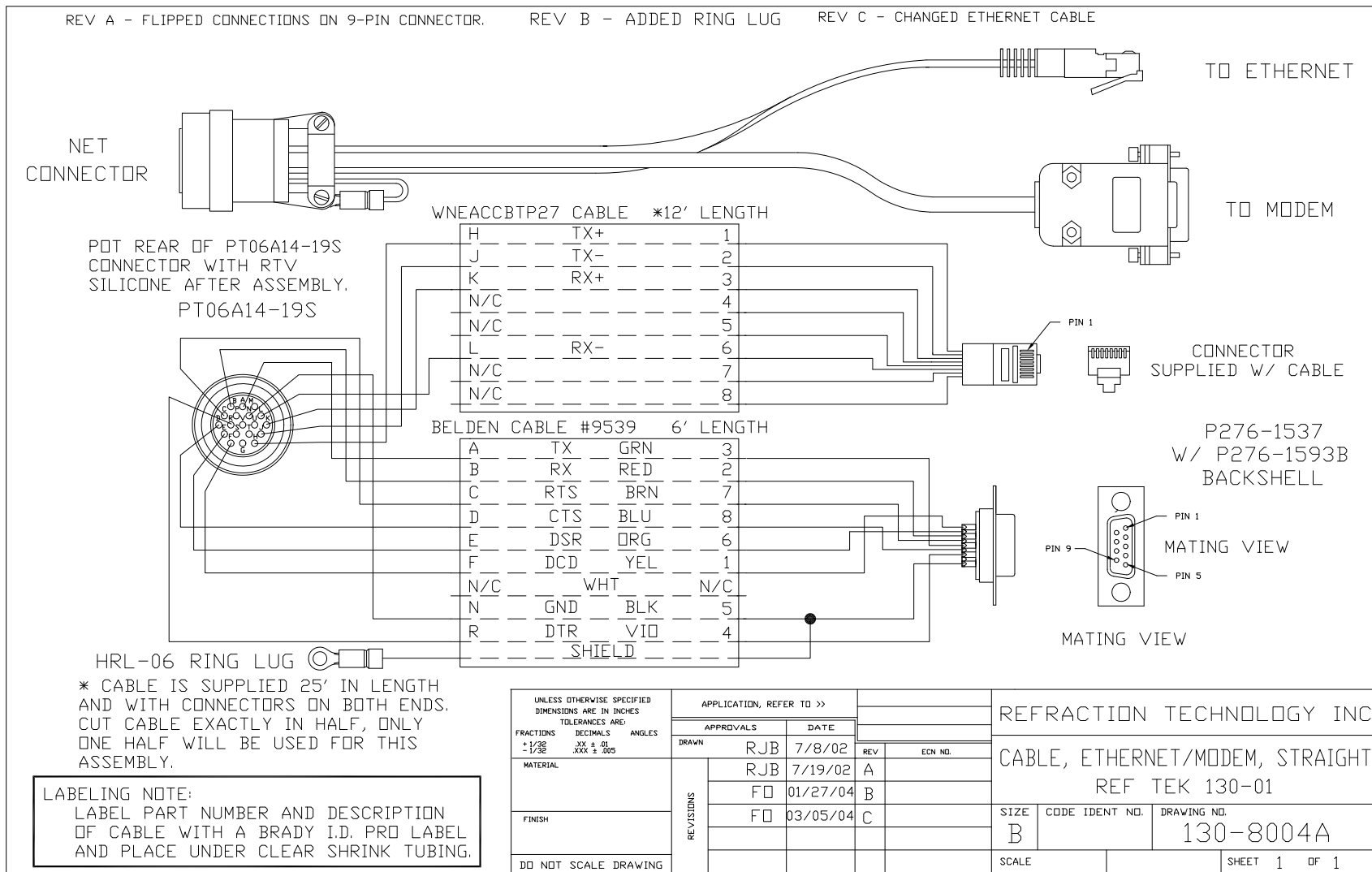


Figure 1 - 6 130-8004A - Ethernet/Modem

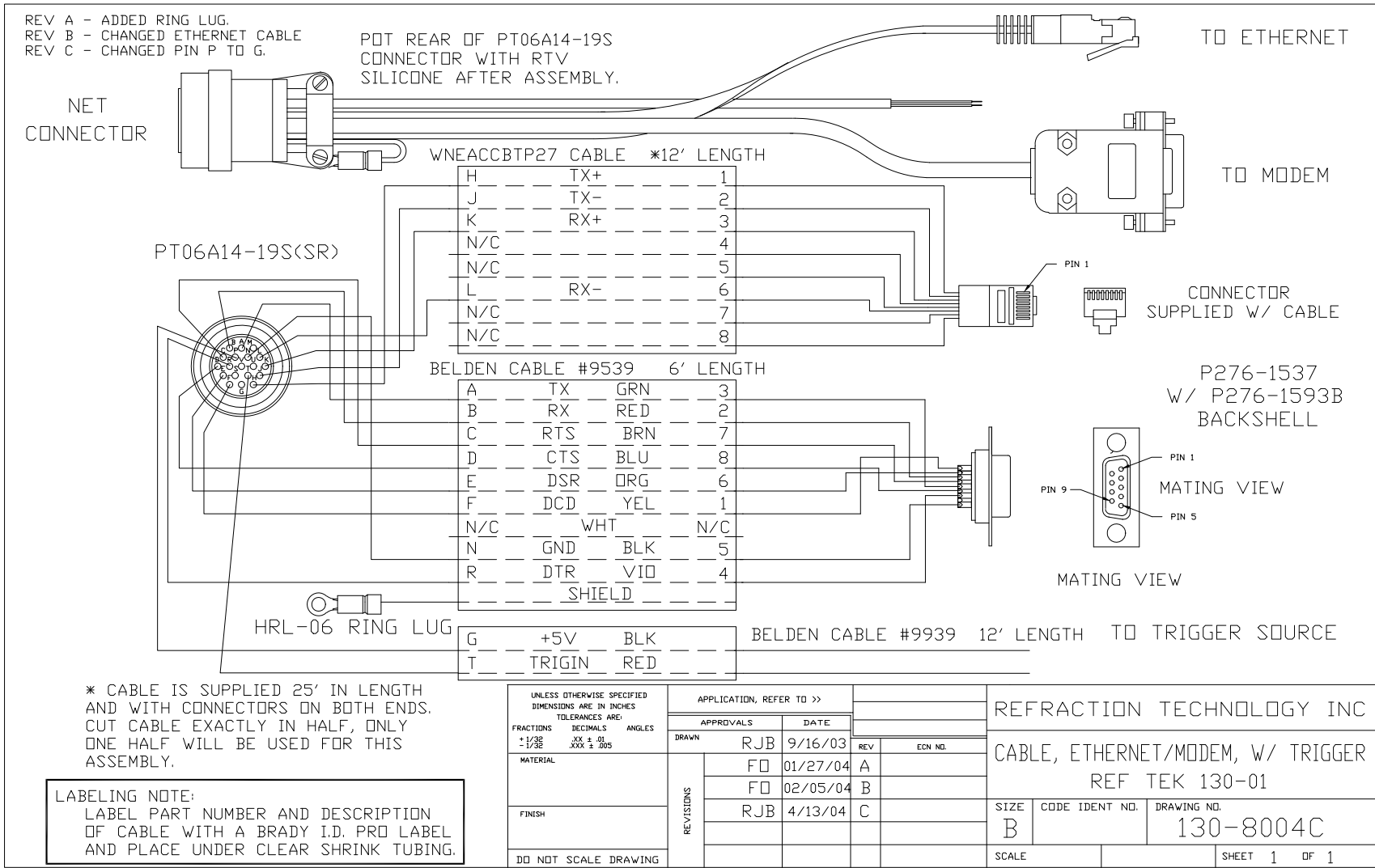


Figure 1 - 8 130-8004C - Ethernet/Modem with Trigger

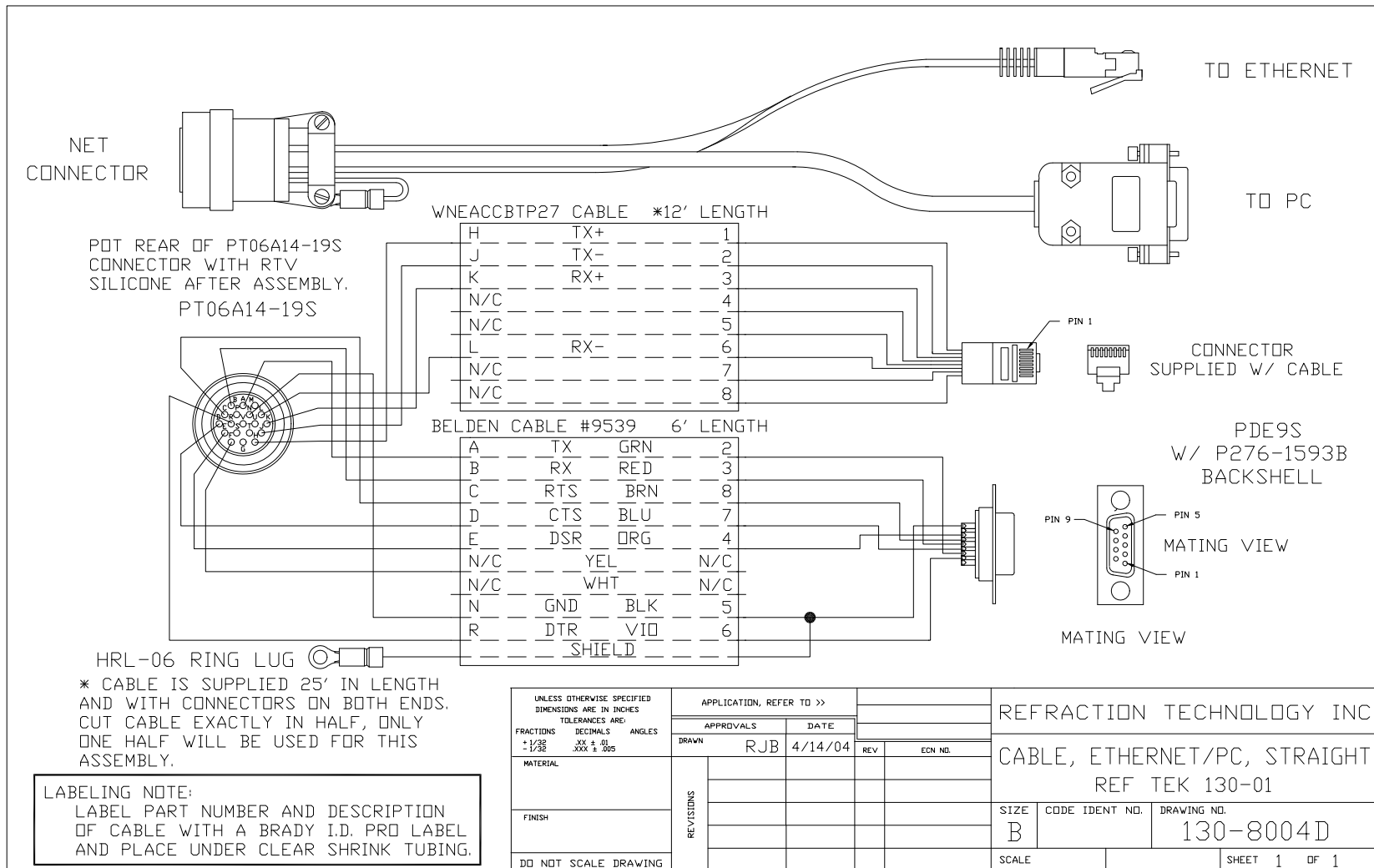


Figure 1 - 9 130-8004D Ethernet/PC

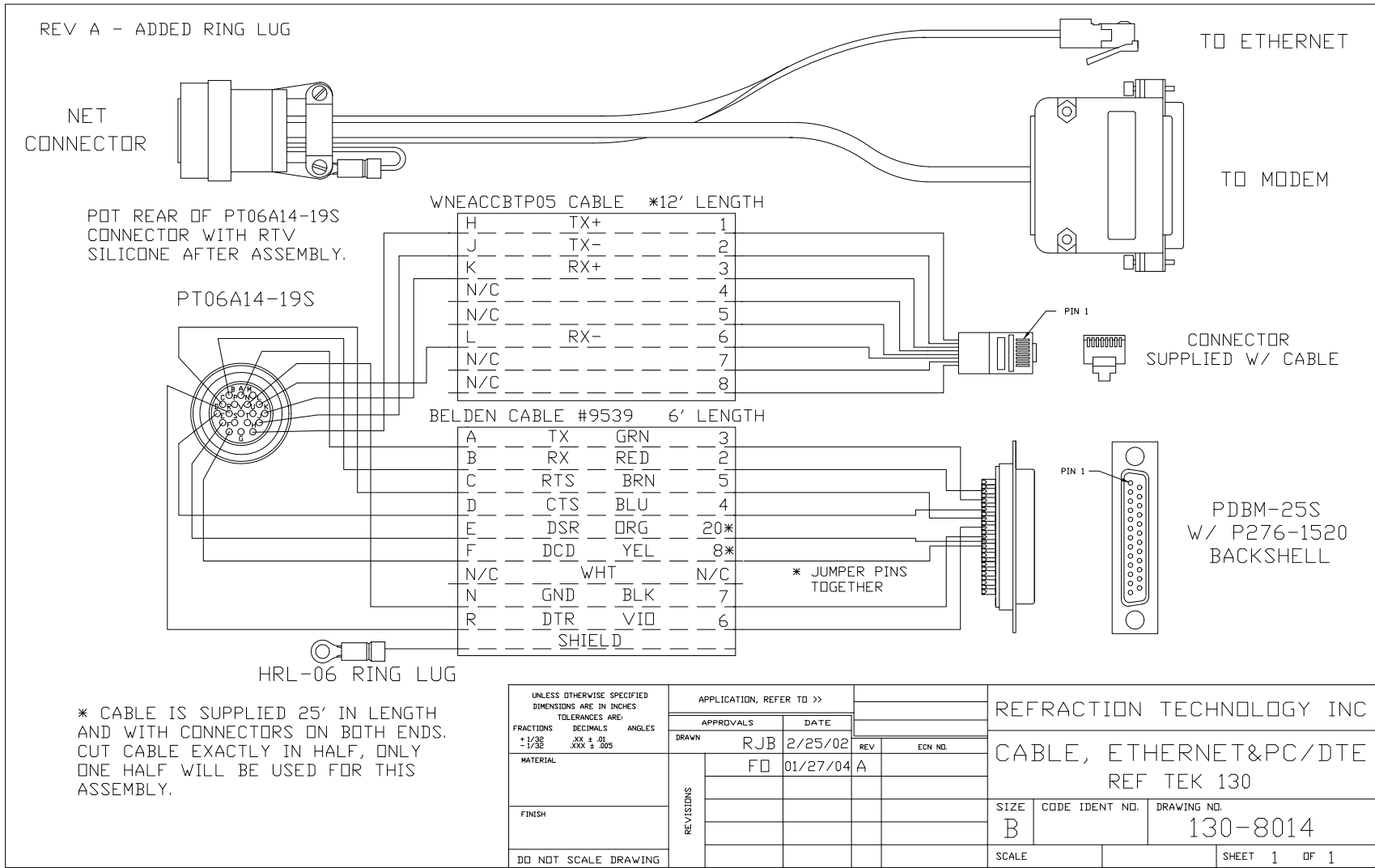


Figure 1 - 10 130-8014 - Ethernet PC/DTE

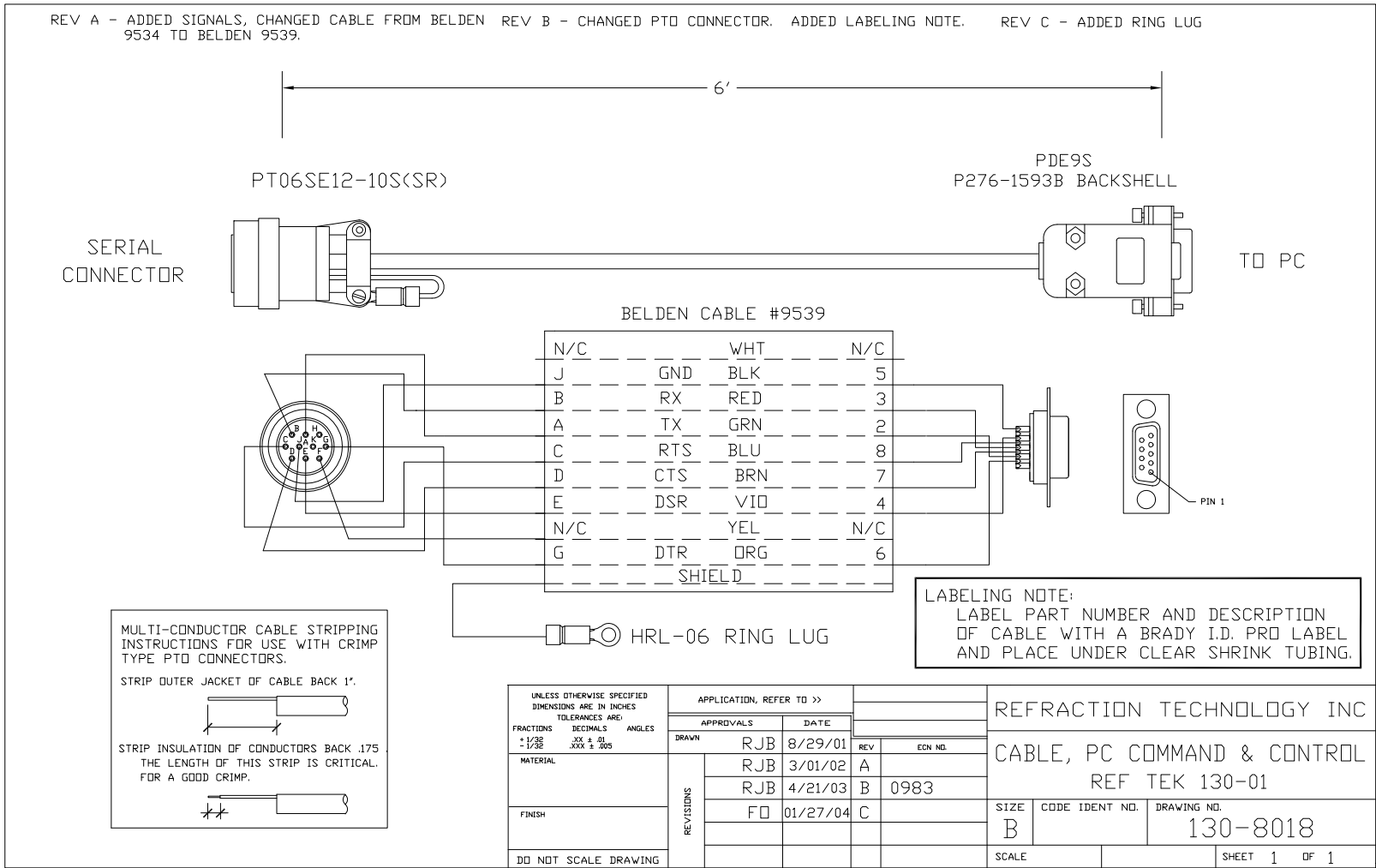
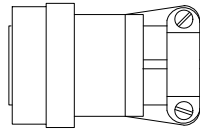


Figure 1 - 12 130-8018 - PC command and control

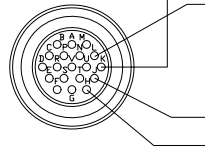
REV A - CHANGED ETHERNET CABLE

NET CONNECTOR



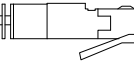
PT06A14-19S

WNEACCBTP27 CABLE *12' LENGTH



K	RX+	1
L	RX-	2
H	TX+	3
N/C		4
N/C		5
J	TX-	6
N/C		7
N/C		8

CONNECTOR SUPPLIED W/ CABLE



TO ETHERNET

PIN 1



POT REAR OF PT06A14-19S CONNECTOR WITH RTV SILICONE AFTER ASSEMBLY.

LABELING NOTE:
 LABEL PART NUMBER AND DESCRIPTION OF CABLE WITH A BRADY I.D. PRO LABEL AND PLACE UNDER CLEAR SHRINK TUBING.

* CABLE IS SUPPLIED 25' IN LENGTH AND WITH CONNECTORS ON BOTH ENDS. CUT CABLE EXACTLY IN HALF, ONLY ONE HALF WILL BE USED FOR THIS ASSEMBLY.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		APPLICATION, REFER TO >>		REFRACTION TECHNOLOGY INC	
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE	
$\pm 1/32$	.XX ± .01		DRAWN	RJB 4/10/02	REV
$\pm 1/32$	.XXX ± .005			FD 3/05/04	ECN NO.
MATERIAL			REVISIONS		
FINISH					
DO NOT SCALE DRAWING					
			CABLE, ETHERNET, CROSSOVER		
			REF TEK 130		
SIZE		CODE IDENT NO.	DRAWING NO.		
B			130-8023		
SCALE			SHEET 1 OF 1		

Figure 1 - 14 130-8023 - Ethernet Crossover

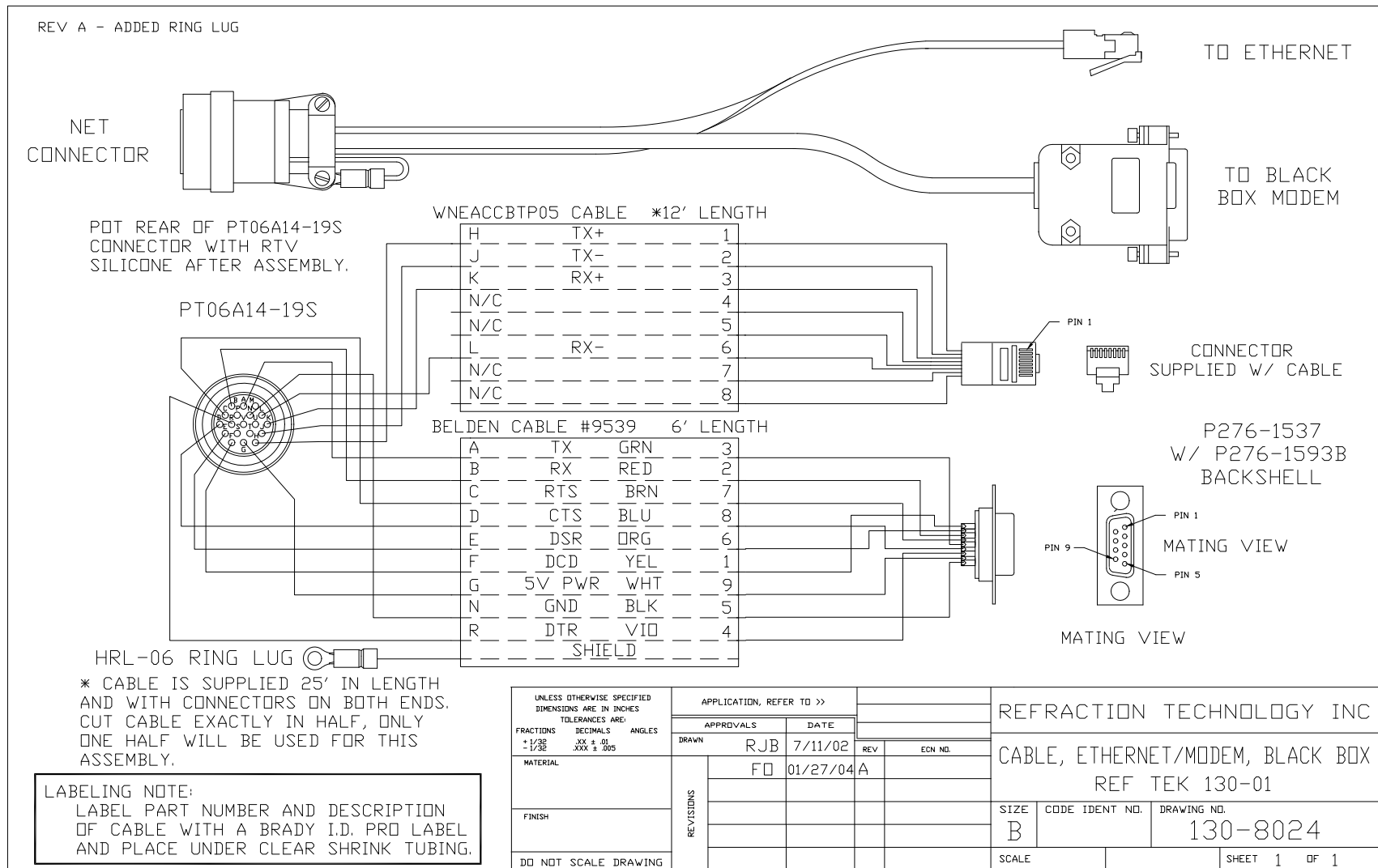


Figure 1 - 15 130-8024 - Ethernet/Modem Black Box

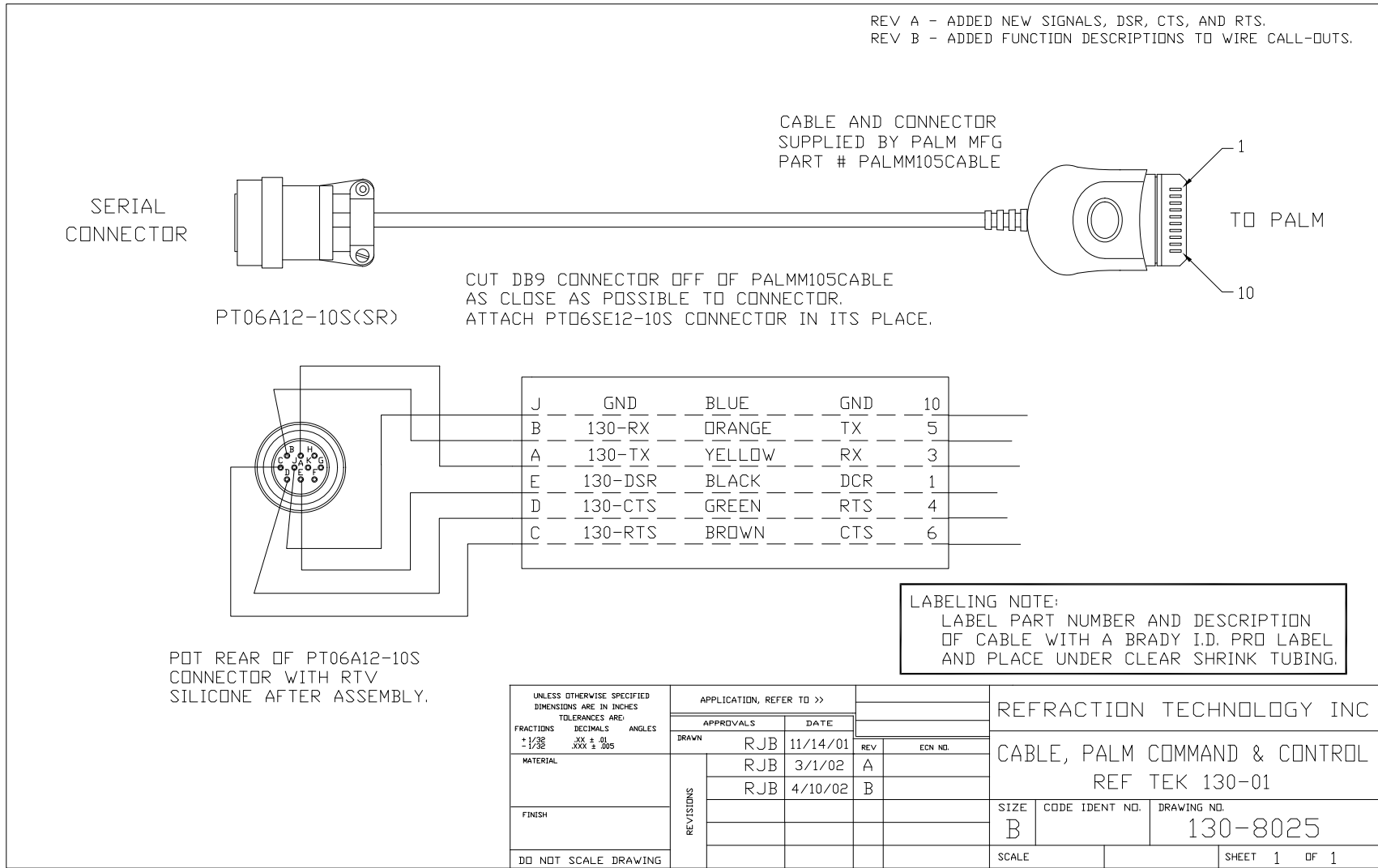


Figure 1 - 16 130-8025 - PDA to DAS, Command and Control

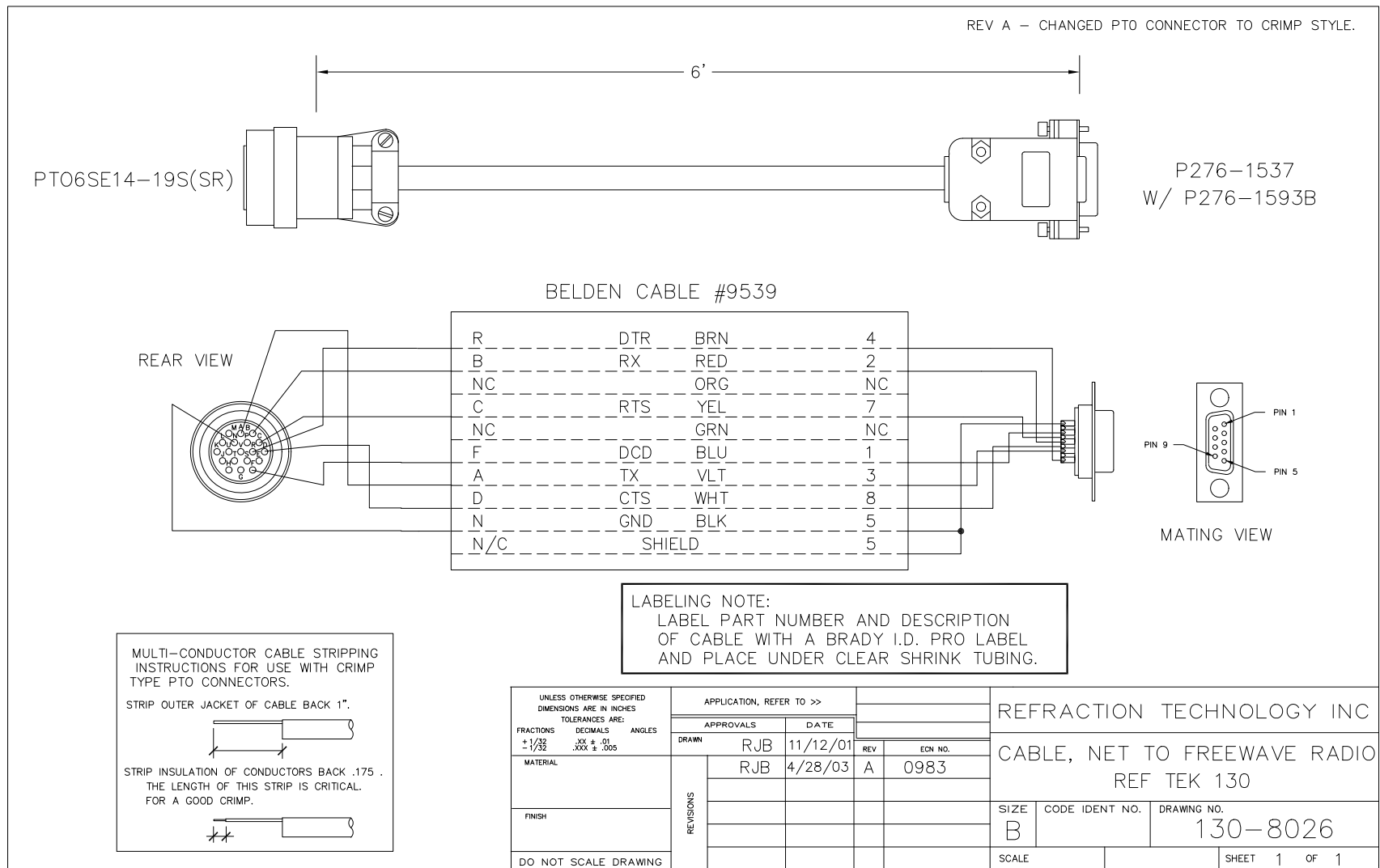


Figure 1 - 17 130-8026 - NET to Freewave Radio

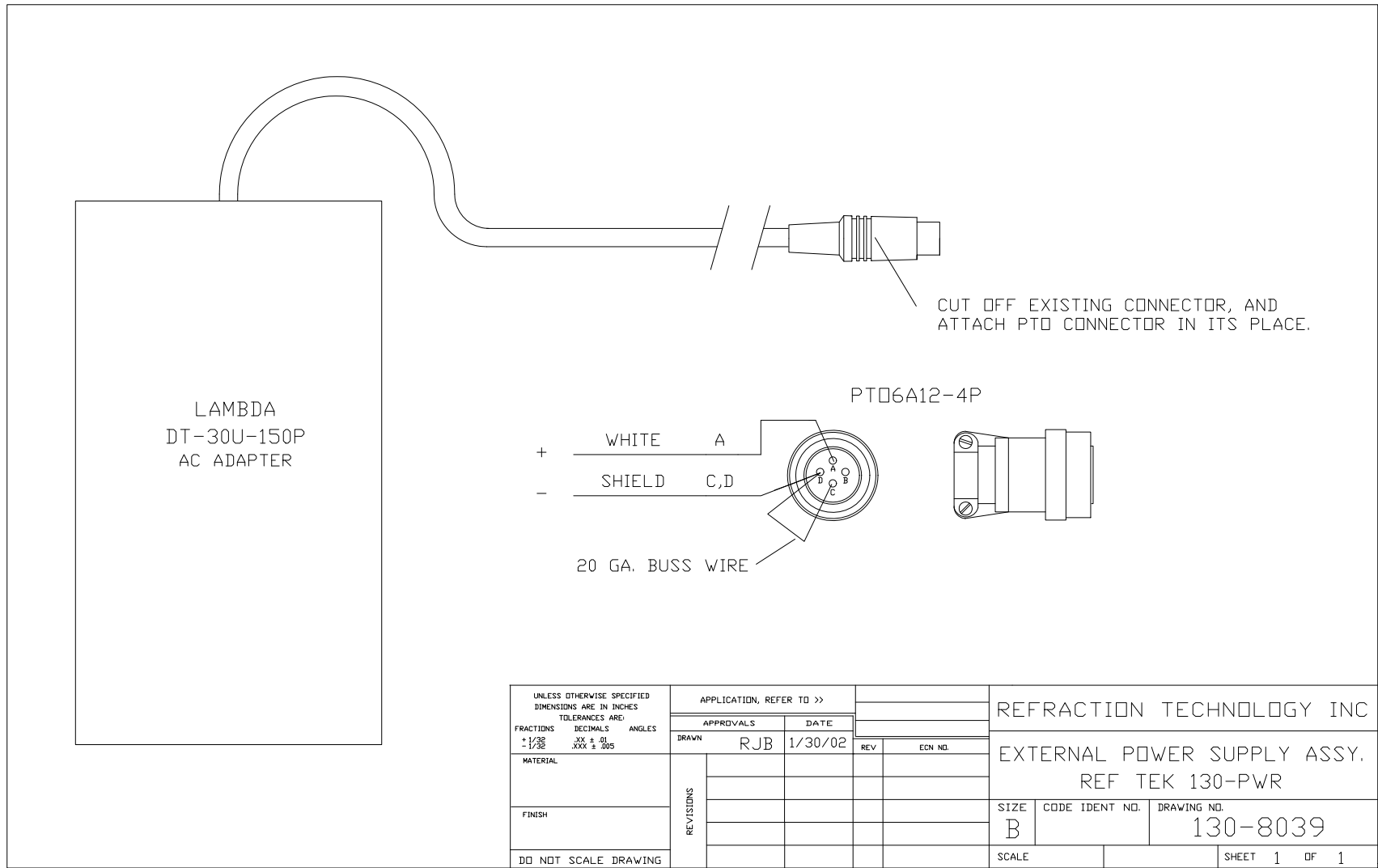


Figure 1 - 18 130-8039 - Ext Power supply assy

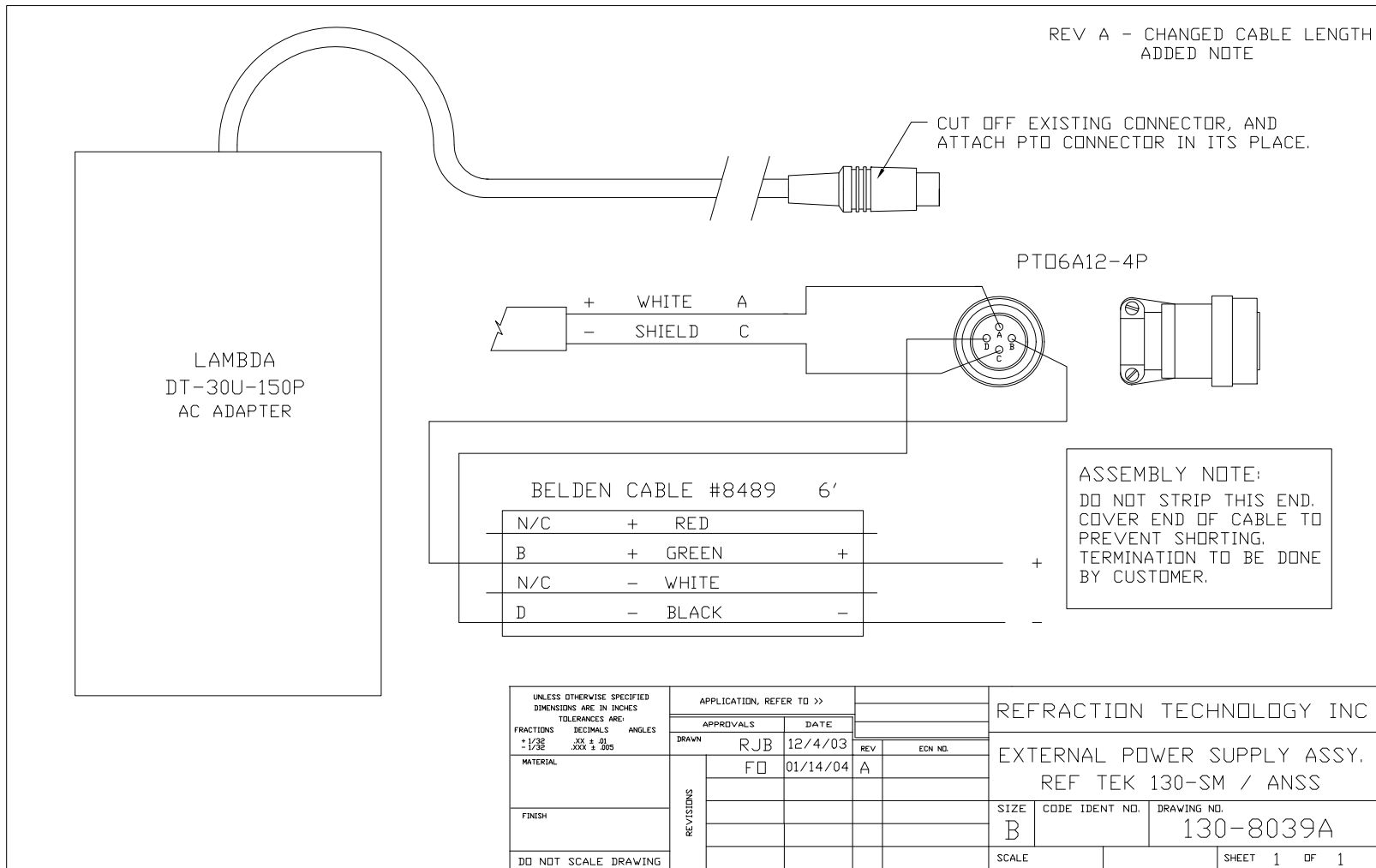


Figure 1 - 19 130-8039A 130-SM Power

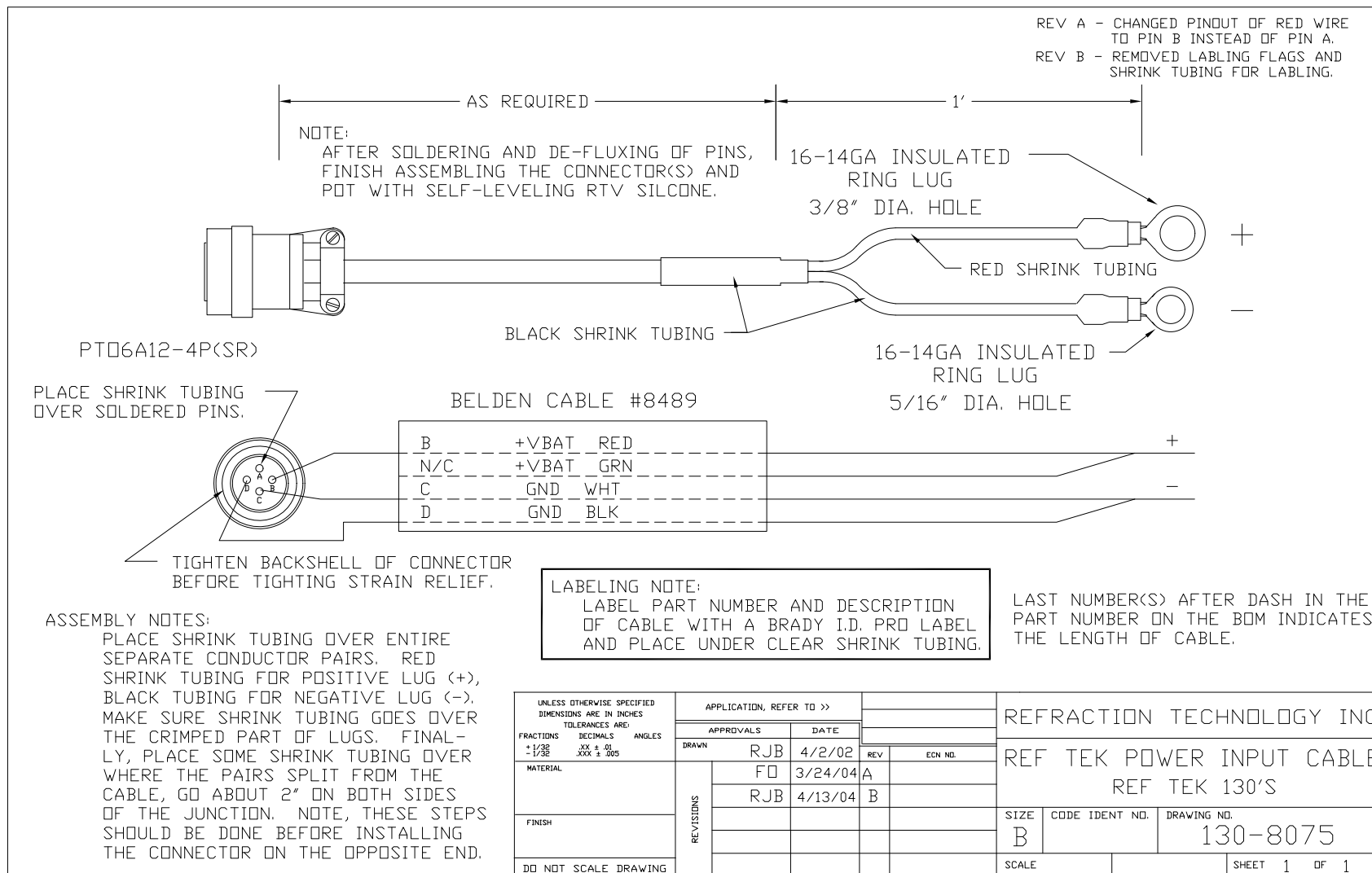


Figure 1 - 20 130-8075 - Power Input Cable

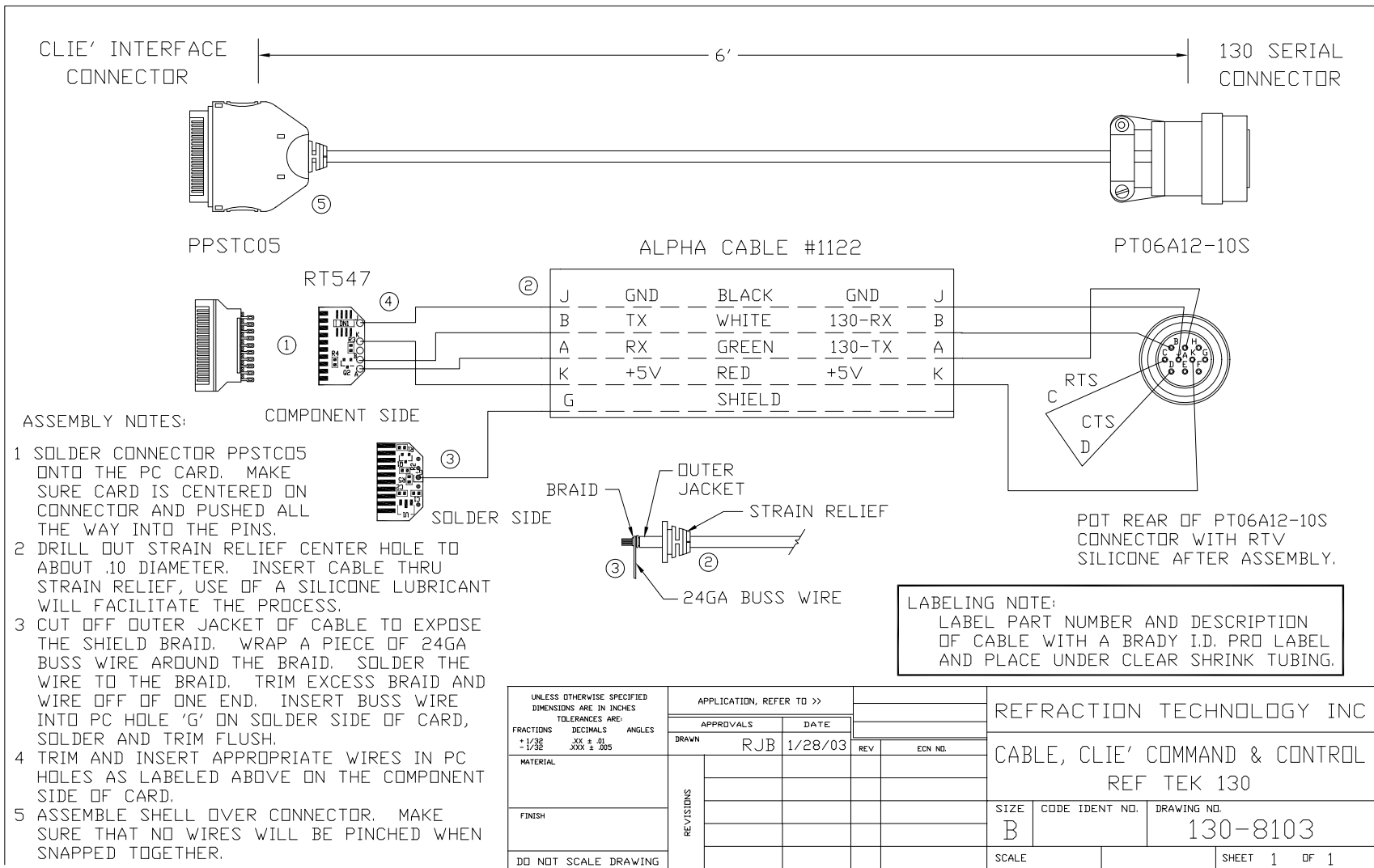
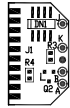


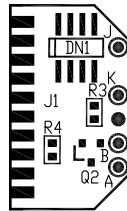
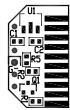
Figure 1 - 21 130-8103 - CLIE' Command and Control

COMPONENT SIDE VIEW

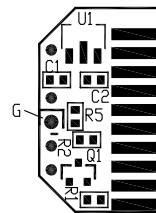


ACTUAL SIZE

SOLDER SIDE VIEW



2X SIZE



INSTALL ALL PARTS AS SHOWN.

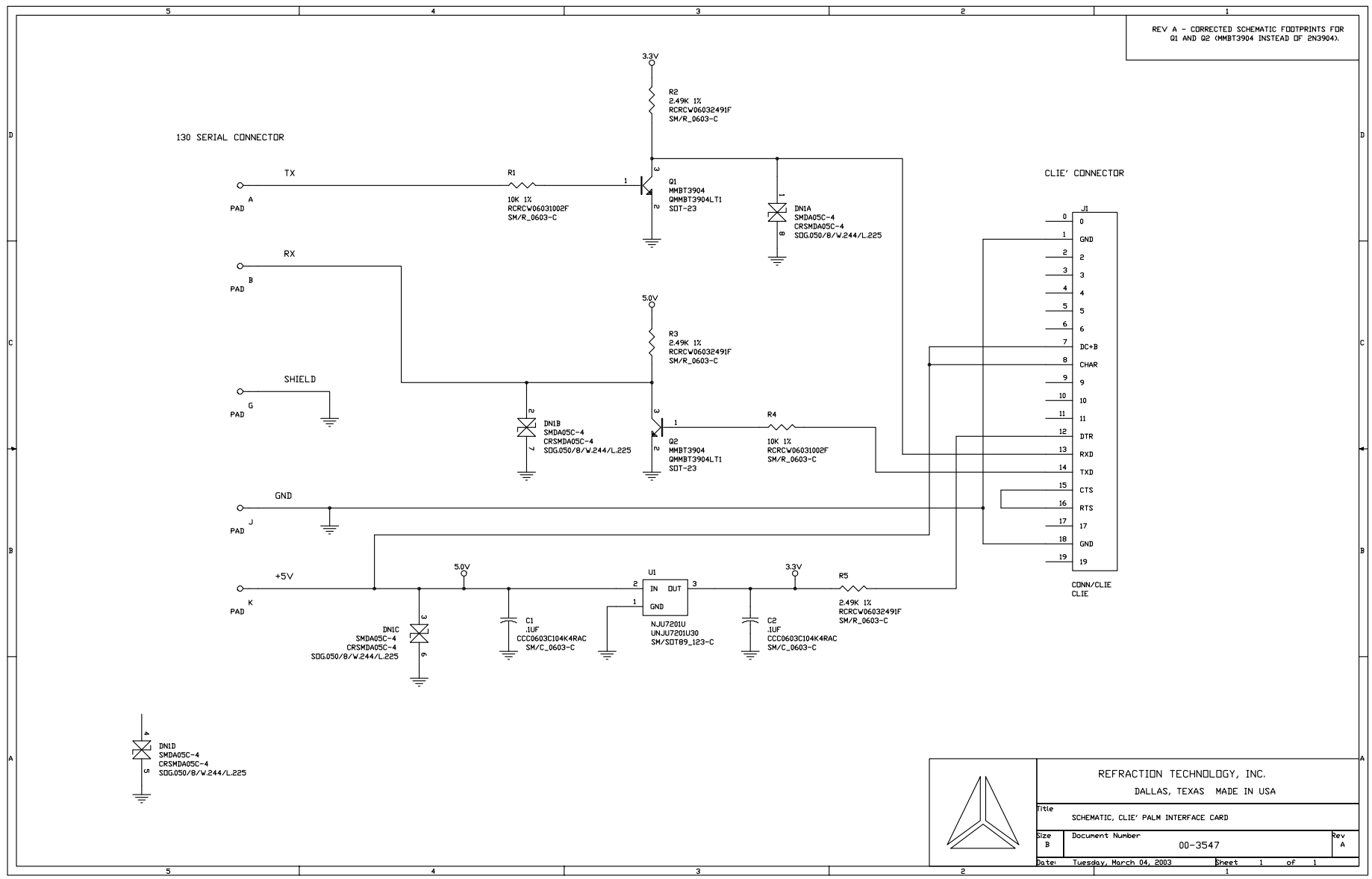
FOR -B02 VERSION;
DO NOT INSTALL R5 OR IC U1. AT
U1 LOCATION INSTALL A 0 OHM RESISTOR
ACROSS PIN 2 AND PIN 3. CUT TRACES
AT PIN 7 AND PIN 8 OF J1. JUMPER
FROM PIN 10 OF J1 TO PAD K.


CONNECTOR J1 CAN BE MOUNTED AT
TIME OF CABLE ASSEMBLY. REFER
TO DRAWING 72-8330 OR 130-8103
FOR MOUNTING INSTRUCTIONS OF
CONNECTOR J1.

REFRACTION TECHNOLOGY INC DALLAS, TEXAS U.S.A		
TITLE RT 547 A ASSEMBLY		
SIZE B	DOCUMENT NUMBER 00-1547	REV A.1
DATE 3/15/04	SHEET 1	OF 1

Figure 1 - 22 RT547 CLEA' board

REV A - CORRECTED SCHEMATIC FOOTPRINTS FOR Q1 AND Q2 (MMBT3904 INSTEAD OF 2N3904).



		
REFRACTION TECHNOLOGY, INC. DALLAS, TEXAS MADE IN USA		
Title		
SCHEMATIC, CLIE' PALM INTERFACE CARD		
Size	Document Number	Rev
B	00-3547	A
Date:	Tuesday, March 04, 2003	Sheet 1 of 1

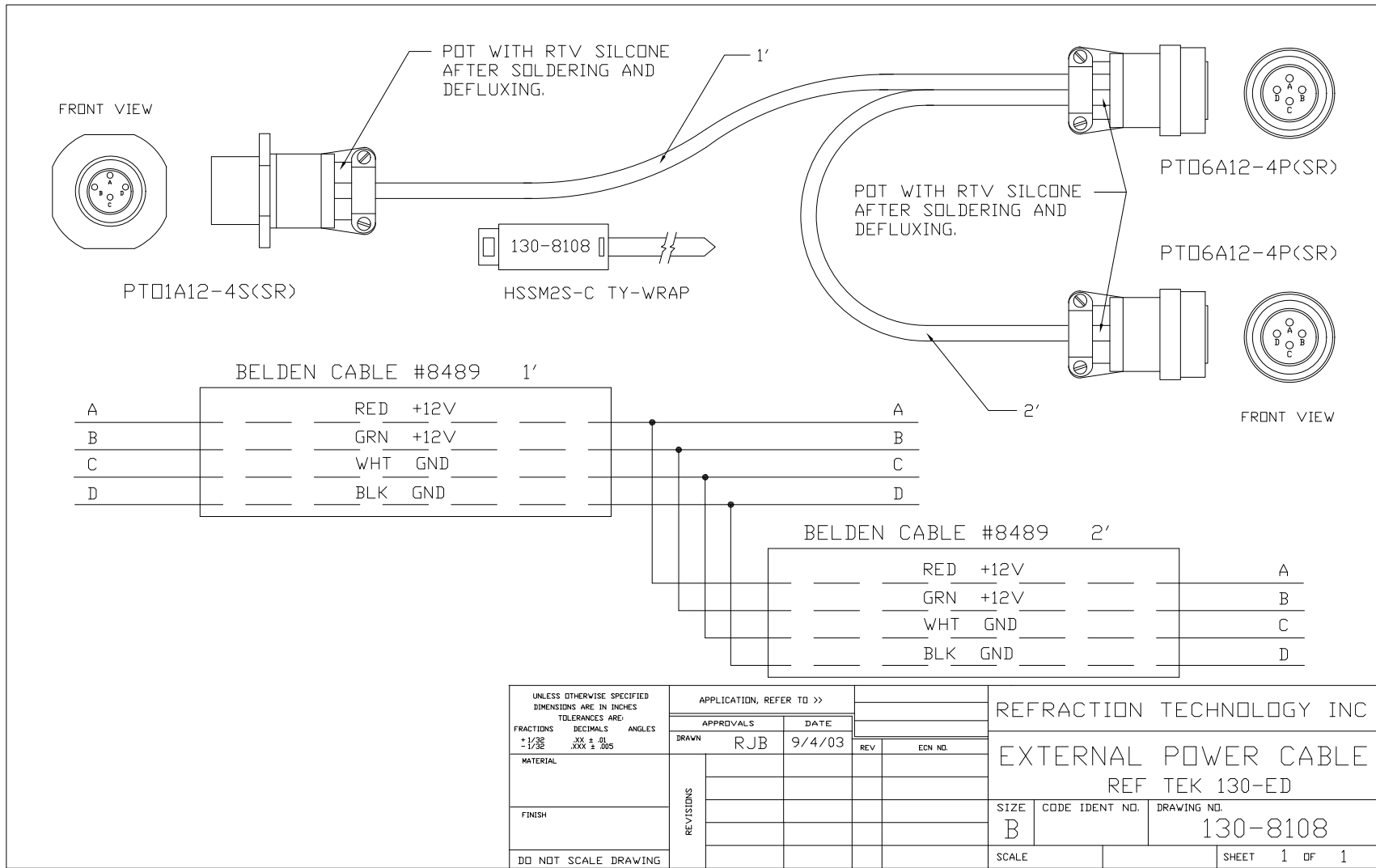


Figure 1 - 23 130-8108 - External Power Cable

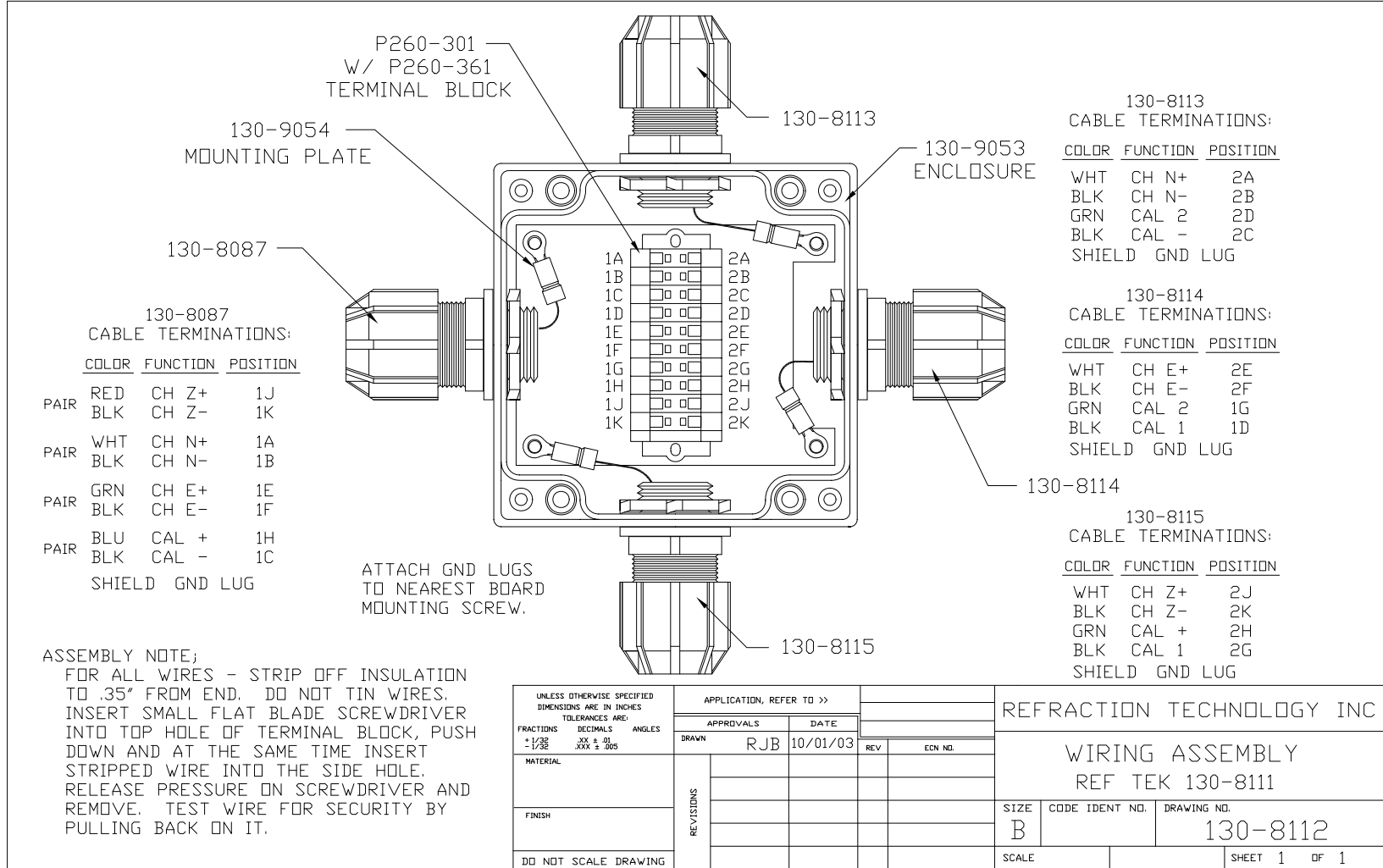


Figure 1 - 24 130-8111 S-13 Splitter Box

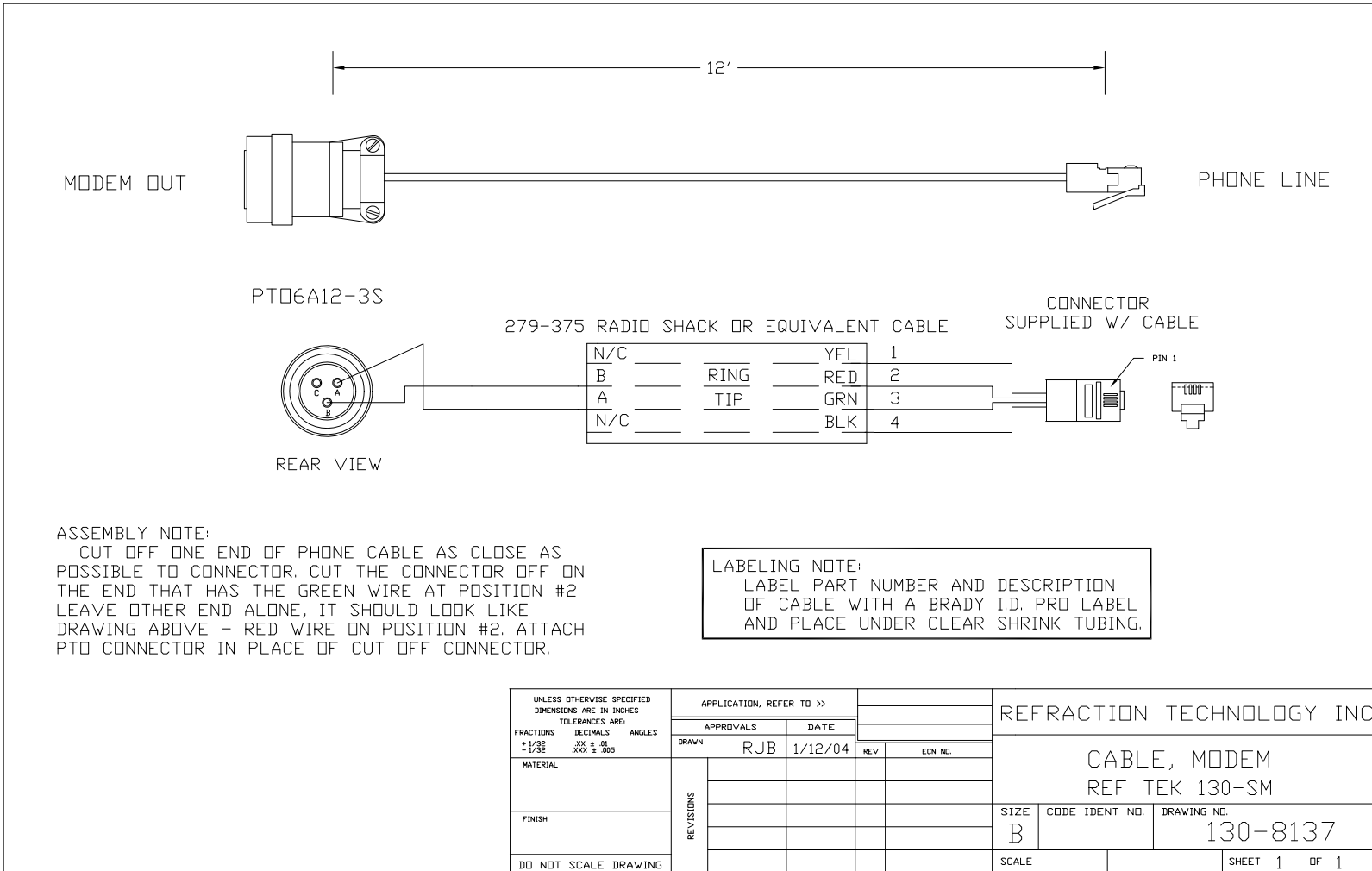


Figure 1 - 25 130-8137 130-SM Modem

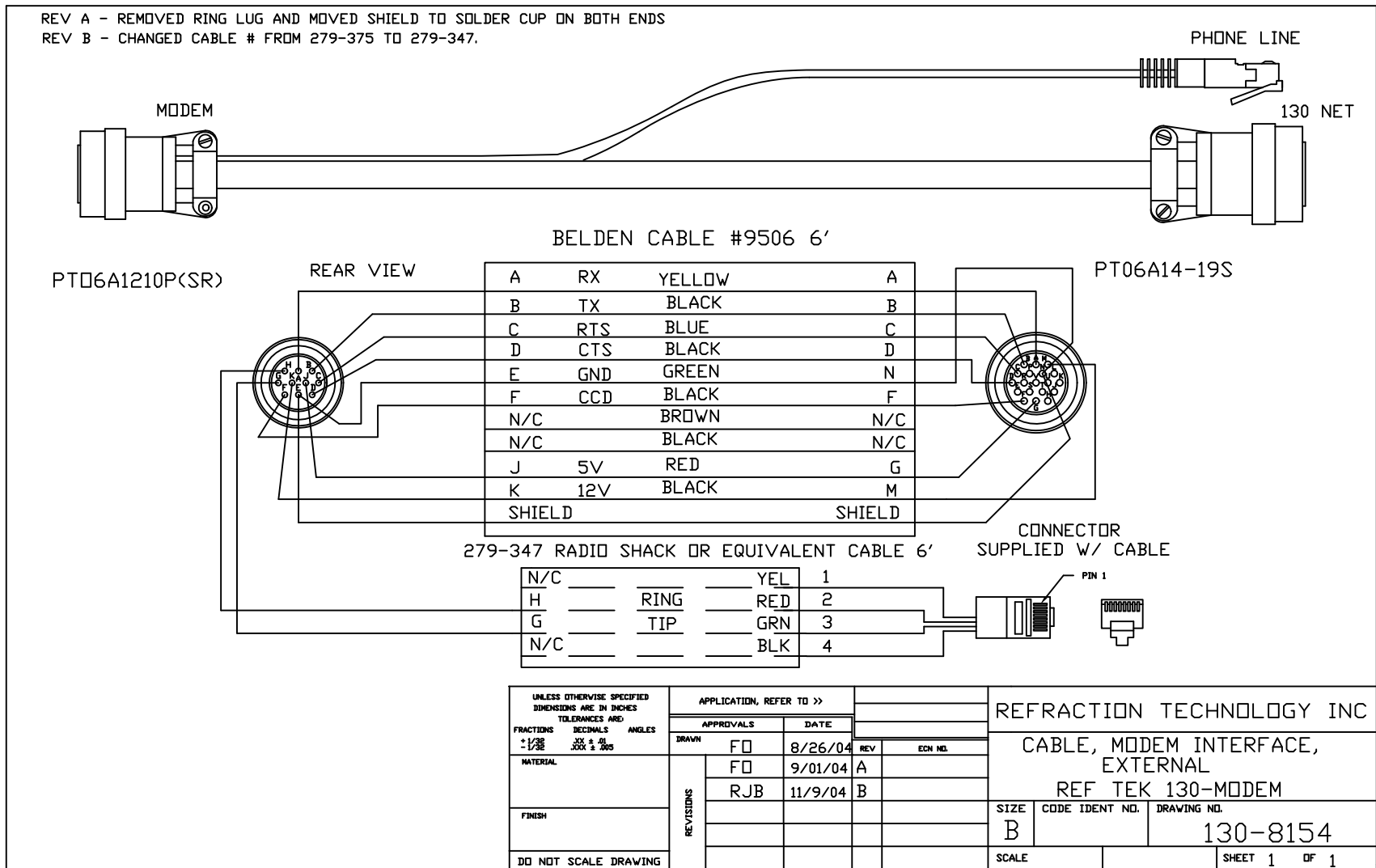


Figure 1 - 26 130-8154 130-Modem cable

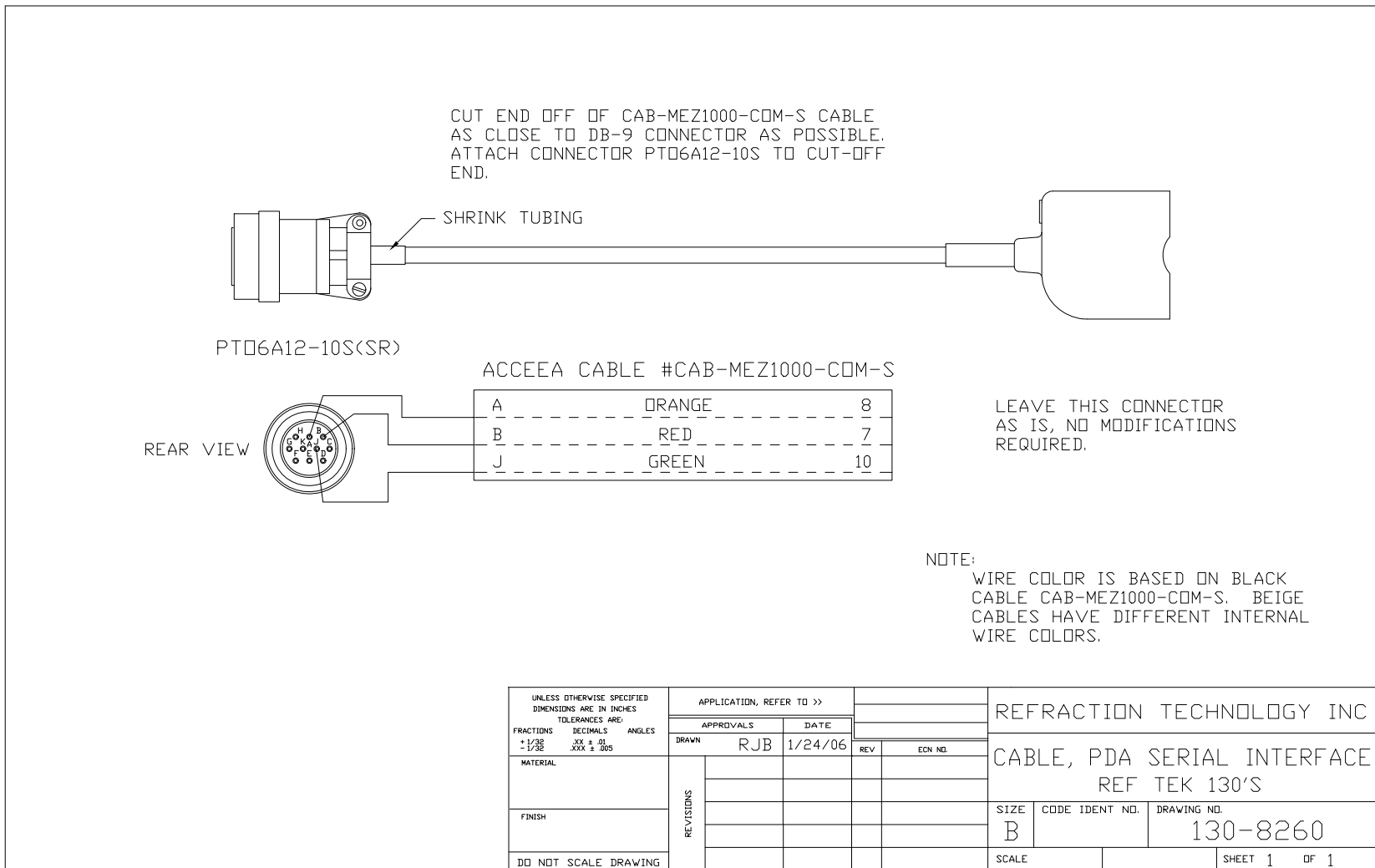


Figure 1 - 27 130-8260 Ruggedized Palm cable

1.3 Seismometer Cables

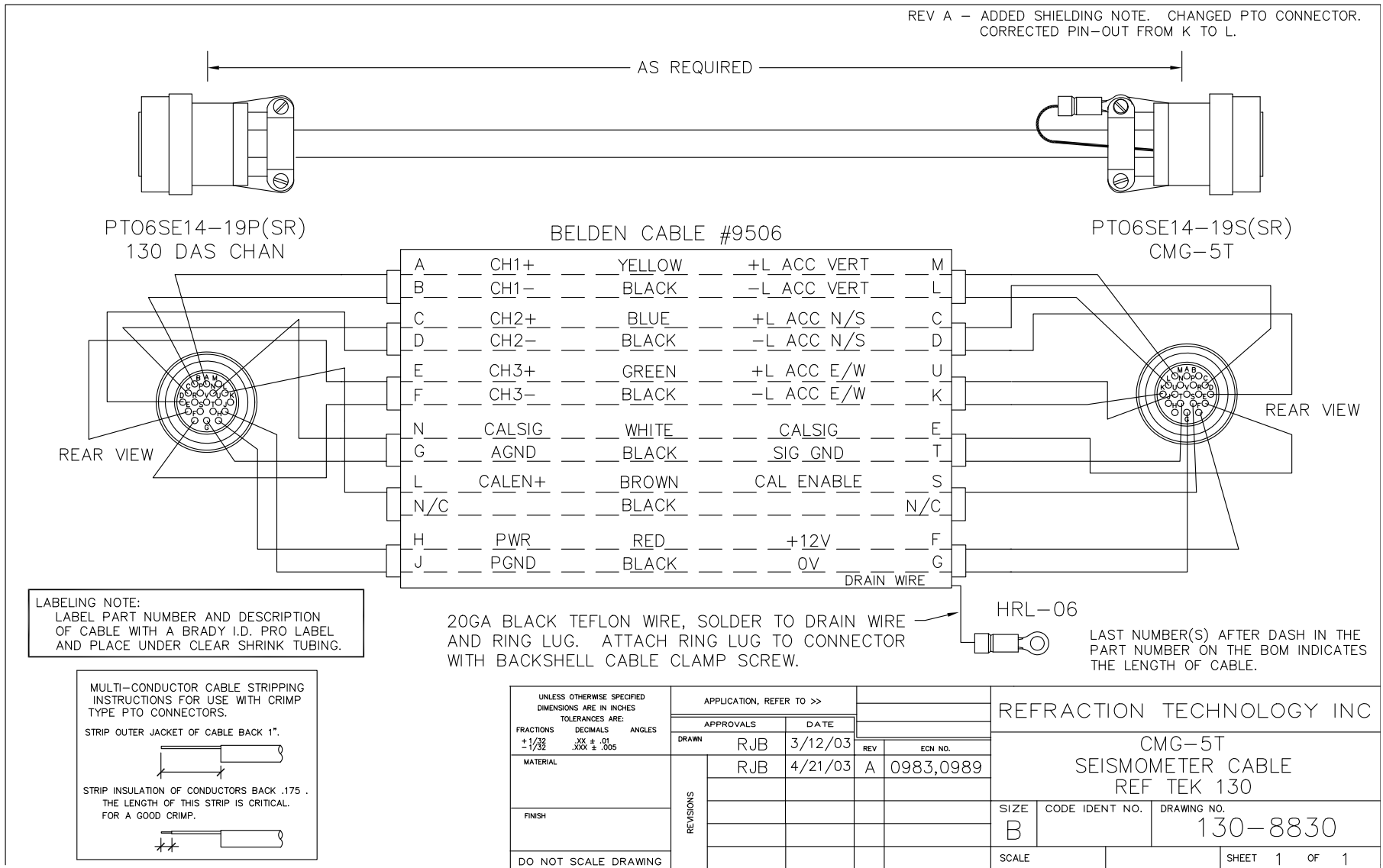


Figure 1 - 28 130-8830 - CMG-5T Seismometer Cable

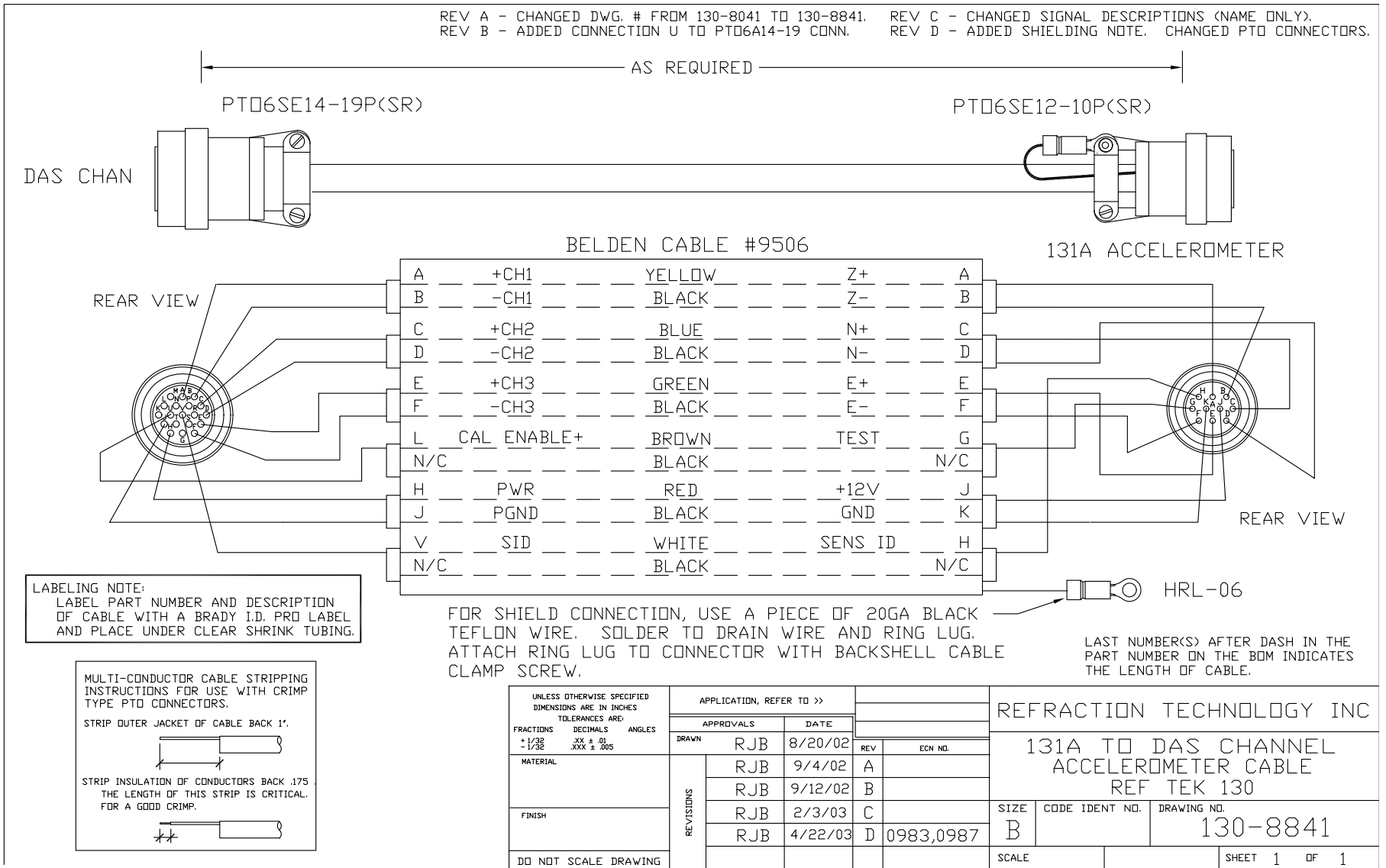


Figure 1 - 29 130-8841 - 131A to DAS channel accelerometer

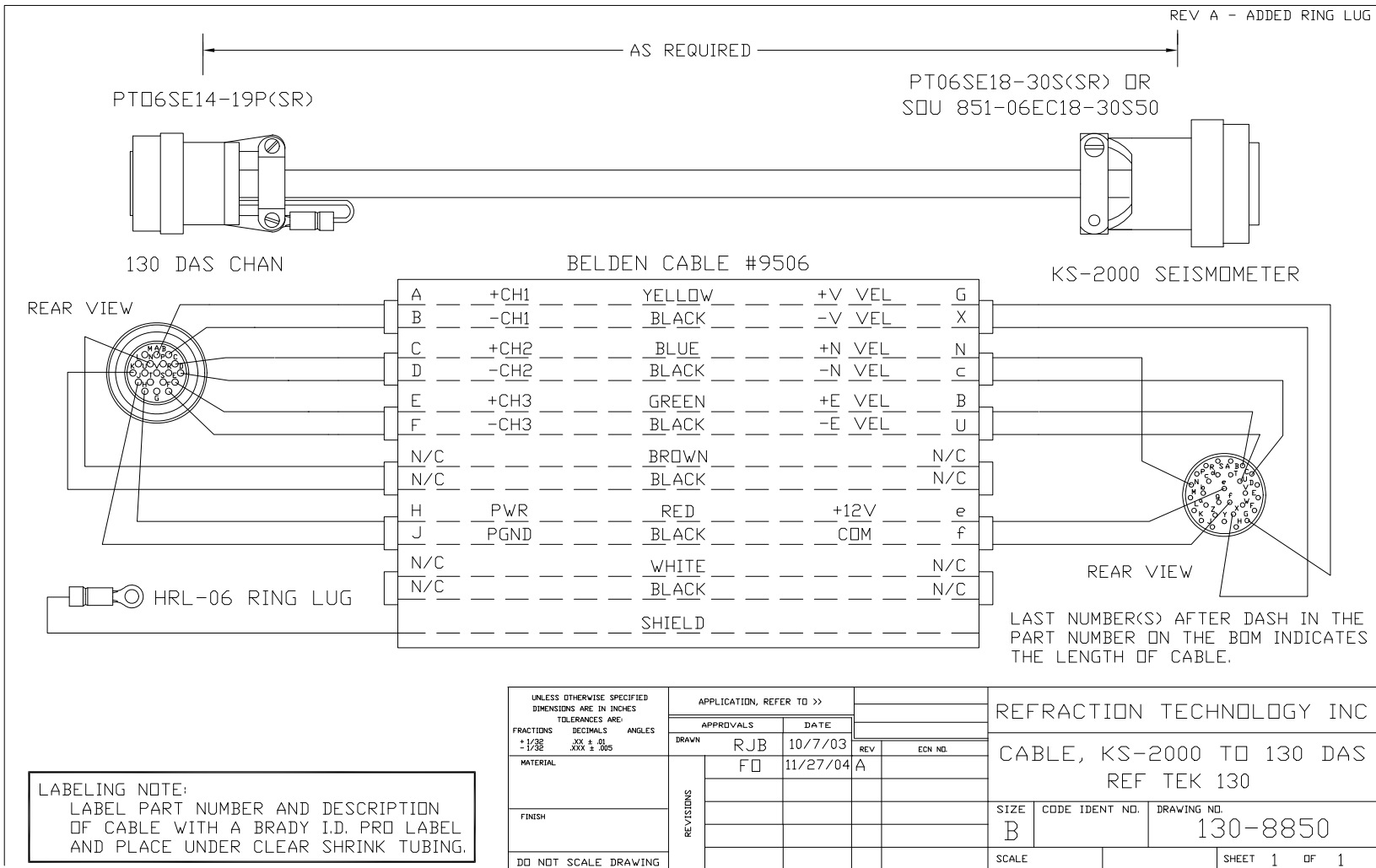
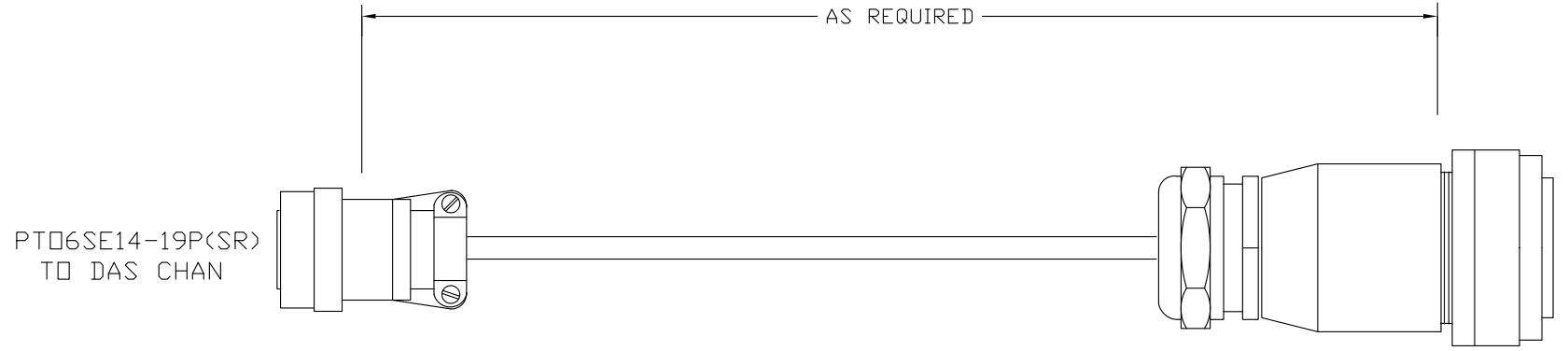


Figure 1 - 30 130-8850 KS-2000 Sensor cable

REV A - CHANGED DWG. # FROM 130-8071 TO 130-8871.
 REV B - CHANGED SIGNAL DESCRIPTIONS (NAME ONLY).
 REV C - INCORPORATED THE 3 CABLES INTO 1, CORRECTED
 PIN-OUTS FOR THE 130 DAS.
 REV D - CHANGED PTO CONNECTOR.
 REV E - CHANGED RESISTORS VALUE FROM 3.65K TO 4.99K.



REFER TO SHEET 2 FOR MORE DETAILS.

MULTI-CONDUCTOR CABLE STRIPPING INSTRUCTIONS FOR USE WITH CRIMP TYPE PTO CONNECTORS.

STRIP OUTER JACKET OF CABLE BACK 1".

STRIP INSULATION OF CONDUCTORS BACK .175 THE LENGTH OF THIS STRIP IS CRITICAL FOR A GOOD CRIMP.

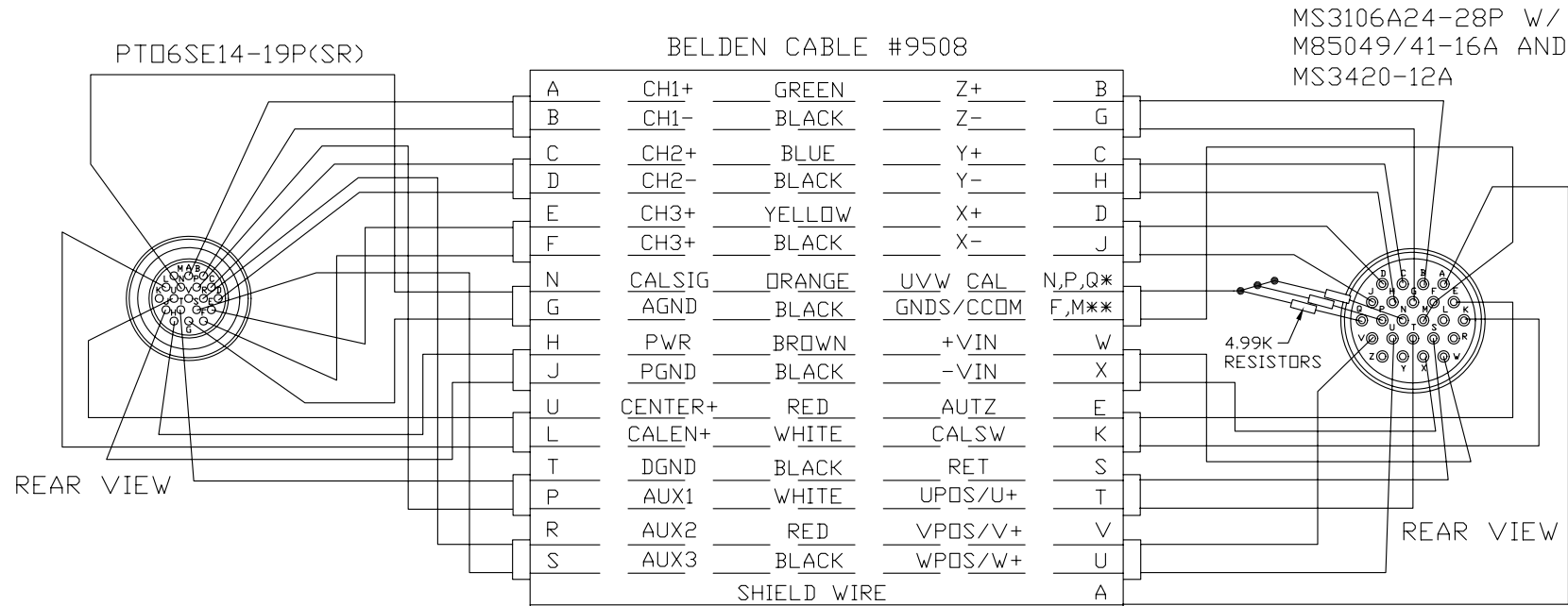
LAST NUMBER(S) AFTER DASH IN THE PART NUMBER ON THE BOM INDICATES THE LENGTH OF CABLE.

LABELING NOTE:
 LABEL PART NUMBER AND DESCRIPTION OF CABLE WITH A BRADY I.D. PRO LABEL AND PLACE UNDER CLEAR SHRINK TUBING.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		APPLICATION, REFER TO >>		REFRACTION TECHNOLOGY INC	
TOLERANCES ARE:		APPROVALS	DATE		
FRACTIONS	DECIMALS	ANGLES		REV	ECN NO.
+1/32	.XX ± .01		DRAWN RJB	4/9/02	
-1/32	.XXX ± .005				
MATERIAL		REVISIONS	RJB	9/4/02	A
			RJB	2/3/03	B
			RJB	4/11/03	C
			RJB	4/21/03	D
FINISH			RJB	4/23/03	E
DO NOT SCALE DRAWING					
			STS-2 SEISMOMETER CABLE REF TEK 130		
SIZE	CODE IDENT NO.	DRAWING NO.			
B		130-8871			
SCALE		SHEET 1		OF 2	

Figure 1 - 31 130-8871 - STS-2 Seismometer

REV A - CHANGED DWG. # FROM 130-8071 TO 130-8871.
 REV B - CHANGED SIGNAL DESCRIPTIONS (NAME ONLY).
 REV C - INCORPORATED THE 3 CABLES INTO 1, CORRECTED
 PIN-OUT FOR THE 130 DAS.
 REV D - CHANGED PTO CONNECTOR.
 REV E - CHANGED RESISTORS VALUE FROM 3.65K TO 4.99K.



* - INSERT LEADS OF 4.99K RESISTORS INTO PINS N, P, AND Q. SOLDER THE OTHER END OF THE RESISTORS (ALL 3) TO THE ORANGE WIRE OF THE ORANGE/BLACK PAIR.

** - JUMPER PINS F AND M TOGETHER WITH A 20GA BLACK TEFLON WIRE, SOLDER TO BLACK WIRE OF THE ORANGE/BLACK PAIR.

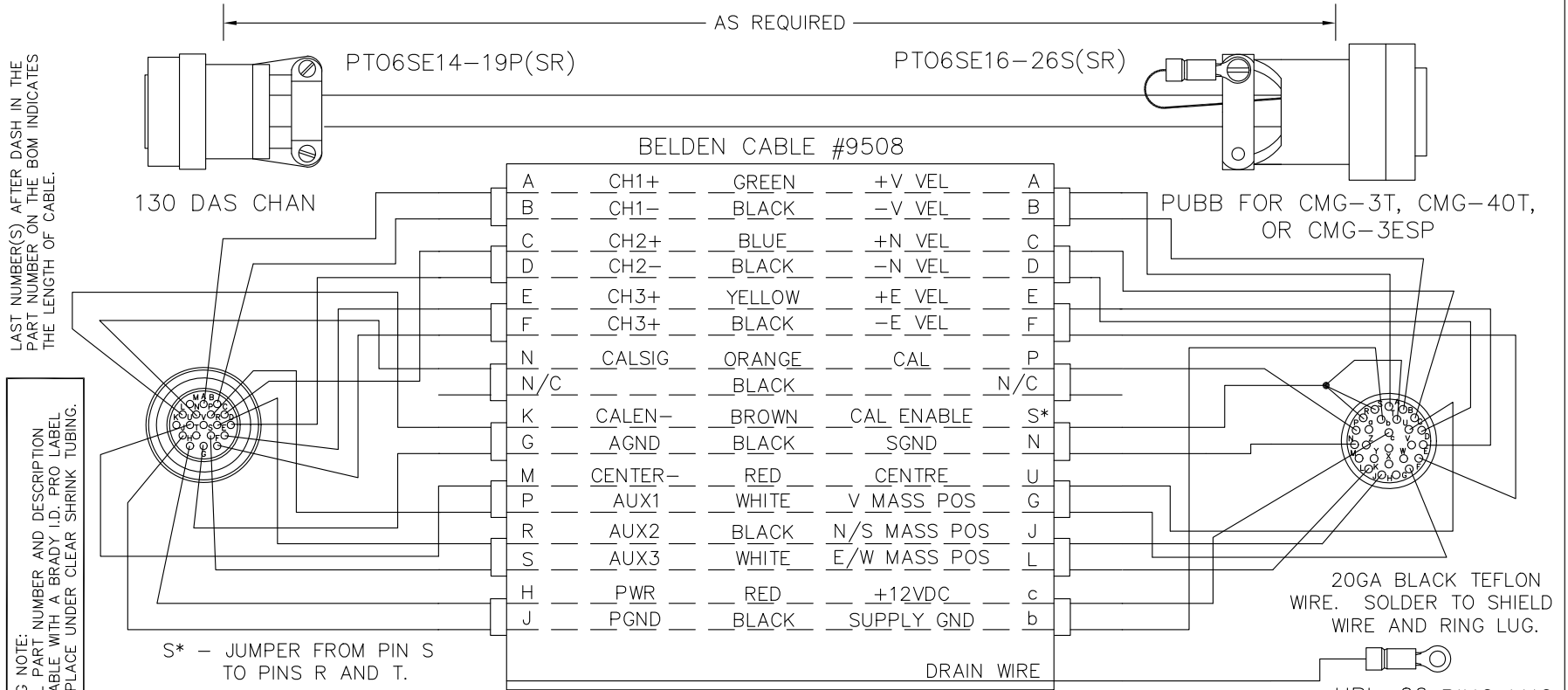
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		APPLICATION, REFER TO >>		REFRACTION TECHNOLOGY INC					
TOLERANCES ARE:		APPROVALS	DATE			STS-2 SEISMOMETER CABLE REF TEK 130			
FRACTIONS +1/32 -1/32	DECIMALS .005 .010 .015 .020 .030 .040 .050	ANGLES	DRAWN	REV	ECN NO.				
MATERIAL		REVISONS	RJB	9/4/02	A	SIZE B	CODE IDENT NO.	DRAWING NO. 130-8871	
FINISH			RJB	2/3/03	B				
DO NOT SCALE DRAWING			RJB	4/11/03	C				0976
			RJB	4/21/03	D				0983
			RJB	4/23/03	E				0991
		SCALE		SHEET 2 OF 2					

Figure 1 - 32 130-8871 - STS-2 Seismometer wire list

REV A - ADDED NOTE TO JUMPER PINS R, S, AND T.
 REV B - CHANGED DWG.# FROM 130-8074 TO 130-8874.
 REV C - ADDED SIGNALS, CHANGED CABLE TO #9508 FROM #8334.

REV D - COMBINED CALSIG'S INTO ONE WIRE WITH JUMPER TO R, S, & T. CHANGED TO SHIELD WIRE WITH LUG.
 REV E - CHANGED DAS END SIGNAL PINS, L TO K AND U TO M. ADDED SENSOR.

REV F - CHANGED PTO CONNECTORS.



LAST NUMBER(S) AFTER DASH IN THE PART NUMBER ON THE BOM INDICATES THE LENGTH OF CABLE.

LABELING NOTE:
 LABEL PART NUMBER AND DESCRIPTION OF CABLE WITH A BRADY I.D. PRO LABEL AND PLACE UNDER CLEAR SHRINK TUBING.

NOTE:
 CUT A 3" PIECE(S) OF HEAT SHRINK TUBING WITH ADHESIVE. SLIP TUBING ONTO CABLE WITH BACK SHELL OF PTO BEFORE CRIMPING ANY PINS. DO FOR BOTH ENDS IF REQUIRED. AFTER CRIMPING AND THEN INSERTING THE PINS INTO CONNECTOR BODY(S), SLIP THE SHRINK TUBING DOWN AS CLOSE AS POSSIBLE TO BODY AND SHRINK. FINISH THE ASSEMBLY OF THE CONNECTOR(S).

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		APPLICATION, REFER TO >>		REFRACTION TECHNOLOGY INC	
TOLERANCES ARE:		APPROVALS		CABLE, SENSOR CMG/PUBB TO 130	
FRACTIONS	DECIMALS	DATE	REV	REF TEK 130	
$\pm 1/32$	.XX ± .01	RJB 4/3/02	A	SIZE	CODE IDENT NO.
	.XXX ± .005	RJB 4/24/02	B	B	DRAWING NO.
MATERIAL	ANGLES	RJB 9/4/02	C	130-8874	
FINISH		RJB 10/28/02	D	SCALE	SHEET 1 OF 1
DO NOT SCALE DRAWING		RJB 4/7/03	E		
		RJB 4/9/03	F		
		RJB 4/21/03	0983		

Figure 1 - 33 130-8874 - Sensor CMG/PUBB to 130

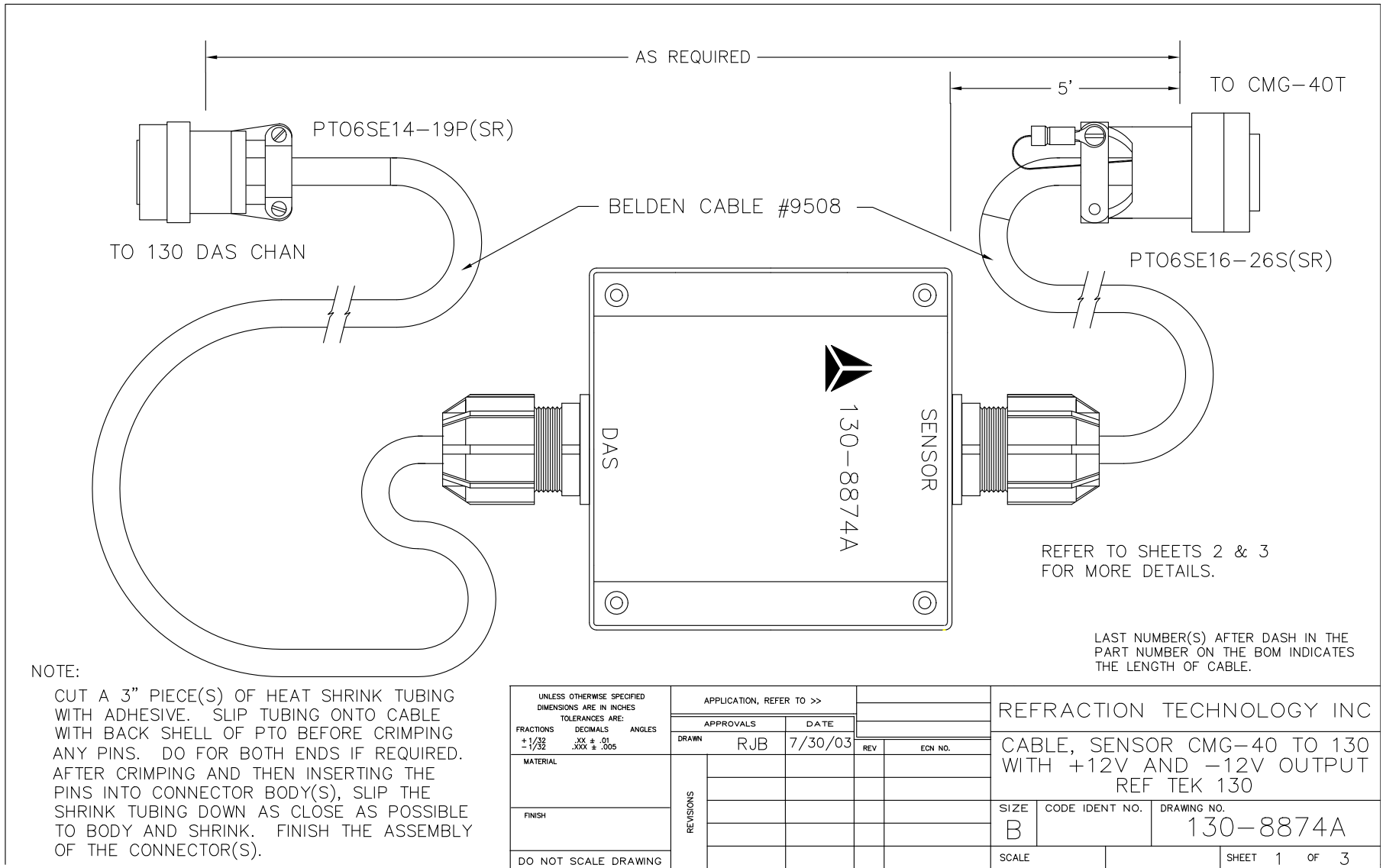


Figure 1 - 34 130-8874A - Sensor CMG-40 to 130 with +12

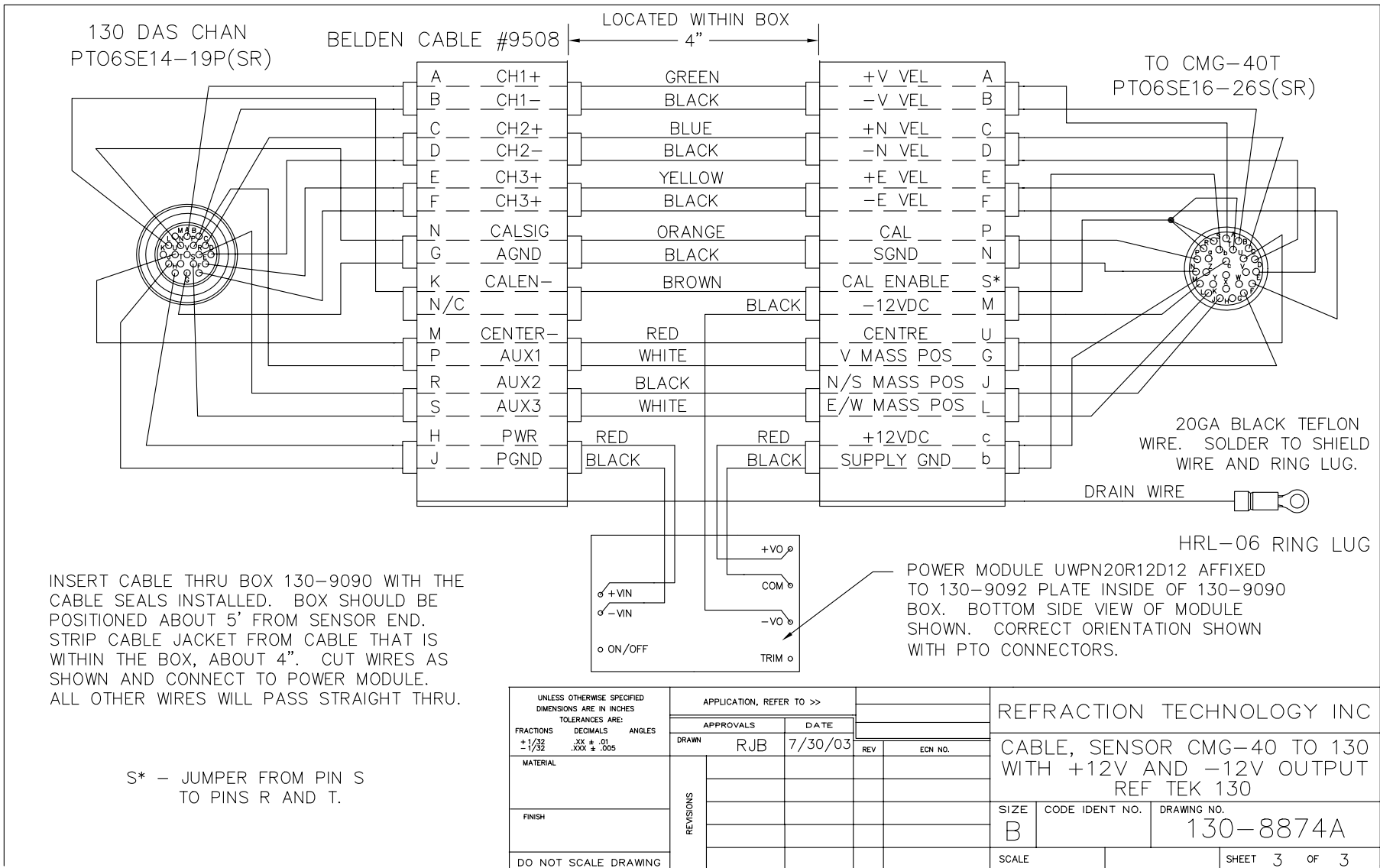
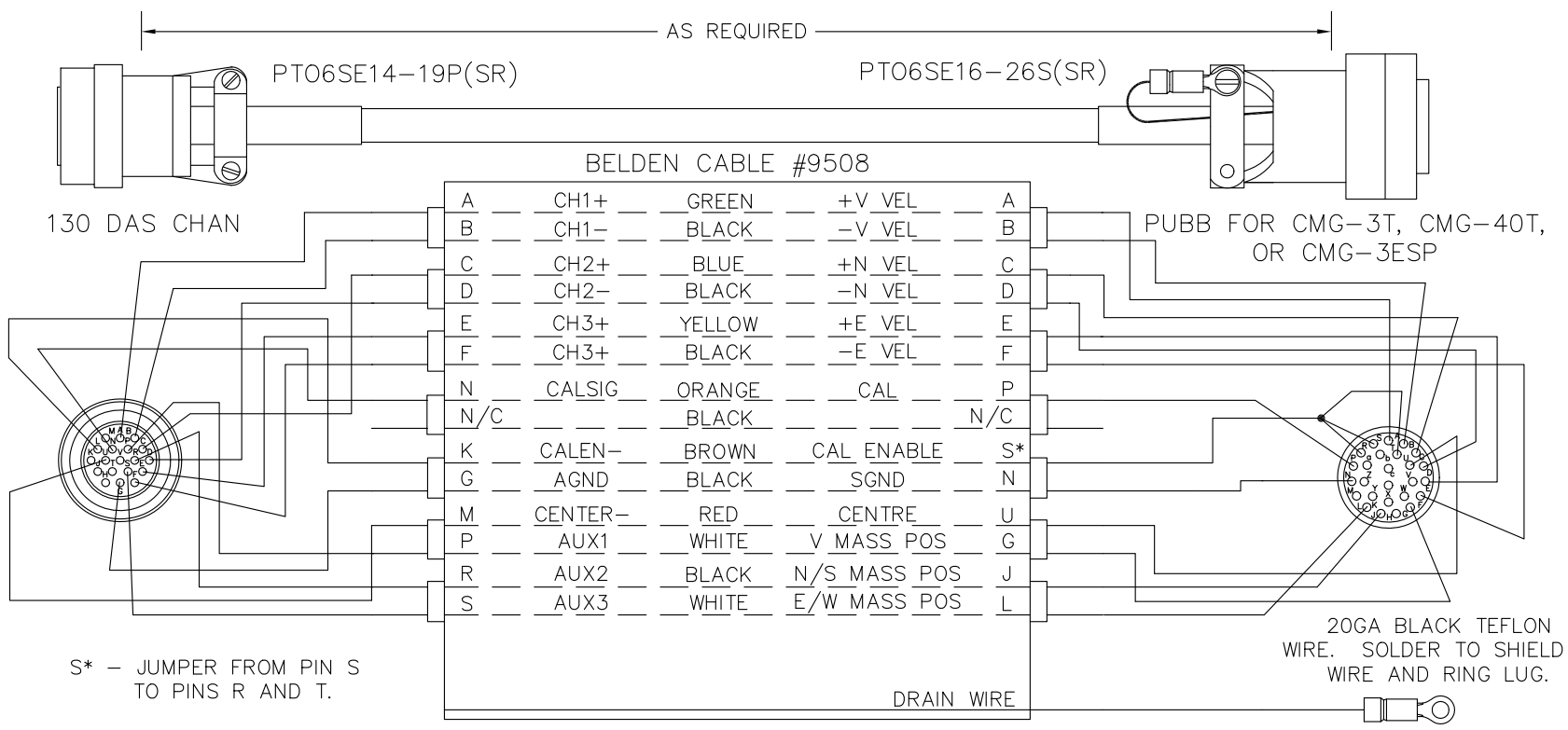


Figure 1 - 36 130-8874A - CMG-40 to 130 (Sheet 3 of 3)

LAST NUMBER(S) AFTER DASH IN THE PART NUMBER ON THE BOM INDICATES THE LENGTH OF CABLE.



LABELING NOTE:
 LABEL PART NUMBER AND DESCRIPTION OF CABLE WITH A BRADY I.D. PRO LABEL AND PLACE UNDER CLEAR SHRINK TUBING.

S* - JUMPER FROM PIN S TO PINS R AND T.

NOTE:

CUT A 3" PIECE(S) OF HEAT SHRINK TUBING WITH ADHESIVE. SLIP TUBING ONTO CABLE WITH BACK SHELL OF PTO BEFORE CRIMPING ANY PINS. DO FOR BOTH ENDS IF REQUIRED. AFTER CRIMPING AND THEN INSERTING THE PINS INTO CONNECTOR BODY(S), SLIP THE SHRINK TUBING DOWN AS CLOSE AS POSSIBLE TO BODY AND SHRINK. FINISH THE ASSEMBLY OF THE CONNECTOR(S).

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		APPLICATION, REFER TO >>		REFRACTION TECHNOLOGY INC			
TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± 1/32 .005 ± .01 .000 ± .005		APPROVALS	DATE			CABLE, PUBB TO 130 FOR CMG-3T REF TEK 130	
MATERIAL		DRAWN	RJB	4/3/02	REV			ECN NO.
FINISH		REVISIONS		SIZE		CODE IDENT NO.	DRAWING NO.
DO NOT SCALE DRAWING				SCALE		B	130-8874B	SHEET 1 OF 1

Figure 1 - 37 130-8874B - PUBB to 130 for CMG-3T

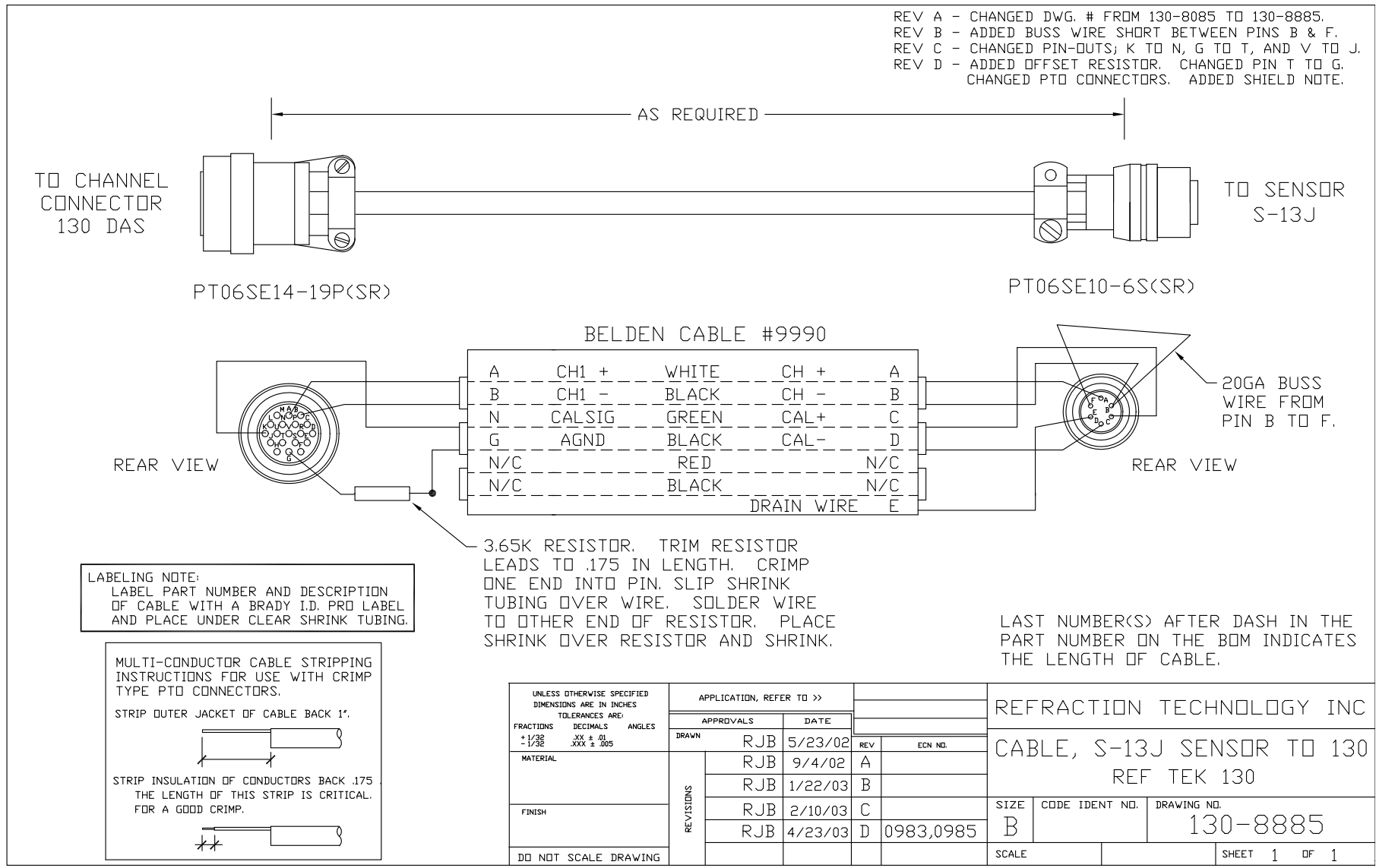
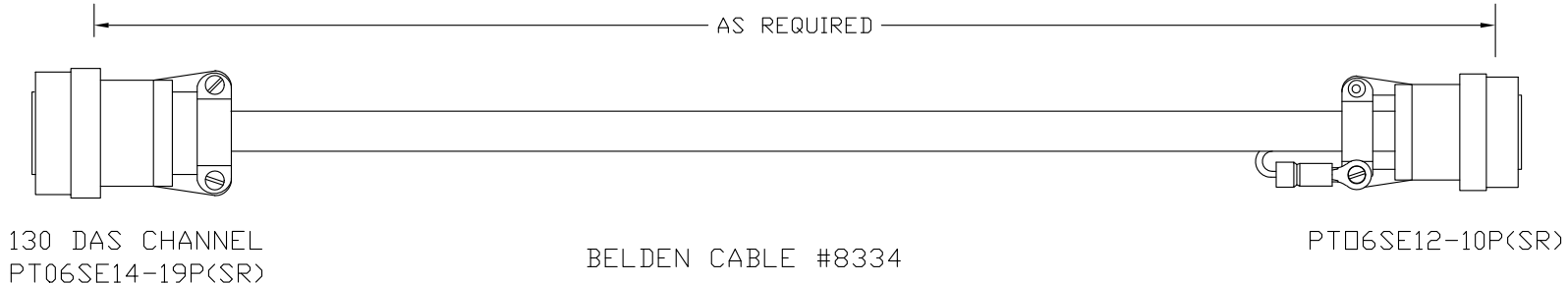


Figure 1 - 38 130-8885 - S-13J Sensor to 130

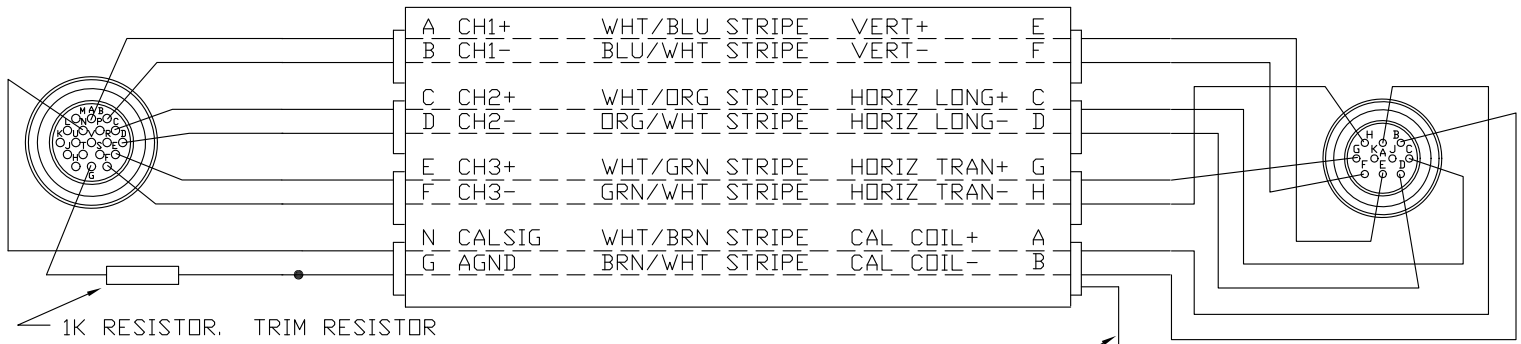
REV A - CHANGED PIN-OUTS; K TO N, G TO T.
 REV B - CHANGED PIN T TO G. ADDED OFFSET RESISTOR.
 ADDED SHIELDING NOTE. CHANGED PTO CONNECTORS.



130 DAS CHANNEL
PT06SE14-19P<SR>

BELDEN CABLE #8334

PT06SE12-10P<SR>



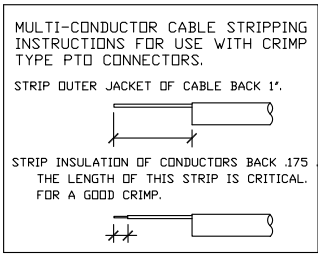
1K RESISTOR. TRIM RESISTOR LEADS TO .175 IN LENGTH. CRIMP ONE END INTO PIN. SLIP SHRINK TUBING OVER WIRE. SOLDER WIRE TO OTHER END OF RESISTOR. PLACE SHRINK OVER RESISTOR AND SHRINK.

20GA BLACK TEFLON WIRE, SOLDER TO SHIELD BRAID AND RING LUG. ATTACH RING LUG TO CONNECTOR BACKSHELL WITH CABLE CLAMP SCREW.

HRL-06 RING LUG

LAST NUMBER<S> AFTER DASH IN THE PART NUMBER ON THE BOM INDICATES THE LENGTH OF CABLE.

LABELING NOTE:
 LABEL PART NUMBER AND DESCRIPTION OF CABLE WITH A BRADY I.D. PRO LABEL AND PLACE UNDER CLEAR SHRINK TUBING.



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		APPLICATION, REFER TO >>			
TOLERANCES ARE:		APPROVALS		DATE	
FRACTIONS	DECIMALS	ANGLES			
+1/32	.005		DRAWN	RJB	9/4/02
-1/32	.005				
MATERIAL		REV		ECN NO.	
		RJB		2/10/03	
FINISH		REV		ECN NO.	
		RJB		4/22/03	
DO NOT SCALE DRAWING		REV		ECN NO.	
				0983,0986	

REFRACTION TECHNOLOGY INC		
DAS CHAN. TO L-4C-3D SEISMOMETERS		
REF TEK 130		
SIZE	CODE IDENT NO.	DRAWING NO.
B		130-8892
SCALE	SHEET 1 OF 1	

Figure 1 - 39 130-8892 - DAS to L-4C-3D Seismometer

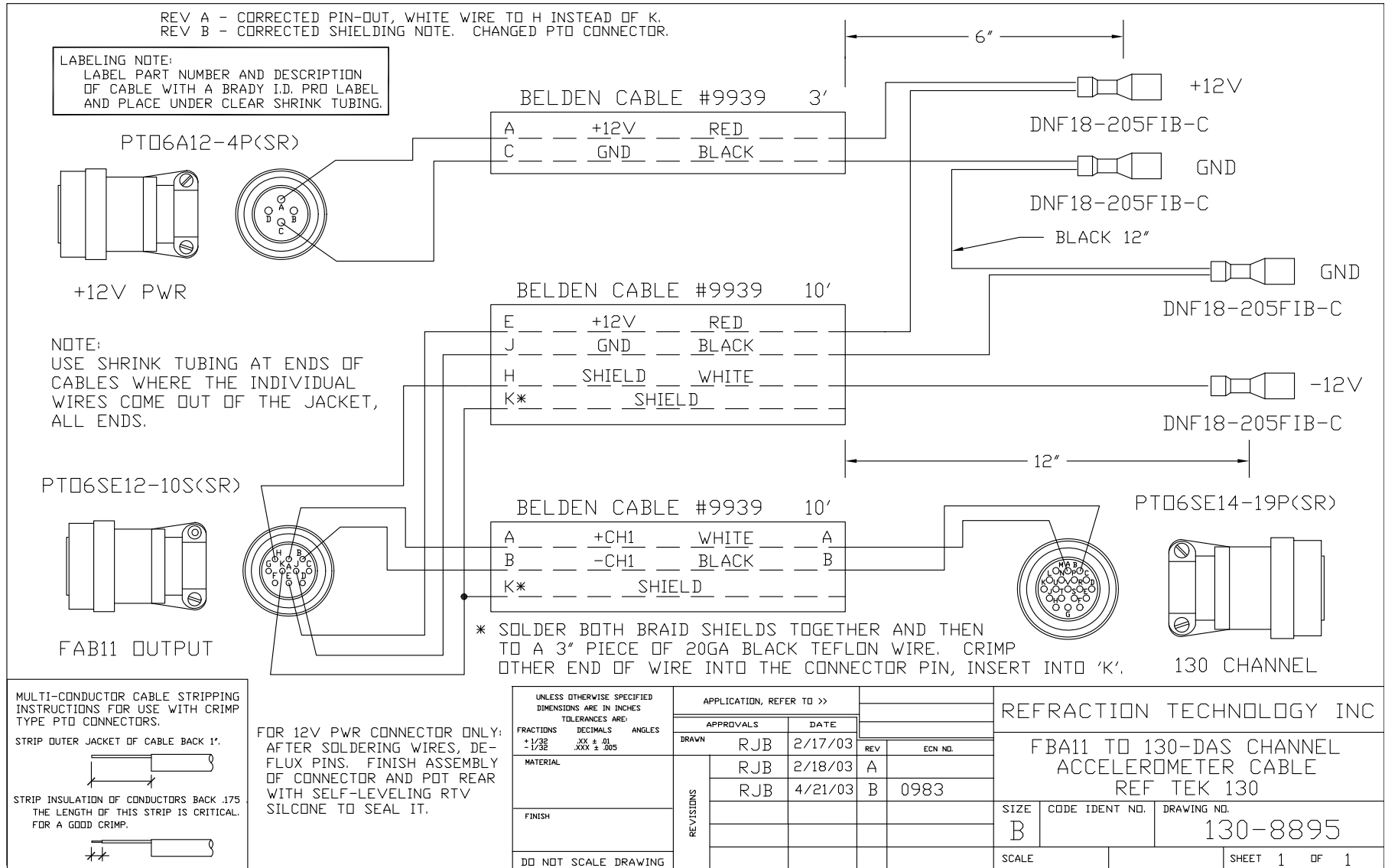


Figure 1 - 40 130-8895 - FBA11 to 130-DAS