

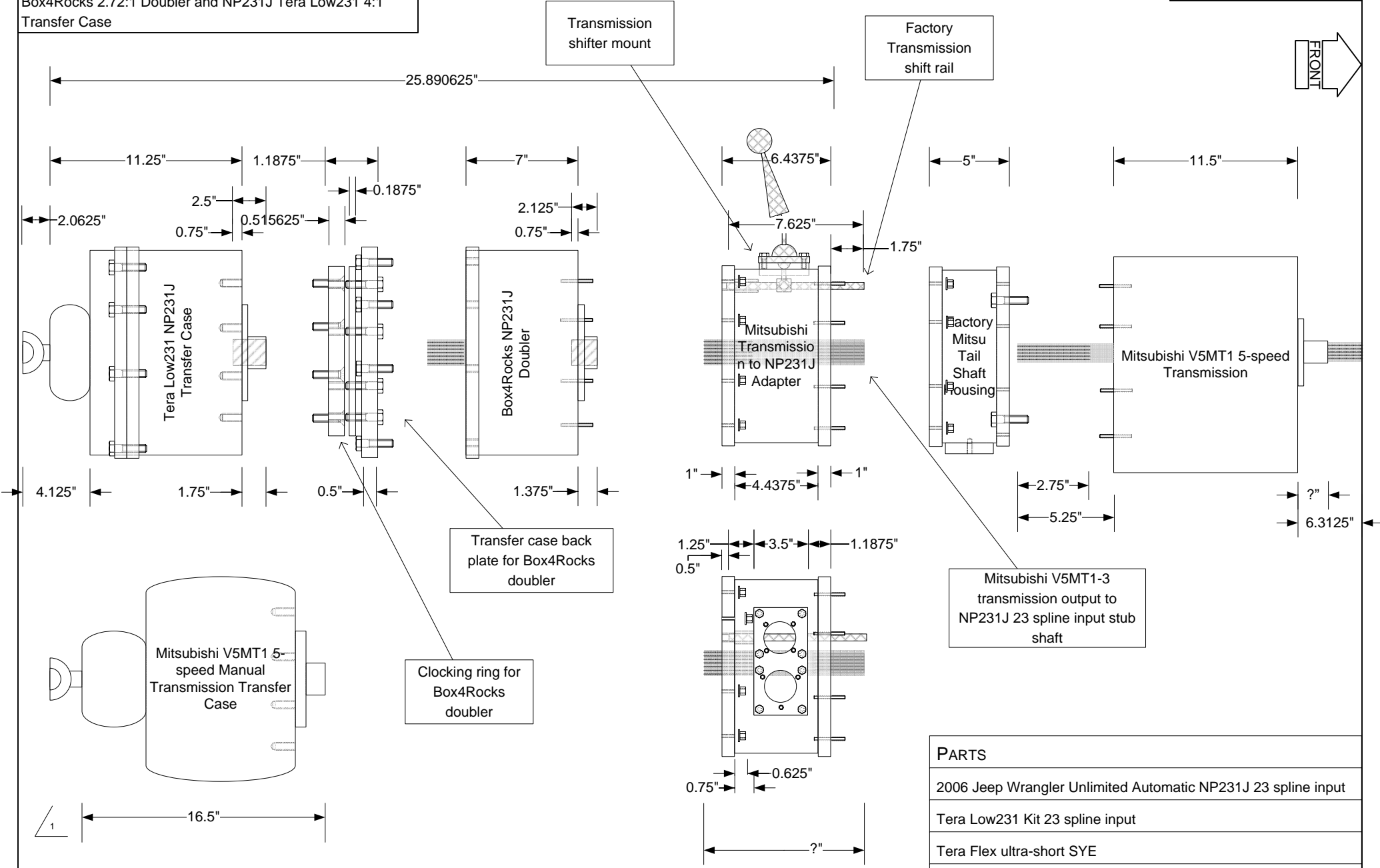
TITLE
MITSUBISHI MONTERO SPORT TRANSFER CASE SWAP

DESCRIPTION
 Mitsubishi V5MT1-3 5-Speed Transmission to NP231J
 Box4Rocks 2.72:1 Doubler and NP231J Tera Low231 4:1
 Transfer Case

LABEL
 Drive Train Assembly Side

DATE
 2/21/2008

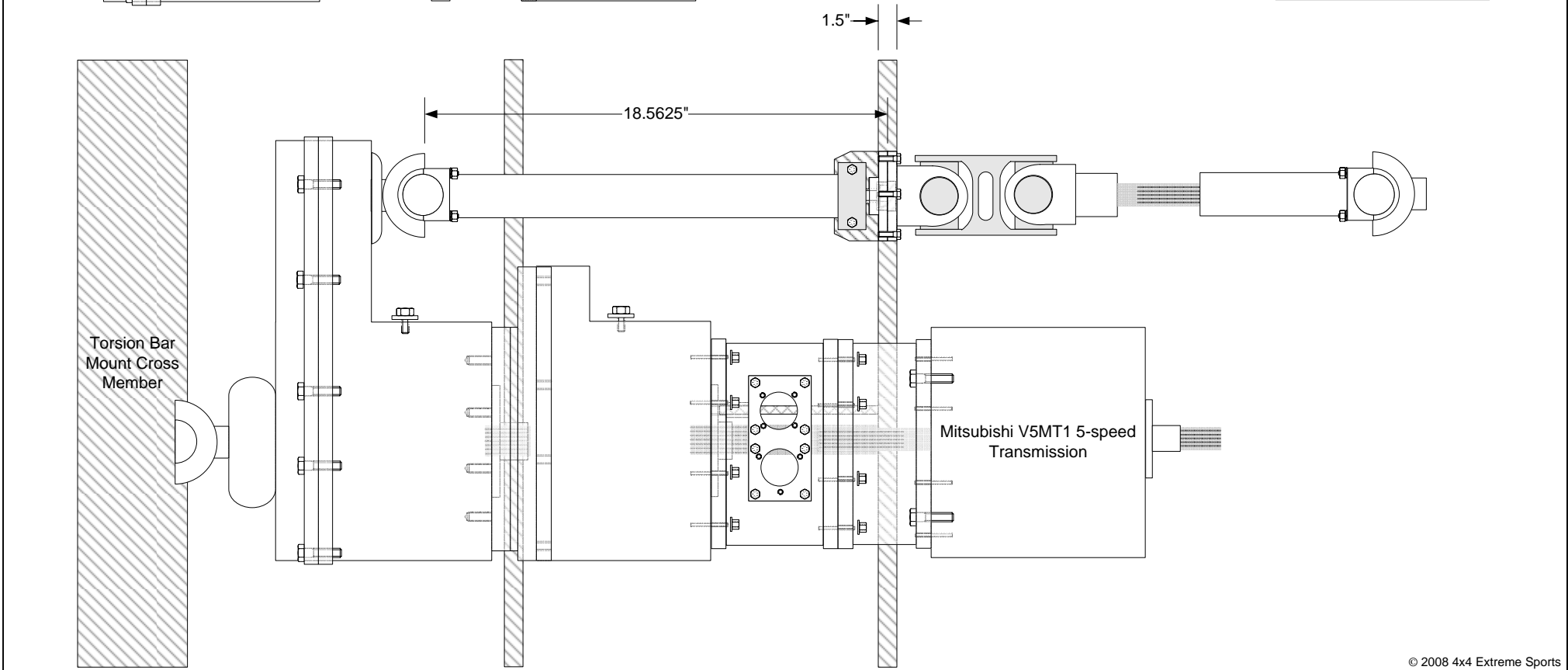
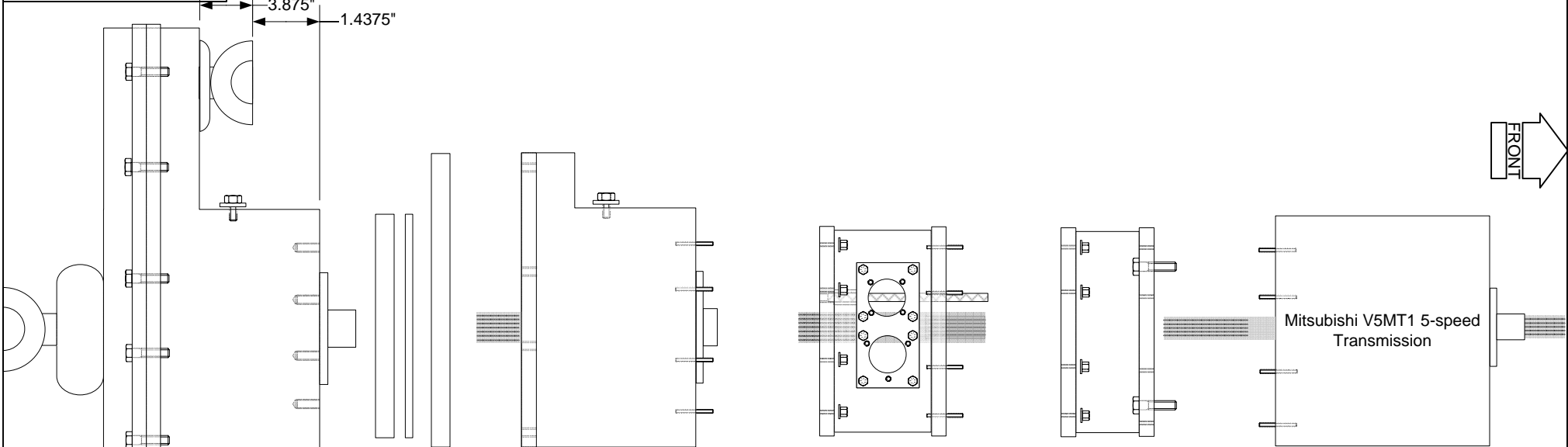
REVISED
 5/15/2008



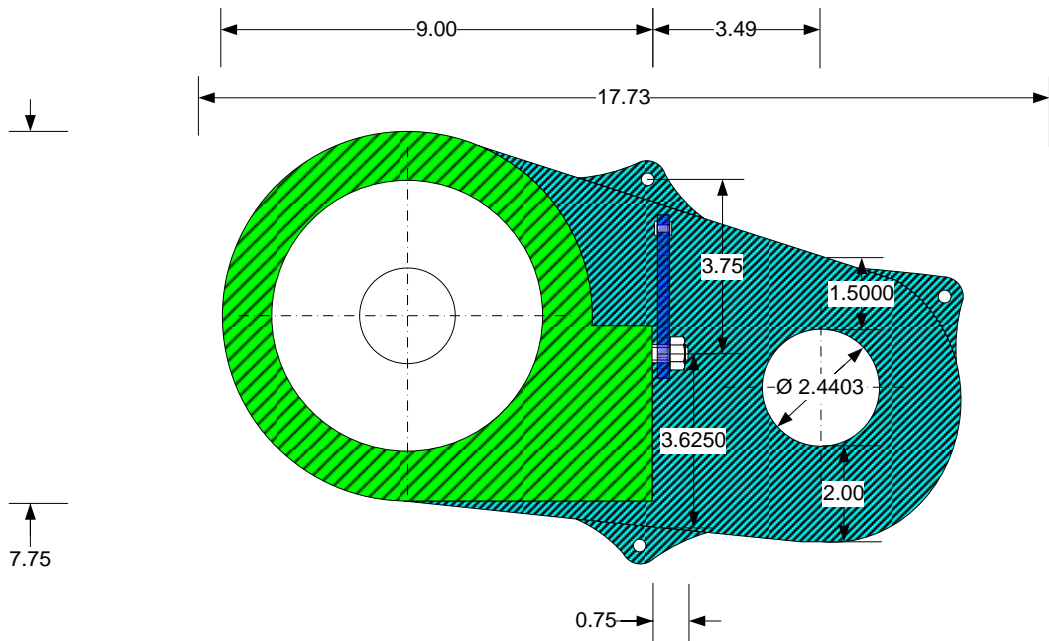
PARTS
2006 Jeep Wrangler Unlimited Automatic NP231J 23 spline input
Tera Low231 Kit 23 spline input
Tera Flex ultra-short SYE

1 Measurements are approximate to within 0.25".
 Drawing not to scale.

LABEL
Drive Train Assembly Top
View



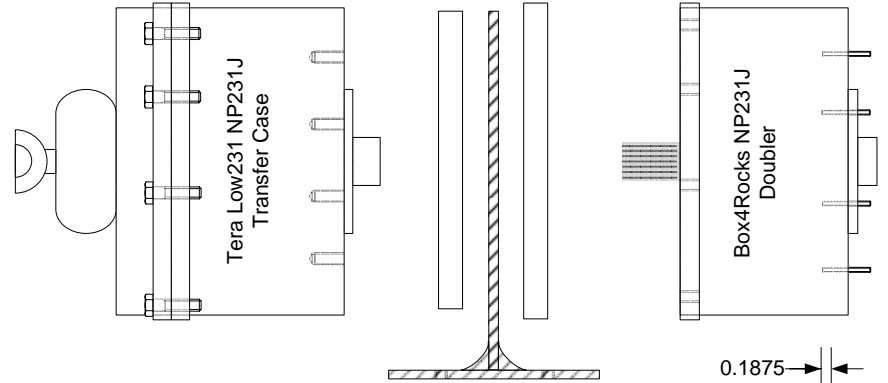
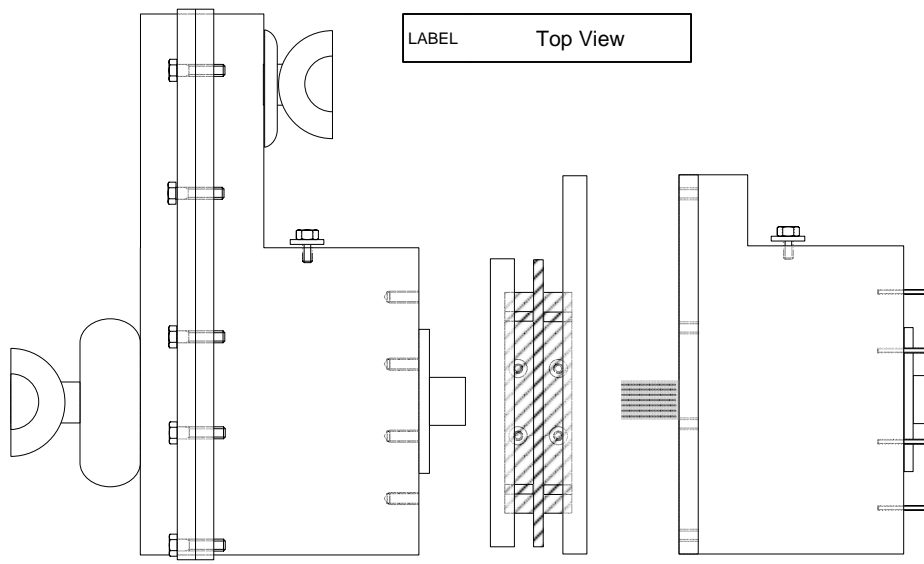
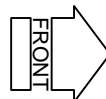
LABEL
Tera Low231 Dimensions
DESCRIPTION
Tera Low231 NP231J Front Case Half Dimensions



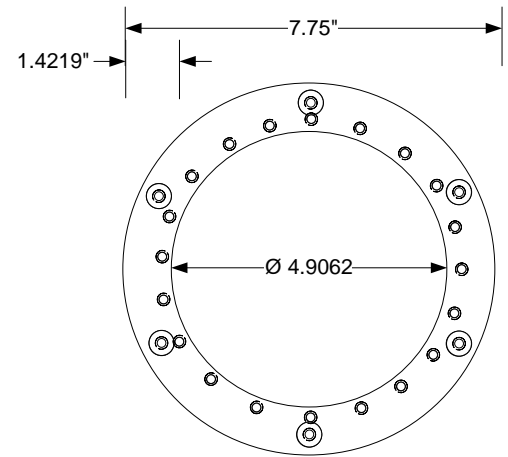
LABEL
Rear Transfer Case Support

LABEL Top View

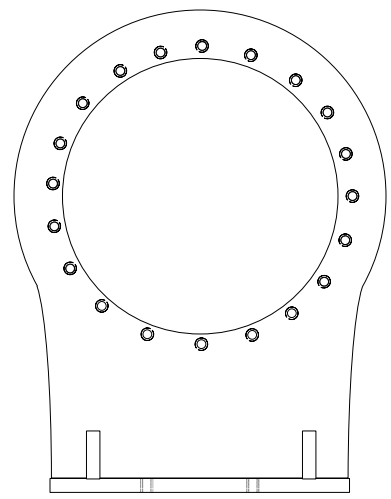
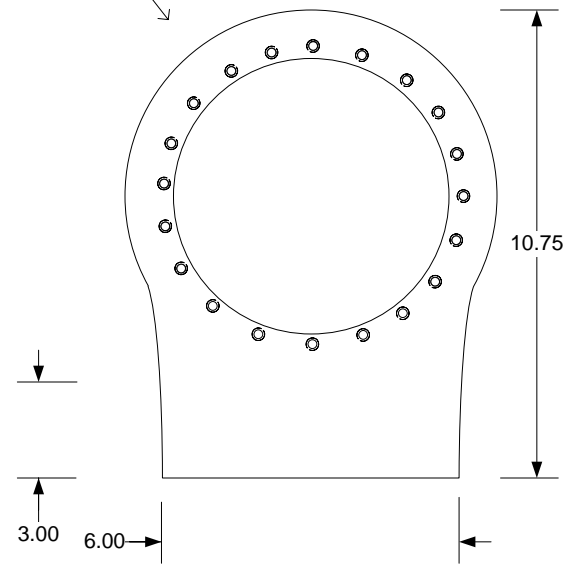
LABEL Passenger Side View



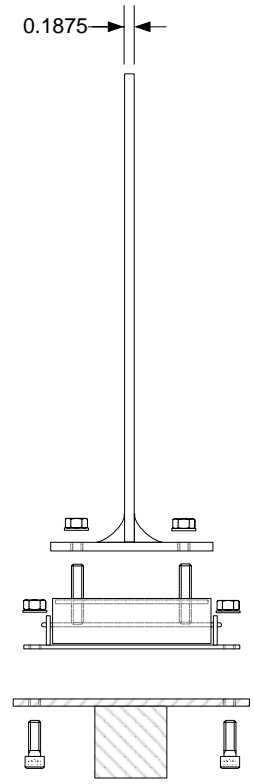
Transfer case support



Box4Rocks
Clocking Ring



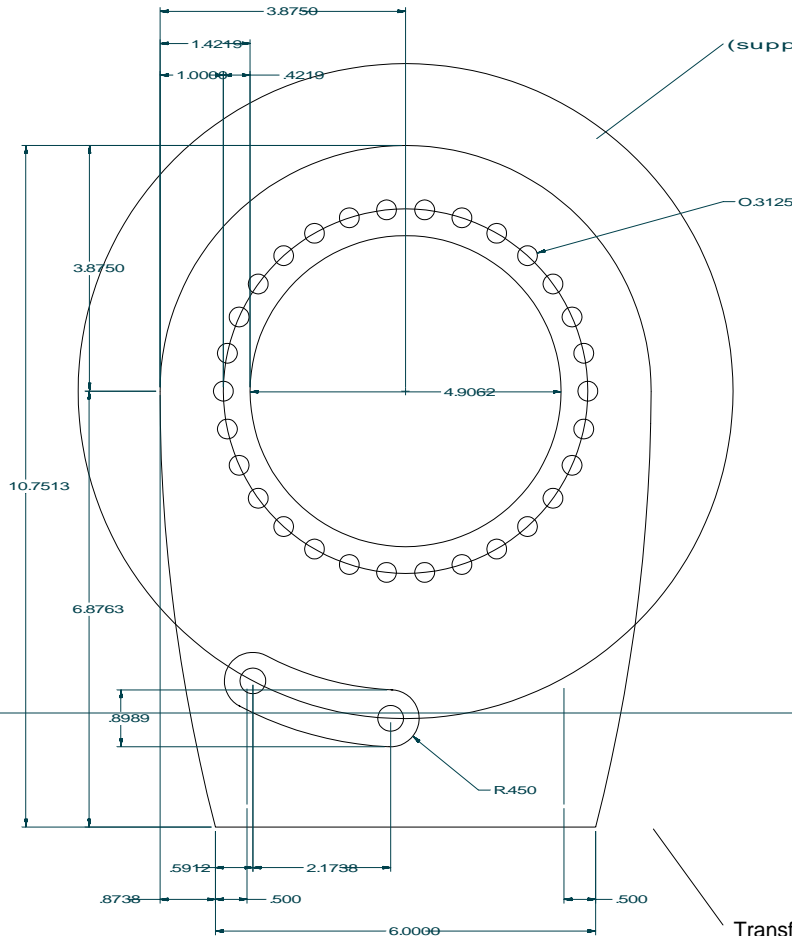
97-05 Jeep TJ
Transmission
Mount



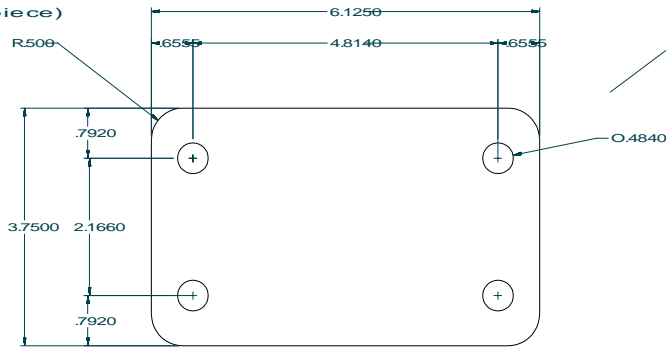
LABEL
Transfer case support CAD

DESCRIPTION
Tera Low231 NP231J,
Box4Rocks doubler NP231J
transfer case support

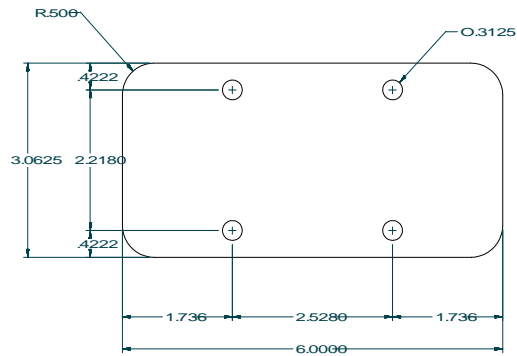
REVISION HISTORY		
REV	DESCRIPTION	DATE APPROVED



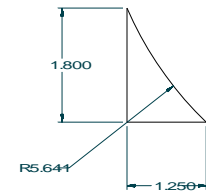
(support - 1 piece)



(base - 1 piece)



(top - 1 piece)



(gusset - 3 piece)

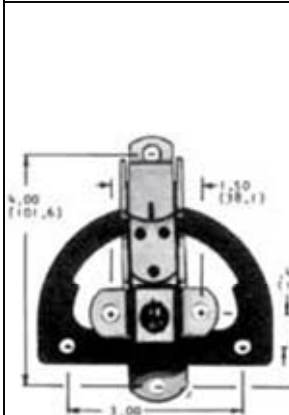
Transfer case support is slotted to allow for some adjustability and access to chamfered bolt. Recess in plate needs to be cut or ground at assembly time for lower right hand doubler case bolt.

3/16" mild steel

NAME	DATE	SOLID EDGE UGS - The PLM Company
DRAWN	dwad	
CHECKED		
ENG APPR		
MGR APPR		TITLE Transfer case support
UNLESS OTHERWISE SPECIFIED		REV 1.2
DIMENSIONS ARE IN INCHES		FILE NAME NP231 transfer case support rev 1.2
2 PL ±XXX3 PL ±XXX		SCALE: WEIGHT: SHEET 1 OF 1

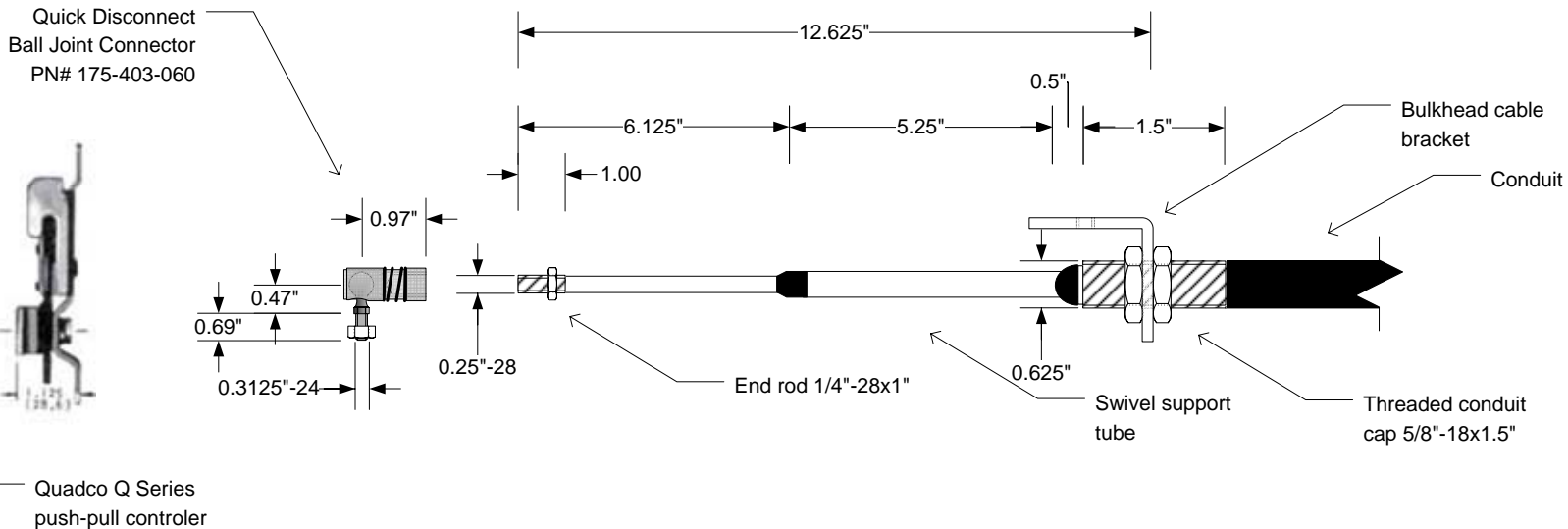
LABEL
Transfer Case Shift Assembly

DESCRIPTION
Tera Low231 Shift Cable Assembly

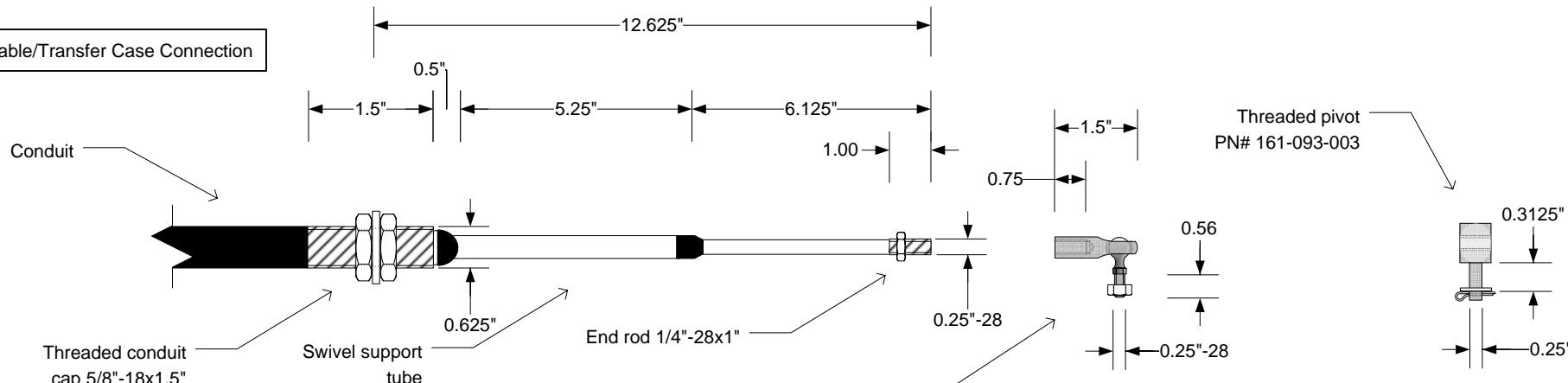


Quadco Q Series push-pull controller

LABEL Cable/Shifter Connection



LABEL Cable/Transfer Case Connection

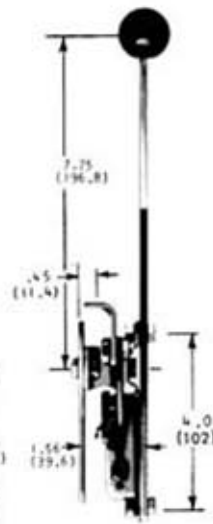
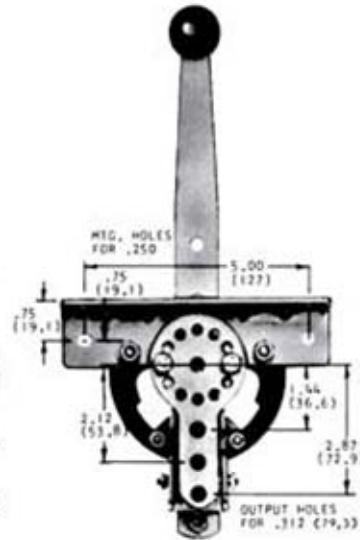
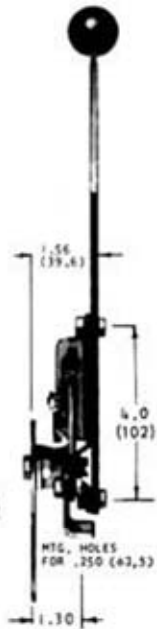
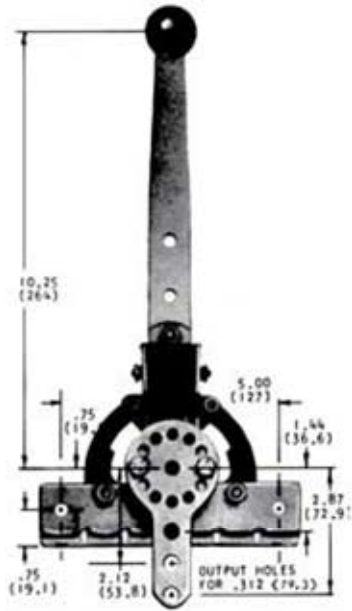
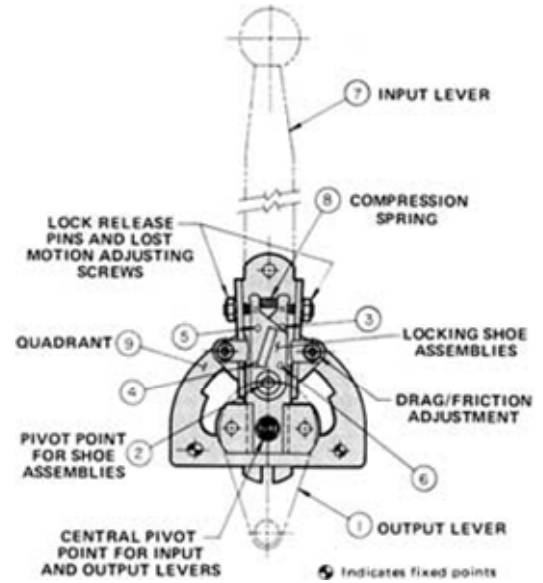
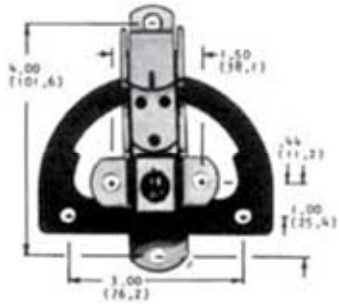


ITEM	QTY.	PART NO.	DESCRIPTION
1	1		Light duty push-pull cable 75Lb@5" Max
2	1	175-403-060	Quick disconnect ball joint connector
3	1		5/16"-24 Nyloc nut
4	1	175-403-062	Rod end bearing 1/4"-28x.75" 1/4"-28x.56"
5	1	175-524-001	Bellows LD

ITEM	QTY.	PART NO.	DESCRIPTION
6	1	175-435-081	Bellows adapter ring
7	1		Bulkhead cable bracket (5/8")
8	1		Quadco Q15 self-locking control
9	1		1/4"-28 Nyloc nut
10			

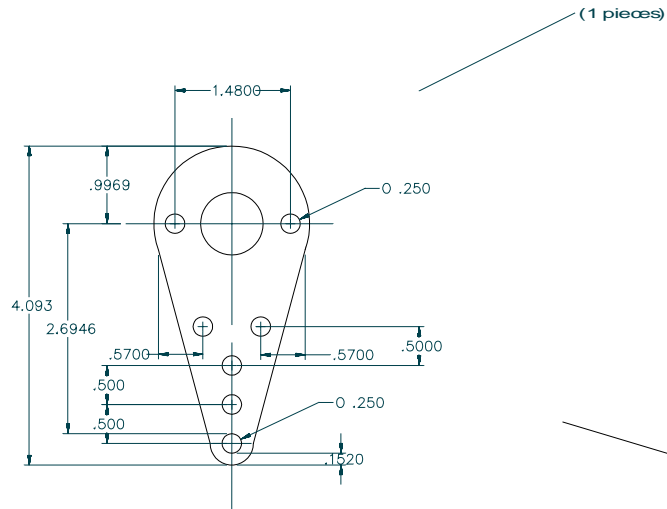
* Part descriptions in green have been received.

LABEL
Quadco Q15 Controller
DESCRIPTION
Tera Low231 Shifter Assembly



Dimensions in inches and (millimeters)

LABEL
Transfer Case Shift Lever Pivot CAD
DESCRIPTION
Tera Low231 NP231J Extended Shift Lever Pivot



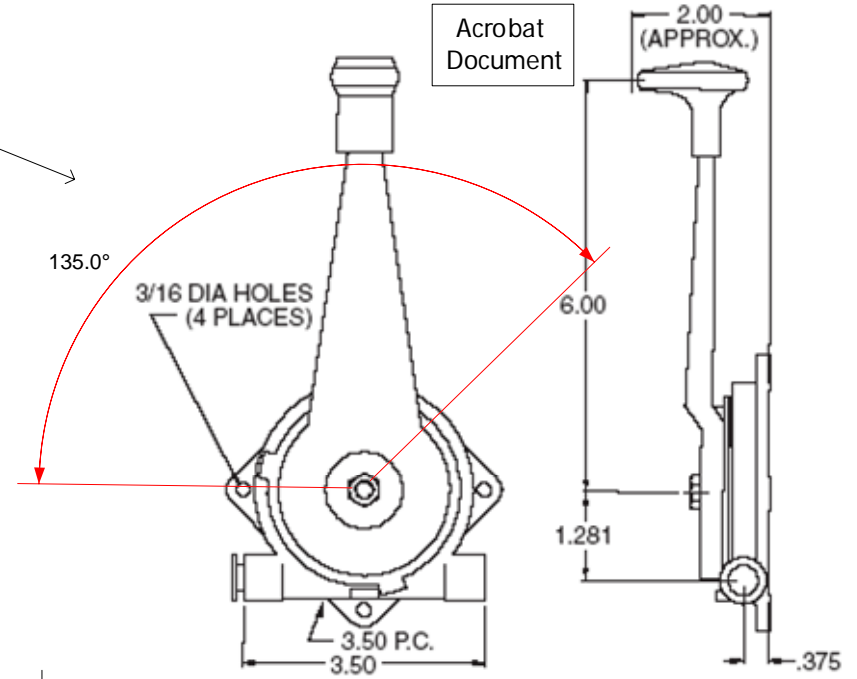
11 gauge mild steel

Extended 1/2" - output lever for the Quadco Q15 and Q36 cable controllers. Necessary to clear tunnel bottom. Extended length decreases shift lever throw and compensates for shortened sector shift lever.

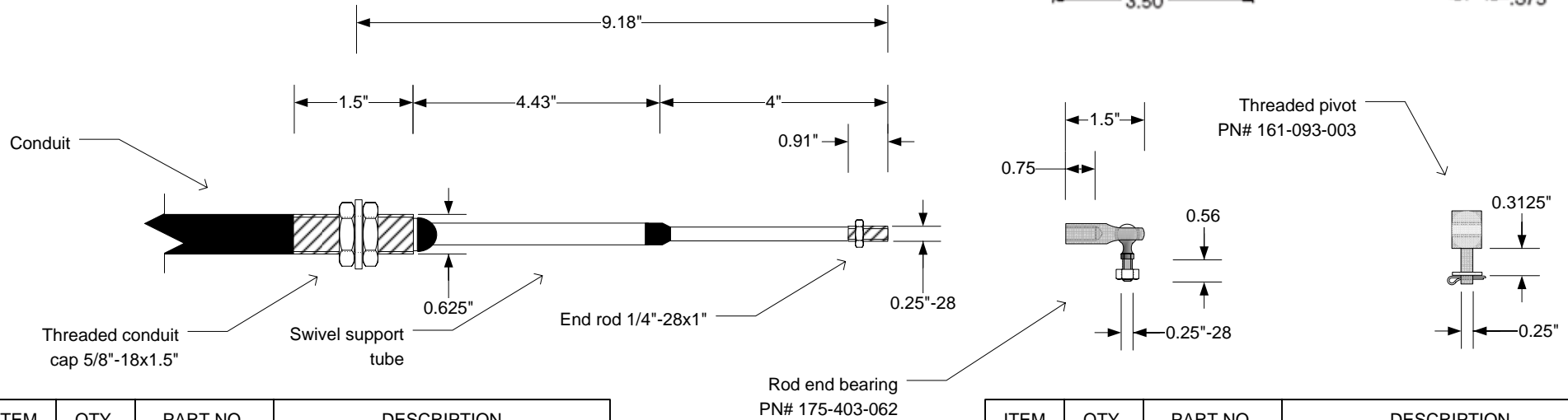
DRAWN	NAME	DATE	SOLID EDGE UGS - The PLM Company	
CHECKED	Edward S	09/25/08	Tera Low231 sh	
ENG APPR			D	
MGR APPR			FILE NAME Tera Low231 shift lever pivot.dft	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			SCALE	REVISION
ANGLES ±XX°			VEIGHT	SHEET 1 OF 1
2 PL ±XXX3 PL ±X.XXX				

LABEL	Doubler Case Shift Assembly
DESCRIPTION	NP231J Doubler Case Shift Cable Assembly

Tuthill Unidrum CH240, LD, Upper Left cable exit
 Apx. 135 degrees for full 3" of travel. Cable output is rotated to the top for use rather than at the bottom as is shown here.



LABEL Cable/Transfer Case Connection



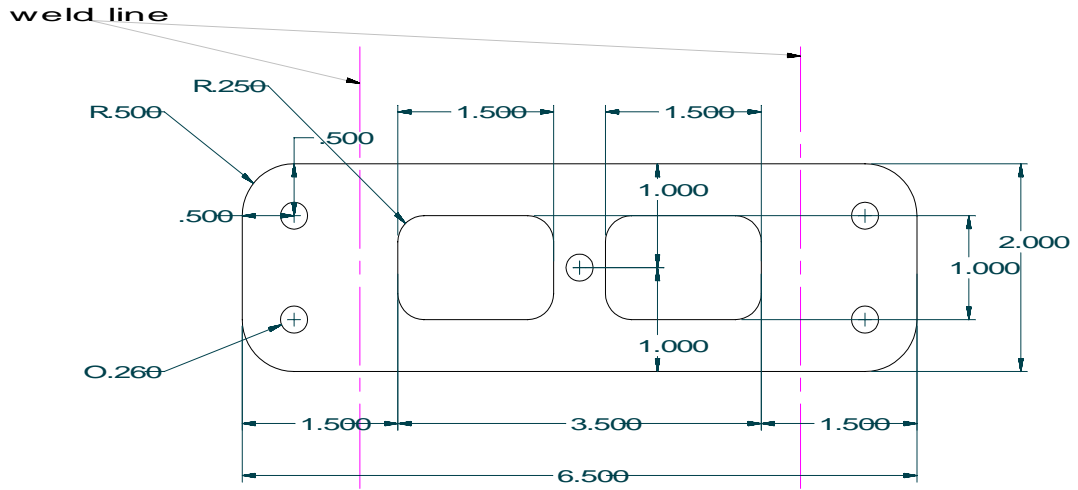
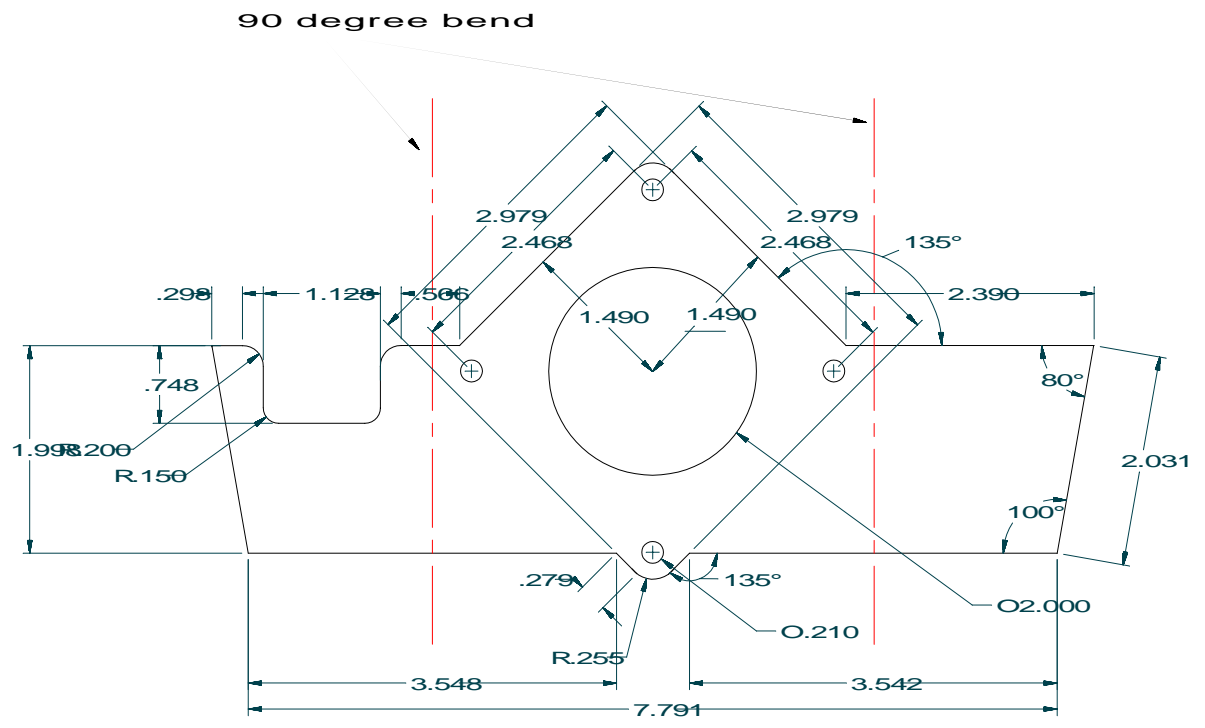
ITEM	QTY.	PART NO.	DESCRIPTION
1	1	UDI-2-3-3-46	Tuthill Unidrum CH240, UL, 3" travel, 46"
2	1		1/4"-28 Nyloc nut
3	1	175-403-062	Rod end bearing 1/4"-28x.75" 1/4"-28x.56"
4	1	175-524-001	Bellows LD
5	1	175-435-081	Bellows adapter ring

ITEM	QTY.	PART NO.	DESCRIPTION
6	1		Clutch push rod boot 76-86 Jeep CJ
7	1		Clutch push rod boot retainer 76-86
8	-	-	Jeep CJ
9			
10			

* Part descriptions in green have been received.

LABEL
 Transfer Case and Doubler
 Shifter Bracket

DESCRIPTION
 NP231J and Box 4 Rocks doubler
 driver side tunnel shifter(s) mount
 bracket.

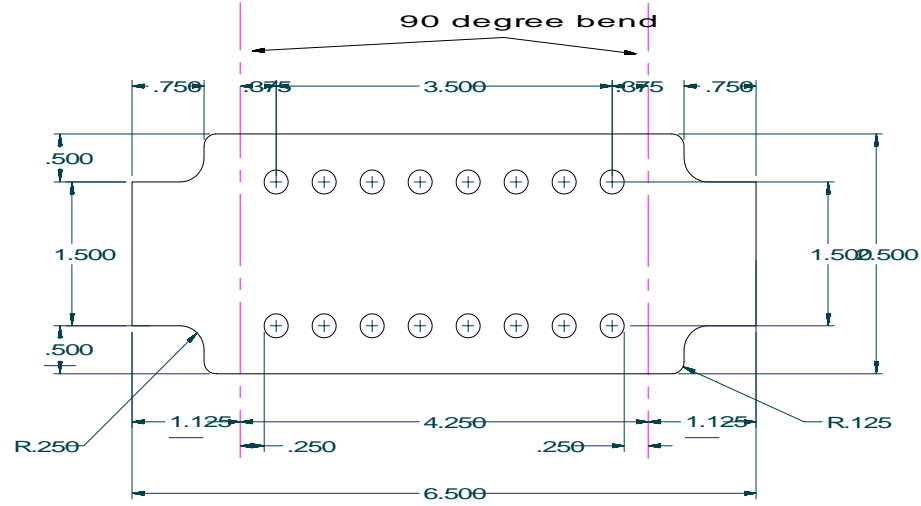


11 gauge mild steel

	NAMED	DATE	
DRAWN	Edward	03/10/08	
CHECKED			
ENG APPR			
MGR APPR			
			SOLID
			UGS - Th
			DOUBLE
			Doubler and
			SHIFTER
			NOSE
			FILE NAME: Do
			WEIGHT

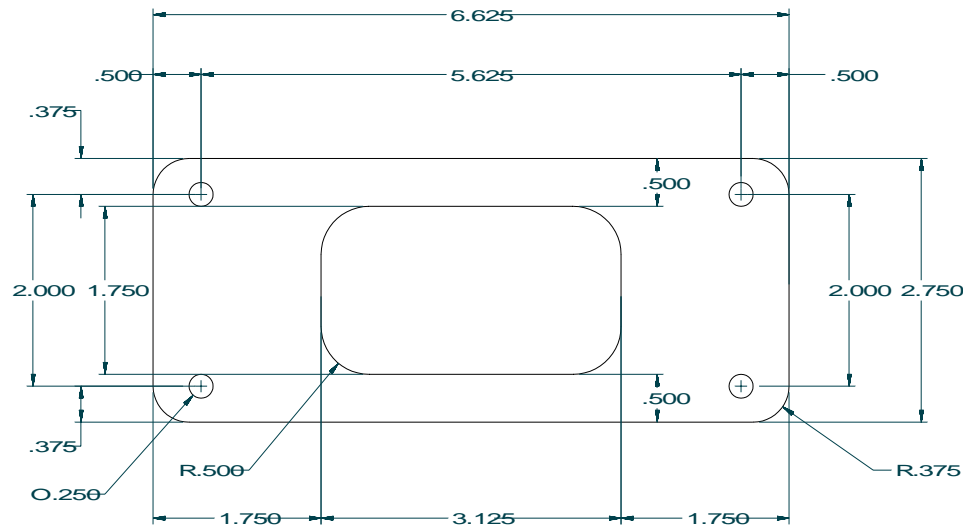
LABEL
Doubler Case Cable Bracket
DESCRIPTION
Box 4 Rocks Doubler Case Cable Shift Bracket Assembly

REVISION HISTORY			
REV	DESCRIPTION	DATE	APP



(2 pieces)

10 gauge

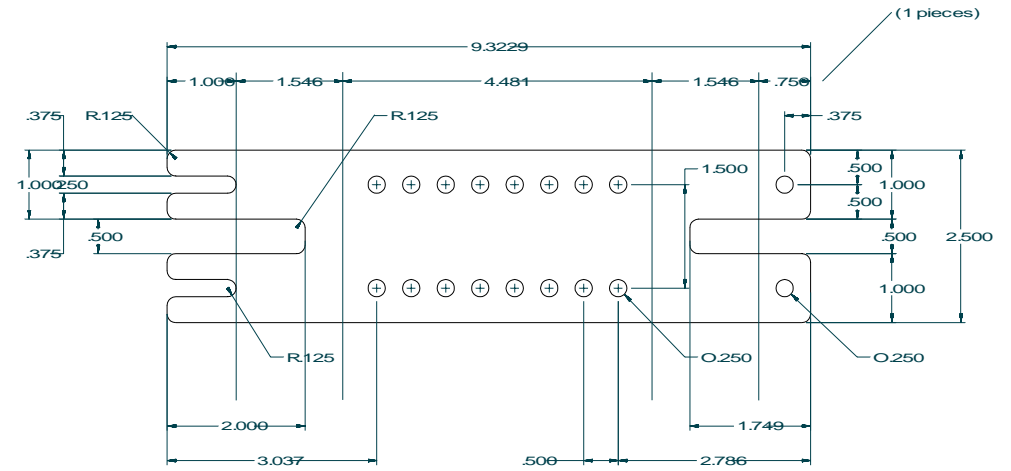
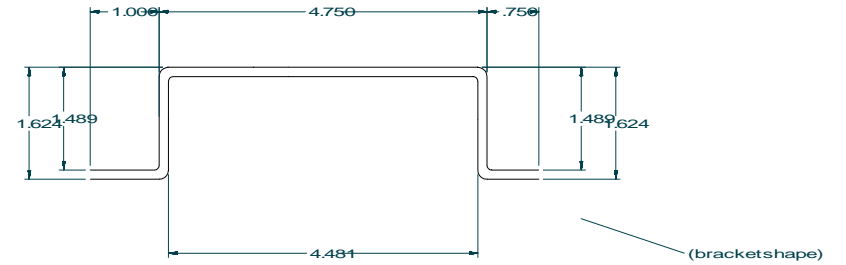
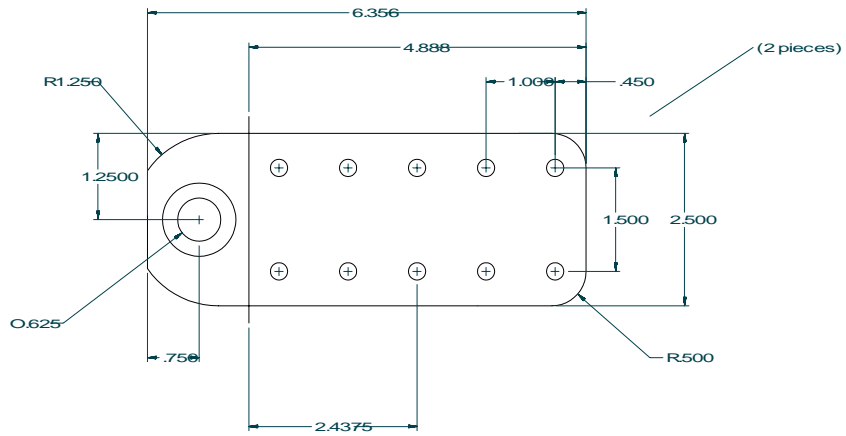


(2 pieces)

NAME	DATE	SOLID EDGE UGS - The PL Double cable b UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGLES ±X.XX 2 PL ±X.XX 3 PL ±X.XX WEIGHTS SHEET
DRAWN	05/09/08	
CHECKED		
ENG APPR		
MGR APPR		

LABEL
Doubler Case Cable Bracket
DESCRIPTION
NP231J Doubler Case Cable Shift Bracket Assembly

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED

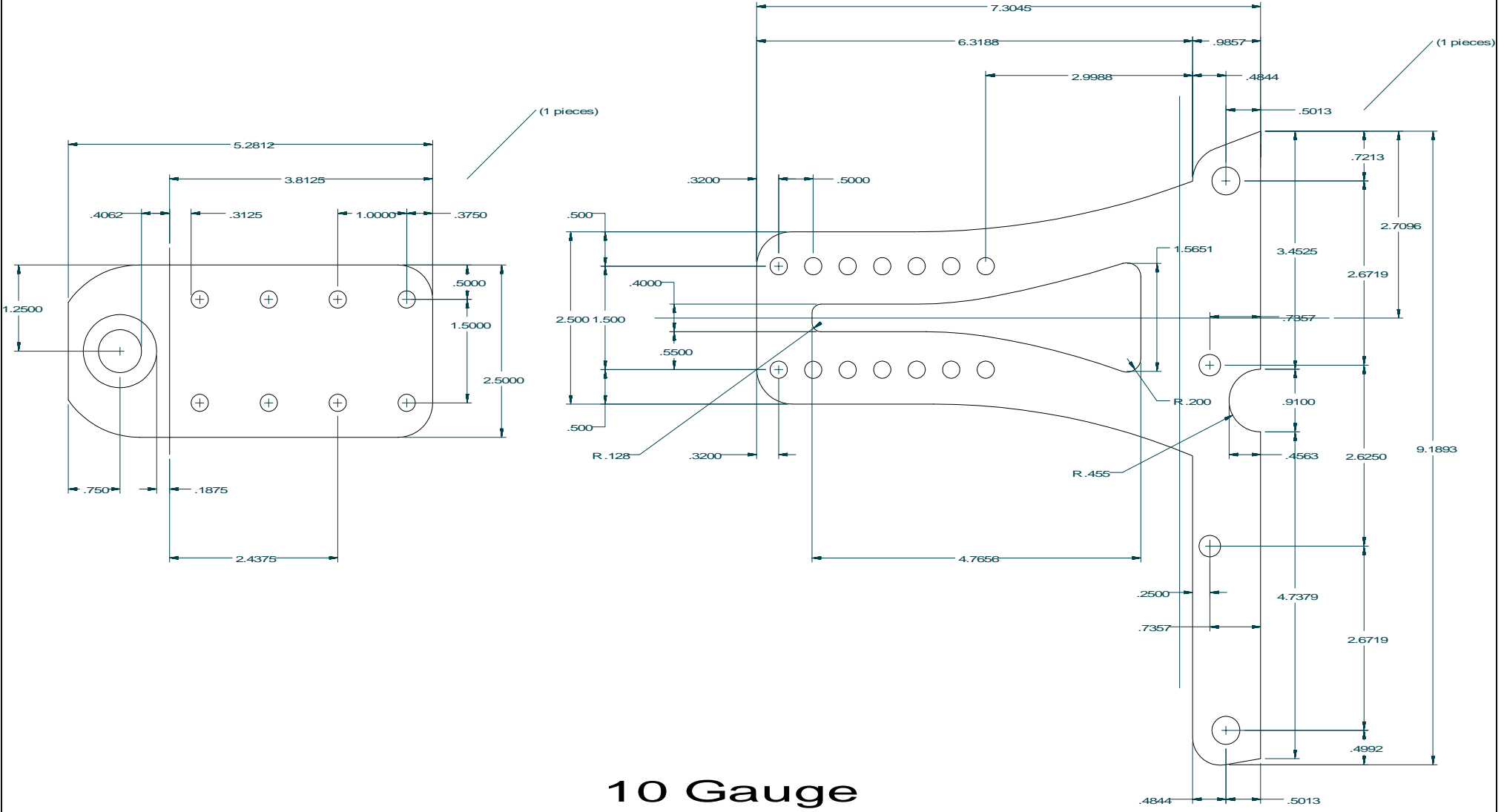


10 gauge

NAME	DATE	SOLID EDGE UGS - The PLM Company NP231 doubler case cable bracket	SHEET NO 1 REV 1.0
DRAWN Edward S. [Signature]	TITLE		
CHECKED	FILE NAME NP231 doubler case cable bracket.dwg		
ENG APPR	SCALE		
MGR APPR	WGHT:	SHEET 1 OF 1	
UNLESS OTHERWISE SPECIFIED		DIMENSIONS ARE IN INCHES	
ANGLES αXX°		2 PL αXXX3 PL αXXXX	

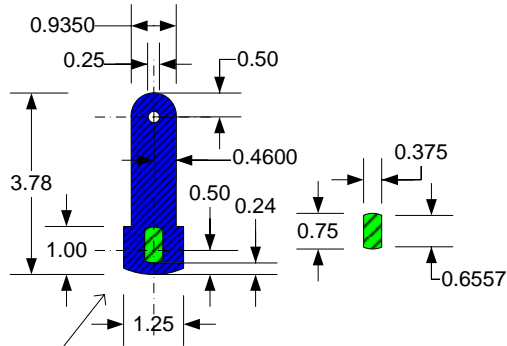
LABEL
 Tera Low231 Shift Cable
 Bracket CAD

DESCRIPTION
 Tera Low231 NP231J Shift
 Cable Bracket



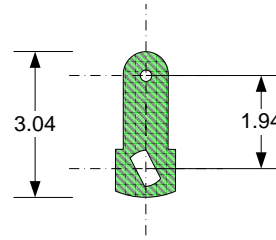
10 Gauge

LABEL
Transfer Case Shift Levers
DESCRIPTION
Tera Low231 NP231J, Doubler NP231J Shift Levers

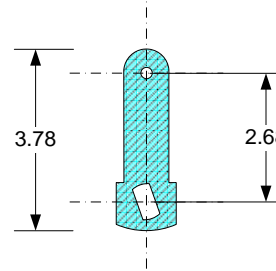
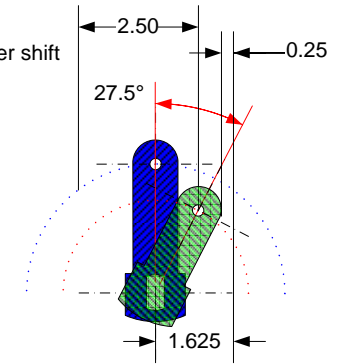


¼" thick cold rolled

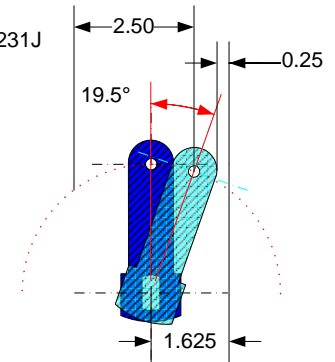
Shortened sector shift lever for the NP231 transfer case. Keyway has been rotated to position lever pointing towards the top of the transfer case; allows full throw of the without cable misalignment. Lever has been shortened to decrease lever travel.



NP231J doubler shift lever

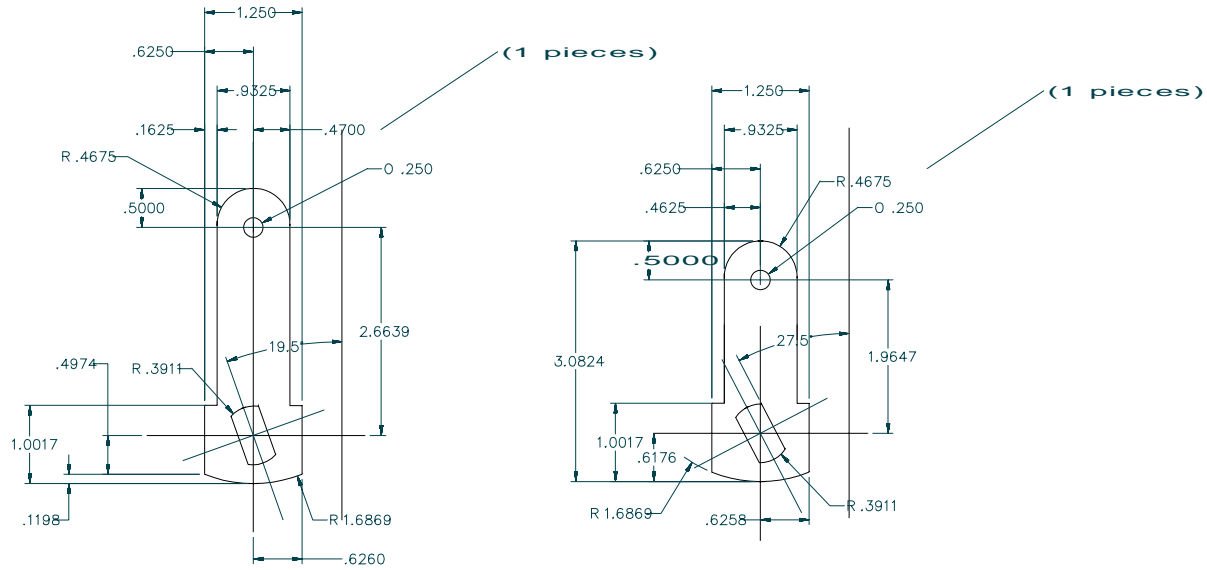


Tera Low231 NP231J shift lever



LABEL
 Transfer Case Shift Levers
 CAD

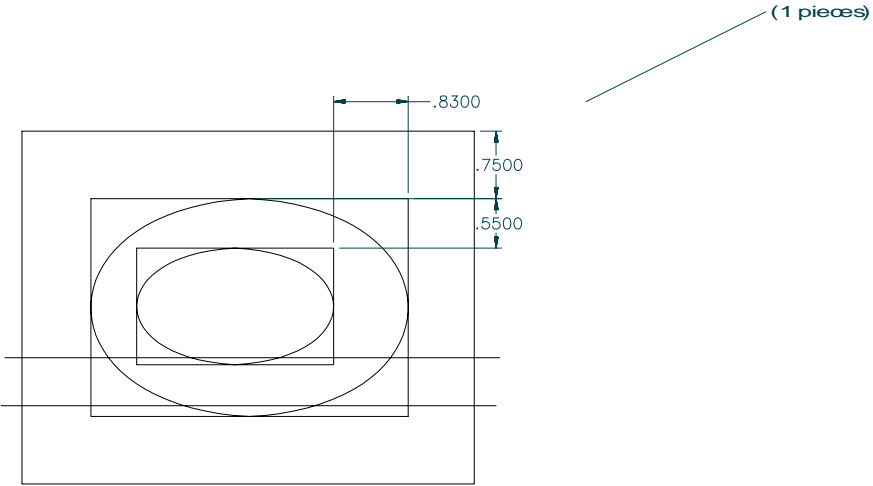
DESCRIPTION
 Tera Low231 NP231J,
 Doubler NP231J Shift Levers



1/4" mild steel

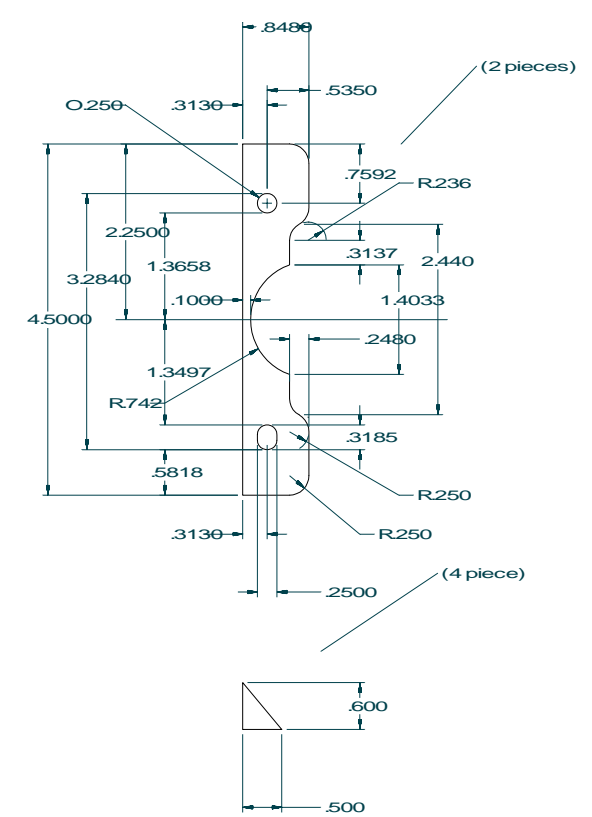
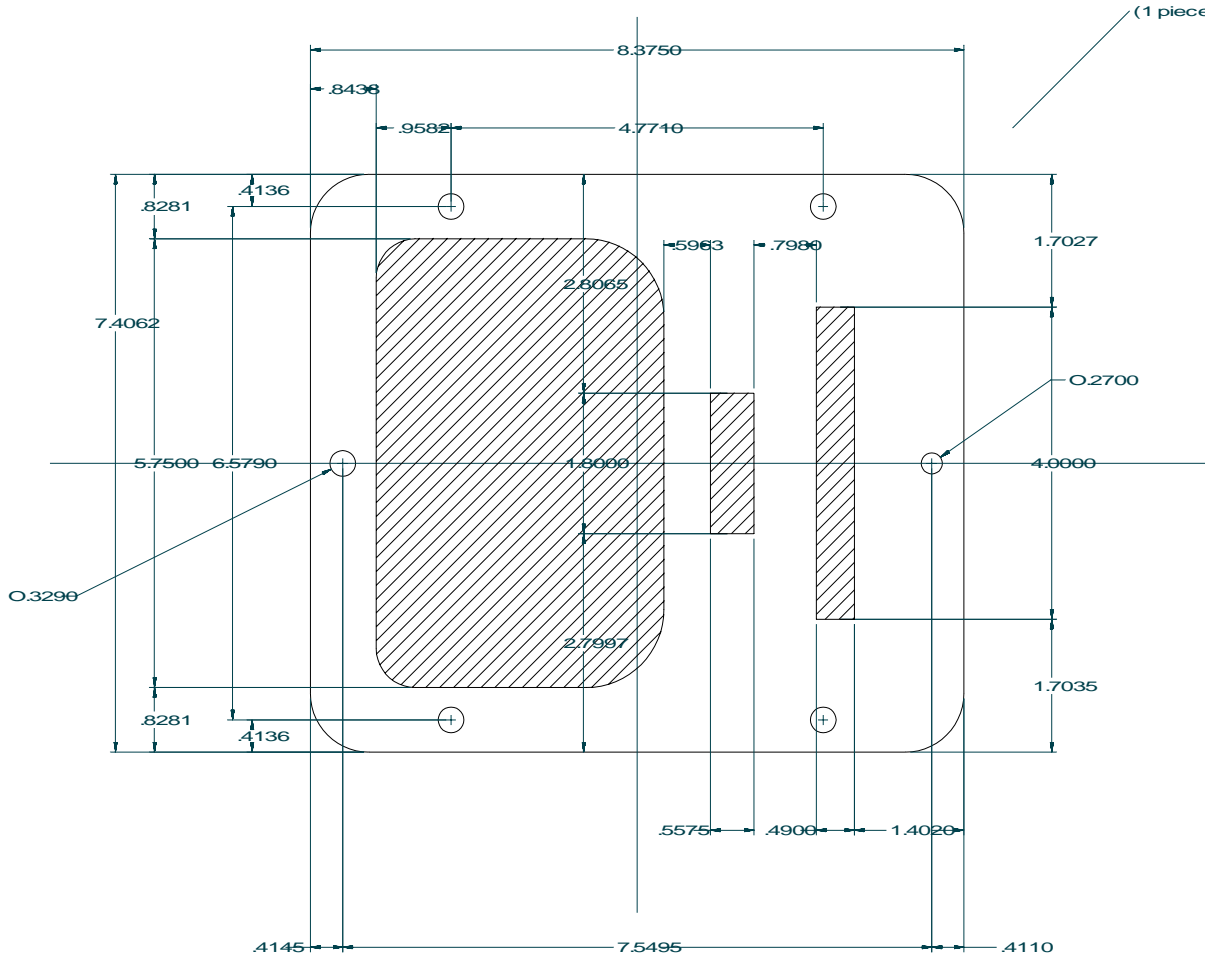
NAME	DATE	SOLID EDGE UGS - The PLM C
DRAWN	03/29/08	
CHECKED		TITLE
ENG APPR		NP231J shift le
MGR APPR		
UNLESS OTHERWISE SPECIFIED		SCALE
DIMENSIONS ARE IN INCHES		WEIGHT:
ANGLES ±XX°		SHEET 1 OF 1
2 PL ±XX3 PL ±XX		

LABEL
Doubler Shift Cable Tunnel Trim Plate CAD
DESCRIPTION
Doubler Shifter Cable Tunnel Boot Trim Plate



LABEL
Tera Low231 Transfer Case
Shifter Mount Plate

DESCRIPTION
Tera Low231 transfer case
shifter mounting plate -
tunnel

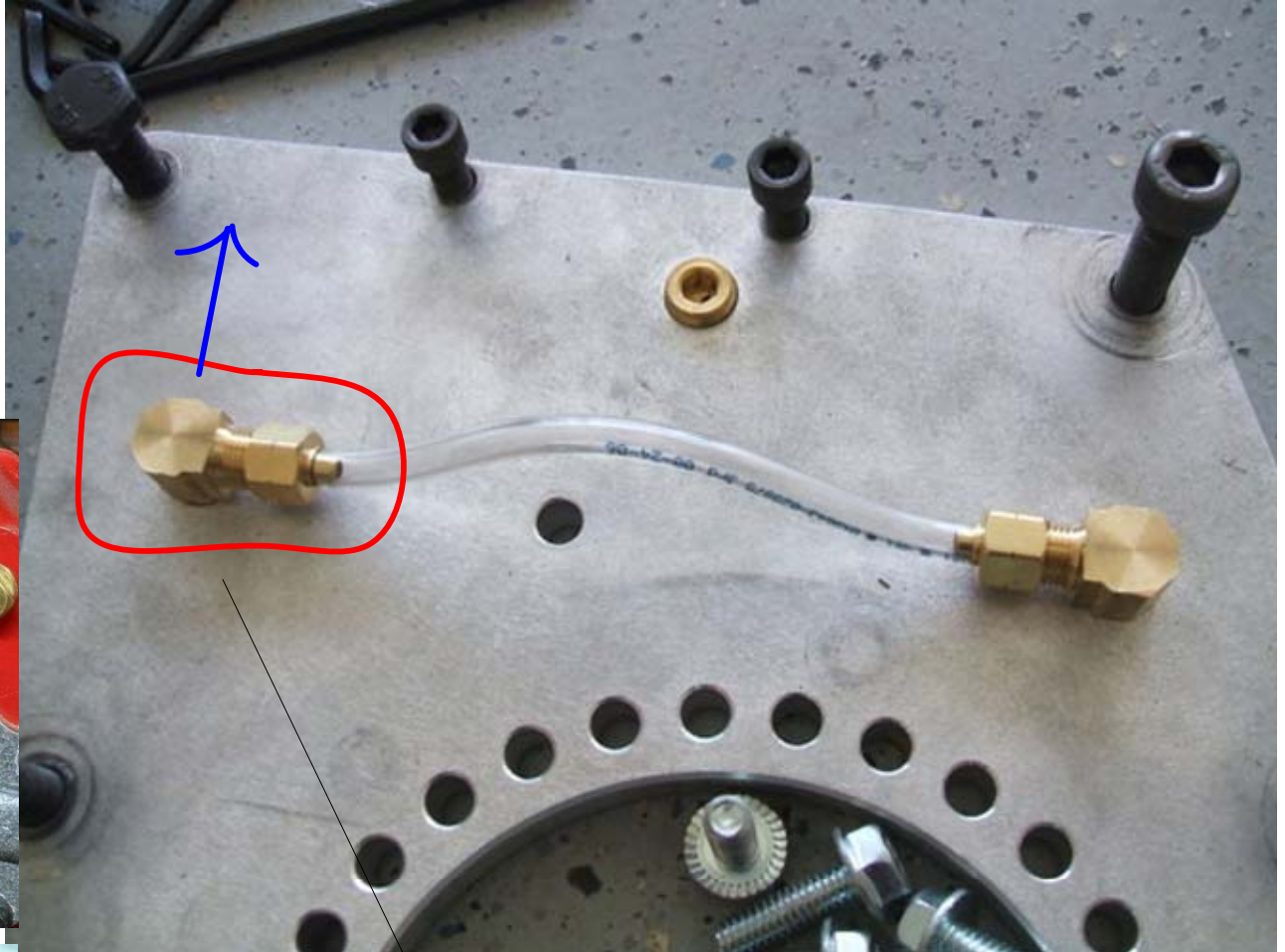
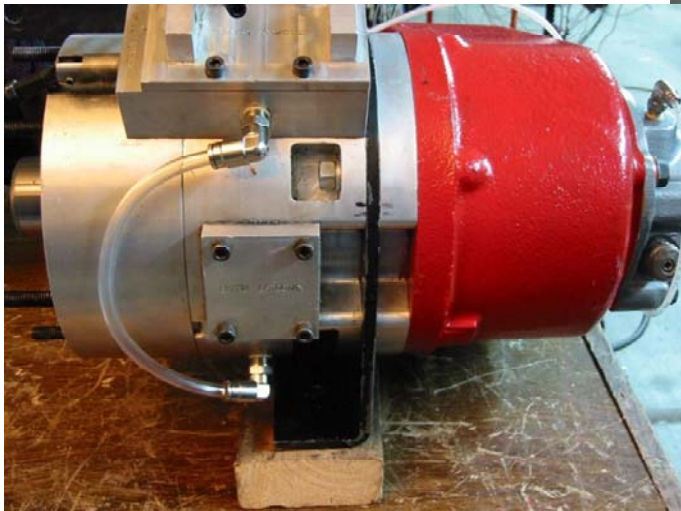
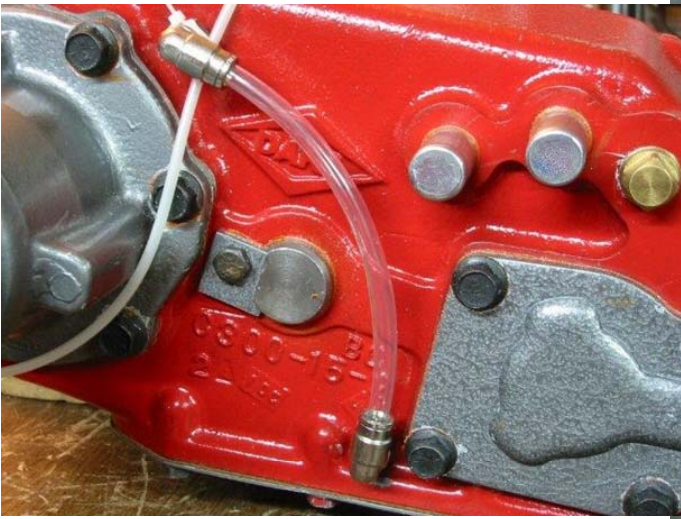


10 gauge

NAME	DATE	SOLIDWORKS	
DRAWN: edward.s...	10/26/08	UGS- The PLM Co	
CHECKED:		TITLE	
ENG APPR:		Tera Low231	
MGR APPR:		SIZE: DWG NO	
UNLESS OTHERWISE SPECIFIED		DIMENSIONS ARE IN INCHES	
ANGLES: °X°		FILE NAME: Tera Low231 shifter mou	
2 PL: #X#X3 PL: #X#X#		SCALE:	SHEET:

LABEL
Doubler Case Sight Tube Assembly
DESCRIPTION
NP231J Doubler Case Sight Tube Assembly

Sight-tube for Box4Rocks Doubler (pipehitter55@Pirate 4x4)



There is a clearance issue involving the sight tube fitting and the Terra Low231 housing. The Terra Low231 housing extends up to the fitting possibly requiring relocation of the hole slightly towards the end of the plate (direction of the blue arrow) or by using a different fitting (silver press-to-fit fittings shown in the Dana 300 pictures to the right).

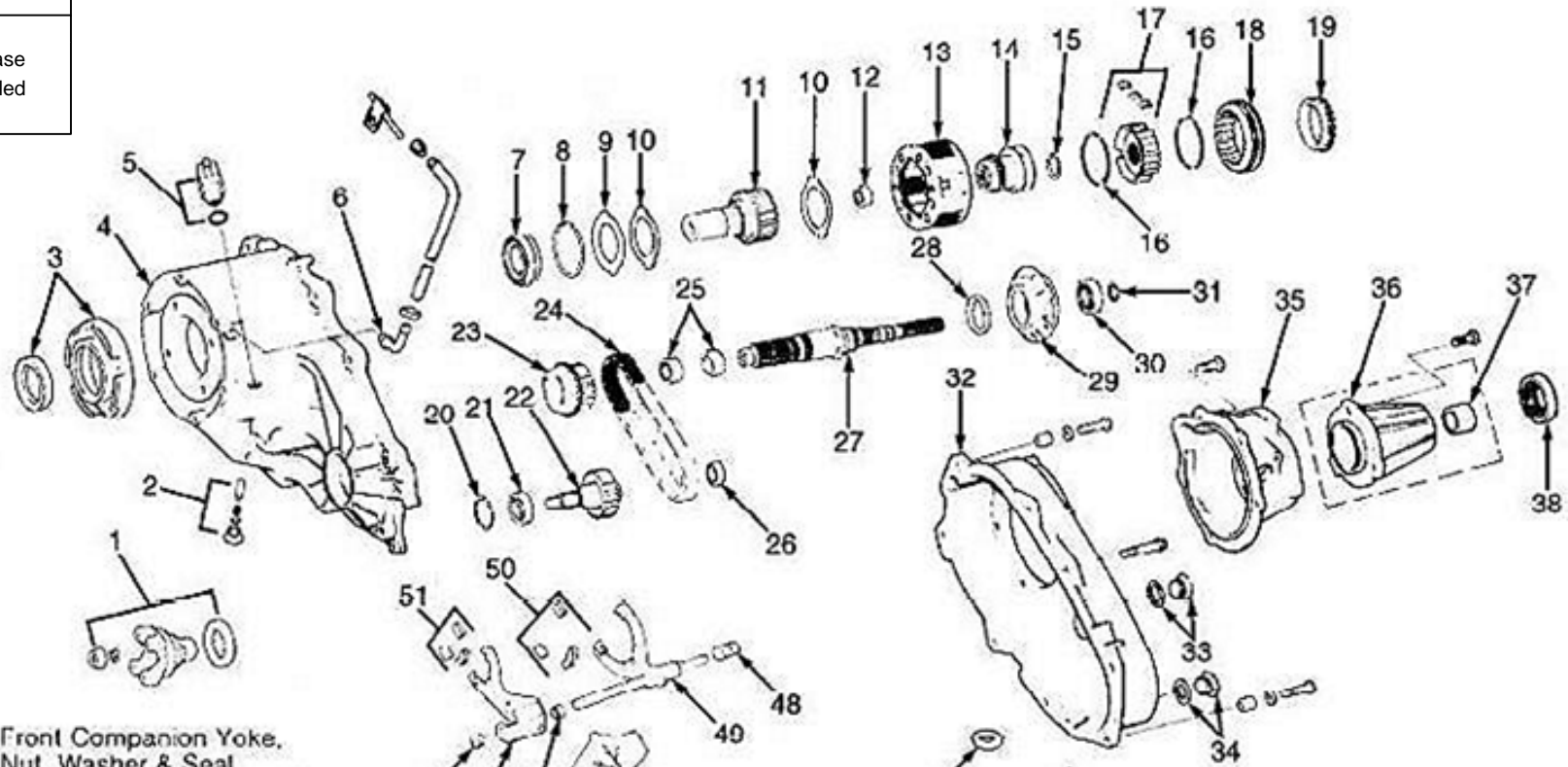
ITEM	QTY.	PART NO.	DESCRIPTION
1	2	51495K223	Push-to-Conn Fitting Swvl 90 Deg Elbow
2			5/16" Tube OD X 1/4" NPTF Male
3	25'	8359K15	High-Strength Clear Nylon Tubing .242"
4			ID, 5/16" OD, .035" Wall Thickness
5			

LABEL

NP231 Transfer Case
Diagram

DESCRIPTION

NP231 transfer case
diagram with labeled
components



- 1. Front Companion Yoke, Nut, Washer & Seal
- 2. Detent Plug, Spring & Pin
- 3. Front Retainer & Seal
- 4. Front Case
- 5. Vacuum Switch & Seal
- 6. Vent Assembly
- 7. Input Gear Bearing & Snap Ring
- 8. Low Range Gear Snap Ring
- 9. Input Gear Retainer
- 10. Low Range Gear Thrust Washers
- 11. Input Gear
- 12. Input Gear Pilot Bearing
- 13. Low Range Gear
- 14. Range Fork Shift Hub
- 15. Synchronizer Hub Snap Ring
- 16. Synchronizer Hub Springs
- 17. Synchronizer Hub & Inserts
- 18. Synchronizer Sleeve
- 19. Synchronizer Stop Ring
- 20. Snap Ring
- 21. Output Shaft Front Bearing
- 22. Front Output Shaft

- 23. Drive Sprocket
- 24. Drive Chain
- 25. Drive Sprocket Bearings
- 26. Output Shaft Rear Bearing
- 27. Mainshaft
- 28. Oil Seal
- 29. Oil Pump Assembly
- 30. Rear Bearing
- 31. Snap Ring
- 32. Rear Case
- 33. Fill Plug
- 34. Drain Plug
- 35. Rear Retainer

- 36. Extension Housing
- 37. Bushing
- 38. Oil Seal
- 39. Oil Pick-Up Screen
- 40. Tube Connector
- 41. Oil Pick-Up Tube
- 42. "O" Ring
- 43. Magnet
- 44. Range Lever Nut & Washer
- 45. Range Lever
- 46. "O" Ring & Seal
- 47. Sector
- 48. Mode Spring
- 49. Mode Fork
- 50. Mode Fork Pads
- 51. Range Fork Pads
- 52. Range Fork Bushings
- 53. Range Fork