

32°00'
112°45'

ARIZONA 58

Index

<u>STATION</u>	<u>PROJECT</u>
Bates (C&GS)	Ajo , Stoval
BM "C 309"	Ajo
Cane(C&GS)	Ajo
Del (C&GS)	Ajo
Guadu	Ajo
Puerto	Ajo
Sage (C&GS)	Ajo
Sec Cor T13S, R5W	Ajo
Sec Cor T13-14S, R5W	Ajo
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Sec Cor T15-16S R5-6W	Ajo
Tesmo	Ajo , Stoval
7 - 65 A	Ajo

Ajo Project Master in Ariz. 23 - Book: PH 858

Stoval Project Master in Ariz. 42 - Book: PH 900

DESCRIPTION
HORIZONTAL CONTROL STATION

Triangulation Electronic - Distance Traverse Intersected Object
 Station BATES County Pima State Ariz. (58)
 Established by C&GS Year 1920 Project _____

Check one:
 New Station: Write full description below USGS 1962 PH 858
 Recovery of Old Station: Recovered by AMS Year 1962 Project PH 900

Object	Bearing	Distance		Directions
		Feet	Meters	
BELL (AMS) R.M. (unstamped)	N.	45.28	-	0 00 00.00 122 48 29

Found as described in U.S. Coast and Geodetic Survey Description list 32 112 3 station 1003.

Note by H.R.P., 1962: Reference mark is not stamped.

ARIZONA, WEST ZONE ARIZONA, CENTRAL ZONE ELEV: 2,610.0 FT
 X= 741,923.91 174,772.58
 Y= 434,398.11 435,093.80
 MAPPING ANGLE=+0 24 60 MAPPING ANGLE=-0 33 36

RATES * LAT 32 11 30.5905 LONG 112 58 4.7420
To Station Geodetic Azimuth
 Bell (AMS) 58°51'42.4"

NAD 83 VALUES AVAILABLE

*NSF 1/88 ~~R.H.~~
E.E.M.*

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* Adjusted by USGS, 1969.

Arizona (58)

Pima County

BM "C 309"

1927 N.A.D. (Unadj.)

~~USC&GS, 1952~~

J.R. Heiser, 1962

Book: PH 858

Described by U.S. Coast and Geodetic Survey in Level Line, Arizona No. 4.

Station mark: Standard disk stamped "C 309 1952".

Signal: White flag over red cross-target centered over station mark.

Signal data:	TWF	15.2 ft.
	BWF	12.0
	TRXT	12.0
	BRXT	9.5

Image point No. 1: Bush, 12.0 ft. from station mark and about same elevation in azimuth 215°14'22".

Image point No. 2: Bush, 44.1 ft. from station mark and about same elevation in azimuth 277°02'00".

Image point No. 3: Bush, 196.4 ft. from station mark and about same elevation in azimuth 66°37'25". X=205,294. Y=403,131.

Photo No. 2-63

ARIZONA ZONE CENTRAL
X= 205,474.
Y= 403,209.

Elevation: 1528.734 ft.
(Second-Order Leveling
by USC&GS)

Latitude: 32°06'17.92"

Longitude: 112°52'04.23"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Tesmo	93°34'23"	273°31'37"	26,932.
Bates (C&GS)	135 35 05	315 31 53	44,262.

NAD 83 VALUES AVAILABLE

4/26/62 lcl *ce*

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Arizona (58)

Pima County

CANE (C&GS)

1927 N.A.D.

USC&GS, 1936

D.J. Winstead, 1962

Book: PH 858

32 112 3 - 1004
Described in U.S. Coast and Geodetic Survey Special Publication
No. 224, page 140. Station found as described except as noted:

To reach from Ajo, follow Highway 85 southeasterly 11 mi. to Rocky Point junction; take Highway 85 southerly 11 mi. to T-rd. E.; take left fork 1.1 mi. to clear area approximately 300 ft. E. of mine dump. Station is about 150 ft. N. of and level with rd.

Signal: White flag over red cross-target on 2 x 2 pole centered over station mark.

Signal data:	TWF	11.0 ft.
	BWF	8.0
	TRXT	7.7
	BRXT	5.2

Image point No. 1: Center of bush, 51.6 ft. from station mark in azimuth $84^{\circ}40'08''$.

Image point No. 2: Center of bush, 83.0 ft. from station mark in azimuth $225^{\circ}54'40''$.

Image point No. 3: Center of bush, 150 ft. from station mark and 1.9 ft. higher in azimuth $332^{\circ}36'34''$. X=240,928. Y=401,620.

Photo No. 2-58

ARIZONA ZONE CENTRAL
*X= 240,859.54
Y= 401,753.65

V.A. Elevation: 1984 ft.

*Latitude: $32^{\circ}06'06.415''$

Longitude: $112^{\circ}45'12.738''$

*=Values by C&GS

NAD 83 VALUES AVAILABLE

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4/26/62 lcl *dc*

Arizona (58)

Pima County

DEL (C&GS)

SE

1927 N.A.D.

USC&GS, 1936

L.R. Curtis, 1962

Book: PH 858

32 112 3 - 1006

Described in U.S. Coast and Geodetic Survey Special Publication No. 224, page 140, except distance of reference mark No. 2 is not 22.57 ft. from station mark but is 32.02 ft. as mentioned below.

Station reached by helicopter.

Station mark: Standard USC&GS tablet stamped "DEL 1936" cemented in rock outcrop.

Reference mark No. 1: Standard USC&GS tablet stamped "DEL 1936 NO 1" cemented in rock, 20.57 ft. from station mark in azimuth 153°27'.

Reference mark No. 2: Standard USC&GS tablet stamped "DEL NO 2 1936" cemented in rock, 32.02 ft. from station mark in azimuth 83°32'14".

Signal: White flag over fluorescent cross-target on 2 x 2 pole centered over station mark.

Signal data:	TWF	11.0 ft.
	TFXT	7.1
	BFXT	5.0

Image point No. 1: Tree, E. edge, 34.3 ft. from and 2 ft. lower than station mark in azimuth 131°45'35".

Image point No. 2: SW. edge of tree, 59.1 ft. from and 14 ft. lower than station mark in azimuth 245°09'25".

Image point No. 3: Small tree, 22.9 ft. from station mark in azimuth 10°50'00". X=230,381. Y=397,889.

Photo No. 2-60

ARIZONA ZONE CENTRAL

V.A. Elevation: 2227 ft.

*X= 230,385.20

Y= 397,910.90

*Latitude: 32°05'27.568"

Longitude: 112°47'14.139"

* = Values by C&GS

NAD 83 VALUES AVAILABLE

4/26/62 lcl *www*

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Arizona (58)

Pima County

GUADU

514

1927 N.A.D. (Unadj.)

L.B. Mansfield, 1962

Book: PH 858

Located about 24.3 mi. SSW. of Ajo and 16.6 mi. NW. of Lukeville. Station is on the highest part of a small group of dark hills known as the Agua Dulce Mountains and is near the N. end of a N.-S. ridge at the highest point in a group of large lava boulders, some of which are approximately 4 ft. higher than station mark.

Station reached by helicopter.

Station mark: Standard USGS tablet stamped "GUADU 1962" cemented in drill hole in top of rock in place 0.3 ft. above ground.

Reference mark No. 1: Standard USGS reference mark tablet stamped "NO 1 1962" wedged in drill hole in top of lava boulder (distance not available) in azimuth 116°57'35".

Reference mark No. 2: Standard USGS reference mark tablet stamped "NO 2 1962" wedged in drill hole in top of large lava boulder in place, 14.72 ft. from station mark in azimuth 211°40'06".

Signal: White flag over red cross-target on pole centered over station mark.

Signal data:	TWF	10.6 ft.
	BWF	8.0
	TRXT	6.6
	BRXT	4.1

Photo No. Identified for vertical only.

ARIZONA ZONE CENTRAL

V.A. Elevation: 2604 ft.

X= 171,312.

Y= 378,738.

Latitude: 32°02'12.61"

Longitude: 112°58'38.55"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Quitovaguita (C&GS)	85°31'59"	265°26'39"	52,035.
Tesmo	194 53 41	14 54 41	27,378.

NAD 83 VALUES AVAILABLE

4/26/62 lcl *dc*

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Arizona (58)

Pima County

PUERTO

1927 N.A.D. (Unadj.)

N. Watkinson, 1962

Book: PH 858

Located about 25 mi. S. of Ajo, Arizona, and 10 mi. NW. of Lukeville, on the western end and highest point of a sharp top, the highest point in the area, in the Puerto Blanco Mountains.

Station reached by helicopter.

Station mark: Standard tablet stamped "PUERTO 1962" cemented in drill hole in rock outcrop.

Reference mark No. 1: Standard reference mark tablet stamped "NO 1 1962" cemented in drill hole in rock outcrop, 17.24 ft. from station mark in azimuth $354^{\circ}57'53''$.

Reference mark No. 2: Standard reference mark tablet stamped "NO 2 1962" cemented in drill hole in rock outcrop, 16.23 ft. from station mark in azimuth $160^{\circ}45'34''$.

Signal: White flag over a red cross-target on a pole centered over station mark.

Signal data:	TWF	11.0 ft.
	BWF	8.0
	TRXT	7.7
	BRXT	5.2

Photo No. GS VAHP 1-204 Paneled.

ARIZONA ZONE CENTRAL

V.A. Elevation: 3145 ft.

X= 208,369.

Y= 366,614.

Latitude: $32^{\circ}00'16.03''$

Longitude: $112^{\circ}51'26.86''$

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Del (C&GS)	$214^{\circ}37'27''$	$34^{\circ}39'41''$	38,266.
Sierra del Ajo (C&GS)	261 06 17	81 11 37	52,594.

NAD 83 VALUES AVAILABLE

4/27/62 lcl *lcl*

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Arizona (58)

Pima County

SAGE (C&GS)

1927 N.A.D.

USC&GS, 1936

J.E. Kallbrier, 1962

Book: PH 858

Described in U.S. Coast and Geodetic Survey Description List No. 224,
page 140. *32 1123-1017*

Note by JEK, 1962: Station found as described, all marks in good
condition.

Signal: White flag over red cross-target on wood pole centered over
station mark.

Signal data:	TWF	10.8 ft.
	BWF	8.0
	TRXT	7.7
	BRXT	5.1

Image point No. 1: Center bush, 38.9 ft. from station mark in
azimuth $310^{\circ}23'27''$.

Photo No. 3-108

ARIZONA ZONE CENTRAL
*X= 240,518.25
Y= 453,689.15

Elevation: 1781 ft.
(PTL from BM "J 333")

*Latitude: $32^{\circ}14'40.316''$

Longitude: $112^{\circ}45'21.415''$

* = Values by C&GS

NAD 83 VALUES AVAILABLE

*NSF '
P.D.I. '88*

4/26/62 lcl *dc*

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4th coded

Arizona (58)

Pima County

SEC COR T13-14S, R5W

1927 N.A.D. (Unadj.)

G.L.O., 1918

J.R. Heiser, 1962

Book: PH 858

Located about 9.6 mi. SE. of Ajo, Arizona, Pima County, and 3 mi. W. of Arizona State Highway 85.

Station reached by helicopter.

Station mark: GLO brass cap, SE. cor. sec. 32, T. 13 S., T. 14 S., R. 5 W.

Photo No. Not identified.

ARIZONA ZONE CENTRAL

X= 228,434.

Y= 453,606.

V.A. Elevation: 1675 ft.

GROUND IS 1.0 FT LOWER

Latitude: 32°14'38.53"

Longitude: 112°47'42.10"

To Station

Azimuth

Back Azimuth

Feet

Ajo 2

153°18'11"

333°16'40"

32,390.

NAD 83 VALUES AVAILABLE

NSF P.D.E./88

4/26/62 1c1 *lc*

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3rd edition

Arizona (58)

Pima County

SEC COR T13S, R5W

1927 N.A.D. (Unadj.)

G.L.O., 1918

J.E. Kallbrier, 1962

Book: PH 858

Located about 12 mi. SE. of Ajo and about 3 mi. SW. of Rocky Point Junction.

Station mark: Top of standard GLO cap on 3 in. iron pipe stamped "S 34 S 35 S 2 & S 3 T 13-14 S R 5 W".

Signal: Red flag on 1 x 1 wood pole centered over station mark.

Signal data: TRF 11.9 ft.
BRF 10.0

Photo No. Not identified.

ARIZONA ZONE CENTRAL

X= 238,997.

Y= 453,533.

V.A. Elevation: 1765 ft.

Ground is 0.8' lower

Latitude: 32°14'38.65"

Longitude: 112°45'39.11"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Childs (C&GS)	209°27'29"	29°28'57"	28,555.
Sage (C&GS)	263 41 10	83 41 19	1,529.

NAD 83 VALUES AVAILABLE

NSF P.D.I./88

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4/27/62 lcl *llm*

4th order

Arizona (58)

Pima County

SEC COR T14S, R5W

1927 N.A.D. (Unadj.)

G.L.O., 1918

J.R. Heiser, 1962

Book: PH 858

Located 12.4 mi. SE. of Ajo, Pima County, 4.6 mi. W. of Arizona State Highway 85, on the boundary fence of the Organ Pipe National Monument.

Station reached by helicopter.

Station mark: GLO brass cap, SE. cor. sec. 17, T. 14 S., R. 5 W.

Photo No. Not Identified.

ARIZONA ZONE CENTRAL

X= 228,286.

Y= 437,756.

V.A. Elevation: 1673 ft. (T)

Ground is 0.8' lower

Latitude: 32°12'01.69"

Longitude: 112°47'42.32"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Ajo 2	162°01'17"	341°59'47"	47,086.

NAD 83 VALUES AVAILABLE

NSF P.D.I./88

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4/26/62 lcl *lcl*

Arizona (58)

Pima County

SEC COR T14S, R6W

1927 N.A.D. (Unadj.)

G.L.O., 1918

J.R. Heiser, 1962

Book: PH 858

Located about 12 mi. S. of Ajo, Pima County, 7 mi. W. of Arizona State Highway 85, and on the boundary fence of the Organ Pipe National Monument.

Station reached by helicopter.

Station mark: GLO brass cap, SE. cor. sec. 15, T. 14 S., R. 6 W.

Photo No. Not identified.

ARIZONA ZONE CENTRAL

X= 207,189.

Y= 437,937.

V.A. Elevation: 1511 ft.

GROUND IS 0.8' LOWER

Latitude: 32°12'01.70"

Longitude: 112°51'47.84"

To Station

Azimuth

Back Azimuth

Feet

Ajo 2

188°18'11"

08°18'51"

45,258.

NAD 83 VALUES AVAILABLE

*NSF
P.D.I.*

FILE COPY

4/26/62 1c1 *lcl*

3rd order

Arizona (58)

Pima County

SEC COR T14S, R7W

1927 N.A.D. (~~Un~~adj.)

G.L.O., 1918

J.R. Heiser, 1962

Book: PH 858

Located at Bates Well, Pima County, about 18 mi. SW. of Ajo.

Station reached by helicopter.

Station mark: (Not described) SE. cor. sec. 26, T. 14 S., R. 7 W.

Photo No. 3-3

ARIZONA ZONE CENTRAL

X= 180,746.

Y= 427,621.

Elevation: 1363.258 ft.

(Second-Order Leveling

by USC&GS)

GROUND'S 1.1' lower

Latitude: 32°10'17.22"

Longitude: 112°56'54.41"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Tesmo	4°52'33"	184°52'21"	22,597.
Bates (C&GS)	140 50 49	320 50 11	9,567.

*OK
EEM
01/88*

NAD 83 VALUES AVAILABLE

FILE COPY

4/26/62 1c1 *ds*

4th order

Arizona (58)

Pima County

SEC COR T14-15S, R5-6W

1927 N.A.D. (Unadj.)

G.L.O., 1918

J.R. Heiser, 1962

Book: PH 858

pe

Located about 15 mi. S. and E. of Ajo, Pima County, 4 mi. W. of Arizona State Highway 85, and 3 mi. S. of the N. boundary of the Organ Pipe National Monument.

Station reached by helicopter.

Station mark: GLO brass cap, SE. cor. sec. 36, T. 14 S., T. 15 S., R. 5 W., R. 6 W.

Photo No. Not identified.

ARIZONA ZONE CENTRAL

X= 217,619.

Y= 421,994.

V.A. Elevation: 1614 ft.

Ground is 1.0' lower

Latitude: 32°09'24.83"

Longitude: 112°49'44.90"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Ajo 2	176°12'42"	356°12'17"	60,768.

NAD 83 VALUES AVAILABLE

NSF P.D.I.

4/26/62 lcl *ce*

FILE COPY

see notes

Arizona (58)

Pima County

SEC COR T15,16S R5W

1927 N.A.D. (Unadj.)

G.L.O., 1940

J.R. Heiser, 1962

Book: PH 858

Located 21.4 mi. SE. of Ajo, Pima County, 14.1 mi. S. of Rocky Point Junction along Arizona State Highway 85, and 0.7 mi. W. of State Highway 85.

To reach from the post office at Ajo, Pima County, drive SE. along State Highway 85 for 11 mi. to Rocky Point Junction; take right fork (Highway 85) for 14.1 mi.; turn right and drive W. cross country for 0.7 mi. to station.

Station mark: GLO brass cap, SE. cor. sec. 32, T. 15 S., T. 16 S., R. 5 W., 1939.

Photo No. Not identified.

ARIZONA ZONE CENTRAL

Elevation: *none*

X= 227,911.

Y= 390,278.

Latitude: 32°04'11.84"

Longitude: 112°47'42.18"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Puerto	39°04'54"	219°02'55"	30,691.
Tesmo	106 17 34	286 12 29	51,488.

NAD 83 VALUES AVAILABLE

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4/27/62 lcl *mm*

End notes

Arizona (58)

Pima County

SEC COR T15-16S R5-6W

1927 N.A.D. (Unadj.)

G.L.O., 1940 *SE*

J.R. Heiser, 1962

Book: PH 858

Located 21 mi. SE. of Ajo, Pima County, 9.4 mi. SW. of Rocky Point Junction, and 2.7 mi. W. of State Highway 85.

To reach from the Post Office at Ajo, Pima County, drive SE. along State Highway 85 for 11 mi. to Rocky Point Junction; take right fork (Highway 85) for 14.1 mi.; turn right and drive W. cross country for 2.7 mi. to station.

Station mark: GLO brass cap, NE. cor. sec. 1, T. 15 S., T. 16 S., R. 6 W., R. 5 W., 1940.

Photo No. Not identified.

ARIZONA ZONE CENTRAL

Elevation: *None*

X= 217,660.

Y= 390,383.

Latitude: 32°04'12.04"

Longitude: 112°49'41.31"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Puerto	20°51'51"	200°50'55"	25,521.
Tesmo	110 11 55	290 07 53	41,740.

NAD 83 VALUES AVAILABLE

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4/27/62 lcl *zhan*

DESCRIPTION

HORIZONTAL CONTROL STATION

Triangulation Electronic - Distance Traverse Intersected Object
 Station TESMO (USGS) County Pima State Ariz. (58)
 Established by USGS Year 1962 Project PH 858

Check one:

New Station: Write full description below
 Recovery of Old Station: Recovered by AMS Year 1962 Project PH 900

Object	Bearing	Distance		Directions		
		Feet	Meters			
BELL (AMS)				0	00	00.00
R.M. 1	NE.	26.43	-	156	20	13
R.M. 2	S.	17.22	-	251	39	56

Located about 19 mi. (airline) SW. of Ajo; about 16 mi. NW. of Lukeville; on the highest point of a narrow perpendicular ridge of a prominent mountain of Breccian Formation.

Reached by helicopter, in 1962.

Station mark: Standard USGS tablet stamped "TESMO 1962" cemented in protruding rock, on highest central point.

Reference mark No. 1: Standard reference mark tablet stamped "TESMO NO 1 1962" cemented in ridge of rock, and about 9 ft. lower than station mark.

Reference mark No. 2: Standard reference mark tablet stamped "TESMO NO 2 1962" set in rock point.

ARIZONA, WEST ZONE	ARIZONA, CENTRAL ZONE	ELEV: 3,197.0 FT
X= 746,266.23	178,605.20	
Y= 404,497.68	405,123.22	
MAPPING ANGLE=+0 25 22	MAPPING ANGLE=-0 33 6	

TESMO(USGS)	LAT 32 6 34.4012	LONG 112 57 16.7845
	<u>To Station</u>	<u>Geodetic Azimuth</u>
	Bell (AMS)	93°49'05.0"

NAD 83 VALUES AVAILABLE

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Adjusted by USGS, 1969.

Arizona (58)

Pima County

7-65 A

1927 N.A.D. (Unadj.)

J.E. Kallbrier, 1962

Book: PH 858

Located 21 mi. SW. of Ajo, Pima County, and about 3 mi. SE. of Bates Well, on a low prominent top in the foothills of a high range of mountains.

Station reached by helicopter.

Station mark: Drill hole in rock.

Signal: White flag over red cross-target centered over station mark.

Signal data:	TWF	10.9	ft.
	BWF	7.9	
	TRXT	7.0	
	BRXT	4.5	

Photo No. 7-65 Paneled.

ARIZONA ZONE CENTRAL
 X= 165,221.
 Y= 405,232.

V.A. Elevation: 1854 ft.

Grid Values

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Quitovaguita (C&GS)	56°45'21"	236°45'21"	54,792.
Guidu	347 03 03	167 03 03	27,185

Conversion from state plane to geodetic coordinates

Station = 7-65 A	State Plane Zone = 202
Lat = 32 06 34.1746	Lon = 112 59 52.3899
X = 165,221.0000	Y = 405,232.0000

83 NAD 32 06 34.395

112 59 54.976

NAD 83 VALUES AVAILABLE
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4/26/62 lcl *lcl*