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NICARAGUA - PRIVATIZATION OF TELCOR
EXTERNAL PLANT REPORT
SITE VISITS AND PHOTOGRAPHS

J.G. CARTNER - SEPTEMBER 1993

VISIT TO NICARAGUA - SEPTEMBER 1993

During the visit to Telcor, Nicaragua by the under-signed several site visits were made to collect information and get a general appraisal of the quality and quantity of the network.

This file is a record of each visit to a site.

J.G. Cartner
September 1993

Christian Perez - Managua - 8/9/93

a) Building (20 years old)

- A container equipped with an N.E.C. Crossbar is on site but not in use.
- Computer flooring is installed in switch room. (E10B).
- Air conditioning in good condition.
- 2 standby generators - one for each switch.
 - 100 kVA each - Renault (new) and Caterpillar.

b) Switching

- 1) ESK Siemens - 5,000 lines capacity - 3,700 working.
 - analogue - 1980.
- 2) Alcatel E10B - 4096 lines capacity - 3,972 working.
 - digital - 1993 - Hcst for remotes at Villa Fontana, Aeropuerto, Ral. Communication.

c) Transmission - fibre cables and P.C.M. on audio cables.

d) M.D.F. - mixed Siemens and A T & T 310 terminals - Siemens no protection 800 pairs per vertical.

e) Air Pressurization - Lancier compressor and flow panels.

f) Cable Channels - Large good condition, no duct seal, 40 way lead-in American design splitter joints - 9,000 pairs.



Christian Perez Exchange
(note N.E.C. X Bar trailer - not in use)



Switch Room Alcatel E10B.
(note computer flooring)

Aeropuerto - Managua - 8/09/93

- a) Building - Part of airport complete, very poor building, main airport terminal abandoned after earthquake - general accommodation and facilities poor. Plans to relocate in the future.
 - A/C working O.K.
 - 2 standby generators - 30kVA Renault (new) and 15kVA Armstrong Siddley.

- b) Switching
 - 1100 lines of E.M.D. Siemens (analogue).
 - 1024 lines of EOB remote - 2nd unit being installed.
 - 2124 lines working - exchange full - 900 lines A.N.I. installed for international service.

- c) Transmission

- d) M.D.F. - old 25 pair carbons and heat coils - some A T & T 303 terminals with protection - M.D.F. is a mess.

- e) Air Pressurization - Lancier compressors and flow panels.

- f) Cable Channels - poor arrangement, splitter joints on ground floor - very untidy.

Aeropuerto Building

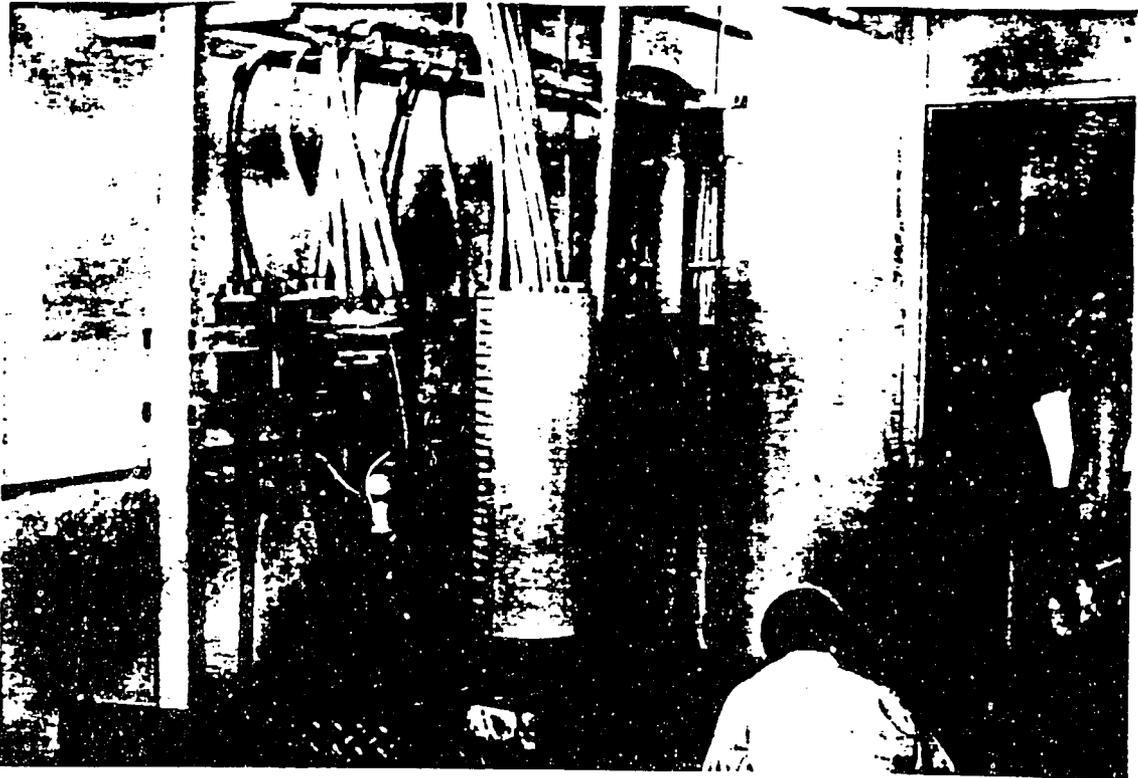


Building part of the old airport terminal.

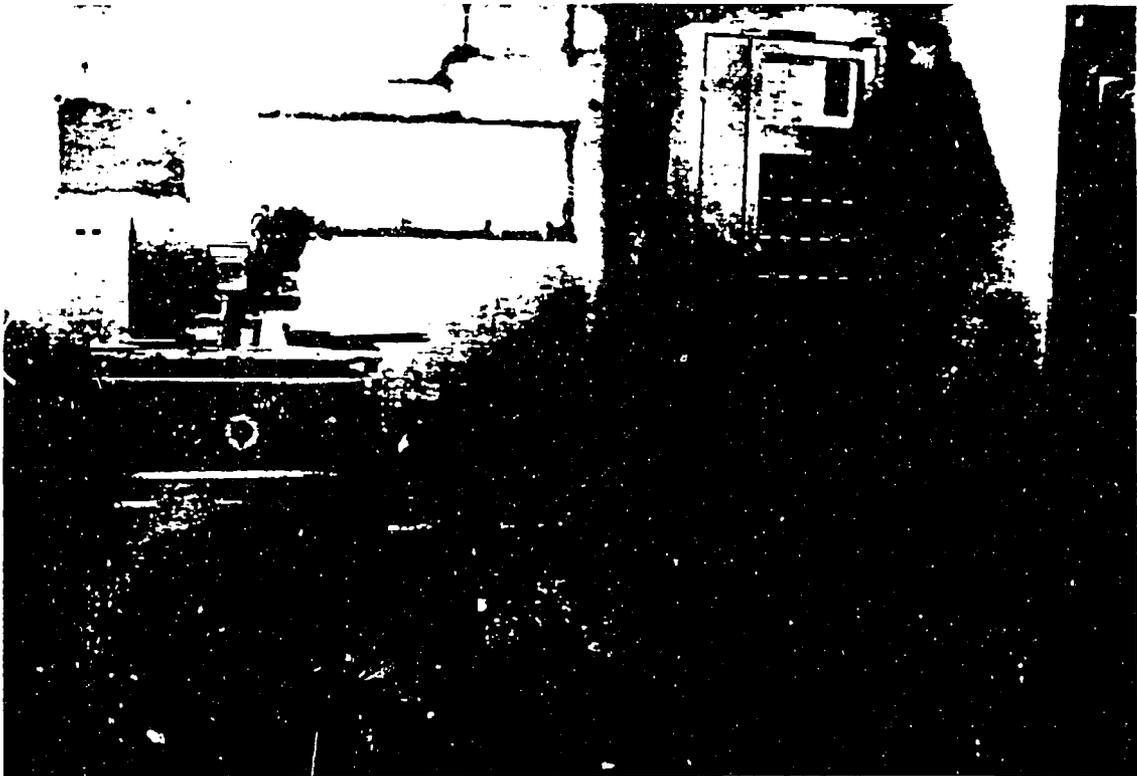


Very poor condition.

Aeropuerto



External cable jointing arrangements.



Air pressurization equipment - Lancier

Tipitapa - Managua - 8/09/93

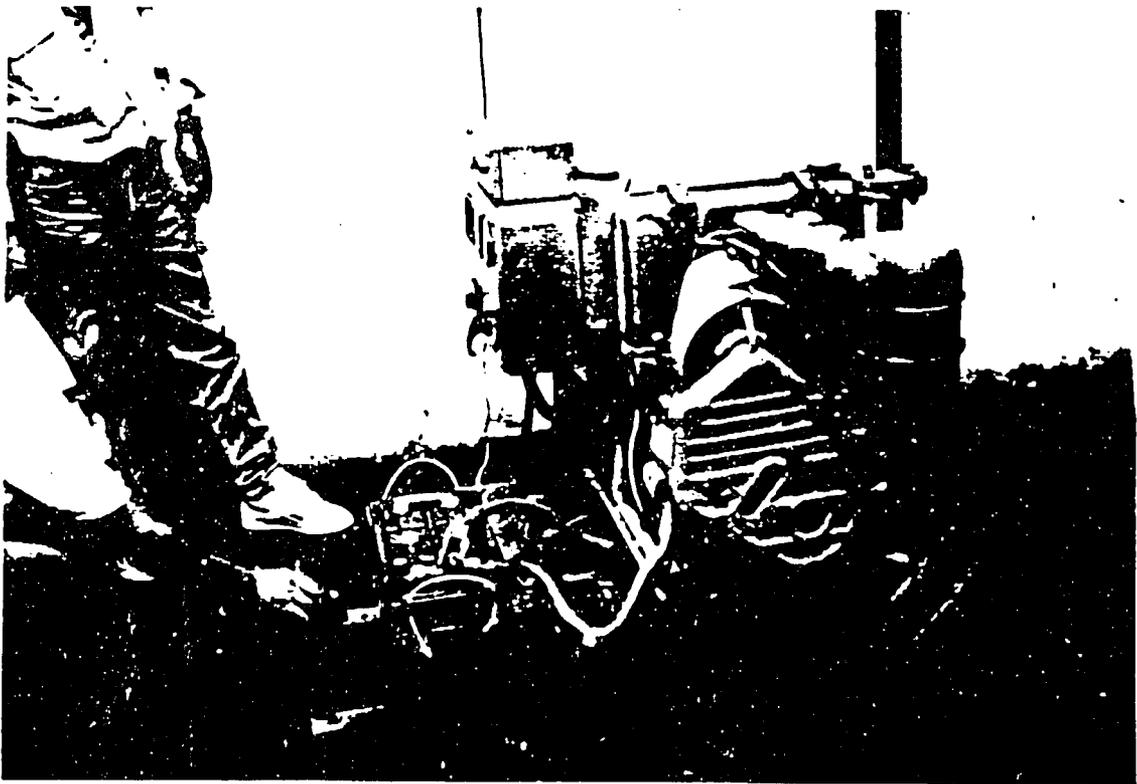
- a) Building - building not obvious as an exchange - very old, needs maintenance.
 - A/C not good - 10kVA standby generator by Struvel.
- b) Switching - 200 lines of E.M.D. Siemens - all lines working.
- c) Transmission - 11 channels on open wire carrier.
 - Congestion.
- d) M.D.F. - 200 pairs terminated, no protection, wall mounted.
- e) Cable Channels - Very poor, 6 lead - in ducts.

A separate building for Postal and Phone booths - very crude - due to congestion almost impossible to make international calls.

Tipitapa Exchange

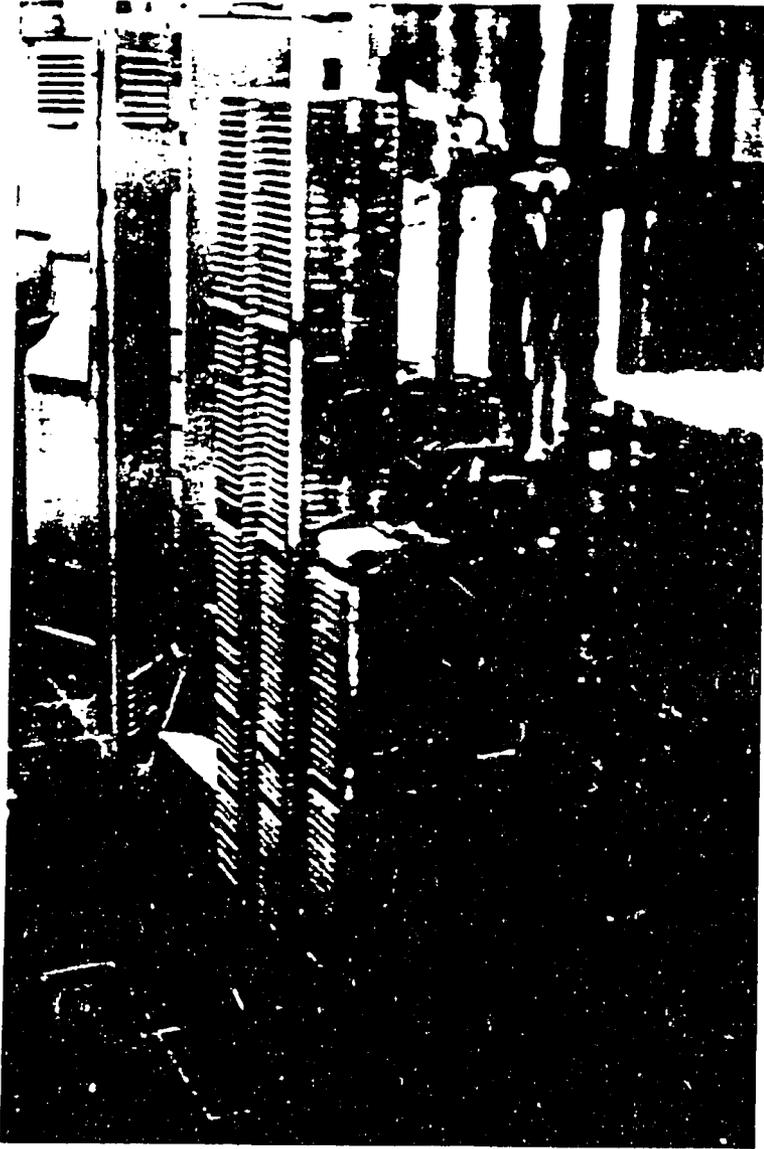


Note manhole entrance.



Standby generator.

Tipitapa



M.D.F. Layout.

Exchange 4

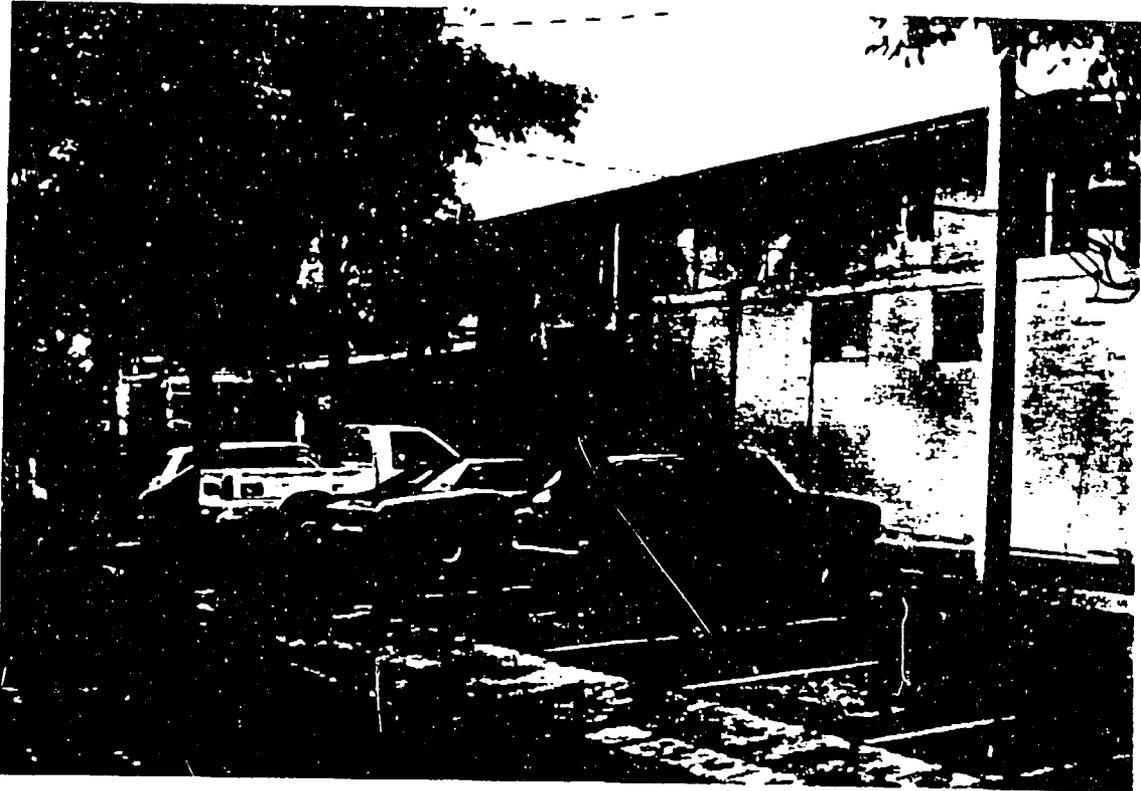
Las Palmas - Managua - 8/09/93

- a) Building - Site also accommodates Director of Operations and Maintenance - good offices - exchange area very good - computer flooring - good A/C.
 - 1986 construction - outside area untidy - one standby generator 300kVA.
- b) Switching - EIOB digital - 1986 - 9152 capacity - 9100 working installation entrance looks good.
- c) Transmission - Large room with considerable amount of equipment - fibre systems being installed by Samsung - reasonable layout.
- d) M.D.F - Mixed Alcatel and A T & T 303 terminals.
 - All protected - 900 pairs/vertical Alcatel.
 - 500 pairs/vertical A T & T.
- e) Air Pressurization - Lancier units - some faulty units - maintenance spares a problem.
- f) Cable Channel - Large, good condition but some joints open - fibre being installed.

Las Palmas



Office Entrance



Office Building

Las Palmas



Exchange Building



Repair Technical Vehicle

Palaccio Comunicaciones - Managua - 9/09/93

a) Building

Houses the Head Post Office of Managua and is the center for the Postal facilities. There is large microwave tower on the roof principally for the Trans-Central-American system. Second floor houses switching and Telcor facilities including operator assistance boards (14 positions) and Directory Enquiry (8 positions). Third floor is radio room principally for Trans-Central-American system (analogue). The basement is being refurbished to house a replacement EOB expected to be R.F.S. November 1993 - most unlikely. Area generally very untidy and requires considerable work. Below the basement was a large cable chamber (locked, unable to visit).

b) Switching

Siemens H.D.W.D. installed in 1954 - old and requires urgent replacement capacity 6000 lines - 3200 currently in use - 32 technicians on site. There is also a 960 line E10 concentrator - all lines working.

c) Transmissions

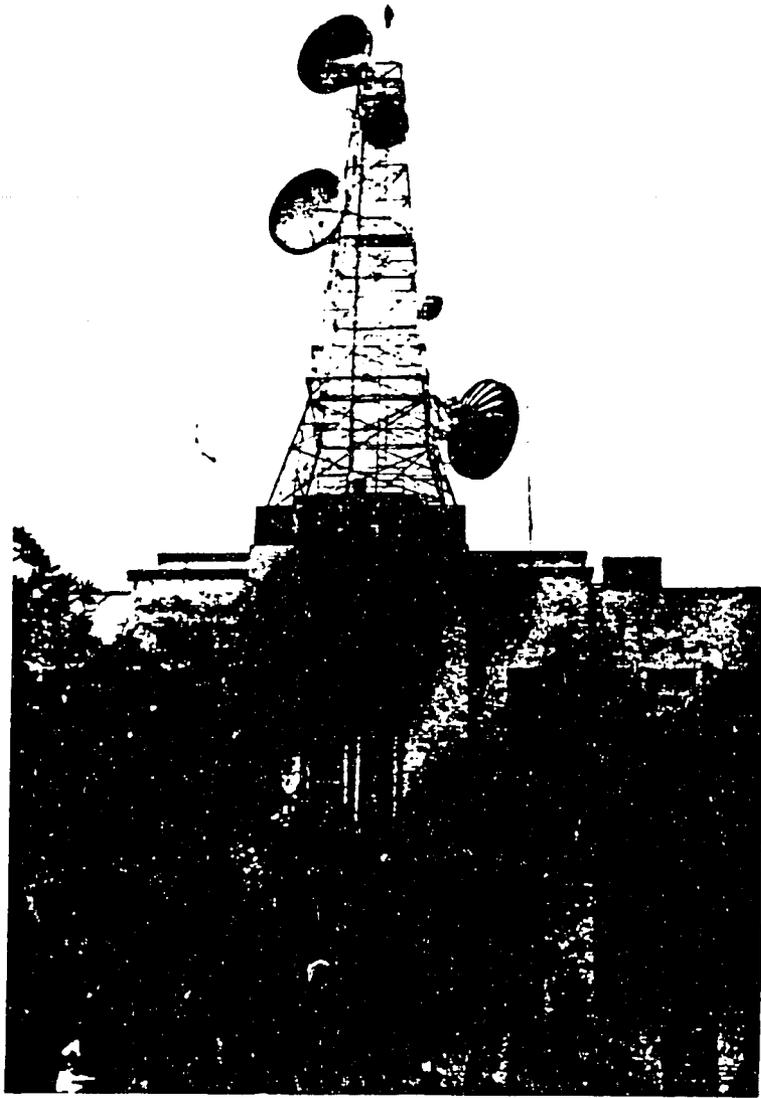
Large area - well maintained - plans to replace analogue with Telettra digital system.

d) M.D.E.

Old with carbons and heat coils - will all be replaced.

e) Cable Chambers

Not inspected.



Palaccio Communication



Palaccio Communication



M.D.F. Layout

Grenada - Region 4 - 10/09/93

a) Building

Main Post Office - good building - ground floor postal - 2nd switch/transmission - cable channel small but very neat - A/C in switch room is poor - new standby generators - 100 kVA Caterpillar.

b) Switching

New SESS from A T & T - 5000 lines capacity.

- 2500 working lines (expanding 10 - 15 per day).
- Host for all regional network - plenty of spares - A T & T card repairs poor - can be accessed from U.S.A. for software maintenance by dial-up connection.

c) Transmission

New N.E.C. digital DMR 700 radio - 140 M.B.S.

d) M.D.F.

New A T & T 310 connectors - 1000 pairs/vertical.

- 100 pairs terminals with protectors - 7 verticals
- 7000 cable pairs.

e) Air Pressurization

- None.

Granada Exchange



Granada Main Square



Entrance to Equipment Rooms

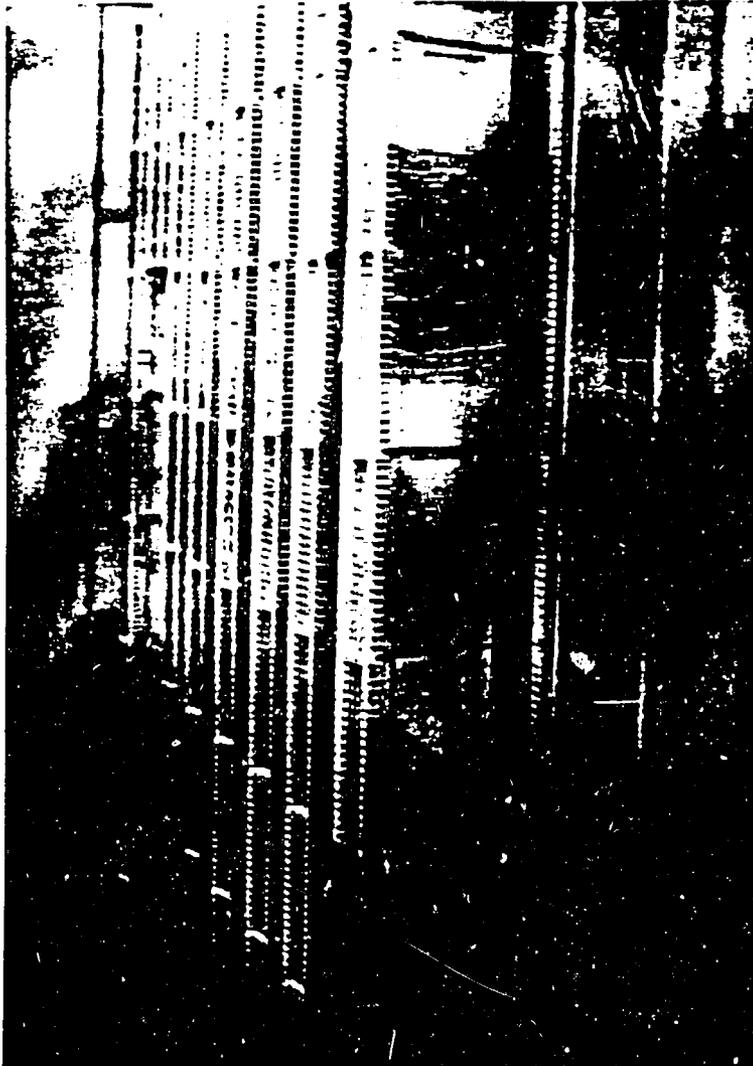


**Granada
SESS A T & T
Switch Equipment**

Batteries for Switching Equipment



Granada Exchange



M.D.F. Layout

Exchange 7

Masaya - Region 4 - 11/09/93

a) Building

The building is the reporting centre for the service technicians (14). It has a small yard and store (very untidy) and several single story building around the yard. (including a Police observation (tower.) - standby generator 150 kVA Caterpillar - 2 years old - good condition.

- cable chamber is small - leading 2 x 6 ducts.
- few spares - chamber congested with joints.
- no air pressurization.

b) Switching

New 5E.S.S. 4000 line remote - 2000 working lines - good installation.

c) Transmission

N.E.C. DMR 700 digital for Masaya - new and well installed.
Fibre system to Masatepe - very small, neat terminal from A T & T
- 34MBS - cable laid with 3 subducts. - cable fully filled -.

d) M.D.F.

- 4800 cable pairs - A T & T 310 protected
- 800 pairs per vertical.

Masaya Exchange



Masaya
Cable
Arrangements

Masatepe - Region 4 - 11/09/93

a) Building

Small tidy building - all equipment in one room - 24 kVA standby generator - Petter.

b) Switching

300 line ESS - A T & T sub line unit - 194 lines working -

c) Transmission

Fibre to Masaya and San Marcos. - Installation same as at Masaya.

d) M.D.E.

300 pairs terminated on A T & T 310 protected terminals.

Masatepe Telephone Exchange



San Marcos - Region 4 - 11/09/93

a) Building

Installation and facilities almost identical to Masatepe.
Standby generator 37.5 KVA General Motors.

b) Switching

350 lines of 5E.S.S. A T & T - new 248 lines working

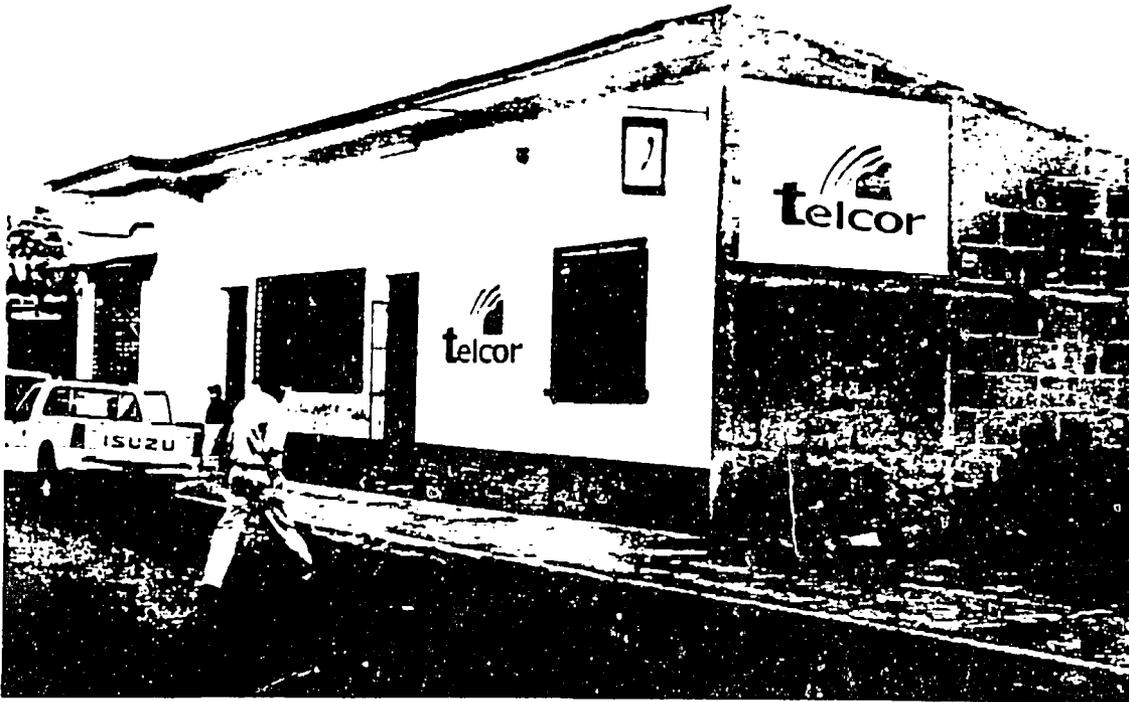
c) Transmission

Fibre to Masatepe and Diriamba - as previous, sites - on a ring.

d) M.D.F.

A T & T 310 connectors - 350 pairs - leading arrangements similar to Masatepe.

San Marcos Exchange



**Remote line unit
on right 5 ESS**

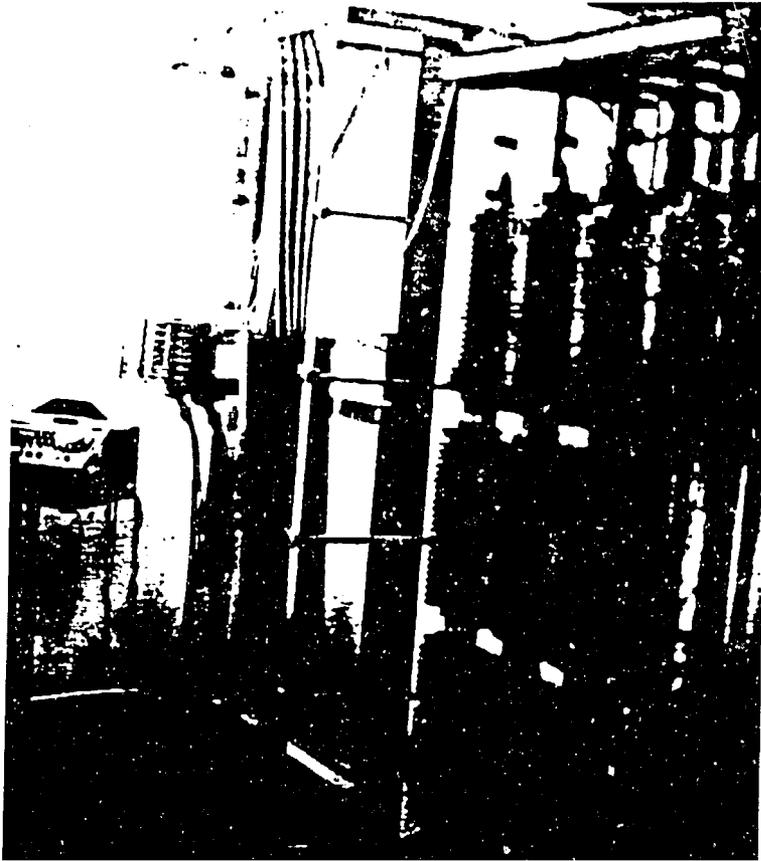
**Two fiber terminals
at left (34 mbs)
-A T & T**

San Marcos



M.D.F. Layout

San Marcos Exchange



Cable Lead-In

M.D.F. To Be Covered

Note 2 Fibre Cables
in Orange

Jinotepe - Region - 11/09/93

a) Building

Part of Town Hall - space rented from council - also houses Post Office - A/C cold but badly installed - reporting centre for 15 technicians - 2 vehicles parked - poor facilities - 67.5 kVA Caterpillar generator - good condition.

b) Switching

2000 lines 5ESS A T & T new - 600 working lines - switch room separate from transmission.

c) Transmission

Fibre cable to Diriambe - 2 terminals (34 mbs). Also Harris 2 Ghz digital radio to Mombacho. This arrangement gives diversity around the ring.

d) M.D.F.

1600 pairs on A T & T 310 protected terminals - 2 verticals - 800 pairs per vertical - cable works in progress - holes being drilled in floor to cable chambers.

Jinotepe Exchange



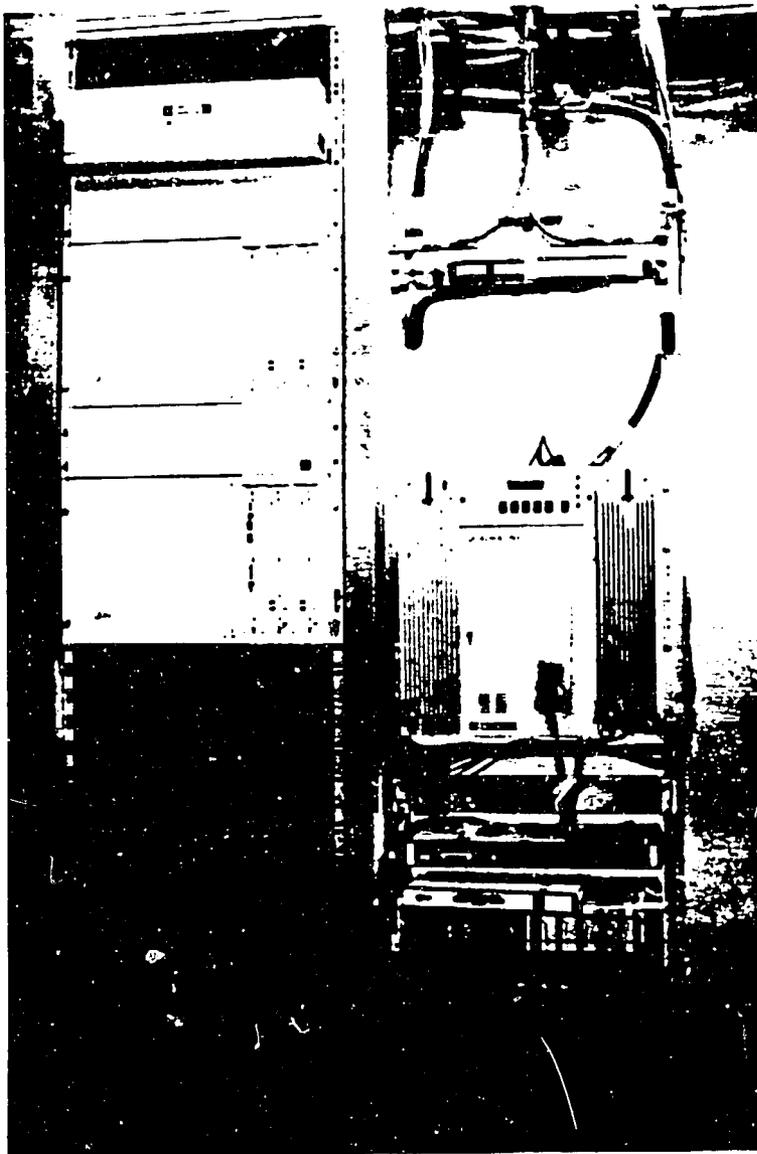
Left Hand Side



Right Hand Side



2000 Lines 5ESS Switch



Two Fibre
Terminals and
Control Terminal

Las Nubes - Managua - 11/09/93

This is a major repeater site located at a high point above Managua. It houses a major repeater on the Tran-Central-American chain as well as other vital systems.

The whole site is in very poor condition and building, tower, and equipment are all in need of serious maintenance.

Ticomo - Managua - 13/09/93

a) Building

A very well maintained site with 2 buildings.

- one used for maintenance center - good design and layout - 24 technicians report for maintenance.
- 7 vehicles overnight parking
- 2 X 280 kVA Caterpillar generators - very extensive standby arrangements.
- Good air-conditioning system from Korea.

b) Switching

4096 lines Samsung TDXIB from Korea - working lines 2488, excellent installation - remote access from Korea - has not been necessary since R.F.S. in may 1992 - host for a remote at Las Jinotepes.

c) Transmission

Not seen.

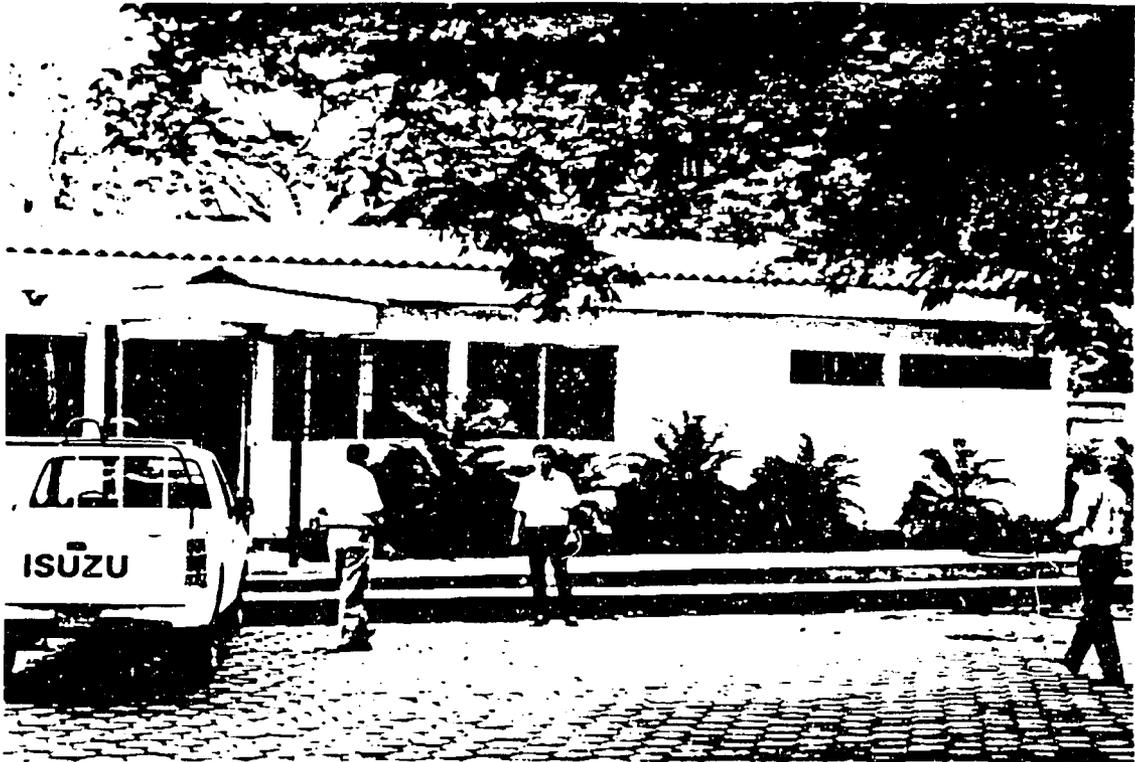
d) M.D.F.

3600 pair terminated on Samsung terminals.

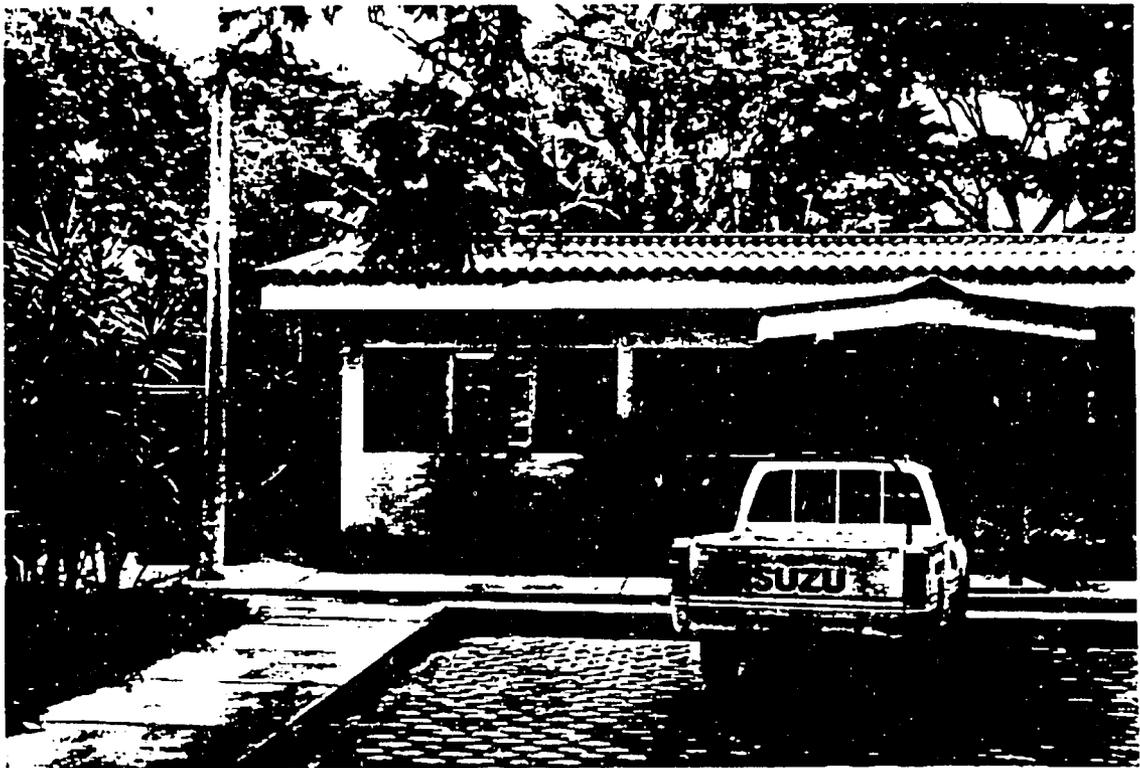
e) Cable Chambers

Large and well planned - good lay out.

Ticoma Exchange



Maintenance Office Complex



Ticoma Exchange Equipment

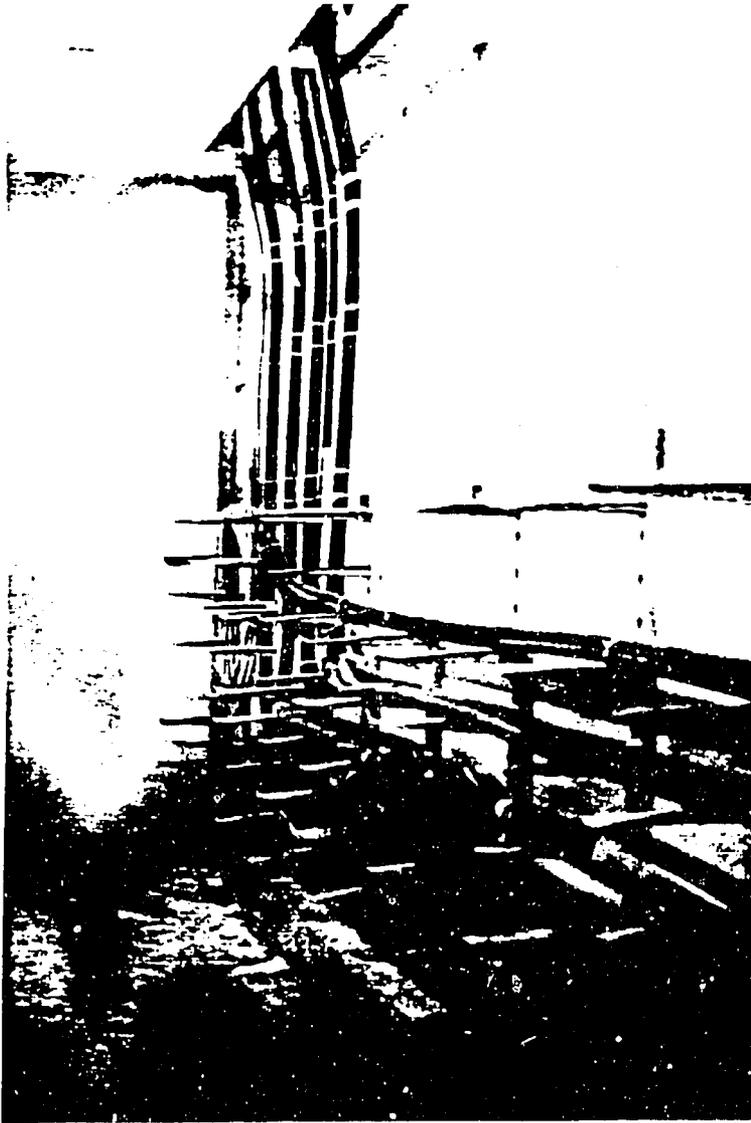


Control Room - outside main switch area



Ticoma Exchange

Cable lead - in
arrangements



Villa Fontana - Managua - 12/09/93 and 16/09/93

a) Building

Major centre for Minister of Telecomms, Telcor's, management, international switch and operations, major local switching centre - site in reasonable condition A/C in switch room poor.

b) Switching

a) 6000 lines - ESK Siemens - 1976 - appears well maintained, no congestion, 13 techs on 24 hours notice.

b) 1024 lines of EIOB remote from Las Palmas - 1024 - working.

c) 7088 lines E.W.S.D. Siemens -digital- not seen -has 5226 lines working- installed June 1992.

c) Transmission

Two transmission areas - old room near ESK - analogue equipment in process of being recovered - maintenance appeared very poor - untidy, A/C bad.

Digital facilities in International area - not seen.

d) M.D.F.

Mixture of Siemens and A T & T terminals - no protection on Siemens - Tie cables on the frame to International centre use Alcatel terminals.

e) Cable Chambers

Large, reasonable installation, 64 lead-in pipes about 30% spare.

f) Air Pressurization

Lancier compressors and flow panels.



Villa Fontana - Local Exchange Building - Ministry Office - Top Right Corner

Villa Fontana



Cable Riser

From Cable Chambers to M.D.F.

Nagarote - Region 2 - 14/09/93

a) Building

Combined Post Office and Telecommunications - 8 years old - standby generator 66 kVA Saria.

b) Switching

Crossbar switch from East Germany ATZ 65 - installed 1985 - extension started but not complete - 160 line capacity - 160 working lines - reasonable installation - working well - 60V system.

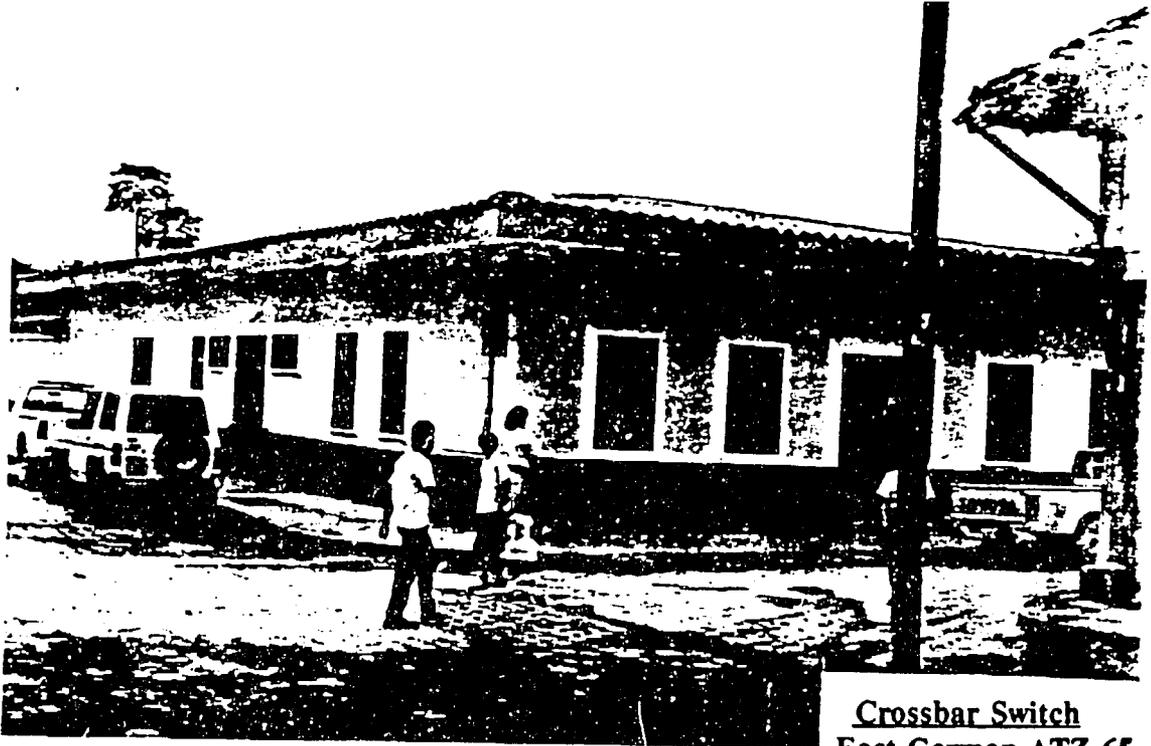
c) Transmission

Open wire carrier system to Leon - 12 channels - S.E.S.A. manufacturer.

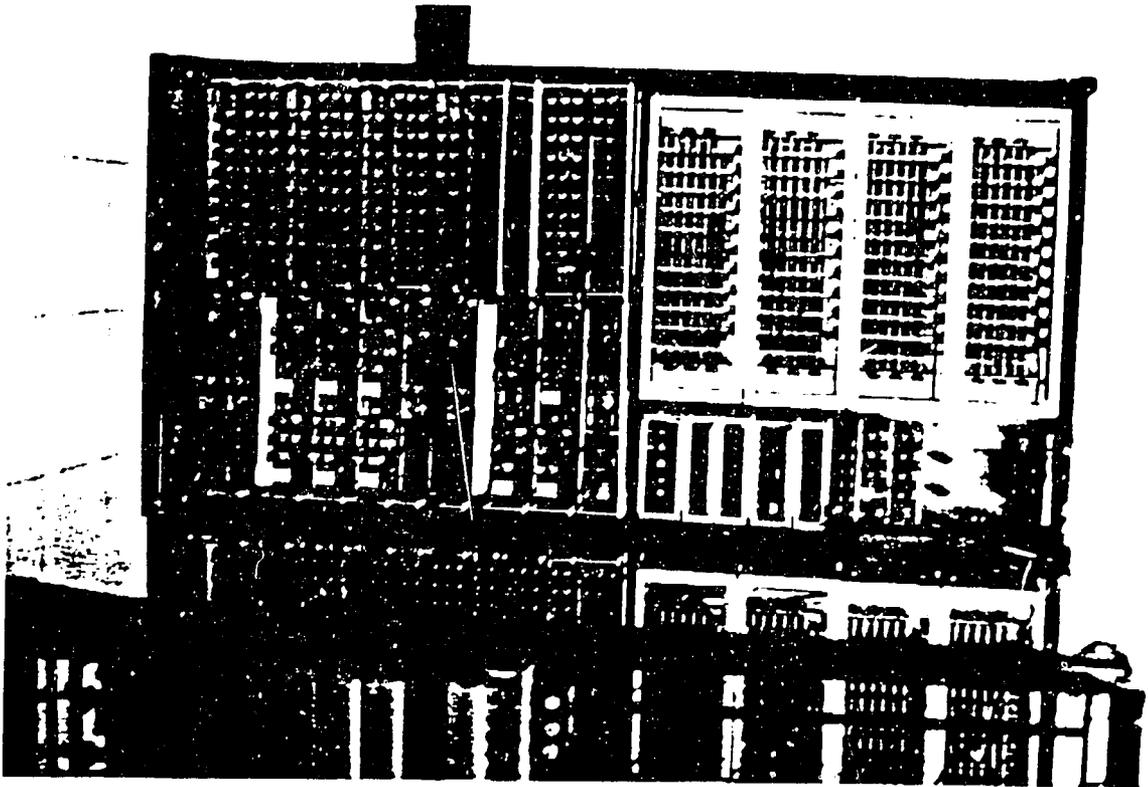
d) M.D.F.

200 pairs terminated on 25 pair carbons/heat coils strips - joint in M.D.F. room - no cable chamber - pipes buried under floor to manhole outside.

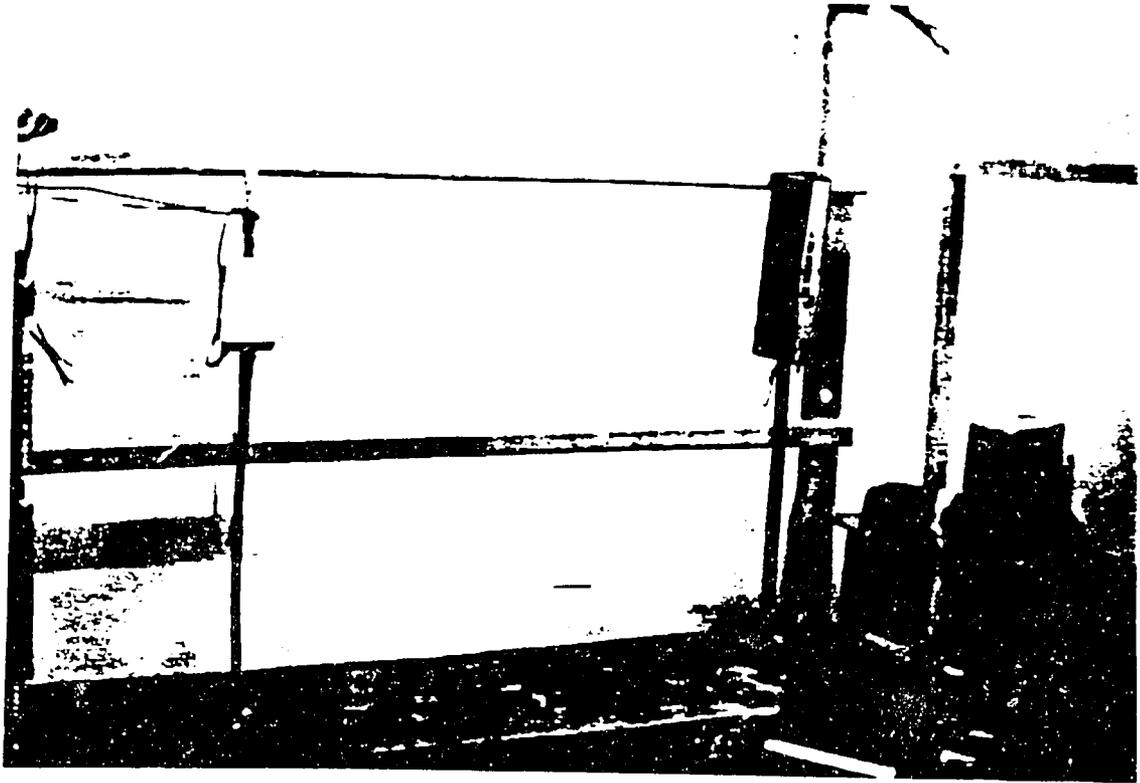
Nagarote Exchange



Crossbar Switch
East German ATZ 65



Cable Lead-In Arrangements



M.D.F. Layout



La Paz Centro - Region 2 - 14/09/93

a) Building

Similar to Nagarrote - SARIA generators out of order - over one year
- A/C poor installation but working.

b) Switching

260 lines Xbar ATZ 65 - East Germany - 1985 - 142 working lines - 60 volt
system.

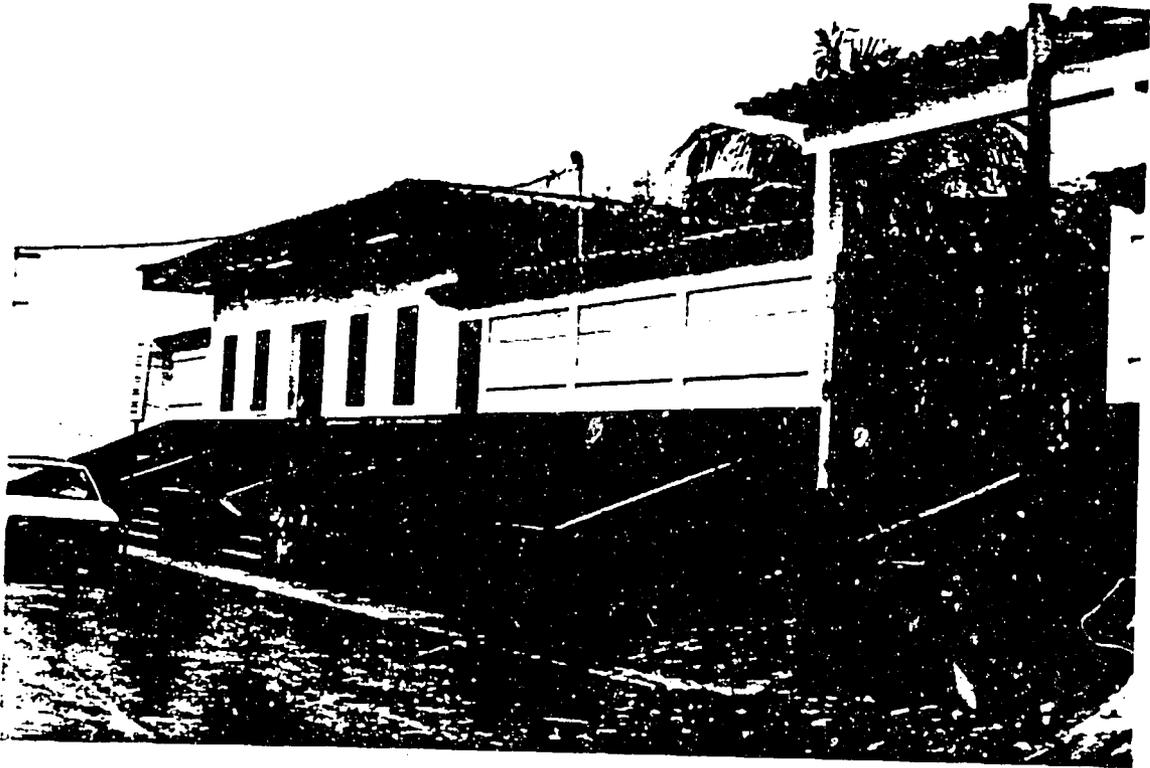
c) Transmission

Open wire carriers to Leon.

d) M.D.E.

200 pairs terminated - layout same as Nagarrote.

La Paz Centro
Exchange Building



Leon - Region - 14/09/93

a) Building

Large building - used as Head Post Office for Leon (200,000 people) - phone booths, postal counters, FAX service - large yard about 1 - 2 acres - very central location - untidy yard - large microwave tower - recently painted - looks good (72 meters high) - 2 new Mitsui-Deutz generators - 612kVA each - part of new N.E.C. Digital Microwave contract - over-engineered - building built 1985.

b) Switching

X bar from East Germany ATZ 65 - 5000 lines capacity - 4442 working lines maintained by use of spare equipment - no apparent problems - gives good service - basic but no congestion - staffed 24 hours/7 days a week - 3 X 2 technicians - installed 1985 - acts as tandem for surrounding areas.

c) Transmission

Large transmission room with new digital N.E.C. radios, existing analogue being phased out - Siemens analogue also and Telex equipment.

d) M.D.F

6500 lines on Siemens terminations, no protection.

e) Cable Chambers

Underground chambers with several lead in ducts spare - jointing carried out on ground floor - reasonable installations - no pressurization - no jelly filled cables.

Leon Telephone Exchange

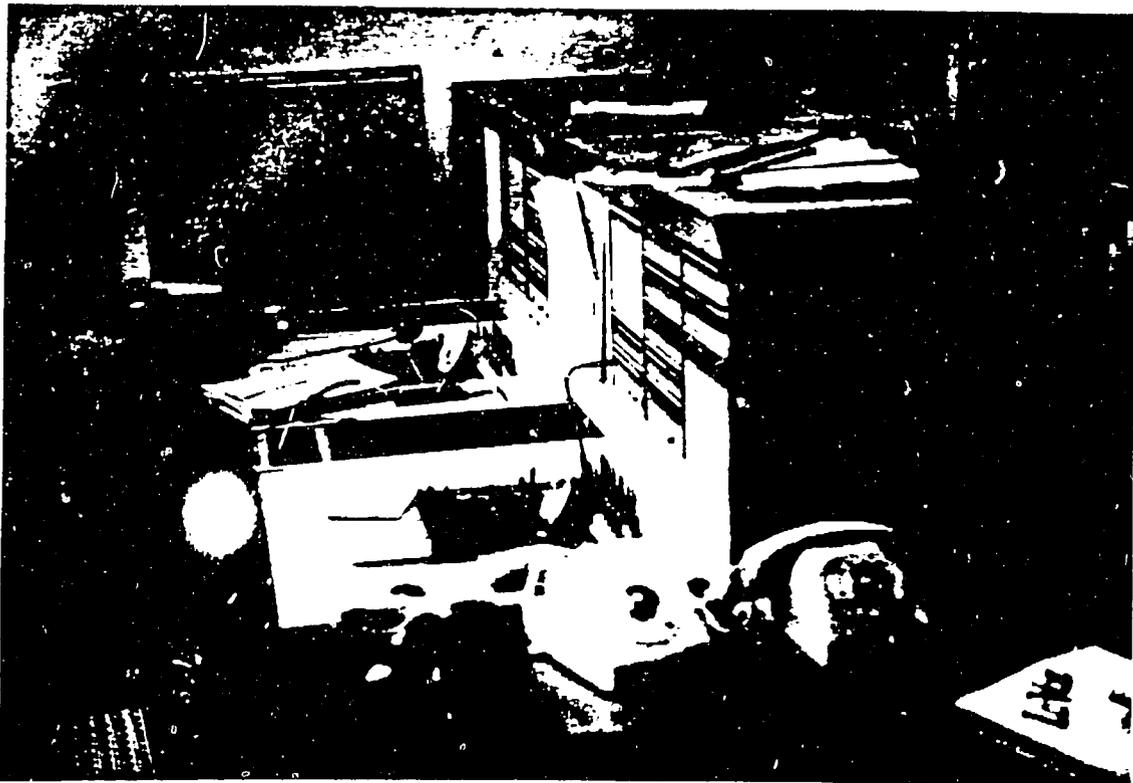


Leon Microwave
Tower



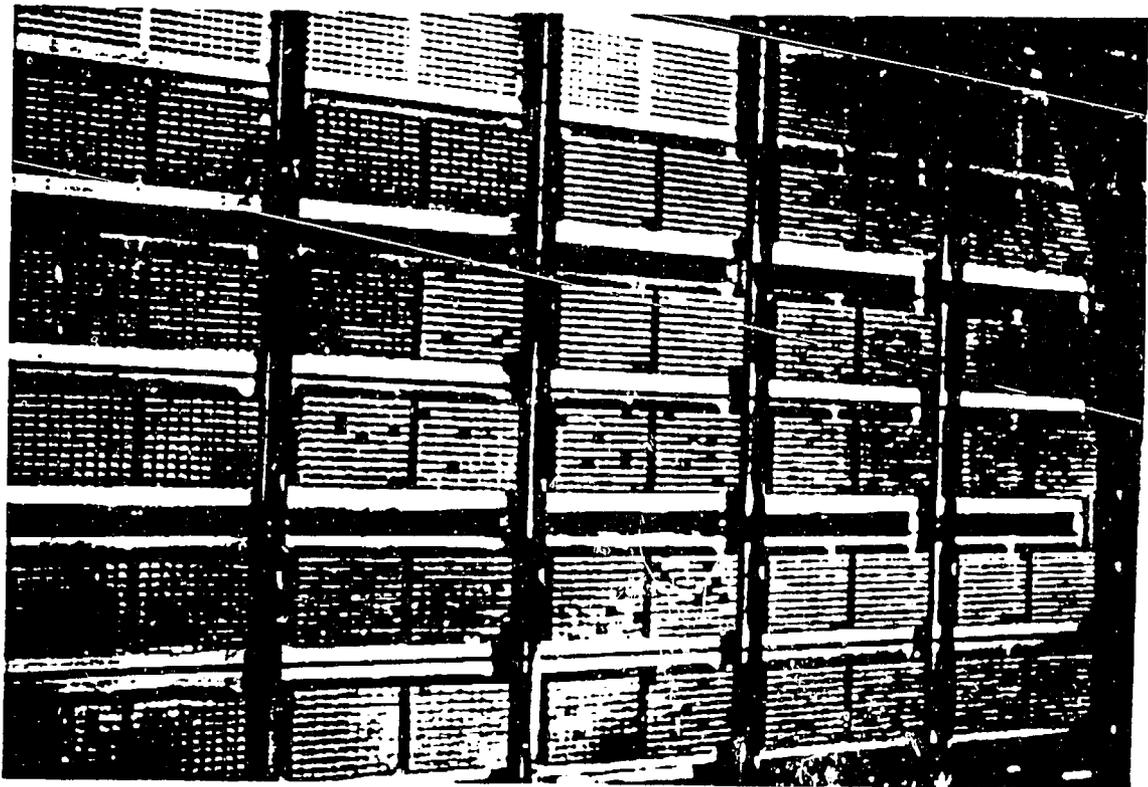
Cable Riser Layout

Operator Services
Positions





Crossbar Equipment Racks ATZ 65



Crossbar Switches



M.D.F. Layout

Chichigalpa - Region 2 - 14.9.93

a) Building

Small but adequate - A/C poor installation

- new units available, awaiting installation

- new N.E.C. tower (40 meters) - new Mitsui Deutz generators (80 kVA)

b) Switching

400 line X-bar, E. German ATZ65 - 372 lines working - reasonable installation - working well.

c) Transmission

New N.E.C. DMR 700 digital radio to replace open wire carrier.

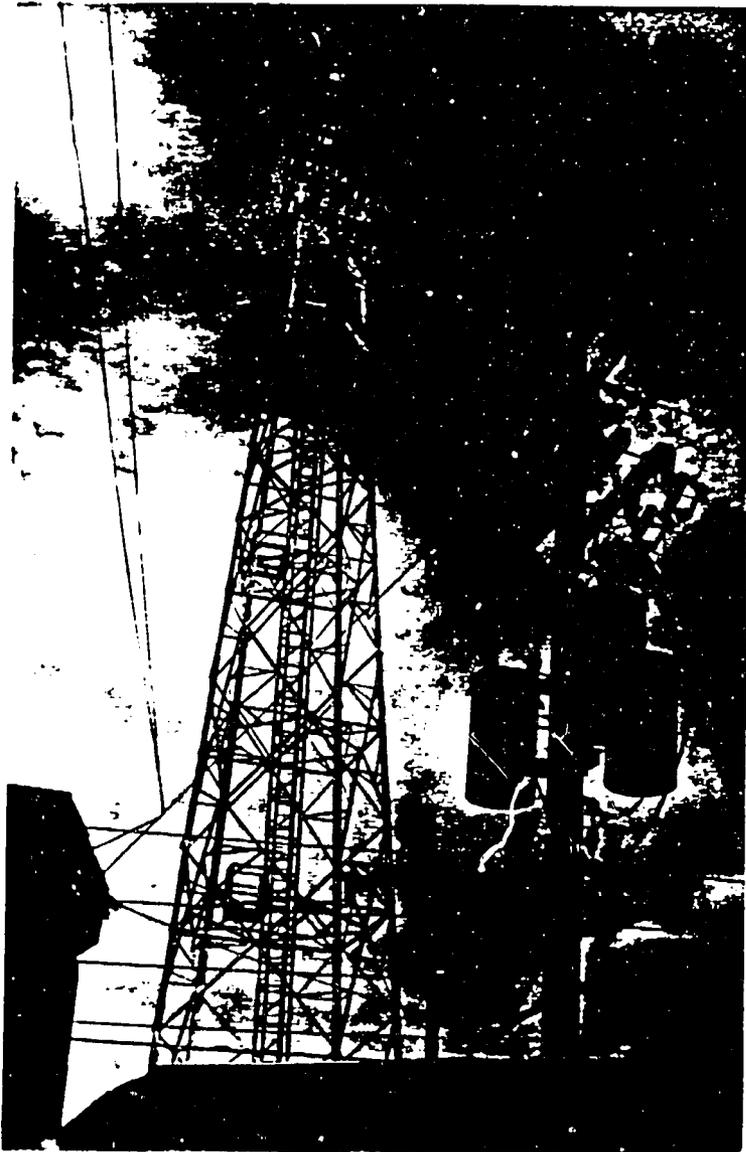
d) M.D.F.

600 cables pairs on old heat coil/carbons
25 pair terminations.

e) Cable Chamber

Small, joints on ground floor - vertical.

Chichigalpa Exchange



New radio tower
40 meters

Chimandega - Region 2 - 14.9.93

a) Building

A major site with an 85 meter tower - built 1985 - used for Postal and Telegraph Booths - front office, very scruffy. - 2 new diesels - Mitsui Deutz (312 kVA each) - over-engineered.
2 manual boards to handle directory enquiry and operator assistance.

b) Switching

3000 lines X bar from E. Germany ATZ 65 - has a second switching room for transit switch - gives good service - 1785 working lines.

c) Transmission

N.E.C. Digital radio being installed.

d) M.D.F.

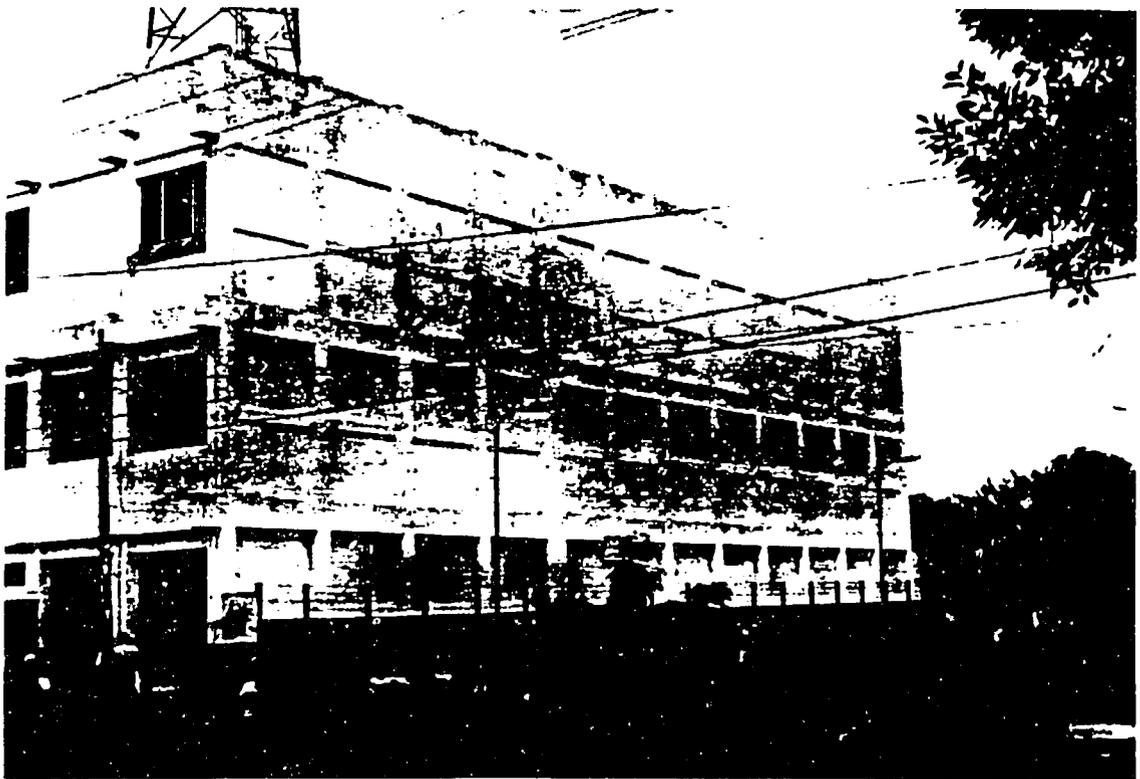
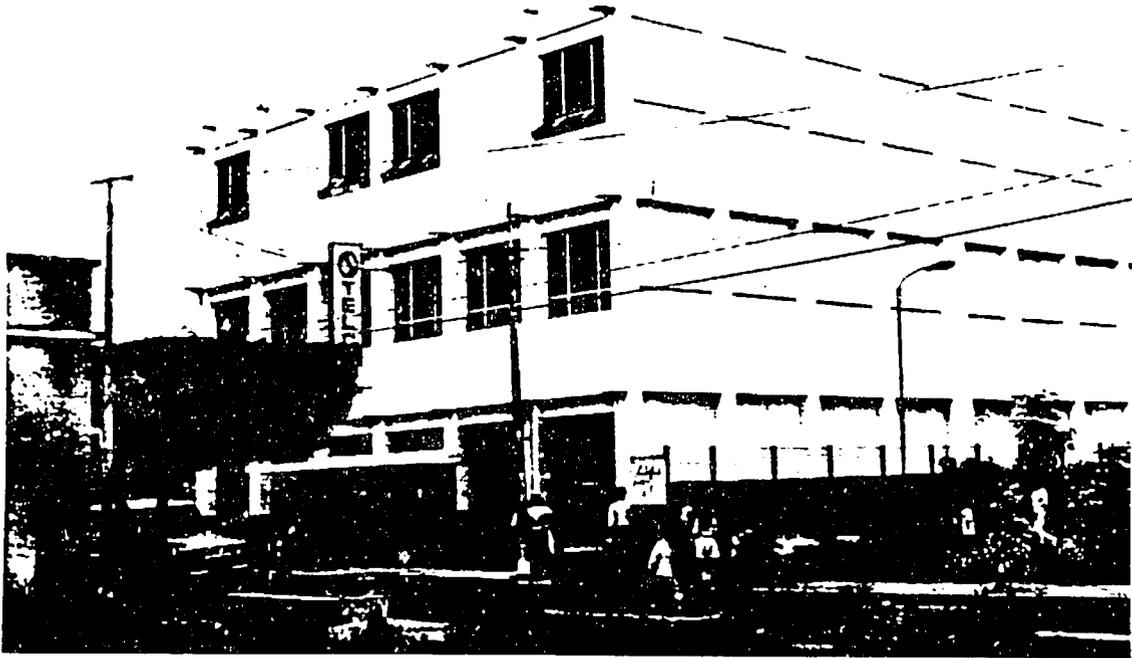
2500 pairs, no protection, Siemens terminals.

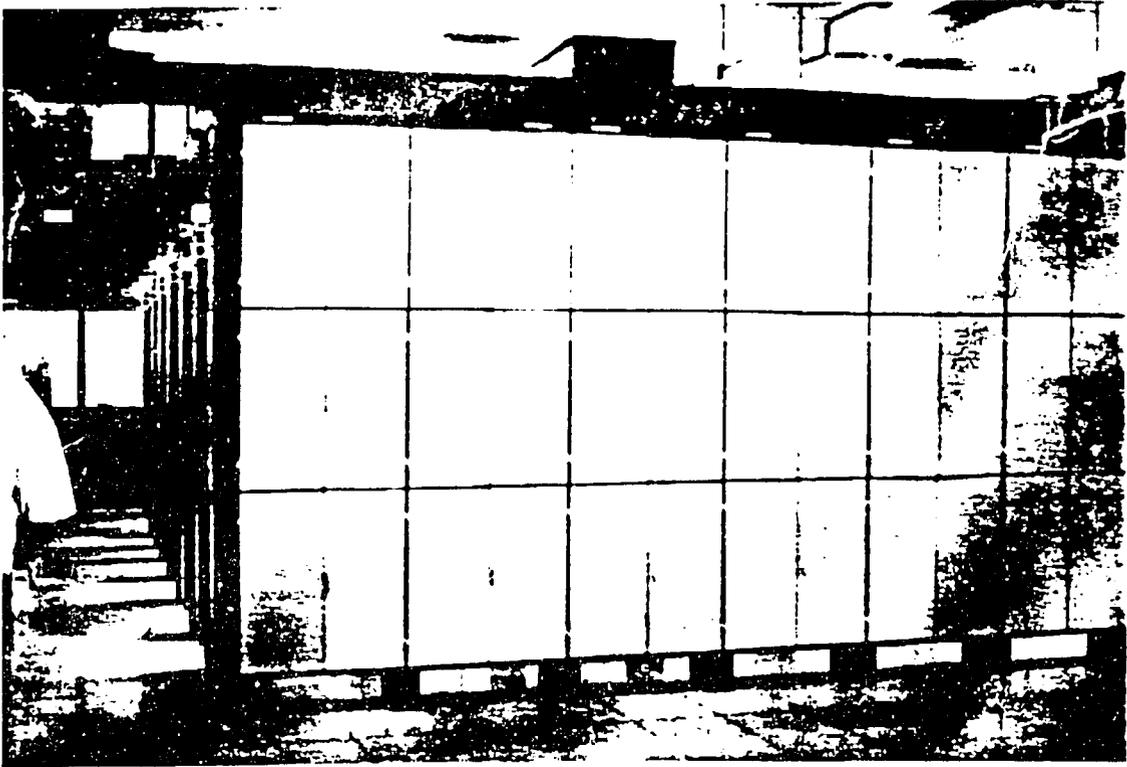
e) Cable Chamber

15 spare ducts - big chamber.

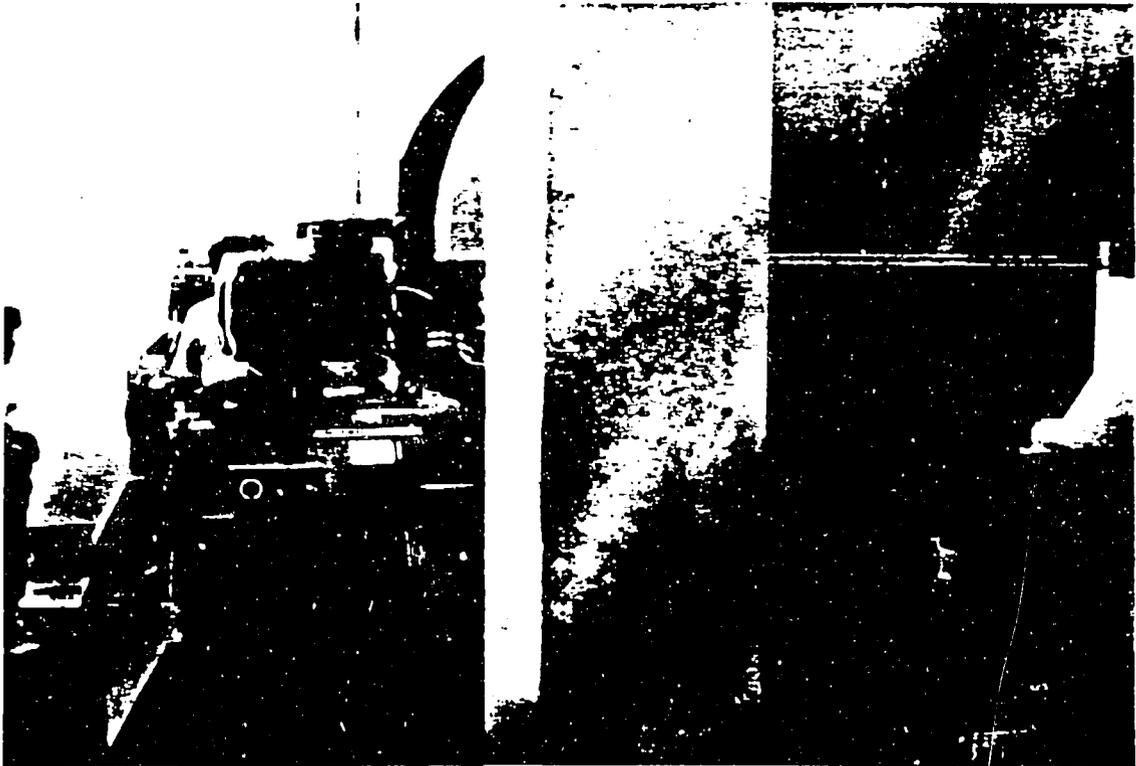
Chinandega Exchange

H 5 V





East German Crossbar Equipment



Two new Mitsubishi Standby Generators
312 kVA each



- Cable Riser Layout**
- M.D.F. to the right
 - Cables pass under raised floor

Earth Station - Managua - 16.9.93

The earth station is located in an extinct volcano fairly close to Managua. The link to Villa Fontana is a mixture of optics and microwave. N.E.C. digital being installed to replace analogue.

The main antenna is a Mitsubishi (105 feet diameter) working to Intelsat 355 using I.D.R. to U.S.A.

Circuits are to A T & T (360), Sprint (30) and MCI (60). There are also direct circuits to Canada, Spain, Italy, U.K., Germany and Holland. The tracking system has recently been renewed and the hardware looks in reasonable condition.

Also on site is an Inter-Sputnik antenna - condition looks very poor with limited circuits to Russia & Cuba. Standby power is well provided.

In the event of a major station breakdown the alternative route out of Nicaragua is via the Trans-Central American microwave. This can handle 60% of traffic on reroute.

Managua Earth Station



**Mitsubishi (105 ft) Antenna to left
Intersputnik antenna to right**

VISIT TO NICARAGUA - SEPTEMBER 1993

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This file is a record of each visit to a site.

J.G. Cartner
September 1993