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Description - A small amount of carrier leakage is present in most transceivers. Carrier leakage can be caused by small offset voltages from the digital to analog converters (DAC), or by the mixers used to modulate the RF signal. The adjustments on the board have been factory preset and are not accessible for service. Therefore, this test checks for carrier leakage percent variation only.

ALTERNATE PROPRIETARY PROCEDURE:

An alternate proprietary procedure is available for GE use, and to customers with a valid Advanced Service Package Limited Licence. Refer to procedure for SST; set test RF Bits=1.

1- TOOLS REQUIRED

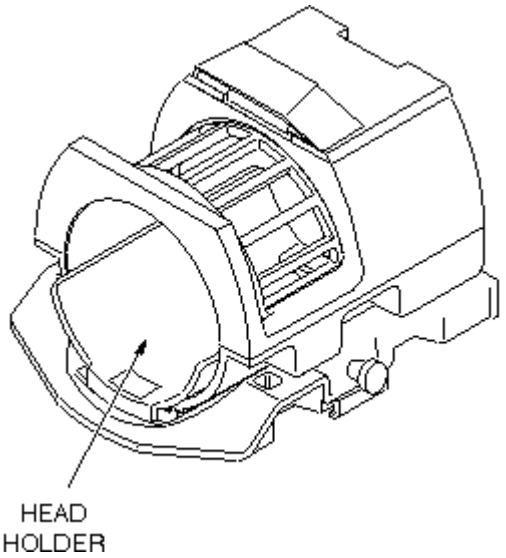
- Head TLT Sphere, 46-265826G6
- Head Loader, 46-287899G1

WARNING!

POISON HAZARD! THE PHANTOM CONTAINS NICKEL, A SUSPECT CARCINOGEN. DO NOT INGEST. DISPOSE OF AS A HAZARDOUS WASTE ACCORDING TO STATE AND FEDERAL REGULATIONS.

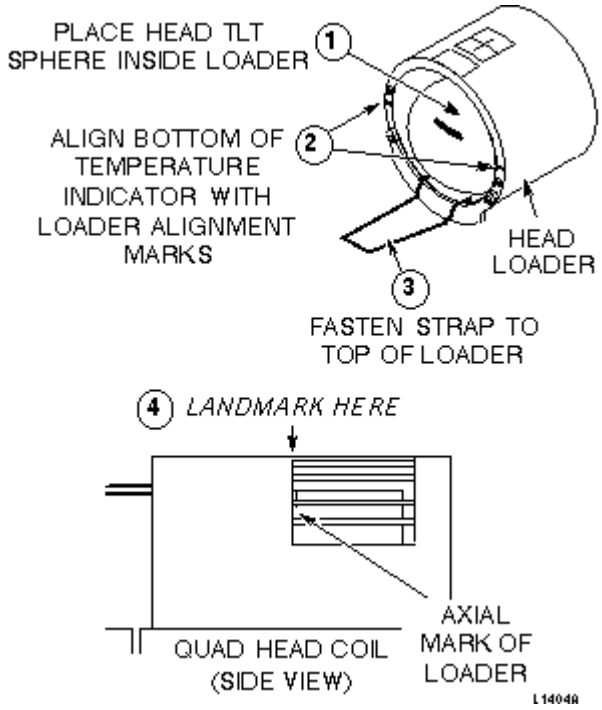
2- CARRIER LEAKAGE SCAN PREPARATION

1. Install head holder. See Illustration 2-1.



HEAD HOLDER PLACEMENT IN HEAD COIL
ILLUSTRATION 2-1

2. Place Head TLT Sphere in Head Loader and landmark per Illustration 2-2.



HEAD TLT PHANTOM SET-UP
ILLUSTRATION 2-2

3. At keypad on front magnet enclosure, press LANDMARK and MOVE TO SCAN.

4. At the operator work space, prepare the system for a Carrier Leakage scan using the *Service Protocols* procedure located on the service methods CD-ROM, or for the alternate proprietary procedure, see below.

   This alternate proprietary procedure is available for GE use, and to sites with a valid Advanced Service Package Limited License.
   a. Click on **[New Pt]**, and enter
      Id: **geservice**
      Name: **carrier leakage**
      Weight (Lb): **111**
      Set Patient Protocols to **Service**.
   b. In the Protocol field, type **o.30.1** (o=Other, 1=series number) to load the protocol.

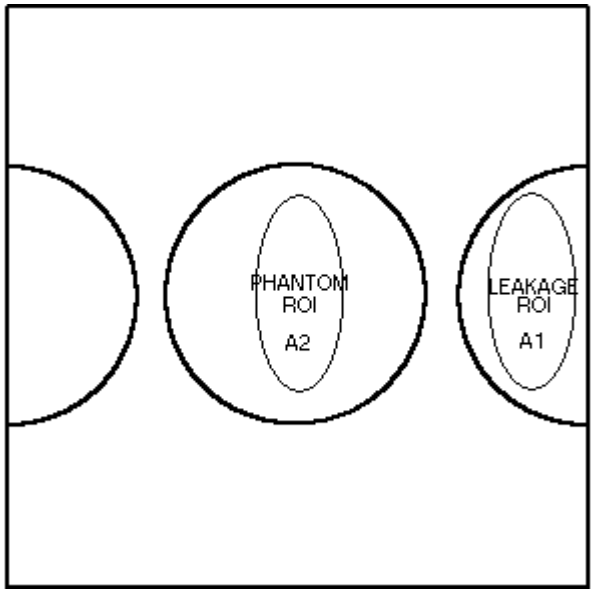
5. Select **[Save Series],** then **[Prepare to Scan]**.

6. Select **[Auto PreScan]**. After prescan, record R1, R2, TG, and system frequency values in Data Sheet, **[Scan]**.

3- IMAGE DATA COLLECTION AND ANALYSIS

If significant carrier leakage is present, prominent ghosts will appear at the left and right sides of the image (see Illustration 3-1). When leakage is low, these ghosts may only be slightly visible, or not at all. This ghost is the image of the ball, due to the leakage. It appears half on one side and half on the other, because the amplitude chopping that occurs affects the leakage differently than the desired data. If no ghosts are visible, skip this procedure, since carrier leakage is not present.

1. Form an oval with the circle cursor that will just fit into one of these 1/2 sphere ghosts (approximate area =7500 sq. mm) See Illustration 3-1 .



CARRIER LEAKAGE ROI MEASUREMENTS
ILLUSTRATION 3-1

2. Collect mean and standard deviation statistics from the right-hand ghost and the phantom center with the oval cursor and the ROI function.

3. Calculate the Carrier Leakage % Variation as follows: $\% \text{ Variation} = \frac{100 \times \text{MEAN}_1}{\text{MEAN}_2}$

4. Record mean value on Data Sheet (Appendix A) and compute ratio.

5. Record results in Data Sheet; verify result meets acceptance specification in Data Sheet.

Note

If the results of the data do not meet the Acceptance Specifications in the Data Sheet, use appropriate procedures to troubleshoot the system.

6. Store completed data tables in *Direction 15403, Signa Advantage / Horizon Data*, System tab, or on floppy disk for future reference.

APPENDIX A - CARRIER LEAKAGE DATA SHEET (USING TLT SPHERE)

SCAN DATA WITH SAT PULSES					
EXAM/ SERIES/ IMAGES	**R1/R2/TG**	**SYSTEM FREQUENCY**	**PARAMETER**	**ROI ANALYSIS**	**TEST CRITERIA**
_____/___/__	___/___/___	_____	**AREA $_1$**		7400mm² < AREA < 7600mm²
			MEAN $_1$		none
			AREA $_2$		7400mm² < AREA < 7600mm²
			MEAN $_2$		none

CALCULATIONS	
Carrier Leakage Percent Variation $= \frac{100 \times \text{MEAN}_1}{\text{MEAN}_2}$	**ACCEPTANCE SPECIFICATION**
Result	< 6.2% (1.5T) < 3.3% (1.0T) < 4.3% (0.5T)

REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
0	Aug 19, 1998	R. Hawthorne	Initial conversion to Word
1	Nov 10, 1998	M. Keber	Removed obsolete 8.1 information, added data sheet, style guide cleanup.
2	May 20, 1999	S.M.Atladottir	Updated Procedure References for New GUI
3	Oct. 23, 2000	M. Jones	Deleted references to head coil tuning ring.