

DESCRIPTION

The GS-1096 Metal Center Section Rotating Anode X-Ray Tube has been designed especially for the **Picker** CT Scanners with special configuration and testing to **Picker Synerview** specifications. The GS-1096 insert uses a graphite backed rhenuim-tungsten-molybdenum anode rated at 1.0 million heat units.

The Larger diameter of the tube envelope improves the overall high voltage performance. The use of a metal center section eliminates arcing due to metal deposition on glass and increases the signal-to-noise ratio due to reduction of off-focus radiation.

INSERT SPECIFICATIONS

ANODE

Diameter 4.25 inches
Heat Storage 1000 KHU
Maximum Cooling 194,000 Heat
Units/Min
Anode Angle 12 degrees
Rotation Speed 3400 or 10,000 RPM

CATHODE

Focal Spot Size 0.6, 1.2 mm
Filament Current 3.5 - 5.5 Amps

RATINGS AND CHARACTERISTICS
Housing Model - B-160H Heat Exchanger Model - HE-300

Maximum Voltage

Anode to Cathode 150 pKV
Anode to Ground 75 pKV
Cathode to Ground 75 pKV

Thermal

Housing Heat Storage 1,500,000 Heat Units
Housing Cooling Rate REF HE300 Chart

Beam Collimation: Inherent Filtration 1.2 mm Aluminum
Fan Beam: 50° maximum in plane of anode rotation

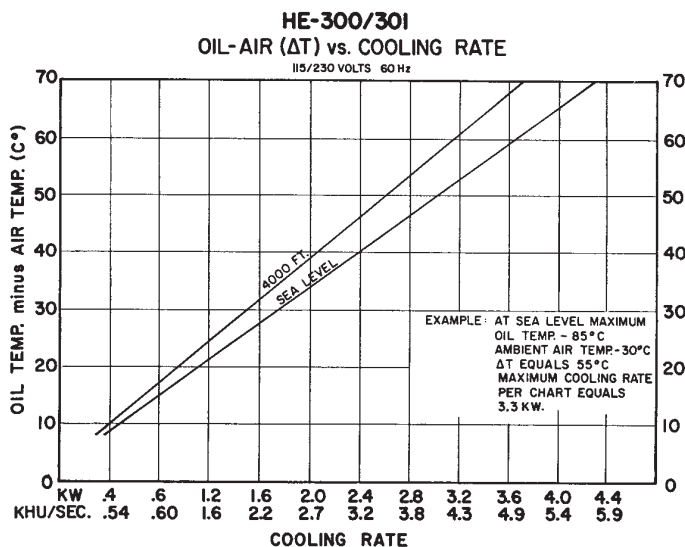
Safety InterLocks

Overtemperature Switch (SPST-NC)
Opens at 75° C, located on Oil Line Boss,
rated at 2.5A, 110 VAC
Flow Switch (SPST-NO)
Closes with adequate oil flow
Rating 5A, 250 VAC, or 3A 28 VDC

STATOR SPECIFICATIONS
50/60, 150/180 HZ

Electrical

Black-White	16	180 HZ Start	240 VAC
Green-White	50	60 HZ Start	240 VAC
Black-Green	66	60 HZ Run	58 VAC



HE-300 HEAT EXCHANGER



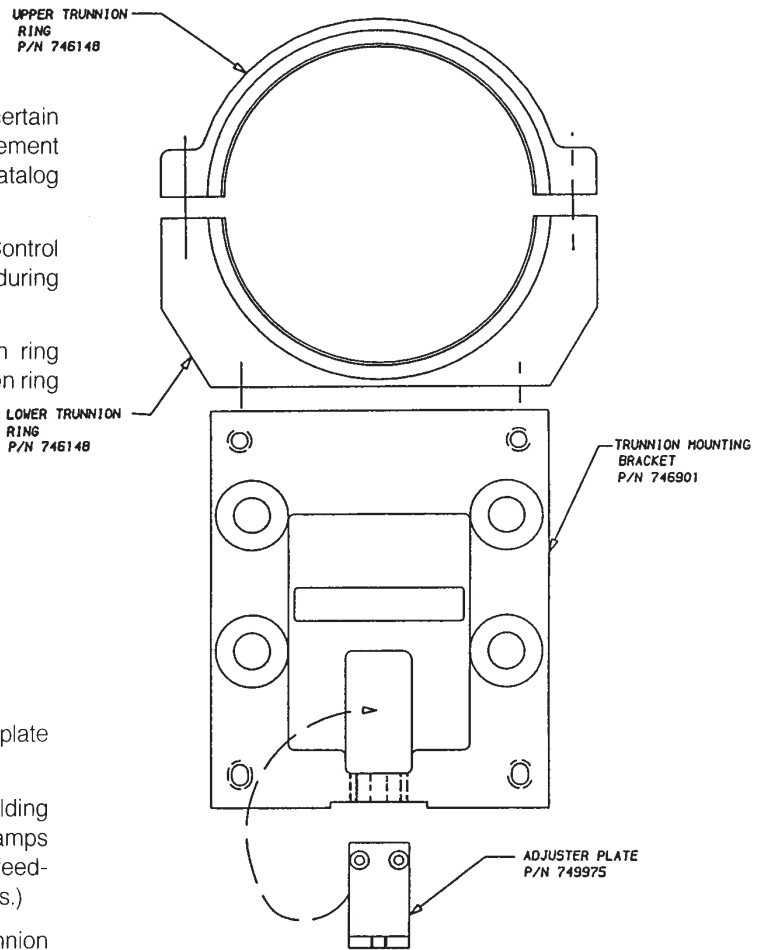
ILLUSTRATIVE VIEW - FIG. 1

**INSTALLATION PROCEDURE
GS-1096**

To install the Varian housing on Picker Scanners certain trunnion mount parts must be replaced. The replacement parts are contained in trunnion assembly kit, catalog #CN-164.

Modification may also be needed to "Couch Control Panel" wiring to prevent interference with tube during gantry rotation.

The "adjuster" base plate under Picker trunnion ring assembly is retained for use with the Varian trunnion ring base plate.



**B-160 Housing and HE-300 Heat Exchanger
Installation
Refer Fig. 1**

1. Replace "L" shaped bracket on adjuster base plate with Varian "L" shaped bracket, P/N 749975.
2. Remove two plastic clamps and hardware holding stator cable to port boss of housing. Discard clamps and hardware. (Do not remove cable from stator feed-through studs or plastic cover over feedthroughs.)
3. Assemble Varian P/N 746148 (bottom half trunnion rings) to Varian P/N 746901 (trunnion mounting bracket) with 4 5/16 x 1" screws. Temporarily install base plate and lower rings to housing. Tighten 4 screws holding trunnion rings to base plate allowing small anode to cathode motion between rings and housing. Do not use plastic trunnion liners.
4. Install adjuster base and Varian trunnion assembly on gantry with 4 5/8" bolts.
5. Position housing into trunnion rings—anode side toward front of gantry. Install upper trunnion rings.
6. Install HE300 heat exchanger. Use four 10/32" screws formerly used with Dunlee heat exchanger. **Use lock-tight on screws.** Position heat exchanger with hoses towards detectors. (Do not use spacer blocks mounted on Dunlee heat exchanger.)
7. Clamp hoses along bottom edge of heat exchanger. Check for kinking of hoses at bends.
8. **Wiring**
 - a. Dress stator cable and heat exchanger cable to "Inboard Drive Chassis."

b. Wiring Connections: Also see Fig. 2.

Stator Cable TB301

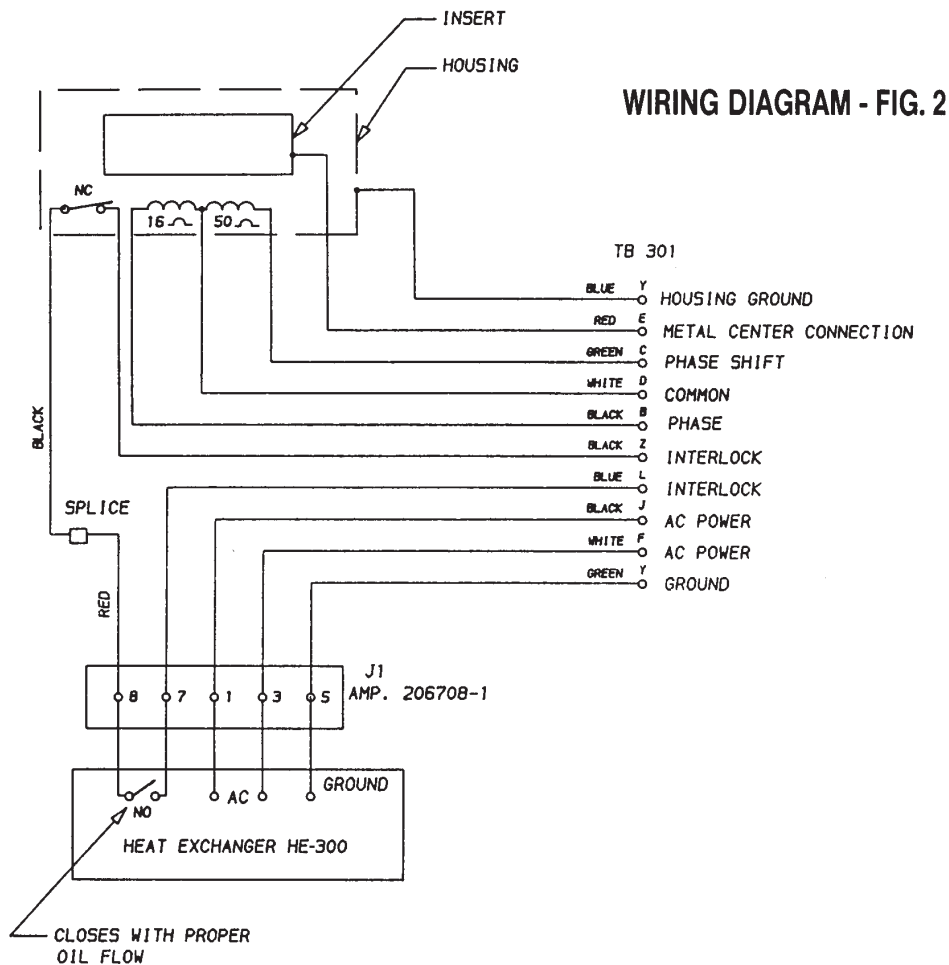
Black	B	Phase
White	D	Common
Green	C	Phase Shift
Red	E	Metal Center Connection
Blue	Y	Housing Ground

Heat Exchanger TB301

White	F	AC Power
Black	J	AC Power
Green	Y	Ground
Blue	L	Flow Switch Interlock

Red—Connect in series with one black wire from thermal switch on housing. Connect second wire from thermal switch to TB301-Z.

Metal Center Section Connection—The wire for the Varian Metal Center Tube exists within the scanner wiring system. The wire is a second housing ground when used with Dunlee tube. The wire runs from TB301-E to J515-5 at grid tank (Ground).



9. Tests and Calibration

- a. Apply power to heat exchanger and check for fan operation.
- b. Test heat exchanger flow switch: Remove wire from TB301-L, Interlock light at control console should come "On". Replace wire on TB301-L, Interlock light should extinguish.
- c. Initiate Anode Rotation — Low Speed
High Speed
Note: GS-1096 anode requires a 2 second boost time and 6 second brake time.
- d. Adjust Filament Preheats.

10. "New Tube" Seasoning Procedure (Must be performed prior to operating tube above 100 KVP)

Use this procedure for new tubes or tubes that have been inactive over seven days.

X-ray Control Cabinet:

Select 80 kV, 110mA, 6 seconds (7.4% anode Storage).

Select — Large Focal Spot.

Select — Low Speed (3400 RPM).

Make 12 exposures — 20 seconds between exposures.

Allow tube to cool 30 minutes.

In 10 kV steps make exposures to 130 kV.

11. Daily Warm-up

Make two 550 mAs scans at 100 kV.

12. Couch Control Panel Wiring

Position x-ray tube at top of rotation.

Slowly close "Front Panel Assembly" and check clearance of x-ray tube and plastic cover over wiring to Couch Control Panel.

If tube housing strikes the plastic cover it will be necessary to modify wiring travel.

- a. Remove plastic cover and wood standoffs.
- b. Glue ribbon cable flat against fiberglass panel.
- c. Strip outer sheath from both multiconductor cables and glue or fasten wires against fiberglass panel with minimum protrusion.

With outer panel closed but not fastened—slowly rotate gantry and check for other travel interference points.

