



GE Medical Systems

Technical Publications

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Revision 5

Omega IV and V Functional Checks sm Service Manual

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ATTENTION

LES APPAREILS À RAYONS X SONT DANGEREUX À LA FOIS POUR LE PATIENT ET POUR LE MANIPULATEUR SI LES MESURES DE PROTECTION NE SONT PAS STRICTEMENT APPLIQUEES

Bien que cet appareil soit construit selon les normes de sécurité les plus sévères, la source de rayonnement X représente un danger lorsque le manipulateur est non qualifié ou non averti. Une exposition excessive au rayonnement X entraîne des dommages à l'organisme.

Par conséquent, toutes les précautions doivent être prises pour éviter que les personnes non autorisées ou non qualifiées utilisent cet appareil créant ainsi un danger pour les autres et pour elles-mêmes.

Avant chaque manipulation, les personnes qualifiées et autorisées à se servir de cet appareil doivent se renseigner sur les mesures de protection établies par la Commission Internationale de la Protection Radiologique, Annales 26 : Recommandations de la Commission Internationale sur la Protection Radiologique et les normes nationales en vigueur.

WARNING

X-RAY EQUIPMENT IS DANGEROUS TO BOTH PATIENT AND OPERATOR UNLESS MEASURES OF PROTECTION ARE STRICTLY OBSERVED

Though this equipment is built to the highest standards of electrical and mechanical safety, the useful x-ray beam becomes a source of danger in the hands of the unauthorized or unqualified operator. Excessive exposure to x-radiation causes damage to human tissue.

Therefore, adequate precautions must be taken to prevent unauthorized or unqualified persons from operating this equipment or exposing themselves or others to its radiation.

Before operation, persons qualified and authorized to operate this equipment should be familiar with the Recommendations of the International Commission on Radiological Protection, contained in Annals Number 26 of the ICRP, and with applicable national standards.

ATENCIÓN

LOS APARATOS DE RAYOS X SON PELIGROSOS PARA EL PACIENTE Y EL MANIPULADOR CUANDO LAS NORMAS DE PROTECCION NO ESTAN OBSERVADAS

Aunque este aparato está construido según las normas de seguridad más estrictas, la radiación X constituye un peligro al ser manipulado por personas no autorizadas o incompetentes. Una exposición excesiva a la radiación X puede causar daños al organismo.

Por consiguiente, se deberán tomar todas las precauciones necesarias para evitar que las personas incompetentes o no autorizadas utilicen este aparato, lo que sería un peligro para los demás y para sí mismas.

Antes de efectuar las manipulaciones, las personas habilitadas y competentes en el uso de este aparato, deberán informarse sobre las normas de protección fijadas por la Comisión Internacional de la Protección Radiológica, Anales No 26: Recomendaciones de la Comisión Internacional sobre la Protección Radiológica y normas nacionales.

ACHTUNG

RÖNTGENAPPARATE SIND EINE GEFAHR FÜR PATIENTEN SOWIE BEDIENUNGSPERSONAL, WENN DIE GELTENDEN SICHERHEITSVORKEHRUNGEN NICHT GENAU BEACHTET WERDEN

Dieser Apparat entspricht in seiner Bauweise strengsten elektrischen und mechanischen Sicherheitsnormen, doch in den Händen unbefugter oder unqualifizierter Personen wird er zu einer Gefahrenquelle. Übermäßige Röntgenbestrahlung ist für den menschlichen Organismus schädlich.

Deswegen sind hinreichende Vorsichtsmaßnahmen erforderlich, um zu verhindern, daß unbefugte oder unqualifizierte Personen solche Geräte bedienen oder sich selbst und andere Personen deren Bestrahlung aussetzen können.

Vor Inbetriebnahme dieses Apparats sollte sich das qualifizierte und befugte Bedienungspersonal mit den geltenden Kriterien für den gefahrlosen Strahleneinsatz durch sorgfältiges Studium des Hefts Nr. 26 der Internationalen Kommission für Strahlenschutz (ICRP) vertraut machen: Empfehlungen der Internationalen Kommission für Strahlenschutz und anderer nationaler Normenbehörden.

WARNING

VOLTAGE PRESENT

Before any intervention:

1. Switch **OFF** CB2 on the AC Power Distribution (VPE1 A2 A25) in Positioner Cabinet.
2. Switch **OFF** Positioner Cabinet Circuit Breaker in Generator Power Cabinet.

LOCK OUT/ TAG OUT

When necessary, perform the following lock out / tag out procedure:

1. Cut the customer power distribution cabinet from its energy source.
2. Inform all concerned parties of the lockout.
3. Lock and put a lockout label on the cabinet.
4. Verify the absence of voltage in the cabinet.
5. Proceed with service to the equipment.
6. Unlock the cabinet and remove the label from the cabinet.
7. Power-up the system.

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REVISION HISTORY

REV	DATE	REASON FOR CHANGE
0	August, 1998	First formal release
1	November, 1998	Second formal release – added TSSC emergency stop button check (created Job Card VF002)
2	February, 2000	Second formal release (ZID1M3) – Removed stepper from VF001, added mention of control panel OR TSSC in VF002. Added ref to IST005 in Omega inst. manual (for Butterfly systems) (BUCge42530)
3	April, 2000	For ZID1M4: BUCge49834.
4	October, 2000	For ZID2M3: Updated for Omega V
5	January, 2002	Updated with Omega IV and Omega V designations

LIST OF EFFECTIVE PAGES

PAGE NUMBER	REVISION NUMBER	PAGE NUMBER	REVISION NUMBER	PAGE NUMBER	REVISION NUMBER
Title page	5				
Safety Instruction					
i thru iv	5				
1-1 thru 1-10	5				

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CHAPTER 1 – FUNCTIONAL CHECKS

SECTION 1 INTRODUCTION

This chapter describes the functional checks for the Omega IV and Omega V tables.
Details of the tests are in Job Cards VF 001 and VF002.

SECTION 2 TOOLS & DOCUMENTATION REQUIRED

2-1 Standard tools

- Standard Service Engineer's toolcase.
- Tape measure with inch and cm scales

2-2 Special tools

- Stopwatch.

2-3 Special equipment

- None

2-4 Necessary documentation

- LCA Operating Manual

SECTION 3 FUNCTIONAL CHECKS

The checking procedures are explained in Job Cards VF001 and VF002. Fill in the check box (Y/N) column and the Comments column in the table below to keep a record of the functional checks.

FUNCTIONAL CHECK	Job Card	Y/N	COMMENTS
In manual mode, check that the longitudinal, lateral, and rotational movements are correct. Check that the brakes and clutch release properly, and the movement is smooth and constant.	VF001		
In automatic (motorized) mode (valid for the OMEGA IV and V Angio models only), check that the longitudinal movement is smooth and constant. Check the table responds quickly and accurately to Smart Handle movement.	VF001		
On the OMEGA IV and V Angio tables, the longitudinal movement limit is imposed by the software before the electric limit travel switch activates. If this does not occur use the service laptop computer and follow the calibration procedure.	VF001		
For the Omega IV and V Angio tables, check that the longitudinal movement limit switches function correctly.	VF001		
Check the table rotation is automatically stopped when the table is in a central (normal) position.	VF001		
Check the position detection (lateral center and longitudinal center) is correct.	VF001		
Check the vertical movement is smooth and constant. Check the table responds quickly and accurately to the Smart Handle movement.	VF001		
Check the up and down vertical movement limit switches function correctly.	VF001		
If the table has the Bolus chasing option (Omega IV and V Angio Tables only), check the functionality; check the speed of the table varies according to the bolus chasing control handle. A complete Stepping test procedure is in the Advantx manual.	VF001		
Check that red emergency stop button on control panel cuts all system power when pressed. If optional 2nd control panel is present, repeat the check on it.	VF002		

<h2 style="margin: 0;">Omega IV and V Functional Checks Job Card VF 001</h2>	1 of 6
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Purpose: FUNCTIONAL CHECKS	Version No.: Date:
Time: 1 hour	Personnel: 1 field engineer

**SECTION 1
SUPPLIES**

- None.

**SECTION 2
TOOLS**

- Standard Service Engineer’s toolcase.
- Tape Measure – 3 m (10 feet)
- Stop Watch

**SECTION 3
SPECIAL SAFETY PRECAUTIONS**

- None.

**SECTION 4
PREREQUISITES**

- None.

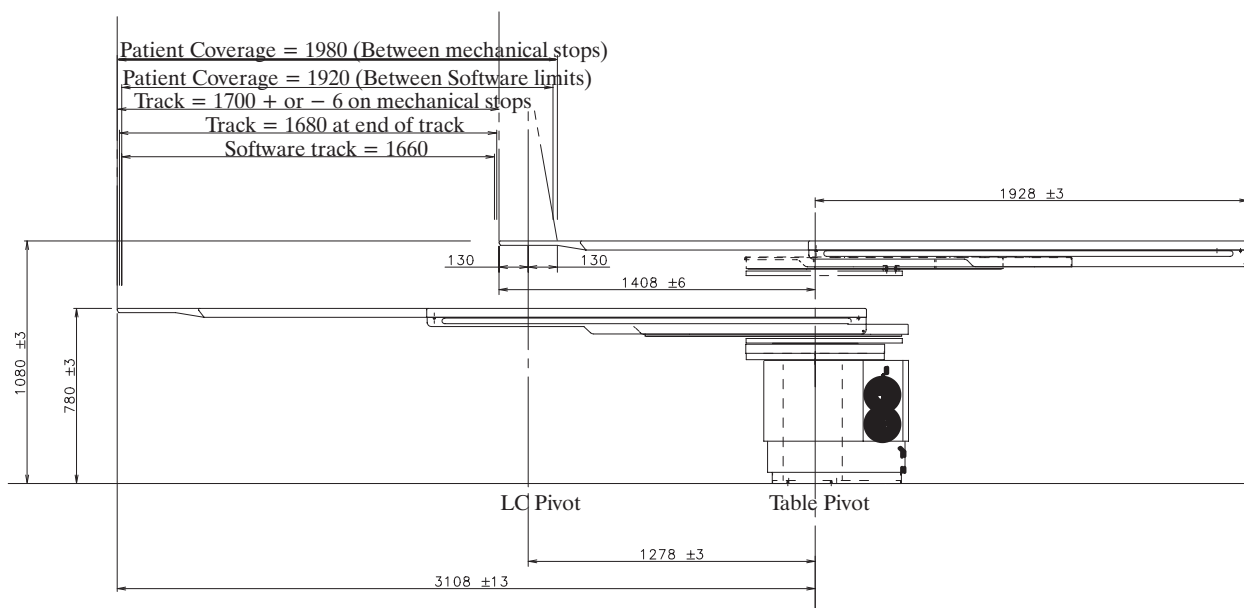
FUNCTIONAL CHECKS	Job Card VF 001	2 of 6
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SECTION 5
TASK DESCRIPTION

TABLE 1
MANUAL TABLE MOVEMENT CHECK1

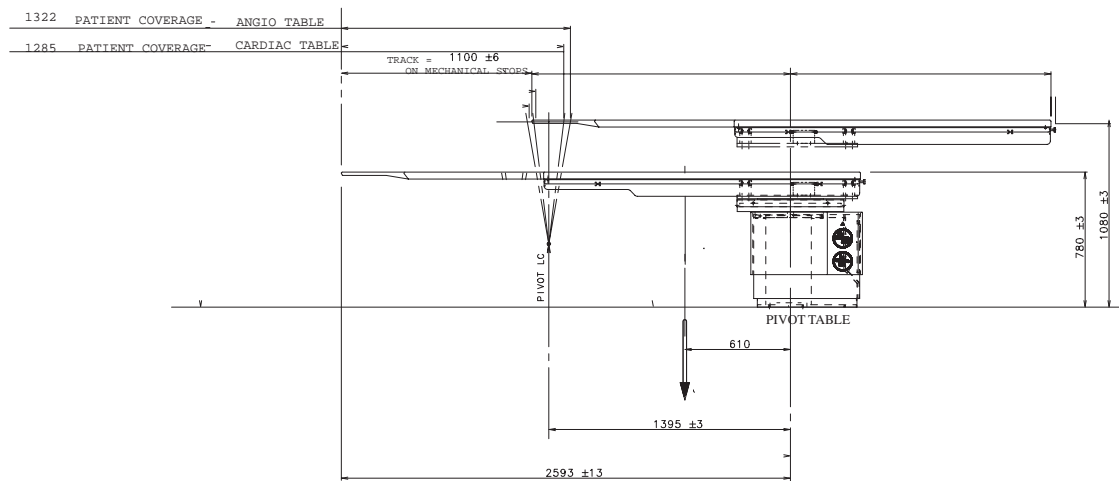
STEPS	OPERATIONS	REQUIRED RESULTS	RESULTS
1	Manually move table longitudinally.	Longitudinal, table locks can be engaged and released. Table moves smoothly.	

ILLUSTRATION 1
OMEGA IV AND V ANGIO TABLES



FUNCTIONAL CHECKS **Job Card VF 001** 3 of 6

**ILLUSTRATION 2
OMEGA IV AND OMEGA V TABLES**



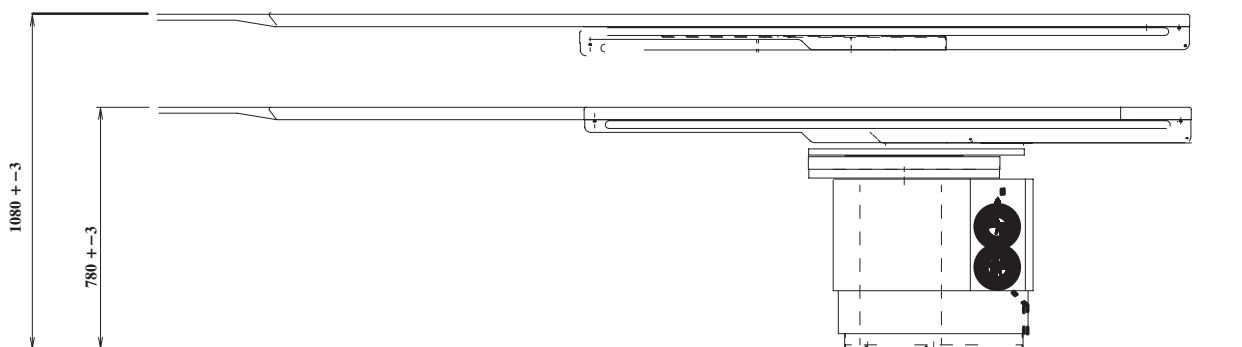
**TABLE 2
TABLE TOP LONGITUDINAL AND LATERAL MOTIONS CHECK**

STEPS	OPERATIONS	RESULTS EXPECTED	RESULTS
1	Deactivate longitudinal and lateral table locks.	Top moves freely throughout complete longitudinal and lateral range of travel.	
2	Measure longitudinal travel (Omega IV and V Angio Tables)	1700 mm ± 6mm (67" ± 1/4")	
2	Measure longitudinal travel (Omega IV Cardiac/Neuro Table)	1100 mm ± 6mm (43" ± 1/2")	
3	Measure total lateral travel	280mm ± 6mm (11" ± 1/4")	
4	Measure lateral travel either side of center.	140mm ± 10mm (5 1/2" ± 3/8")	
5	Move top to mid position. Activate longitudinal and lateral table locks.	Top does not easily move in longitudinal or lateral direction from locked position.	

FUNCTIONAL CHECKS	Job Card VF 001	4 of 6
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TABLE 3
TABLE TOP VERTICAL MOTION CHECK

STEPS	OPERATIONS	RESULTS EXPECTED	RESULTS
1	Activate vertical drive. Move top from highest to lowest position and back to highest position.	Movement is smooth throughout entire vertical range of travel.	
2	Measure vertical travel from table top to floor.	Min height = 780 mm ±10 (30.7" ±3/8) Max height = 1080 mm ±10 (42.5" ±3/8")	
3	Measure the travel speed without load.	2.5 cm ±0.25 (1" ±0.3") per sec @ 60 Hz 2.0 cm ±0.25 (0.8" ±0.1") per sec @ 50 Hz	
4	Deactivate vertical drive.	Top should not drift downward.	



FUNCTIONAL CHECKS	Job Card VF 001	5 of 6
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TABLE 4
TABLE TOP ROTATIONAL MOTION CHECK

STEPS	OPERATIONS	RESULTS EXPECTED	RESULTS
1	Deactivate rotational table lock.	Top can be manually rotated in horizontal plane $180^\circ \pm 2^\circ$ on either side of normal longitudinal center line position, regardless of longitudinal extension or lateral position.	

FUNCTIONAL CHECKS

Job Card VF 001

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Omega IV and V Functional Checks Job Card VF 002	1 of 2
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Purpose: EMERGENCY STOP BUTTON CHECK	Version No.: Date:
Time: 5 minutes	Personnel: 1 field engineer

**SECTION 1
SUPPLIES**

- None.

**SECTION 2
TOOLS**

- Standard Service Engineer’s toolcase.

**SECTION 3
SPECIAL SAFETY PRECAUTIONS**

- None.

**SECTION 4
PREREQUISITES**

- Control panel/TSSC is installed and connected as per Omega IV and V Installation manual, Job Card IST007/IST013.
- If system has optional second control panel/TSSC, it is also installed and connected as per Omega IV and V Installation manual, Job Card IST007/IST013.

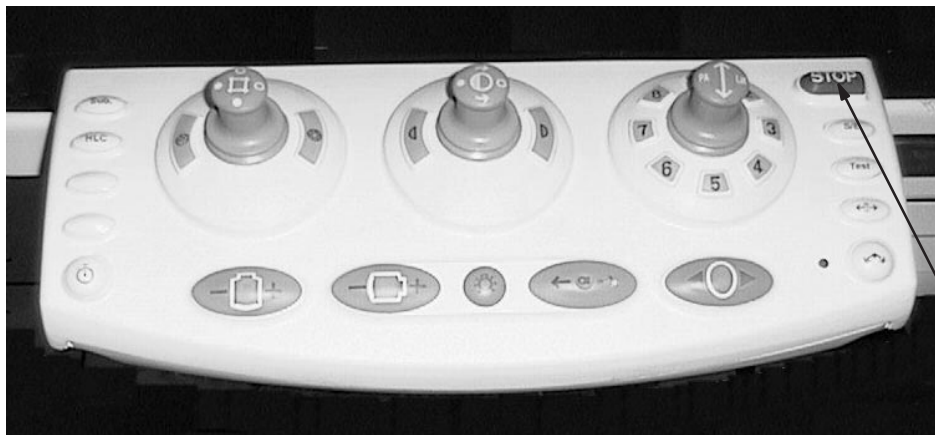
EMERGENCY STOP BUTTON CHECK **Job Card VF 002** 2 of 2

SECTION 5
TASK DESCRIPTION

1. With system powered up normally, press emergency stop button on control panel/TSSC as shown in Illustration 1.

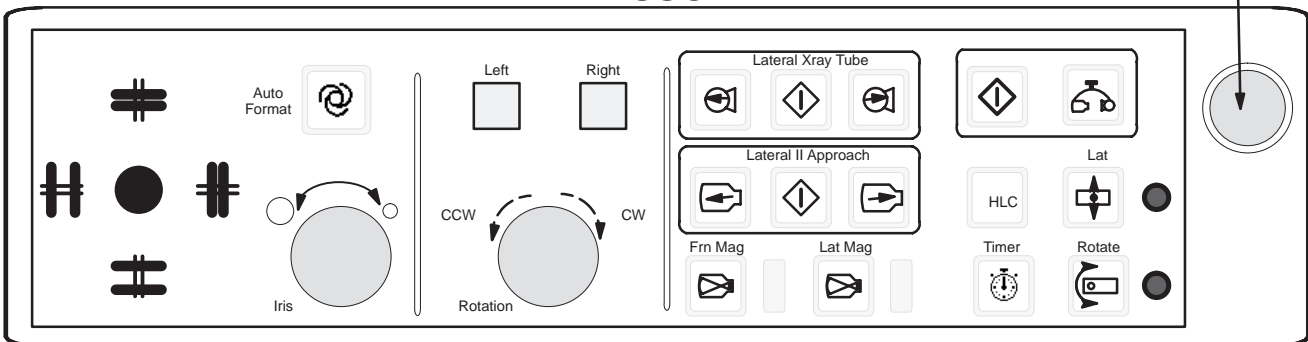
ILLUSTRATION 1
EMERGENCY STOP BUTTON ON CONTROL PANEL OR TSSC

CONTROL PANEL



Emergency Stop Button

TSSC



2. Check that all system axis movements are immediately disabled.
3. Press reset button on underside of the same control panel/TSSC that was used to disable system movements.
4. Check that all system axis movements are restored.
5. If optional 2nd control panel/TSSC is present, repeat the check on 2nd control panel/TSSC.
6. **For systems with TSSC only:** If any check fails, check configuration in Omega IV and V Installation manual, Job Card IST004 (or Job Card IST005, as applicable), section "Configuration for 1 or 2 TSSCs".