

Power Triode

THORIATED-TUNGSTEN FILAMENT COAXIAL-ELECTRODE STRUCTURE
 FORCED-AIR COOLED 4 KW PLATE DISSIPATION
 INTEGRAL RADIATOR

For VHF Service in Television and CW Applications
 at Frequencies up to 220 Mc. The 5762A is
 Unilaterally Interchangeable with the 5762/7C24.

GENERAL DATA

Electrical:

Filament, Thoriated Tungsten:

Voltage (AC or DC) 12.6 $\pm$ 0.6 volts

Current at 12.6 volts. 29 amperes

Starting current: The filament current must never exceed
 175 amperes, even momentarily

Cold resistance. 0.052 ohm

Amplification Factor 29

Direct Interelectrode Capacitances:

Grid to plate. 18 $\mu\mu\text{f}$

Grid to filament 19 $\mu\mu\text{f}$

Plate to filament. 0.5 $\mu\mu\text{f}$

Mechanical:

Operating Position Vertical, either end up

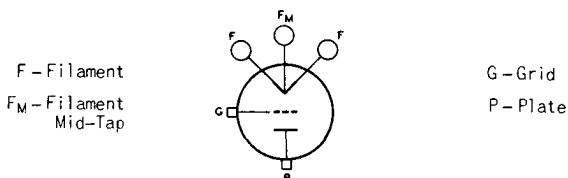
Maximum Overall Length (Excluding flexible leads). . . 7-1/8"

Maximum Diameter 4-11/16"

Radiator Integral part of tube

Weight 6-1/4 lbs

Terminal Connections (See *Dimensional Outline*):



Thermal:

Air Flow:

Through Radiator—The specified flow of incoming air at a temperature of 45° C for various plate dissipations, as indicated in the tabulation below, should be delivered by a blower through the radiator before and during the application of any voltages. Filament power, plate power, and air may be removed simultaneously.

Percentage of maximum rated plate dissipation for each class of service.	100	80	60	per cent
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Minimum air flow	300	214	125	cfm
Static pressure.	2.9	1.47	0.58	in. of water

To Header and Filament Seals 10 min. cfm

The specified air flow from a 1"-diameter nozzle should be directed into the filament header before and during the application of any voltages in order to limit the temperature of the filament seals and the grid seal to their maximum value.

Incoming Air Temperature	45 max.	°C
Radiator Temperature (Measured on the core at end away from incoming air)	180 max.	°C
Bulb Temperature (At hottest part)	180 max.	°C
Seal Temperature:		
Filament, grid, and plate.	180 max.	°C

AF POWER AMPLIFIER & MODULATOR - Class B

Maximum CCS^a Ratings, Absolute-Maximum Values:

DC PLATE VOLTAGE	6200 max.	volts
MAX.-SIGNAL DC PLATE CURRENT ^b	1.5 max.	amp
MAX.-SIGNAL PLATE INPUT ^b	8700 max.	watts
PLATE DISSIPATION ^b	4000 max.	watts

Typical Operation:

Values are for 2 tubes

DC Plate Voltage	4700	volts
DC Grid Voltage.	-200	volts
Peak AF Grid-to-Grid Voltage	900	volts
Zero-Signal DC Plate Current	0.3	amp
Max.-Signal DC Plate Current	2.8	amp
Effective Load Resistance (Plate to plate)	3640	ohms
Max.-Signal Driving Power (Approx.)	195	watts
Max.-Signal Power Output (Approx.)	8800	watts

RF POWER AMPLIFIER - Class B Television Service

Synchronizing-level conditions per tube unless otherwise specified

Maximum CCS^a Ratings, Absolute-Maximum Values:

54 to 215 Mc

DC PLATE VOLTAGE	4500 max.	volts
DC PLATE CURRENT	2.0 max.	amp
DC GRID CURRENT (Pedestal level)	0.325 max.	amp
PLATE INPUT.	9000 max.	watts
PLATE DISSIPATION.	4000 max.	watts

Typical Operation in Cathode-Drive Circuit:

Bandwidth ^c of.	10	8.5	6	Mc
DC Plate Voltage	3000	3200	4300	volts
DC Grid Voltage.	-105	-110	-150	volts

Peak RF Grid Voltage:				
Synchronizing level	380	435	500	volts
Pedestal level	290	310	355	volts
DC Plate Current:				
Synchronizing level	1.8	1.8	2.0	amp
Pedestal level	1.36	1.35	1.5	amp
DC Grid Current:				
Synchronizing level	0.265	0.400	0.439	amp
Pedestal level	0.115	0.130	0.118	amp
Driving Power (Approx.): ^d				
Synchronizing level	625	770	983	watts
Power Output (Approx.):				
Synchronizing level	3150	4000	6350	watts
Pedestal level	1800	2300	3590	watts

GRID-MODULATED RF POWER AMPLIFIER
Class C Television Service

*Synchronizing-level conditions per
tube unless otherwise specified*

Maximum CCS^a Ratings, Absolute-Maximum Values:

54 to 216 Mc

DC PLATE VOLTAGE	3700 max.	volts
DC GRID VOLTAGE (White level)	-800 max.	volts
DC PLATE CURRENT	1.9 max.	amp
DC GRID CURRENT (Pedestal level)	0.225 max.	amp
PLATE INPUT	6500 max.	watts
PLATE DISSIPATION	4000 max.	watts

Typical Operation in Cathode-Drive Circuit:

<i>Bandwidth^c of</i>	<i>8.5</i>	<i>Mc</i>
DC Plate Voltage	3200	volts
DC Grid Voltage:		
Synchronizing level	-110	volts
Pedestal level	-220	volts
White level	-520	volts
Peak RF Grid Voltage	435	volts
DC Plate Current:		
Synchronizing level	1.8	amp
Pedestal level	1.25	amp
DC Grid Current (Approx.):		
Synchronizing level	0.400	amp
Pedestal level	0.130	amp
Driving Power (Approx.): ^d		
Synchronizing level	770	watts
Power Output (Approx.):		
Synchronizing level	4000	watts
Pedestal level	2300	watts



PLATE-MODULATED RF POWER AMPLIFIER — Class C Telephony

*Carrier conditions per tube for use
with a maximum modulation factor of 1*

Maximum CCS^a Ratings, Absolute-Maximum Values:

	Up to 30 Mc ^e	
DC PLATE VOLTAGE.	5000 max.	volts
DC GRID VOLTAGE	-1000 max.	volts
DC PLATE CURRENT.	1.0 max.	amp
DC GRID CURRENT	0.3 max.	amp
PLATE INPUT	5000 max.	watts
PLATE DISSIPATION	2700 max.	watts

Typical Operation* in Grid-Drive Circuit:

	Up to 30 Mc	At 110 Mc	
DC Plate Voltage.	4700	4000	volts
DC Grid Voltage	-400	-350	volts
From a grid resistor of	1425	1460	ohms
Peak RF Grid Voltage ^f	675	600	volts
DC Plate Current.	0.96	0.93	amp
DC Grid Current (Approx.)	0.28	0.24	amp
Driving Power (Approx.)	170	130	watts
Power Output (Approx.)	3700	2800	watts

Typical Operation in Cathode-Drive Circuit:

	Up to 30 Mc	At 110 Mc	
DC Plate Voltage.	4700	4000	volts
DC Grid Voltage	-400	-350	volts
From a grid resistor of	1425	1460	ohms
Peak RF Grid Voltage.	675	600	volts
DC Plate Current.	0.96	0.93	amp
DC Grid Current (Approx.)	0.28	0.24	amp
Driving Power (Approx.) ^g	720	600	watts
Power Output (Approx.)	4200	3200	watts

RF POWER AMPLIFIER & OSCILLATOR — Class C Telegraphy and

RF POWER AMPLIFIER — Class C FM Telephony

Maximum CCS^a Ratings, Absolute-Maximum Values:

	Up to 30 Mc ^e	
DC-PLATE VOLTAGE.	6200 max.	volts
DC GRID VOLTAGE	-1000 max.	volts
DC PLATE CURRENT.	1.4 max.	amp
DC GRID CURRENT	0.3 max.	amp
PLATE INPUT	8700 max.	watts
PLATE DISSIPATION	4000 max.	watts

Typical Operation in Grid-Drive Circuit:

	<i>Up to 30 Mc</i>	
DC Plate Voltage.	6000	volts
DC Grid Voltage:		
From a fixed supply of.	-550	volts
From a grid resistor of	1900	ohms
From a cathode resistor of.	360	ohms
Peak RF Grid Voltage.	875	volts
DC Plate Current.	1.25	amp
DC Grid Current (Approx.)	0.290	amp
Driving Power (Approx.)	225	watts
Power Output (Approx.)	6000	watts

Typical Operation in Cathode-Drive Circuit:

	<i>Up to 30 Mc</i>	<i>At 110 Mc</i>	<i>At 220 Mc</i>	
DC Plate Voltage.	6000	5000	4300	volts
DC Grid Voltage:				
From a fixed supply of.	-550	-1000	-200	volts
From a grid resistor of	1900	4100	807	ohms
From a cathode resistor of.	360	740	134	ohms
Peak RF Grid Voltage.	875	1350	432	volts
DC Plate Current.	1.25	1.1	1.25	amp
DC Grid Current (Approx.)	0.290	0.245	0.25	amp
Driving Power (Approx.)	1225	1680	542	watts
Power Output (Approx.)	7000	5500	4000	watts

SELF-RECTIFYING OSCILLATOR or AMPLIFIER - Class C**Maximum CCS^a Ratings, Absolute-Maximum Values:**

	<i>Up to 30 Mc^b</i>	
AC PLATE VOLTAGE (RMS).	7000 max.	volts
DC GRID VOLTAGE	-300 max.	volts
DC PLATE CURRENT.	0.635 max.	amp
DC GRID CURRENT	0.135 max.	amp
PLATE INPUT ^b	4900 max.	watts
PLATE DISSIPATION	4000 max.	watts

Typical Operation:

AC Plate Voltage (RMS).	6600	volts
DC Grid Voltage	-127	volts
DC Plate Current.	0.625	amp
DC Grid Current (Approx.)	0.105	amp
Driving Power (Approx.)	60	watts
Power Output (Approx.)	3350	watts



AMPLIFIER or OSCILLATOR — Class C

*With separate, rectified, unfiltered,
single-phase, full-wave plate supply*

Maximum CCS^a Ratings, Absolute-Maximum Values:

	<i>Up to 30 Mc^b</i>	
DC PLATE VOLTAGE	5600 max.	volts
DC GRID VOLTAGE	-600 max.	volts
DC PLATE CURRENT	1.25 max.	amp
DC GRID CURRENT	0.270 max.	amp
PLATE INPUT ^k	8600 max.	watts
PLATE DISSIPATION	4000 max.	watts

Typical Operation:

DC Plate Voltage	5000	volts
DC Grid Voltage	-260	volts
DC Plate Current	1.2	amp
DC Grid Current (Approx.)	0.260	amp
Driving Power (Approx.) ^m	150	watts
Power Output (Approx.)	5650	watts

^a Continuous Commercial Service.

^b Averaged over any audio-frequency cycle of sine-wave form.

^c Computed between half-power points in a single-tuned circuit and based on tube output capacitance only.

^d The driver stage is required to supply tube losses and rf-circuit losses. It should be designed to provide an excess of power above the indicated values to take care of variations in line voltage, in components, in initial tube characteristics, and in tube characteristics during life.

^e For operation at higher frequencies, see accompanying *Maximum-Ratings-vs-Operating-Frequency* Chart.

^f Driver modulated approximately 30%.

^g Carrier power of driver modulated 100%.

^h Plate input is 1.11 times the product of the ac voltage (rms) and the dc plate current.

^j From a self-rectified driver.

^k Plate input is 1.23 times the product of the dc plate voltage and the dc plate current.

^m From a driver with a rectified, unfiltered, single-phase, full-wave plate supply.

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	Min.	Max.	
Filament Current	1	27	31	amp
Amplification Factor	1,2	25	33	
Direct Interelectrode Capacitances:				
Grid to plate	—	16.5	20.5	μf
Grid to filament	—	15.5	22.5	μf
Plate to filament	—	0.38	0.62	μf
Grid Voltage	1,3	-125	-190	volts
Plate Voltage	1,4	1350	1750	volts
Plate Voltage	1,5	2600	3400	volts
Peak Cathode Current	6	10	—	amp
Useful Power Output	1,7	3	—	kw



- Note 1: With 12.6 volts rms on filament.
- Note 2: With dc grid voltage of -25 volts measured from center-tap of filament supply, and dc plate voltage adjusted to give dc plate current of 0.5 ampere.
- Note 3: With dc plate voltage of 4000 volts, and dc grid voltage adjusted to give dc plate current of 0.05 ampere.
- Note 4: With dc grid voltage of 0 volts measured from center-tap of filament supply, and dc plate voltage adjusted to give dc plate current of 0.5 ampere.
- Note 5: With dc grid voltage of -50 volts measured from center-tap of filament supply, and dc plate voltage adjusted to give dc plate current of 0.5 ampere.
- Note 6: Designers should limit the maximum useable cathode current (plate current and grid current) to this value under any condition of operation.
- Note 7: In a self-excited, coaxial, oscillator circuit and with dc plate voltage of 5000 volts, dc plate current of 1.1 amperes, grid resistor of $1500 \pm 10\%$ ohms, dc grid current of 0.250 to 0.300 ampere, and frequency of 110 Mc.

MAXIMUM RATINGS vs OPERATING FREQUENCY

FREQUENCY	30	110	220	Mc
MAXIMUM PERMISSIBLE PERCENTAGE OF MAXIMUM-RATED PLATE VOLTAGE AND PLATE INPUT:				
Class B Television	Full Ratings — 54 to 216 Mc			
Class C Television	Full Ratings — 54 to 216 Mc			
Class C Telephony, Plate-Modulated	100	84	72	%
Class C Telegraphy and FM Telephony	100	84	72	%
Class C Amplifier or Oscillator, Self-Rectifying	100	84	72	%
Class C Amplifier or Oscillator with Separate, Rectified, Unfiltered Plate Supply	100	84	72	%
MAXIMUM PERMISSIBLE PERCENTAGE OF MAXIMUM-RATED DC GRID VOLTAGE AND DC GRID CURRENT:				
Class B Television	Full Ratings — 54 to 216 Mc			
Class C Television	Full Ratings — 54 to 216 Mc			
	<i>Voltage Current</i>			
Class C Telephony Plate-Modulated	100	100	60 83	%

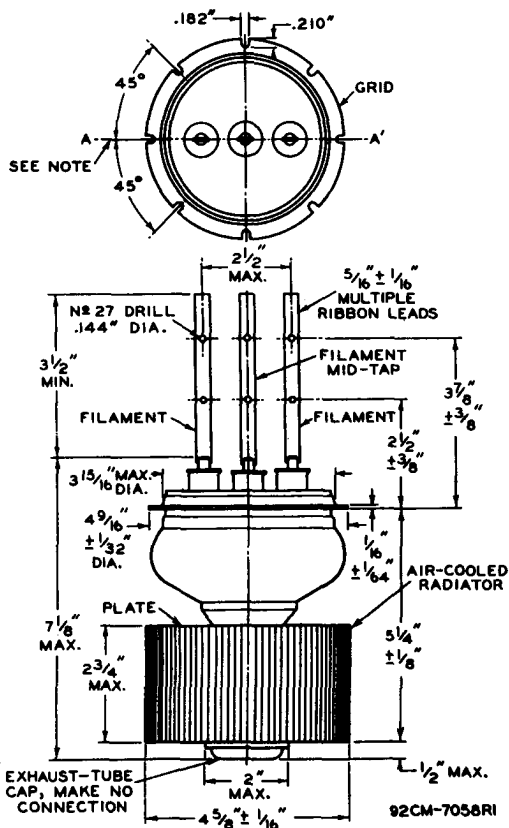


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FREQUENCY	30	110	220		Mc
			<i>Voltage Current</i>		
Class C Telegraphy, and FM Telephony	100	100	60	83	%
Class C Amplifier or Oscillator, Self Rectifying	100	100	60	83	%
Class C Amplifier or Oscillator with Separate, Recti- fied, Unfiltered Plate Supply	100	100	60	83	%

FOR ADDITIONAL INFORMATION ON THIS TYPE,
WRITE FOR TECHNICAL BULLETIN AVAILABLE
FROM:

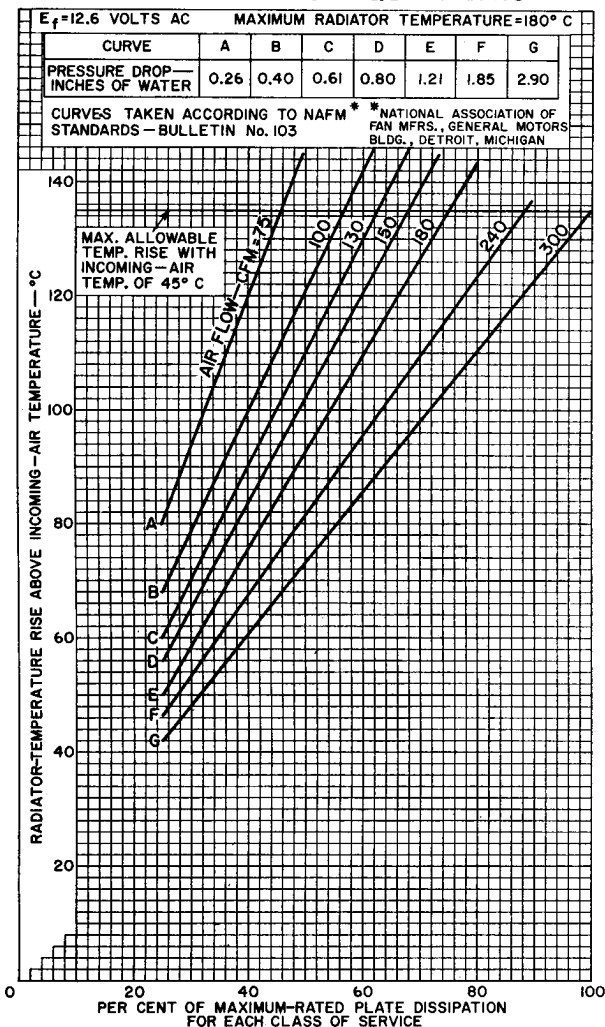
Commercial Engineering
Electron Tube Division
RCA
Harrison, New Jersey



NOTE: PLANE OF FILAMENT LEADS WILL NOT DEVIATE MORE THAN $3-1/2^\circ$ FROM PLANE PASSING THROUGH AA' NORMAL TO GRID FLANGE.

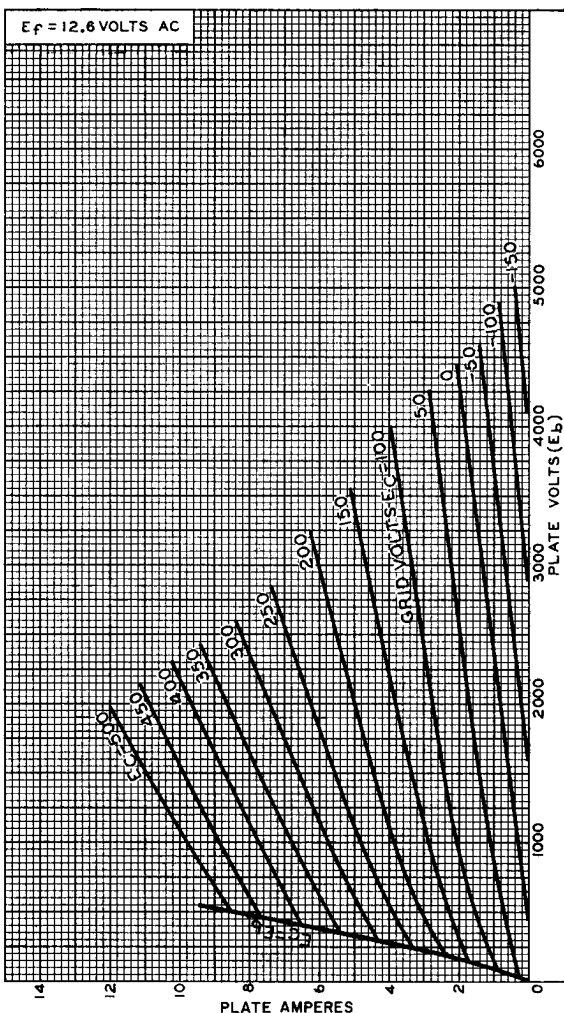


TYPICAL COOLING REQUIREMENTS



92CM-11091

AVERAGE PLATE CHARACTERISTICS

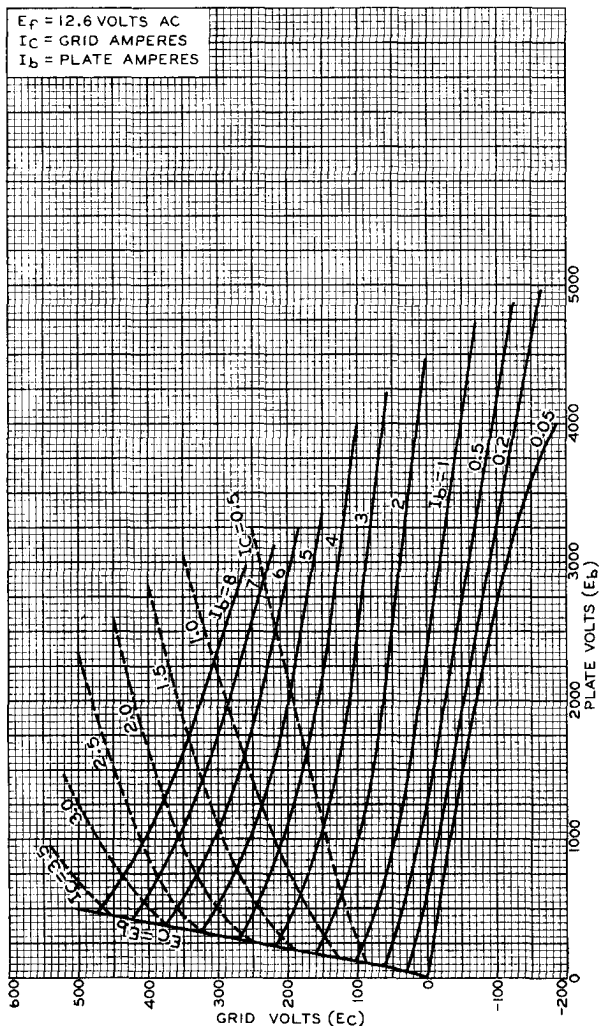


92CM-7079



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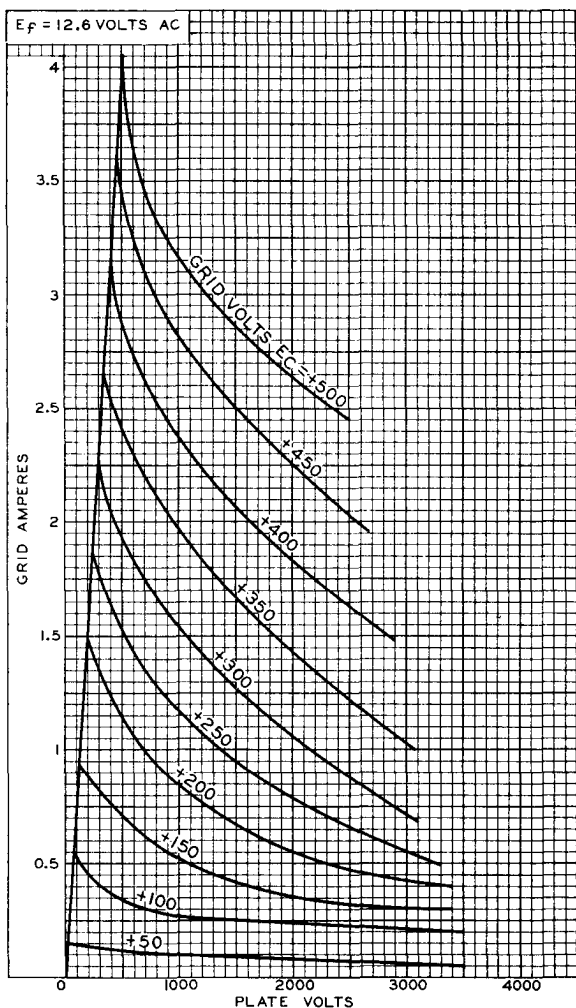
AVERAGE CONSTANT-CURRENT CHARACTERISTICS



92CM-7082



TYPICAL CHARACTERISTICS



92CM-7081

