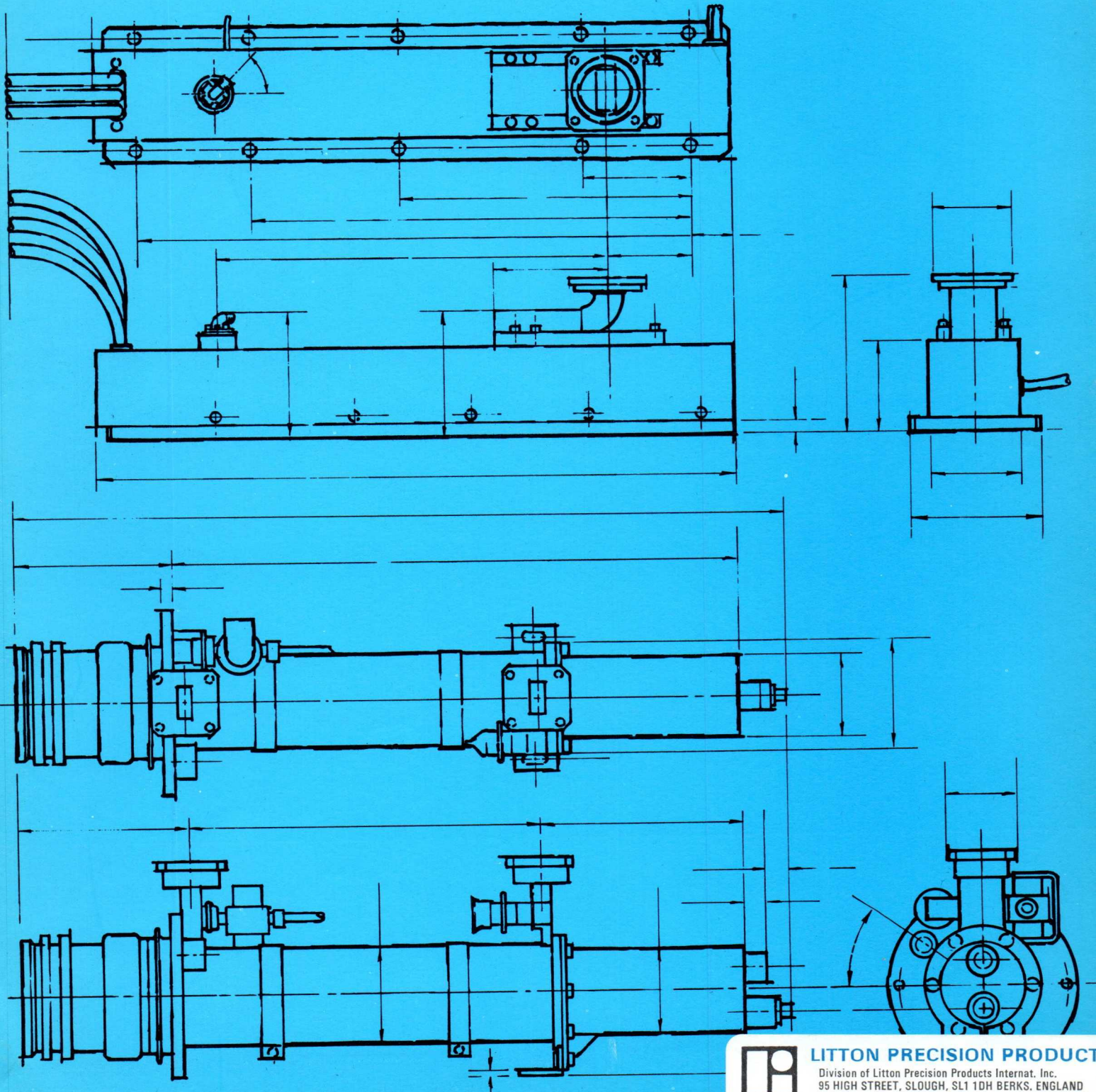
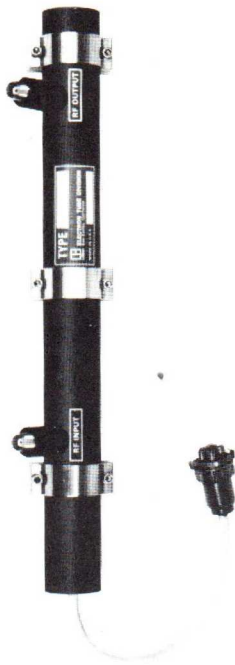


# Litton Traveling Wave Tube Product Summary



**LITTON PRECISION PRODUCTS**

Division of Litton Precision Products Internat. Inc.  
95 HIGH STREET, SLOUGH, SL1 1DH BERKS, ENGLAND  
Telephone: Slough 28267. Cable Address: Littoncomp Slough  
Telex No: 847548. VAT Registration No. 208 2607 82



L-2337 12.2" Long



L-2364 13.5" Long



L-2376 12.2" Long

### LOW NOISE, LOW POWER TWT's

| Tube Type | Frequency Range (GHz) | Power Output (mW) | Small Signal Gain (dB) | Noise Figure (dB) | Applications/Comments   |
|-----------|-----------------------|-------------------|------------------------|-------------------|---|
| L-2333-08 | 2.0-4.0               | 10                | 35                     | 20                | These PPM focused TWT's are qualified for military ECM receivers and pre-drivers. They provide extremely flat gain response versus frequency. |
| L-2360-00 | 2.6-5.2               | 40                | 40                     | 15                |   |
| L-2362-01 | 2.6-5.2               | 50                | 50                     | 17                |   |
| L-2369-00 | 2.6-5.2               | 50                | 30                     | 12                |   |
| L-2357-08 | 4.0-8.0               | 10                | 30                     | 13                |   |
| L-2357-04 | 4.8-9.6               | 30                | 33                     | 13                |   |
| L-2337-18 | 7.0-12.4              | 20                | 37                     | 12                |   |
| L-2375-00 | 8.0-16.0              | 20                | 35                     | 12                |   |
| L-2365-04 | 8.0-18.0              | 10                | 30                     | 15                |   |
| L-2376-02 | 12.4-18.0             | 10                | 40                     | 10                |   |

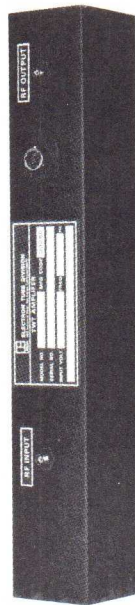
### LOW NOISE, MEDIUM POWER TWT's

| Tube Type | Frequency Range (GHz) | Power Output (W) | Small Signal Gain (dB) | Noise Figure (dB) | Applications/Comments   |
|-----------|-----------------------|------------------|------------------------|-------------------|---|
| L-2342-03 | 1.0-2.0               | 1                | 30                     | 21                | The PPM focused TWT's in this family are designed for ECM drivers or for laboratory amplifiers. The majority of these tubes are qualifiable to airborne environments. |
| L-2333-00 | 2.0-4.0               | 1                | 35                     | 13                |   |
| L-2370-00 | 2.6-5.2               | 1                | 35                     | 16                |   |
| L-2335-17 | 4.0-8.0               | 1                | 35                     | 17                |   |
| L-2372-00 | 4.8-9.6               | 1                | 37                     | 18                |   |
| L-2366-00 | 7.0-11.0              | 1                | 35                     | 18                |   |
| L-2338-19 | 7.0-11.0              | 3                | 40                     | 20                |   |
| L-2338-13 | 7.0-12.4              | 1                | 45                     | 18                |   |
| L-2364-02 | 8.0-16.0              | 1                | 35                     | 20                |   |
| L-2374    | 8.0-18.0              | 1                | 40                     | 22                |   |

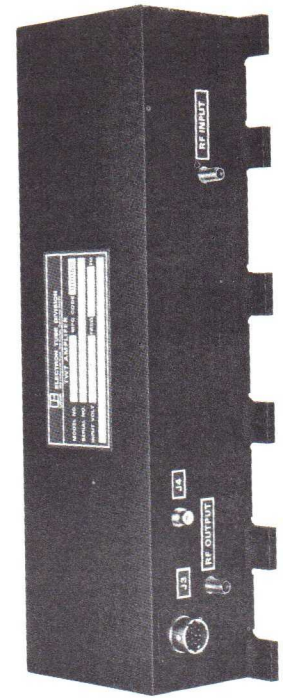




M-2807 15.0" Long



M-2797 12.5" Long



M-2796 14.0" Long

## LOW NOISE TWT AMPLIFIERS

| Amplifier Type | TWT Type           | Frequency Range (GHz)  | Power Output (mW) | Small Signal Gain (dB) | Noise Figure (dB) | Input Power                | Applications/Comments  |
|----------------|--------------------|------------------------|-------------------|------------------------|-------------------|----------------------------|--|
| M-2786         | L-2360             | 2.6-5.2                | 40                | 40                     | 15                | 115V, 1 $\phi$ , 57-420 Hz | These low and medium power TWT amplifiers feature solid-state power supplies and are ruggedized for use in military environments. They are designed to withstand temperature extremes with conduction cooling. Blanking and serrodyne options are generally available. These units are used as drivers or receivers in ECM and radar applications. |
| M-2791         | L-2362             | 2.6-5.2                | 50                | 50                     | 15                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2781         | L-2357             | 4.0-8.0                | 10                | 30                     | 13                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2781         | L-2357             | 4.8-9.6                | 30                | 33                     | 13                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2793         | L-2337             | 7.0-12.4               | 20                | 37                     | 12                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2793         | L-2363             | 7.0-12.4               | 30                | 50                     | 15                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2798         | L-2375             | 8.0-16.0               | 10                | 35                     | 12                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2797         | L-2376             | 10.7-18.0              | 16                | 37                     | 12                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2797         | L-2376             | 12.4-18.0              | 10                | 40                     | 10                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2797         | L-2365             | 8.0-18.0               | 10                | 30                     | 15                | 115V, 1 $\phi$ , 57-420 Hz |  |
| M-2816         | L-2330             | 2.0-4.0                | 1000              | 35                     | 13                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2816         | L-2370             | 2.6-5.2                | 1000              | 35                     | 16                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2788         | L-2335             | 4.0-8.0                | 1000              | 30                     | 17                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2788         | L-2372             | 4.8-9.6                | 1000              | 38                     | 17                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2795         | L-2366             | 7.0-11.0               | 1000              | 40                     | 18                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2785         | L-2338             | 7.0-11.0               | 3000              | 40                     | 20                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2785         | L-2338             | 7.0-12.4               | 1000              | 45                     | 18                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2796         | L-2364             | 8.0-16.0               | 1000              | 35                     | 20                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2796         | L-2374             | 8.5-18.0               | 1000              | 40                     | 22                | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2807         | { L-2369<br>L-2370 | { 2.6-5.2<br>2.6-5.2   | { 100<br>1000     | { 30<br>35             | { 13<br>16        | 115V, 3 $\phi$ , 400 Hz    |  |
| M-2808         | { L-2371<br>L-2372 | { 4.8-9.6<br>4.8-9.6   | { 300<br>1000     | { 38<br>38             | { 17<br>17        |                            |  |
| M-2809         | { L-2373<br>L-2374 | { 8.5-18.0<br>8.5-18.0 | { 100<br>1000     | { 40<br>40             | { 17<br>22        | 115V, 3 $\phi$ , 400 Hz    |  |



L-2388 12.5" Long



L-5010 12.0" Long

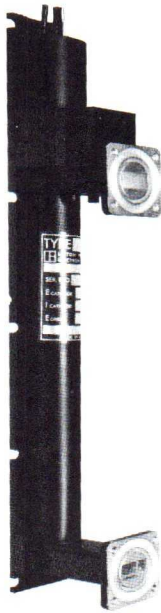


L-5008 9.35" Long

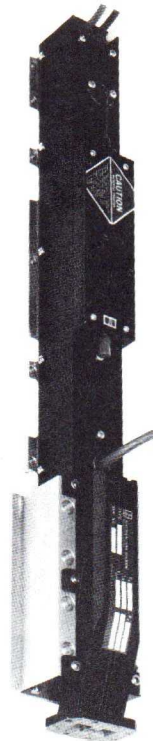
### MEDIUM POWER TWT's - CW

| Tube Type | Frequency Range (GHz) | Power Output (W) | Small Signal Gain (dB) | Weight (lbs.) | Remarks   | Applications/Comments |
|-----------|-----------------------|------------------|------------------------|---------------|-----------|-----------------------|
| L-2342-05 | 1.0-2.0               | 1                | 30                     | 3.0           |           |                       |
| L-5036-02 | 1.0-2.0               | 10               | 30                     | 3.0           |           |                       |
| L-5573    | 1.0-2.0               | 10               | 35                     | 3.0           | Mod Anode |                       |
| L-5155    | 1.0-2.0               | 20               | 30                     | 3.5           |           |                       |
| L-5560    | 1.0-2.0               | 20               | 35                     | 3.0           | Mod Anode |                       |
| L-5225    | 1.7-2.3               | 10               | 30                     | 3.5           |           |                       |
| L-2379-00 | 2.0-4.0               | 1                | 30                     | 3.0           |           |                       |
| L-5007    | 2.0-4.0               | 2                | 36                     | 1.5           |           |                       |
| L-3971-50 | 2.0-4.0               | 2                | 50                     | 1.5           |           |                       |
| L-5010    | 2.0-4.0               | 10               | 33                     | 2.5           |           |                       |
| L-5574-00 | 2.0-4.0               | 10               | 35                     | 3.0           | Mod Anode |                       |
| L-5160    | 2.0-4.0               | 20               | 36                     | 3.5           |           |                       |
| L-5561-00 | 2.0-4.0               | 20               | 35                     | 3.0           | Mod Anode |                       |
| L-2380-00 | 2.6-5.2               | 1                | 30                     | 3.0           |           |                       |
| L-2387-00 | 2.6-5.2               | 2                | 42                     | 2.0           |           |                       |
| L-2381-00 | 4.0-8.0               | 1                | 30                     | 3.0           |           |                       |
| L-5137-50 | 4.0-8.0               | 2                | 33                     | 1.5           |           |                       |
| L-2385    | 4.8-9.6               | 1                | 45                     | 2.0           |           |                       |
| L-5009    | 4.0-8.0               | 2                | 50                     | 1.5           |           |                       |
| L-5011-02 | 4.0-8.0               | 10               | 33                     | 2.5           |           |                       |
| L-5575    | 4.0-8.0               | 10               | 35                     | 2.5           | Mod Anode |                       |
| L-5083-02 | 4.0-8.0               | 20               | 30                     | 3.5           |           |                       |
| L-5559    | 4.0-8.0               | 20               | 35                     | 2.5           | Mod Anode |                       |
| L-2382-00 | 5.0-10.0              | 1                | 30                     | 3.0           |           |                       |
| L-3972-50 | 5.4-10.7              | 1                | 60                     | 1.5           |           |                       |
| L-3957    | 5.4-10.7              | 2                | 60                     | 1.5           |           |                       |
| L-5380-01 | 7.9-8.4               | 15               | 48                     | 3.5           | WG Output |                       |

In addition to usage in conventional instrumentation amplifiers, these TWT's find particular application in ECM radar and target augmentation systems.



L-5227 12.0" Long



L-5564 19.0" Long



L-5280 12.0" Long

### MEDIUM POWER TWT's – CW (cont'd)

| Type<br>Type | Frequency<br>Range<br>(GHz) | Power<br>Output<br>(W) | Small Signal<br>Gain<br>(dB) | Weight<br>(lbs.) | Remarks   | Applications/Comments  |
|--------------|-----------------------------|------------------------|------------------------------|------------------|-----------|--|
| L-3928       | 7.0-11.0                    | 10                     | 40                           | 2.5              |           |  |
| L-5043       | 7.0-11.0                    | 10                     | 60                           | 2.5              |           |  |
| L-5275       | 7.0-11.0                    | 20                     | 35                           | 3.5              |           |  |
| L-2383-00    | 7.0-12.4                    | 1                      | 30                           | 3.0              |           |  |
| L-5008       | 8.0-12.0                    | 2                      | 36                           | 2.5              |           |  |
| L-5293-01    | 7.0-12.0                    | 10                     | 40                           | 3.0              |           |  |
| L-5576       | 8.0-12.4                    | 10                     | 35                           | 2.5              | Mod Anode | In addition to usage in conventional instrumentation amplifiers, these TWT's find particular application in ECM radar and target augmentation systems. |
| L-5558       | 8.0-12.4                    | 20                     | 35                           | 2.5              | Mod Anode |  |
| L-5396-01    | 7.0-18.0                    | 1                      | 30                           | 2.5              |           |  |
| L-2384       | 8.0-16.0                    | 1                      | 35                           | 3.0              |           |  |
| L-2388       | 8.5-17.0                    | 1                      | 45                           | 2.0              |           |  |
| L-5577       | 8.0-16.0                    | 10                     | 35                           | 2.5              | Mod Anode |  |
| L-5227       | 12.4-18.0                   | 2                      | 35                           | 2.5              | WG Output |  |
| L-5557       | 12.4-18.0                   | 10                     | 35                           | 2.5              |           |  |

### HIGH POWER TWT's – CW

| Tube<br>Type | Frequency<br>Range<br>(GHz) | Power<br>Output<br>(W) | Small Signal<br>Gain<br>(dB) | Weight<br>(lbs.) | Cooling    | Applications/Comments   |
|--------------|-----------------------------|------------------------|------------------------------|------------------|------------|---|
| L-5323       | 2.6-5.2                     | 200                    | 40                           | 10               | Conduction | These tubes, distinguished by their wide bandwidths and high gain, are built for rugged environments such as MIL-E-5400, Class 2 airborne. Applications include ECM and communications. |
| L-5324-06    | 5.9-6.4                     | 400                    | 40                           | 10               | Forced Air |   |
| L-5564       | 4.8-10.0                    | 200                    | 40                           | 7                | Conduction |   |
| L-5241       | 7.0-11.0                    | 100                    | 50                           | 6                | Conduction |   |
| L-5280       | 7.0-11.0                    | 200                    | 40                           | 8                | Conduction |   |
| L-5433       | 8.5-16.0                    | 100                    | 50                           | 6                | Conduction |   |
| L-5553       | 8.0-16.0                    | 200                    | 50                           | 6                | Conduction |   |

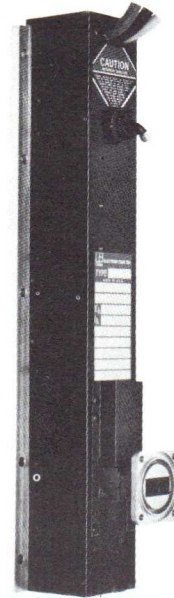




L-5126 15.8" Long



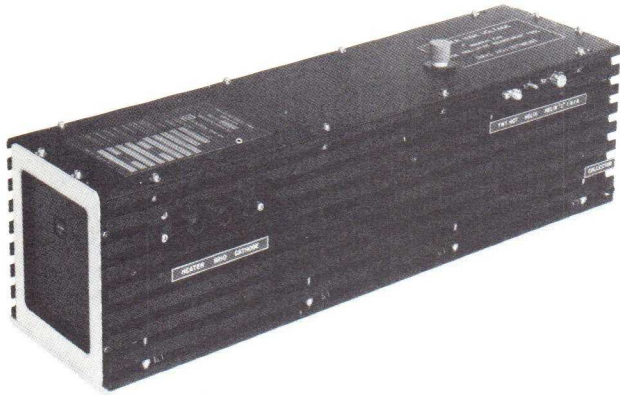
L-5336 16.6" Long



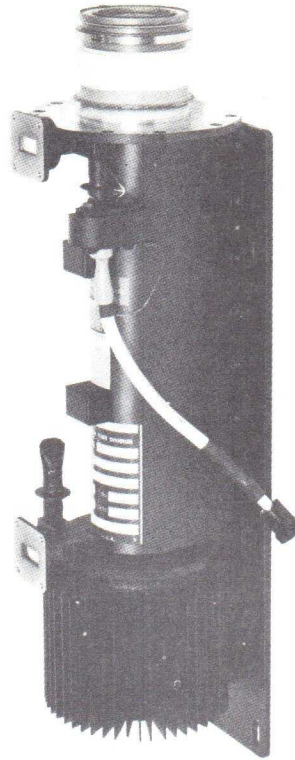
L-5581 13.1" Long

## HELIX TWT's — PULSED

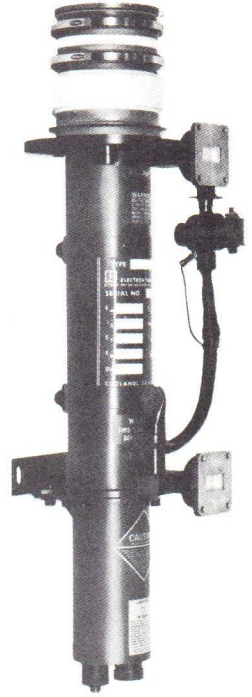
| Tube Type | Frequency Range (GHz) | Power Output (kW) | Gain at Rated Power (dB) | Maximum Duty Cycle | Applications/Comments   |
|-----------|-----------------------|-------------------|--------------------------|--------------------|---|
| L-5585-50 | .7-2.0                | 1                 | 30                       | .02                | Helix pulsed traveling wave tubes are available at 1 kilowatt minimum peak power output in frequency ranges from 0.7 to 18.0 GHz. These TWT's feature wide bandwidths in addition to small size and light weight. |
| L-5568-50 | 1.0-2.0               | 1                 | 35                       | .02                |   |
| L-5336-50 | 2.0-4.0               | 1                 | 35                       | .02                |   |
| L-5283-50 | 2.0-4.0               | 1                 | 50                       | .02                |   |
| L-5321-50 | 2.65-5.3              | 1                 | 35                       | .02                |   |
| L-5320-50 | 2.65-5.3              | 1                 | 50                       | .02                |   |
| L-5123-50 | 4.0-8.0               | 1                 | 30                       | .05                |   |
| L-5263-50 | 4.0-8.0               | 1                 | 35                       | .02                |   |
| L-5284-50 | 4.0-8.0               | 1                 | 55                       | .02                |   |
| L-5489-50 | 5.0-10.0              | 1                 | 50                       | .04                |   |
| L-5555-50 | 6.0-10.0              | 1                 | 60                       | .02                |   |
| L-5089-50 | 7.0-11.0              | 1                 | 35                       | .02                |   |
| L-5126-50 | 7.0-11.0              | 1                 | 60                       | .02                |   |
| L-5555-51 | 7.0-12.0              | 1                 | 60                       | .02                |   |
| L-5089-54 | 8.0-12.0              | 1                 | 40                       | .02                |   |
| L-5546-50 | 8.0-12.0              | 1                 | 30                       | .05                |   |
| L-5435-50 | 8.0-16.0              | 1                 | 60                       | .02                |   |
| L-5444-50 | 8.0-16.0              | 1                 | 55                       | .04                |   |
| L-5495-50 | 8.0-18.0              | 1                 | 50                       | .04                |   |



M-636 19.5" Long



L-5391 23.0" Long



L-5519 20.0" Long

### RING-LOOP TWT's – PULSED

| Tube Type | Frequency Range (GHz) | Power Output (kW) | Gain at Rated Power (dB) | Maximum Duty Cycle | Applications/Comments |
|-----------|-----------------------|-------------------|--------------------------|--------------------|-----------------------|
| L-5476-50 | 1.25-1.35             | 5                 | 30                       | .04                |                       |
| L-5570-50 | 1.2-1.4               | 7                 | 50                       | .04                |                       |
| L-5540-50 | 1.8-2.1               | 2                 | 35                       | .10                |                       |
| L-5584-00 | 2.4-2.6               | 3                 | 30                       | .04                |                       |
| L-5478-00 | 2.9-3.1               | 3                 | 40                       | .01                |                       |
| L-5569-50 | 2.8-3.2               | 3                 | 60                       | .02                |                       |
| L-5551-50 | 3.1-3.5               | 3                 | 36                       | .02                |                       |
| L-5366-50 | 3.0-3.5               | 3                 | 60                       | .04                |                       |
| L-5562-50 | 2.6-3.4               | 5                 | 40                       | .025               |                       |
| L-5565-50 | 3.1-3.5               | 11                | 40                       | .015               |                       |
| L-5563-50 | 9.5-9.9               | 2                 | 55                       | .02                |                       |
| L-5571-50 | 9.5-10.0              | 4                 | 60                       | .04                |                       |
| L-5591-50 | 8.9-9.5               | 6                 | 65                       | .02                |                       |
| L-5581-50 | 9.6-9.9               | 8                 | 55                       | .02                |                       |
| L-5563-51 | 10.8-11.8             | 2                 | 63                       | .02                |                       |
| L-5588-50 | 9.0-10.5              | 2                 | 60                       | .05                |                       |
| L-5542-50 | 8.0-10.5              | 5                 | 40                       | .01                |                       |
| L-5586-50 | 9.8-10.1              | 5                 | 55                       | .04                |                       |
| L-5411-50 | 16.5-17.5             | 1                 | 60                       | .01                |                       |
| L-5412-50 | 16.0-17.0             | 1                 | 30                       | .02                |                       |

Utilizing the ring-loop type of interaction circuit, this family of traveling wave tubes offers high peak power and high efficiency in exceptionally small, lightweight packages. Flexibility in bandwidth selection is also available.

### TWT POWER SUPPLIES

| Power Supply Type | Pulsed or CW TWT's | Size (inches) | Weight (lbs.) | Environment | Input Power             | TWT Power Range | Applications/Comments  |
|-------------------|--------------------|---------------|---------------|-------------|-------------------------|-----------------|--|
| M-624             | Pulsed             | 7x19x18       | 60            | Laboratory  | 115V, 1 $\phi$ , 60 Hz  | 1-10 kW         | These solid-state power supplies are custom designed to operate with most of the TWT's manufactured by Litton. Laboratory and military requirements are met as required. Where pulsed applications are needed, the power supply includes a built-in modulator. |
| M-636             | Pulsed             | 5x5.5x19.5    | 36            | Airborne    | 115V, 3 $\phi$ , 400 Hz | 1-10 kW         |  |
| M-644             | CW                 | 5x3x7.75      | 10            | Airborne    | 115V, 1 $\phi$ , 400 Hz | 10-40 W         |  |

## COUPLED CAVITY TWT's — PULSED

| Tube Type | Frequency Range (GHz) | Minimum Power Output (kW) | Minimum Small Signal Gain (dB) | Maximum Duty | Cooling             | Applications/Comments  |
|-----------|-----------------------|---------------------------|--------------------------------|--------------|---------------------|--|
| L-5391-01 | 8.7-9.3               | 100                       | 62                             | 0.01         | Forced Air          | Special attention in the design of these tubes has resulted in size and weight reductions through improved fabrication, focusing and cooling techniques. These tubes are particularly suited for lightweight transportable and airborne radar, and communications equipment. |
| L-5252    | 8.9-9.5               | 12                        | 40                             | 0.005        | Conduction; gridded |  |
| L-5391-53 | 8.9-9.7               | 125                       | 60                             | 0.01         | Liquid; gridded     |  |
| L-5250    | 9.2-9.7               | 25                        | 50                             | 0.01         | Forced Air          |  |
| L-5255    | 9.3-9.9               | 25                        | 48                             | 0.01         | Forced Air; gridded |  |
| L-5391-51 | 9.3-10.0              | 100                       | 55                             | 0.01         | Forced Air; gridded |  |
| L-5519-51 | 9.5-10.0              | 15                        | 57                             | 0.0125       | Liquid; gridded     |  |
| L-5253    | 9.4-10.1              | 40                        | 46                             | 0.002        | Conduction          |  |
| L-5391-52 | 9.6-9.9               | 100                       | 63                             | 0.01         | Liquid; gridded     |  |
| L-5391-54 | 10.0-10.9             | 90                        | 46                             | 0.01         | Forced Air; gridded |  |

## COUPLED CAVITY TWT's — CW

| Tube Type | Frequency Range (GHz) | Minimum Power Output (W) | Minimum Saturated Gain (dB) | Maximum Duty | Cooling              | Applications/Comments  |
|-----------|-----------------------|--------------------------|-----------------------------|--------------|----------------------|--|
| L-5394    | 12.0                  | 200                      | 30                          | CW           | Conduction/Radiation | This tube is designed specifically for space applications. It provides 50% efficiency, and features a multi-stage depressed collector. |

## SALES OFFICES

Main Marketing offices and applications engineering services are located at 960 Industrial Road, San Carlos, California 94070. Phone (415) 591-8411 or TWX 910-376-4900. Electron Tube Sales Offices are listed below:

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