DISPLAY INSTRUMENT

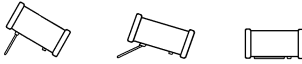**Norbar Torque Tools Ltd.**

OPERATING GUIDE

POWER ON	Connect mains power lead and switch mains power switch (located on back panel) to '1' (on). OR Connect battery or power unit lead to battery input (on back panel) and switch battery unit to 'on'. OR If option fitted, switch on internal battery power (battery on/off switch on back panel. This switch is independent of mains on/off switch). Note: With 'track' mode selected, allow instrument to stabilise for 5 minutes.
DISPLAY ANGLE	Adjust the tilt foot for best viewing angle.
ZERO ADJUST	With 'TRACK' mode selected (see below) and no force applied to transducer set zero (adjustment on back panel).
UNITS OF MEASUREMENT	Pressing 'SELECT UNITS' will step to next available unit of measurement (see handbook for units available).
MODE OF OPERATION	Select as follows:-
TRACK	Select 'TRACK'. Display tracks signal output from transducer.
FILTER	Switch 'ON' to select signal filter.
MEMORY	Select 'MEMORY' switch 'on', display will track an increasing transducer output signal and hold the maximum peak applied. To reset display press 'MEMORY RESET'.
MEMORY AUTO RESET (First peak memory capture)	Select 'MEMORY' and 'AUTO RESET' switches 'on'. Set 'AUTO RESET TRIGGER LEVEL' as opposite. Display will track an increasing transducer output signal until the signal falls below a peak by the level set by the 'auto reset trigger level'. Once a peak is detected the display will hold this peak for a time period, then automatically reset (see handbook to set time period).

LIMIT DETECTOR MODULE (OPTION ON ETS AND DTS INSTRUMENTS ONLY)

LIMITS OFF	The limit detector is inactive.
SET UPPER LIMIT	Adjust upper Trip Point, shown on display.
SET LOWER LIMIT	Adjust lower Trip Point, shown on display.
LOWER LIMIT ONLY UPPER LIMIT ONLY OR BOTH LIMITS	Select as required. When transducer output signal passes the trip point, the limit detector status changes.
RESET RELAY LATCH	Press to reset latched relays (if latch mode selected).

THE INSTRUMENT IS NOW READY FOR USE.

SEE OPPOSITE FOR FUNCTION TEST, APPLICATIONS AND SETTING 'AUTO RESET TRIGGER LEVEL'

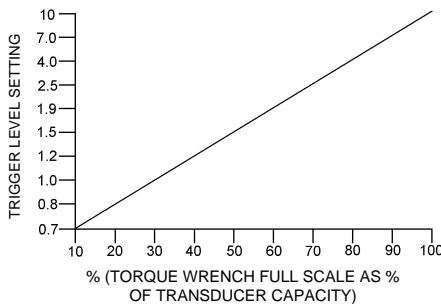## FUNCTION TEST (ETS INSTRUMENTS ONLY)

MODE	TEST
	Select unit of measurement as indicated on the transducer connected, and set zero (see operators guide on reverse). Select filter 'OFF'.
TRACK TEST	Press and hold the 'TEST' function button (on back panel). Display will read full scale of transducer to within 1% of full scale. Release button, display will return to zero. Note: This is not a calibration test. But if display is not within 1% of full scale consult operators handbook.
MEMORY TEST	Select 'MEMORY' mode. Press and release 'TEST' function button. Display will hold full scale. Press 'MEMORY RESET' to reset display to zero.
MEMORY AUTO RESET TEST	Select 'MEMORY AUTO RESET' mode. Press and release 'TEST' function button. Display will hold full scale, bleep tone will sound and 'STOP' legend will flash for a time period, after which the display will automatically reset to zero.

APPLICATIONS GUIDE

MODE	APPLICATIONS
TRACK	Transducer calibration.
MEMORY WITH FILTER 'ON'	Checking, calibration and monitoring of 'stall' type power tools.
MEMORY WITH FILTER 'OFF'	Checking and calibration of dial and bending beam torque wrenches. Checking, calibration and monitoring output from impulse type power tools.
MEMORY AUTO RESET (Filter 'ON' or 'OFF' as required)	Checking and calibration of preset (click) type torque wrenches.
LIMIT DETECTOR (Option on ETS, DTS only)	Dual limit detector, indicating pass/fail and/or control of external equipment.

SETTING 'AUTO RESET TRIGGER LEVEL'

To set 'auto reset trigger level' for preset (click) type wrenches use the following formula and chart:-

$$\% = \frac{\text{Wrench max capacity}}{\text{Transducer full scale}} \times 100$$

The above is only a guide and it may be necessary to try alternative trigger level settings to obtain consistent results.

If obtaining incorrect display check wrench setting and operation.

If auto reset triggers before expected torque reached set 'trigger level' setting higher.

If auto reset does not trigger at click of wrench set 'trigger level' setting lower.

FOR FURTHER INFORMATION ON OPERATING AND APPLICATIONS, SEE OPERATORS HANDBOOK