TILT ROTATE SYSTEMS

MINI HYDRAULIC EXCAVATORS



Models	Machine Compatibility
TRS4	302.7, 303, 303.5, 304
TRS6	305, 305.5, 306
TRS8	307.5, 308, 309, 310

Current machines listed. Machine model availability and attachment vary by region. Contact your local Cat® dealer for exact compatibility and availability.

Cat® Tilt Rotate Systems (TRS) are a first in the industry to offer complete machine integration. Three TRS models designed to fit your next generation mini hydraulic excavator allow you to get the job done faster and with the quality you expect from Cat equipment. The TRS is productive, easy to use, and provides a versatile solution to your operation.

The Cat TRS significantly reduces the need to reposition the machine by providing 360 degrees of continuous rotation and 40 degrees tilt, left and right. This saves time, fuel, and wear on your machine. The Cat TRS can be used with simple tools such as buckets, or hydromechanical tools like grapples.

FEATURES



360 DEGREE ROTATION/ 40 DEGREE ANGLING

Provides optimal control of your work tools to provide greater working flexibility. All tiltrotators include rotation and tilting sensors.



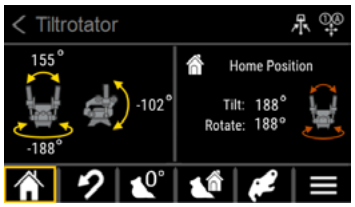
INTEGRATED CENTRAL LUBRICATION SYSTEM

A single point of entry for grease allows the entire unit to be greased quickly and easily. Actual location varies by model.



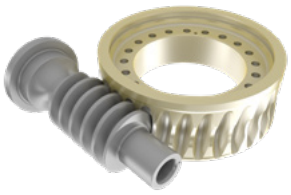
VISUAL VERIFICATION INDICATOR

Visual verification indicator allows the operator to visibly confirm from the cab, that the coupler has successfully locked the attachment in place.



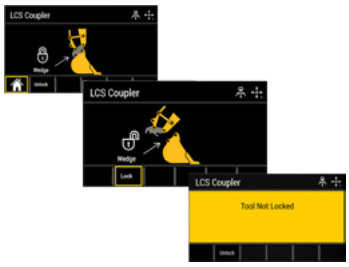
TRS POSITIONING SYSTEM

Compatible with either the standard or advanced machine display, the TRS uses the existing machine display to view position information and to adjust settings. This eliminates the need for additional displays that clutter up the cab of your excavator.



HEAVY DUTY WORM GEAR

Worm gear box with high rotation torque and a self-locking ability allows digging in all directions with full power, allowing the gear to accept the maximum machine forces and split the load through the entire TRS construction.



LOCKING CONTROL SYSTEM (LCS)

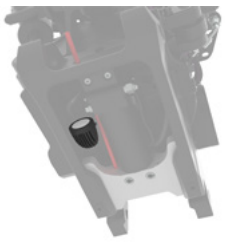
LCS uses a position sensor in the coupler cylinder to determine if the tool is properly locked to the coupler. Information is displayed to the operator through the machine display. An audible alarm will warn the operator if the tool is not correctly locked to the coupler.

FEATURES *(continued)*



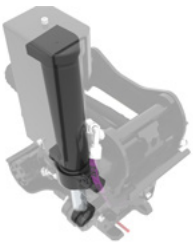
OIL FILLED GEARBOX

A maintenance free solution that more effectively distributes heat, providing better lubrication than grease.



LED LIGHT

Used for visibility when engaging and disengaging a tool underneath the TRS8 (TRS8 S Type couplers only).



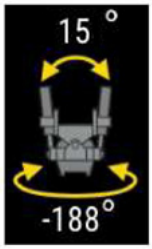
DOUBLE ACTING CYLINDERS WITH LOAD HOLD VALVE

Valves maintain hydraulic pressure in the tilt cylinders to prevent unwanted movement when working.



BUCKET SHAKE

Automatically spread material evenly and quickly or release material stuck in bucket.



AUTO RETURN FUNCTION

Return to a rotation and tilt position that has been set by the operator.



AUXILIARY PORT OPTIONS

Auxiliary hydraulic ports (Aux 1 on TRS4, and Aux 1 and Aux 2 on TRS6 and TRS8) allow the use of various accessories that are available for tiltrotators, including grapples.



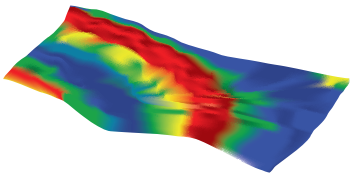
OPTIONAL INTEGRATED GRAPPLE

The integrated grapple is ideal for picking and placing pipes, poles, debris and more. The bypass style tongs allow even small objects to be securely gripped. Note: Only compatible with the S Type lower interface.



STANDARD TWO-YEAR WARRANTY

Standard two-year warranty gives you peace of mind when purchasing a quality Cat tilt rotate system attachment.



OPTIONAL GRADE CONTROL

Grade control systems allow operators to reach finish grade faster with fewer personnel on the ground checking grade. Optional 2D and 3D grade control systems are available on all TRS models.

INTERFACES

Tilt Rotate Systems have two interfaces. The upper interface engages the host machine, while the lower interface couples a compatible attachment.

The TRS S Type upper interfaces use industry standard sized S couplers. S Type attachments use welded-in pins; therefore, they must be picked up using S Type couplers. The S interface comes in different sizes, such as S40, S45, and S50. The TRS pin on upper interfaces are the same interface used on all Cat® pin on attachments. This upper interface style can be used with a Dual Lock™ pin grabber coupler, or it can be pinned directly to the stick of the machine.

Upper Interface

Lower Interface



The S Type lower interfaces use industry standard sized S couplers, which can pick up S Type attachments. The S Type lower interface is compatible with the optional integrated grapple. The pin grabber lower interface uses the standard Dual Lock pin grabber coupler. It can pick up any attachment with the pin on interface. The pin grabber lower interface is not compatible with optional integrated grapple.

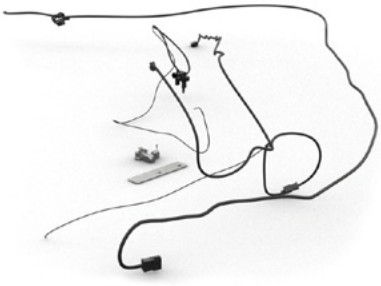
Additional items are needed for a complete installation.

TRS JOYSTICKS KIT



The TRS joysticks kit includes a left and right joystick. These joysticks have additional buttons and rollers that are needed to operate all TRS functions. This kit will replace the existing machine's joysticks.

ELECTRICAL HARNESS KIT



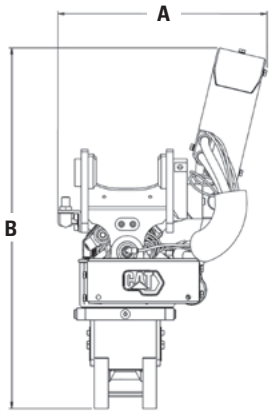
The TRS electrical harness kit includes all the wiring and mounting brackets needed to connect the TRS to the host machine.

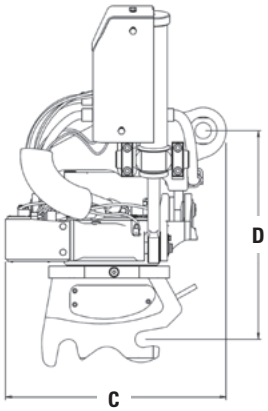
LINES KIT



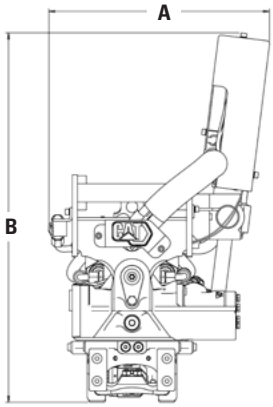
The TRS lines kit includes the hydraulic jumper lines that connect the TRS to the auxiliary hydraulic connectors on the stick of the host machine.

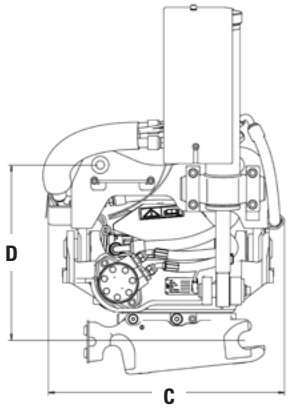
SPECIFICATIONS





TRS4

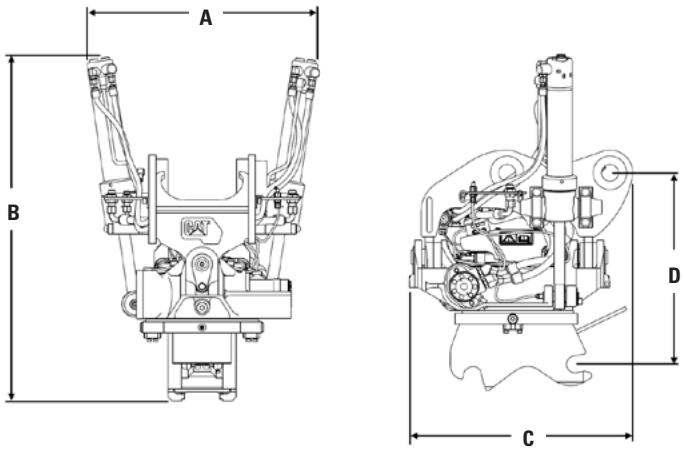




TRS6

Model	TRS4					TRS6		
Upper Interface	**Pin On**	**Pin On**	**S40**	**Pin On**	**Pin On**	**S40**	**Pin On**	**Pin On**
Lower Interface	**S40**	**Pin Grabber**	**S40**	**S40**	**Pin Grabber**	**S40**	**S40**	**Pin Grabber**
A Overall Width – mm (in)	449 (17.7)	448 (17.6)	442 (17.4)	448 (17.6)	465 (18.3)	492 (19.4)	485 (19.1)	485 (19.1)
B Overall Height – mm (in)	701 (27.6)	744 (29.3)	701 (27.6)	784 (30.9)	700 (27.6)	818 (32.2)	822 (32.4)	907 (35.7)
C Overall Length – mm (in)	520 (20.5)	519 (20.4)	517 (20.4)	519 (20.4)	486 (19.1)	525 (20.7)	608 (23.9)	608 (23.9)
D Pin to Pin Distance – mm (in)	335 (13.2)	370 (14.6)	463 (18.2)	354 (13.9)	470 (18.5)	389 (15.3)	419 (16.5)	539 (21.2)
Weight – kg (lb)	132 (291)	132 (291)	131 (289)	135 (298)	136 (300)	165 (364)	179 (395)	186 (410)
Grapple Attachment	Optional	–	Optional	Optional	–	Optional	Optional	–
Rotation Speed (@ Max Flow)	7 Seconds per 1 Full Rotation					7 Seconds per 1 Full Rotation		
Tilt Angle Range – ±	40° Left/Right					40° Left/Right		
Required Hydraulics	First Auxiliary					First Auxiliary		
Maximum Bucket Width – mm (in)	1000 (39.4)					1200 (47.2)		
Maximum Bucket Capacity– L (ft^3)	110 (3.9)					250 (8.8)		
Optimal Hydraulic Flow – L/min (gpm)	17-25 (4.5-6.7)					30-70 (8-19)		
Maximum Operating Pressure – kPa (psi)	21000 (3046)					25000 (3626)		
Tilting Torque – N·m (lb/ft)	5800 (4278)					14400 (10621)		
Turning Torque – N·m (lb/ft)	1700 (1254)					3900 (2877)		
Machine Class	2 Ton	2 Ton	3-4 Ton	3-4 Ton	3-4 Ton	5-6 Ton		

SPECIFICATIONS

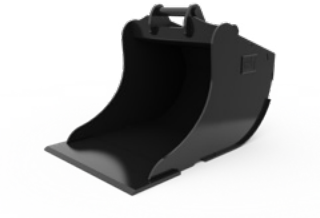


TRS8

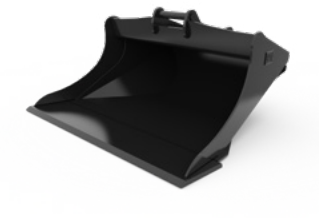
Model	TRS8				TRS8			
Upper Interface	**S45**	**Pin On**	**Pin On**	**S50**	**Pin On**	**Pin On**	**Pin On**	**Pin On**
Lower Interface	**S45**	**S45**	**S45**	**S50**	**S50**	**S50**	**Pin Grabber**	**Pin Grabber**
A Overall Width – mm (in)	705 (27.8)	705 (27.8)	705 (27.8)	705 (27.8)	705 (27.8)	705 (27.8)	705 (27.8)	705 (27.8)
B Overall Height – mm (in)	949 (37.4)	953 (37.5)	953 (37.5)	953 (37.5)	953 (37.5)	953 (37.5)	1002 (39.4)	1042 (41)
C Overall Length – mm (in)	612 (24.1)	660 (26)	660 (26)	608 (23.9)	660 (26)	660 (26)	660 (26)	660 (26)
D Pin to Pin Distance – mm (in)	480 (18.9)	497 (19.6)	587 (23.1)	474 (18.7)	497 (19.6)	497 (19.6)	570 (22.4)	491 (19.3)
Weight – kg (lb)	313 (690)	328 (723)	328 (723)	306 (675)	306 (775)	316 (697)	315 (695)	326 (719)
Grapple Attachment	Optional	Optional	Optional	Optional	Optional	Optional	–	–
Rotation Speed (@ Max Flow)	7 Seconds per 1 Full Rotation				7 Seconds per 1 Full Rotation			
Tilt Angle Range – ±	40° Left/Right				40° Left/Right			
Required Hydraulics	First Auxiliary				First Auxiliary			
Maximum Bucket Width – mm (in)	1500 (59.1)				1500 (59.1)			
Maximum Bucket Capacity– L (ft^3)	500 (17.7)				500 (17.7)			
Optimal Hydraulic Flow – L/min (gpm)	45-75 (12-20)				45-75 (12-20)			
Maximum Operating Pressure – kPa (psi)	25000 (3626)				25000 (3626)			
Tilting Torque – N·m (lb/ft)	26500 (19545)				26500 (19545)			
Turning Torque – N·m (lb/ft)	6100 (4499)				6100 (4499)			
Machine Class	7-10 Ton	7-9 Ton	10 Ton	7-10 Ton	7-9 Ton	10 Ton	7-9 Ton	10 Ton

TILTROTATOR TOOLS

Tiltrotators have the capability to operate various types of attachments such as buckets, grading beams, augers, compactor plates, grapples, etc.



DIGGING BUCKETS



GRADING BUCKETS



TRENCHING BUCKETS



MULTI-PURPOSE GRAPPLES



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